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Guideline Watch (August 2012): Practice Guideline for the Treatment of Patients With Eating Disorders, 3rd Edition

American Psychiatric Association

This guideline watch reviews new evidence and highlights salient developments since the 2006 publication of APA's *Practice Guideline for the Treatment of Patients With Eating Disorders*, 3rd Edition. The authors of this watch constituted the work group that developed the 2006 guideline. We find the guideline to remain substantially correct and current in its recommendations. The sole exception is a recommendation (with moderate-level confidence) for sibutramine for binge-eating disorder. In 2010, the U.S. Food and Drug Administration (FDA) withdrew approval for sibutramine because clinical trials showed increased risk of heart attack and stroke, and the manufacturer, Abbott Laboratories, subsequently withdrew this medication from the U.S. market.

Noteworthy recent publications about the treatment of eating disorders include systematic reviews by the Agency for Healthcare Research and Quality (Berkman et al. 2006; Bulik et al. 2007); practice

guidelines from international groups, including the Catalan Agency for Health Information, Assessment and Quality (Working Group of the Clinical Practice Guideline for Eating Disorders 2009), the World Federation of Societies of Biological Psychiatry (Aigner et al. 2011), and the German Society of Psychosomatic Medicine and Psychotherapy and the German College for Psychosomatic Medicine (Herpertz et al. 2011); and a 2011 guidance statement by the Academy for Eating Disorders, which was written by some of the authors of this watch. In our opinion, the findings, conclusions, and recommendations of these recent reviews and guidelines are consistent with the 2006 APA guideline.

Recent textbooks provide useful practical information for clinicians who wish to learn how to deliver treatments recommended in the practice guideline. The authors of a textbook edited by Grilo and Mitchell (2010) describe therapeutic approaches and reviews supporting evidence on all aspects of eating disorders treatment, from assessment through nutritional rehabilitation to managing the chronically ill. The authors state that there is no single treatment for patients with eating disorders. Rather, a diversity of approaches is recommended. In another recent textbook, Cloak and Powers (2010) review and synthesize the small but growing evidence base for psychodynamic treatment approaches in eating disorders. As do Grilo and Mitchell, the authors recommend integration of treatment modalities. An edited manual by Yager and Powers (2007) and a textbook by Zerbe (2008) also provide practical strategies for providing integrated treatment. These texts highlight that given the long-term nature of eating disorders, it is important to address countertransference

From December 2011 to July 2012 (the time period during which this watch was developed), Drs. Yager, Devlin, Halmi, Herzog, Mitchell, Powers, and Zerbe report no competing interests.

The American Psychiatric Association's (APA's) practice guidelines are developed by expert work groups using an explicit methodology that includes rigorous review of available evidence, broad peer review of iterative drafts, and formal approval by the APA Assembly and Board of Trustees. APA practice guidelines are intended to assist psychiatrists in clinical decision making. They are not intended to be a standard of care. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made by the psychiatrist in light of the clinical data presented by the patient and the diagnostic and treatment options available.

Guideline watches summarize significant developments in practice that have occurred since publication of an APA practice guideline. Watches may be authored and reviewed by experts associated with the original guideline development effort and are approved for publication by APA's Executive Committee on Practice Guidelines. Thus, watches represent the opinion of the authors and approval of the Executive Committee but not APA policy.

issues, medical and psychiatric comorbidities, and quality of life.

These and other textbooks also provide practical information about psychodynamic psychotherapy. For example, Zerbe (2008) synthesizes research that demonstrates that clinicians of differing theoretical orientations have been shown to have similar countertransference reactions. Thompson-Brenner and colleagues (2010) review the growing evidence base for psychodynamic psychotherapy in patients with anorexia nervosa, bulimia nervosa, and binge-eating disorder. The studies included in their review suggest that attending to the transference, symptom symbolism, key conflicts, narcissistic vulnerabilities, and relational dynamics are important for reducing core personality and symptom difficulties.

METHODS

The literature review for the 2006 guideline ended in 2003. For this watch, we searched MEDLINE, using PubMed, for randomized, controlled trials and meta-analyses published from 2003 through December 13, 2011, using the following terms: "bulimia," "bulimia nervosa," "bulimic," "anorexia nervosa," "binge eating," "binge eating disorder," "binge eating episode," "eating disorder," "eating disordered," and "eating disorders." Terms for limiting the search (using Boolean "or" logic) included the following: "systematic review," "random allocation," "randomly allocated," "randomly assigned," "randomization," "randomize," "randomized," "randomized controlled trial," "placebo," "active comparator," "double blind," "double blinded," "controlled clinical trial," "meta analysis," "meta-analytic," and *not* "editorial," "letter," "case report," or "comment." We limited the search to English-language articles.

We also searched the Cochrane database, using the terms "anorexia nervosa," "bulimia," and "binge eating" as well as corresponding Medical Subject Headings (MeSH) for reviews published from 2003 through December 13, 2011.

These search strategies yielded 1,346 articles. Of these articles, 693 were rejected as not relating to treatment of eating disorders. We retained and reviewed 91 articles pertaining to anorexia nervosa, 84 to bulimia nervosa, 95 to binge eating, 12 to osteoporosis treatment in eating disorders, and 60 to miscellaneous topics, most of which covered more than one eating disorder.

The following discussion focuses on randomized, controlled trials identified by our search but also includes some recent open trials of which we are aware. For some topics, instead of discussing all studies, in this watch we summarize the conclusions of an available systematic review. This watch is not intended

to be a comprehensive review of all possible treatments for eating disorders. Rather, we review recent research that relates to key recommendations of the 2006 APA practice guideline.

CLINICAL ASSESSMENT

DSM-5, to be published in 2013, is expected to contain some revisions of the diagnostic criteria for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (EDNOS). For example, amenorrhea may be dropped as a necessary criterion for anorexia nervosa, binge-eating disorder may become a distinct diagnosis apart from EDNOS, and the frequency criteria for both bulimia nervosa and binge-eating disorder may drop from twice per week to once per week. These changes are unlikely to affect utility of the 2006 practice guideline, which recommends that patients with subsyndromal anorexia nervosa or bulimia nervosa, such as patients with EDNOS who meet all criteria for anorexia nervosa except for being amenorrheic for 3 months, should receive treatment similar to that of patients who fulfill all criteria for these diagnoses. Proposed revisions to the criteria are available on the DSM-5 development website, www.dsm5.org, under "Feeding and Eating Disorders."

ANOREXIA NERVOSA

The quality of evidence for treatments for anorexia nervosa remains limited, according to recent systematic reviews and meta-analyses (e.g., Fitzpatrick and Lock 2011; Hartmann et al. 2011). There are few randomized, controlled trials, and available studies suffer from small sample sizes, short duration, and methodological problems. A contributing factor is that study recruitment is generally poor and dropout rates are high. For example, in a study of two clinical trials for anorexia nervosa, Halmi and colleagues (2005) reported that 46% of patients who had entered into the study dropped out. The only predictor of treatment acceptance Halmi et al. identified was high self-esteem, not a particularly common characteristic of patients with eating disorders. Furthermore, available studies are primarily about symptom relief rather than recovery (Strober and Johnson 2012).

Predictors of recovery from anorexia nervosa remain poorly defined. In a systematic review of studies published from 1990 to 2005 on anorexia nervosa treatments, Espindola and Blay (2009) identified 3,415 studies, of which 16 addressed recovery. The authors concluded that a complexity of factors, extending well beyond conventional treatment factors and including self-acceptance, determination, and

spirituality, accounts for recovery. In another systematic review of 12 randomized, controlled trials, Crane and colleagues (2007) found that obsessive-compulsive personality disorder traits were associated with poorer outcome in patients with anorexia nervosa and opined that treatment might moderate these traits. In a study by Schebendach and colleagues (2011), 41 weight-restored patients with anorexia nervosa who had been hospitalized were followed for up to 1 year. Differences were observed in the total number of different foods selected by patients with "success" outcomes ($n = 29$) versus patients with "failure" outcomes ($n = 12$). The authors stated that the results suggest that a diet limited in variety may be associated with relapse.

CHOICE OF SETTING

The guideline states that it is important to consider a patient's overall physical condition, psychology, behaviors, and social circumstances when choosing a treatment setting. Although investigators have attempted to study the advantages of specific settings, conclusions from available research are limited because there are many local variations in the essential features of settings.

In a large multicenter, randomized, controlled trial conducted in the United Kingdom (the Trial of Outcomes for Child and Adolescent Anorexia Nervosa, or TOuCAN study), Gowers and colleagues (2007) randomly assigned 167 adolescent patients with anorexia nervosa to specialist inpatient, specialist outpatient, or routine general outpatient treatment. Improvement on outcome measures was good across all treatment groups, but full recovery rates were poor, at only 33 % after 2 years (of the 96% of the sample available for follow-up). Adherence was lowest in the inpatient treatment group, at 50%, as compared with 71% for the routine outpatient and 77% for the specialist outpatient groups. Inpatient treatment predicted poor outcome (either when patients were initially randomly assigned or after they were transferred from outpatient care). Patients who did not respond to outpatient treatment did very poorly (Gowers et al. 2010). The authors concluded that first-line inpatient treatment does not provide advantages over outpatient management, and that patients who do not respond to outpatient treatment do poorly on transfer to inpatient facilities (however, it is possible that patients in these difficult cases would do poorly in any setting) (Gowers et al. 2007). This same study found no statistical differences in outcomes after 2 years, but specialist outpatient treatment was shown to be most cost-effective (Byford et al. 2007). On the whole, these investigators concluded that under the British National Health Service there

is little support for long-term inpatient care, either for clinical or for health economic reasons (Gowers et al. 2010). These investigators also interviewed 215 patients and their parents to compare satisfaction with specialist versus generalist care. Levels of satisfaction were high across all types of treatment, but higher for specialist care. Parents reported higher levels of satisfaction than did adolescents (Roots et al. 2009).

In the meta-analysis by Hartmann and colleagues (2011), 57 studies, covering 84 treatment areas and involving 2,273 patients, were analyzed. With respect to choice of setting, the authors concluded that there is little high-quality evidence on which to base specific guidance, finding only that perhaps patients gain more rapidly on inpatient than on outpatient treatment settings.

NUTRITIONAL REHABILITATION

For underweight individuals with anorexia nervosa, the guideline recommends that hospital-based programs for nutritional rehabilitation should be considered. A study by Garber and colleagues (2012) lends additional support to the utility of inpatient care for underweight patients to reduce complications of nutritional rehabilitation, particularly the refeeding syndrome. In that study, 35 adolescent patients were followed during a hospital-based refeeding protocol in which calorie intake was increased every other day, from an average of 1,205 to 2,668, over an average length of stay of 16 days. No patients had refeeding syndrome, but 20% had low serum phosphorus levels. Percent mean body mass index (BMI) increased from 80.1 (11.5) to 84.5 (9.6), and overall gain was 2.10 (1.98) kg. Most of the patients (83%) initially lost weight, an important finding for clinicians who must justify the value of hospital-based nutritional rehabilitation programs to insurance companies. Mean percent BMI did not increase significantly until day 8. Higher calories prescribed at baseline were significantly associated with faster weight gain and a shorter hospital stay.

For patients who refuse to eat and require life-preserving nutrition, the guideline recommends nasogastric feeding. The utility of nasogastric feedings has been studied in open trials by Rigaud and colleagues (2007, 2011). In the first trial (2007), malnourished patients with anorexia nervosa were randomly assigned to a tube-feeding group ($n = 41$) or a control group ($n = 40$) groups. After 2 months, weight gain was 39% higher in the tube-feeding group, binge-eating episodes were decreased, and most patients thought the intervention improved their eating disorder. After discharge, the tube-feeding group had a longer relapse-free period (34.3 ± 8.2 weeks vs. 26.8 ± 7.5 weeks). In the second trial (2011), adult outpatients

with anorexia nervosa or bulimia nervosa were randomly assigned to 2 months of cognitive-behavioral therapy (CBT) alone ($n = 51$) or CBT plus tube feeding ($n = 52$). By the end of treatment those receiving CBT plus tube feeding were more rapidly and frequently abstinent from binge eating and purging, had more improvement on symptoms of depression and anxiety, and had a better quality of life. These superior results were also seen 1 year later. It should be noted that the average BMI for patients entered into the tube feeding plus CBT arm in the 2011 study was 18.2 ± 3.3 , thin but not severely underweight, and the analysis did not separate normal-weight patients with bulimia nervosa from patients with anorexia nervosa, binge-eating purging type. As described in the practice guideline, there are potential harms to nasogastric feeding, and the guideline does not specifically recommend it for normal-weight patients.

PSYCHOSOCIAL INTERVENTIONS

The practice guideline recommends psychotherapeutic management during acute refeeding and weight gain and states that psychotherapy can be helpful once malnutrition has been corrected and weight gain has begun. These recommendations were based on strong consensus but weak evidence. Research on psychotherapy for anorexia nervosa remains limited. It is difficult to carry out rigorously designed trials of psychotherapies, and as with trials of pharmacotherapy, long-term follow-up is uncommon. In addition, available studies have used a variety of psychosocial interventions, often in mixed populations (i.e., with patients with different kinds of eating disorders). As a result, the following studies do not significantly change the overall quality of evidence supporting psychosocial interventions for anorexia nervosa.

In an open trial that used a “transdiagnostic” approach and broad inclusion criteria, Byrne and colleagues (2011) administered 20–40 individual sessions of “enhanced” CBT, which included aspects of interpersonal therapy (IPT), to 125 patients at a public outpatient clinic. The investigators reported that two-thirds of those completing treatment (and 40% of the total) achieved partial remission. However, only 53% of those who entered the trial completed treatment.

Since motivation for treatment is a problem for many patients with anorexia nervosa or bulimia nervosa, several groups have examined ways to enhance motivation at the start of treatment. In general, results have not been dramatic, but some are promising. Wade and colleagues (2009) randomly assigned 47 young adult inpatients with anorexia nervosa to four sessions of motivational interviewing

with a “novice” therapist ($n = 22$) or treatment as usual ($n = 25$). Not surprisingly, those who had started out with higher motivation did better overall. Patients receiving motivational interviewing were more likely to move from low to high readiness to change at 2- and 6-week follow-up. In a similar study by Dean and colleagues (2008), 42 inpatients were randomly assigned to receive four initial motivational interviewing sessions or treatment as usual. In this study, although no significant differences were seen between the groups, motivational enhancement treatment appeared to foster longer-term motivation and engagement and thus promote treatment continuation.

Carter and colleagues (2011) investigated long-term outcomes of specialized psychotherapies in women with broadly defined anorexia nervosa who had participated (an average of 6.7 years prior to Carter et al.’s analysis) in a randomized, controlled trial comparing conventional CBT and a modified form of IPT in which therapists were constrained from discussing nutrition, weight, and shape issues, as well as a control condition (specialist supportive clinical management). No differences were seen in outcomes among the three groups. Only 43 of the original sample of 56 patients participated in this follow-up study, leaving the study underpowered.

Several studies have examined the impact of exercise or strength training on patients with eating disorders. In a nonrandomized study, Calogero and Pedrotty (2004) compared 127 women in a residential treatment center who participated in an exercise program plus treatment as usual with 127 nonparticipants who received treatment as usual only. Women in the exercise group who had anorexia nervosa gained more than a third as much weight and demonstrated significantly reduced obligatory attitudes toward exercise compared with those in the comparison group. The authors acknowledged that these differences may reflect initial selection biases.

In a small study, Chantler and colleagues (2006) randomly assigned 14 hospitalized adolescent females to an 8-week program of light resistance training or treatment as usual, with all participants receiving the same caloric intake. The training group showed increased knee and elbow strength. However, another small ($n = 22$) study by del Valle and colleagues (2010) found few benefits for a low- to moderate-intensity strength training program (two sessions/week for 3 months) when combined with treatment as usual (conventional psychotherapy and refeeding) compared with treatment as usual alone, even though the intervention was well tolerated and did not cause significant weight loss and no deleterious effects were seen.

Results of small randomized trials involving treatment approaches that include mindfulness training

along with CBT and other therapeutic approaches have been reported. Courbasson and colleagues (2011) randomly assigned 25 outpatients with comorbid mixed eating disorders and substance abuse disorders to a 1-year program of either dialectical behavior therapy (DBT) or treatment as usual. Those patients receiving DBT showed so much greater retention (80% vs. 20% at posttreatment) that the protocol was terminated early. The authors suggest that DBT may be effective at keeping such patients in treatment. A review of eight studies of variable quality that used mindfulness training for the treatment of patients with eating disorders suggests that available evidence supports the value of such interventions (Wanden-Berghe et al. 2011).

Other therapies for anorexia nervosa and related conditions that have been studied include spirituality focused group therapy, eye movement desensitization and reprocessing (EMDR), yoga, and body awareness therapy. Available studies on these therapies, as described below, have design limitations.

In one randomized, controlled study conducted at a treatment center that provides Christian therapy, 122 female inpatients with mixed eating disorder diagnoses were randomly assigned to treatment as usual plus either spirituality focused group therapy or cognitive and emotional group therapy. The spirituality group was reported to have a faster therapeutic response (Richards et al. 2006). The authors noted several limitations to the study, including small sample size, small magnitude of effect, and uncertain generalizability beyond the unique study setting (a facility known for promoting spirituality in treatment). As for many psychotherapy research studies, another limitation is possible expectancy bias from both therapists and patients.

In another study, 86 women in a residential treatment program were randomly assigned to treatment as usual plus EMDR or treatment as usual only. Those receiving the addition of EMDR reported less distress related to negative body image memories and less body dissatisfaction at 3, 6, and 12 months compared with the treatment-as-usual group, but no other differences in body image measures or other clinical outcomes were seen (Bloomgarden and Calogero 2008). Limitations acknowledged by the authors include contamination effects and lack of blinding. In addition, the control group did not receive an active psychotherapy.

In a pilot study by Carei et al. (2010), 54 adolescent outpatients with mixed eating disorders were randomly assigned to treatment as usual with or without eight sessions of yoga. Although both groups maintained BMI levels and reported reduced anxiety and depression scores over time, those in the yoga group demonstrated greater sustained reduction in eating disorder symptoms and decreased food

preoccupation. Limitations of this pilot study include small sample size, anticipation effects from the use of repeated measures, and uncertain generalizability to inpatient or community samples.

In a pilot study by Catalan-Matamoros and colleagues (2011), 28 outpatients with mixed eating disorders who had been symptomatic for less than 5 years were randomly assigned to treatment as usual with or without five sessions of basic body awareness therapy. Those patients in the body awareness therapy group showed modest but consistent improvements in measures of body dissatisfaction compared with those who received treatment as usual alone. The authors acknowledged that this small study had high dropout rates and was unblinded.

In actual practice, clinicians who treat patients with eating disorders, including anorexia nervosa, use a wide array of psychosocial interventions. Tobin and colleagues (2007) surveyed 265 clinicians, who were recruited online and at professional meetings, about the treatment modalities they use. Only 6% of respondents reported they adhered closely to treatment manuals, and 98% indicated they used both behavioral and dynamically informed interventions. Factor analysis suggested theoretically linked dimensions of treatment but also dimensions that are common across models. The authors concluded that overlapping of treatment modalities is a common practice, and more studies are needed to assess what clinicians actually do.

FAMILY THERAPY

The practice guideline strongly recommends family treatment for children and adolescents with eating disorders and suggests that family assessment and involvement may be useful for older patients as well. Family therapy of various types for anorexia nervosa continues to be a focus of considerable research. Results continue to provide support for the value of family therapy, but the overall quality of the evidence remains poor.

In a Cochrane review, Fisher and colleagues (2010) evaluated the efficacy of family therapy compared with standard and other treatments. Thirteen trials were included in the analysis. The authors concluded that there is some evidence to suggest that family therapy may be more effective than treatment as usual in the short run, but they cautioned that the few available studies are small and have potential biases.

In a review of family therapy for adolescents with anorexia nervosa, Gardner and Wilkinson (2011) identified six randomized, controlled trials, the large majority with small sample sizes, and concluded that these studies were on the whole weak. In one of the

stronger studies (Lock et al. 2010), 121 patients with anorexia nervosa ages 12–18 years were randomly assigned to 24 outpatient hours of family-based therapy or to adolescent-focused individual therapy delivered over 12 months. At the end of treatment no group differences in full remission were seen, but there were more patients in partial remission in the family-based therapy group, and at 6- and 12-month follow-up there were greater rates of full remission in this group.

In an earlier study of family-based therapy by Lock and colleagues (2005), 86 adolescents were randomly assigned to receive family-based therapy either short term (10 sessions over 6 months) or long term (20 sessions over 12 months). There were no differences in outcome. However, patients with obsessive-compulsive personality disorder and patients from non-intact families received greater benefit from the longer-term protocol. In this study, more dropouts occurred when patients had comorbid psychiatric disorders, were older, were assigned to the longer term protocol, or had problematic family behaviors (Lock et al. 2006).

Ball and Mitchell (2004) randomly assigned 25 adolescents and young adults with anorexia nervosa who were living with their families either to a 12-month program involving 21–25 sessions of CBT or to behavioral family therapy. Sixty percent of the intent-to-treat group and 72% of completers were rated as having “good outcomes,” with no differences in outcomes seen between the groups. The majority of patients did not achieve symptomatic recovery.

In a 5-year follow-up of 40 adolescent patients with anorexia nervosa who had participated in a randomized study of two forms of family therapy (conjoint or separated), Eisler and colleagues (2007) found no differences in outcomes. Seventy-two percent of the patients had recovered. However, patients from families with elevated levels of maternal criticism gained less weight and generally did less well with conjoint family therapy. The investigators suggested that for these families, conjoint therapy should be avoided, at least early on in treatment when raised levels of parental criticism are evident.

Finally, Godart and colleagues (2012) randomly assigned 60 female adolescent patients with anorexia nervosa at time of hospital discharge either to 18 months of ambulatory treatment as usual or to treatment as usual augmented with family therapy (1.5 hours every 3–4 weeks) focusing on family dynamic issues and the “here and now” but not on eating behaviors or weight. Fifty-one of the 60 families were intact. Treatment as usual consisted of individual consultations, regular interviews involving the parents, and individual psychotherapy with another therapist if required. As necessary, psychiatrists

prescribed medication, offered parental guidance regarding conflicts with daughters, and secured nutritional/dietetic advice for patients gaining insufficient weight. At 18 months, good outcomes were observed in 40% of the group receiving family therapy versus 17.2% of the group receiving treatment as usual.

Parents and other close family members of patients with anorexia nervosa have been found to have high levels of psychological distress, burden, and expressed emotion (EE) (Zabala et al. 2009). Interventions to help these individuals cope with their burdens have been studied. Grover and colleagues (2011) randomly assigned 64 caregivers of individuals with eating disorders, primarily anorexia nervosa, to a Web-based CBT program designed to help caregivers plus limited clinician-supported guidance by e-mail or phone or to treatment as usual, consisting of usual support from caregiver organizations. At 4- and 6-month follow-up posttreatment, those patients who participated in the Web-based program reported reduced anxiety and depression, and a trend was observed in reduced EE. The same investigator group (Rhodes et al. 2009) also randomly assigned and compared 10 caregivers receiving treatment as usual with 10 who received “carer to carer” (i.e., parent-to-parent) consultations to supplement Maudsley model care. Qualitative analysis showed that those receiving parent-to-parent care felt less alone and more empowered. Further, educational workshops and skills training given to two families together was as effective as individual family therapy (Whitney et al. 2012).

PHARMACOTHERAPY

The practice guideline describes limited evidence for the use of medications to restore weight, prevent relapse, or treat chronic anorexia nervosa.

Evidence for antipsychotic medications, consisting of case series at the time the guideline was developed, now includes some randomized, controlled trials, but the studies have shown mixed results and have methodological limitations, including small sample sizes. In addition, as described in the guideline, these medications have serious potential adverse effects.

A task force on eating disorders of the World Federation of Societies of Biological Psychiatry (Aigner et al. 2011) systematically reviewed all studies for the pharmacological treatment of eating disorders published between 1977 and 2010. The task force concluded that Grade B evidence (i.e., limited positive evidence from controlled studies) supports the use of olanzapine for weight gain. Evidence for other second-generation (“atypical”) antipsychotics was

determined to be Grade C (positive evidence from uncontrolled studies or case reports/expert opinion).

A review by McKnight and Park (2010) of four randomized, controlled trials and five open-label trials found limited evidence that olanzapine, quetiapine, and risperidone may have positive effects on depression, anxiety, and core eating pathology, but insufficient evidence regarding weight gain.

The olanzapine studies include a randomized, placebo-controlled trial of 34 patients with anorexia nervosa by Bissada and colleagues (2008), which demonstrated benefits for olanzapine in decreasing obsessive symptoms in addition to increasing weight. More recently, Attia and colleagues (2011) randomly assigned 23 outpatients with anorexia nervosa at two different sites either to 8 weeks of olanzapine (2.5 mg/day, up to 10 mg/day as tolerated) or to placebo. Patients receiving olanzapine showed a significantly better gain in BMI. The medication was well tolerated, and no adverse metabolic effects were observed. However, Kafantaris and colleagues (2011) found no differences in percentage change in median body weight, rates of weight gain, or improvement in psychological measures 5 or 10 weeks after a small single-site, randomized, controlled trial of olanzapine versus placebo in 20 adolescent females, 5 of whom did not complete the study. Furthermore, these investigators saw a trend of increasing fasting glucose and insulin levels only in the olanzapine-treated group. Adverse effects were also observed in a study of the metabolic effects of olanzapine by Swenne and Rosling (2011). In this study, 47 adolescents with anorexia nervosa had increased levels of thyroid-stimulating hormone and prolactin, which the investigators attributed to medication effects rather than to weight gain.

Risperidone was studied in a double-blind randomized, controlled trial of 40 hospitalized adolescents with anorexia nervosa (Hagman et al. 2011). The investigators found no advantage for risperidone (average dose 2.5 mg/day, prescribed up to 4 weeks) over placebo for weight restoration.

The practice guideline states that although no specific hormone treatments or vitamin supplements have been shown to be helpful for weight restoration, zinc supplementation may be useful. The Task Force on Eating Disorders of the World Federation of Societies of Biological Psychiatry (Aigner et al. 2011) described the evidence for zinc supplementation as Grade B. In a meta-analysis of four randomized, controlled trials and two cohort studies, Sim and colleagues (2010) concluded that estrogen preparations have uncertain benefits for amenorrhea associated with anorexia nervosa and should therefore be avoided. In contrast, results from a randomized, controlled trial by Misra and colleagues (2011) suggest that

physiologic estradiol replacement is useful in teenage (13– to 18-year-old) girls with anorexia nervosa with low bone density. In this study, 96 mature girls with anorexia nervosa (in whom statural growth was almost complete) were randomly assigned either to transdermal 17 β estradiol (100-mcg patch applied twice weekly) and cyclic progesterone or to placebo for 18 months, while 14 younger girls with anorexia nervosa were randomly assigned to receive very small incremental doses of oral ethinyl estradiol (3.75 mcg daily in the first 6 months, 7.5 mcg daily in the second 6 months, and 11.25 mcg daily in the final 6 months) or placebo. The rationale was that unlike oral estrogen, which suppresses insulin-like growth factor-1 (IGF-1) (an important bone trophic factor) when used in doses found in birth control pills, replacement doses of transdermal estradiol and very low incremental oral estrogen doses that mimic the early pubertal rise in estrogen do not suppress IGF-1. Girls with anorexia nervosa randomly assigned to receive this form of physiologic estrogen replacement had a 2.6% increase in spine bone density in this study, compared with only 0.3% in girls randomly assigned to receive placebo. This intervention also prevented the decrease in bone density at the hip observed in girls randomly assigned to receive placebo.

The practice guideline states that the limited available evidence on the use of antidepressants for weight gain suggests that they confer no benefit. This position is supported by a Cochrane review by Claudino and colleagues (2006) that identified four randomized, controlled trials. The studies lacked quality information, and the authors concluded that there is no evidence to support the use of antidepressants for weight, eating disorder core pathology, or associated pathology. Following publication of this review, Walsh and colleagues (2006) reported that in a two-site study, the addition of fluoxetine to CBT following weight restoration for patients with anorexia nervosa showed no benefit for fluoxetine over placebo. In this study the best predictors of weight maintenance following discharge for anorexia nervosa were the level of weight restoration at the conclusion of acute treatment and the avoidance of weight loss immediately following intensive treatment (Kaplan et al. 2009).

OTHER SOMATIC TREATMENTS

Janas-Kozik and colleagues (2011) randomly assigned 24 adolescent girls with anorexia nervosa with restrictor subtype and depressive symptoms to receive additional bright light therapy for 6 weeks. The intervention group had greater improvement in depression, but no difference in BMI was found at 6 weeks. In a randomized, controlled trial of “warming

therapy" involving 21 female patients with anorexia nervosa, wearing a heating vest for 3 hours per day for 21 days offered no advantage compared with wearing the vest but with the heating function turned off (Birmingham et al. 2004).

OSTEOPENIA AND OSTEOPOROSIS

To treat physiological complications of malnutrition from semistarvation, including osteopenia and osteoporosis, the guideline recommends weight gain through nutritional rehabilitation—namely, sufficient intake of dietary protein, carbohydrates, fats, calcium, and vitamin D. Vescovi and colleagues (2008) recommended the same in a review of 26 randomized, controlled trials, cross-sectional studies, and case series of pharmacological and nonpharmacological interventions to treat bone mineral density or bone turnover in women with functional hypothalamic amenorrhea. In another systematic review of treatment for bone loss, Mehler and MacKenzie (2009) found that no good evidence exists to guide medical interventions once loss has occurred. The authors concluded that early detection and weight restoration are therefore of utmost importance.

As described earlier in this watch, Misra and colleagues (2011) found beneficial effects of physiologic estrogen replacement on bone density in adolescent girls with anorexia nervosa. This finding is in contrast to previous studies that reported no beneficial effects of estrogen when given orally as a birth control pill (Strokosch et al. 2006).

The guideline does not recommend the use of bisphosphonates such as alendronate. Golden and colleagues (2005) conducted a randomized, placebo-controlled trial of alendronate for osteopenia in 32 adolescent females with anorexia nervosa. At 1-year follow-up, patients treated with alendronate had increased bone mineral density of the lumbar spine and femoral neck. However, body weight was the most important determinant of bone mineral density. The authors concluded that further research is needed on the efficacy and long-term safety of alendronate.

Risedronate, another bisphosphonate, was studied in a trial by Miller and colleagues (2011), in which 77 women with anorexia nervosa were randomly assigned to receive risedronate 35 mg weekly, low-dose testosterone, both, or placebo for 12 months. Compared with placebo, risedronate increased bone mineral density in the posteroanterior spine 3%, the lateral spine 4%, and the hip 2%; testosterone did not increase bone mineral density but increased lean body mass. Few side effects were seen with either therapy. Further studies are needed to weigh the benefits and harms of using risedronate clinically.

BULIMIA NERVOSA

As for studies about treatments for anorexia nervosa, recent studies about treatments for bulimia nervosa were primarily short term and focused on symptom relief rather than recovery. As described in a randomized, controlled trial of CBT by McIntosh and colleagues (2011) that is cited in the discussion below, "a substantial group remains unwell in the long term. Definition of recovery impacts markedly on recovery rates" (p. 32).

CHOICE OF SETTING

The practice guideline recommends outpatient treatment of bulimia nervosa, except when there are complicating factors (e.g., serious general medical problems, suicidal behavior, psychosis) or severe disabling symptoms that do not respond to outpatient treatment. Zeeck and colleagues (2009) compared two options for such patients: inpatient and day clinic treatment. In this German study, 55 patients with severe bulimia nervosa were randomly assigned to one of these two settings. At 3 months posttreatment, both settings reduced general and specific pathology. The authors noted that more deterioration in bulimic symptoms occurred following inpatient than day clinic treatment but described the results overall as comparable.

In a Korean study by Kong (2005), 43 adolescent patients with a mixture of eating disorder symptoms were randomly assigned to day treatment based on a University of Toronto model (as described, for example, by Olmsted et al. 2003) or to a traditional outpatient program that included CBT, IPT, and/or medication. Patients assigned to the day treatment group showed greater improvement with regard to BMI and binge eating and purging, as well as improved scores on the Eating Disorder Inventory-2, the Beck Depression Inventory, and the Rosenberg Self-Esteem Scale.

NUTRITIONAL REHABILITATION

Similar to recommendations for patients with anorexia nervosa, the guideline recommends that normalization of nutrition and eating habits is a central goal in the treatment of patients with bulimia nervosa. A study by Burton and Stice (2006) suggests that healthy dieting and modest weight loss may not be incompatible with this goal. In this study, 85 women with full and subthreshold bulimia nervosa were randomly assigned to a 6-session healthy dieting intervention or a wait-list control condition. At 3-month follow-up, the intervention group showed modest weight loss and significant and persistent

improvement in bulimic symptoms. While these findings are preliminary and require replication and extension, they suggest that contrary to popular belief controlled dieting behaviors do not necessarily maintain bulimia nervosa.

PSYCHOSOCIAL INTERVENTIONS

The guideline recommends CBT as the most effective and best-studied intervention for patients with bulimia nervosa. IPT is recommended for patients who do not respond to CBT. Studies have continued to demonstrate effectiveness for a variety of CBT- and IPT-oriented interventions in both individual and group settings. In addition, studies continue to investigate "self-care" psychosocial programs delivered online or via CD-ROM.

In an update of a previous Cochrane review, Hay and colleagues (2009) identified 48 studies of CBT for the treatment of bulimia nervosa. The studies included 3,054 participants. The review supported the efficacy of both CBT and a manual-based CBT designed specifically for patients with bulimia nervosa. Other psychotherapies, particularly IPT in the longer term, were also found to be efficacious. Self-help approaches that used highly structured CBT treatment manuals were described as promising. Exposure and response prevention did not enhance the efficacy of CBT, and the review found that psychotherapy alone is unlikely to reduce or change body weight in people with bulimia nervosa or similar eating disorders. The authors concluded that there is a small body of evidence for the efficacy of CBT in bulimia nervosa and similar syndromes, but the quality of trials is highly variable and sample sizes are often small.

Studies of psychotherapy for bulimia nervosa published since the 2006 practice guideline include those discussed below. Some of these studies were included in the 2009 Cochrane review by Hay and colleagues. As noted in that review, more and larger trials are still needed of all psychotherapies.

In a study conducted at two sites by Agras and colleagues (2000, referenced in the guideline), 219 patients with bulimia nervosa were randomly assigned to receive CBT or a version of IPT in which no attention was paid at any stage of treatment to eating habits or attitudes toward weight and shape. The IPT also did not contain any of the specific behavioral or cognitive procedures that characterize CBT, and there was no self-monitoring. All patients did better with CBT than with IPT. Subsequent analyses of the study data have found that among patients who received IPT, blacks did better than whites (Chui et al. 2007), and early change in the frequency of purging was the best predictor of response at 8 months (Fairburn et al. 2004).

Several studies have examined the potential value of including motivational enhancement strategies in treatment. Results have been mixed. In a two-phase study, Katzman and colleagues (2010) randomly assigned 225 patients with bulimia nervosa or EDNOS to receive either CBT or motivational enhancement (phase 1), then randomly assigned patients to 12 weeks of group or individual CBT (phase 2). At 1- and 2.5-year follow-up, patients across all interventions had improved significantly, with only minor differences among groups.

Geller and colleagues (2011) assessed 181 outpatients with eating disorders for motivation pre-treatment and then randomly assigned them to five sessions of preparatory readiness and motivation therapy or to a wait-list control. At 6-week and 3-month follow-up, both the intervention group and the control group showed improvements in readiness for change, depression, drive for thinness, and bulimia symptoms. Those patients receiving readiness and motivation therapy were found to have less ambivalence toward treatment.

To examine the potential utility of a common behavioral intervention for bulimia nervosa, McIntosh and colleagues (2011) randomly assigned 135 patients with bulimia nervosa who had received eight sessions of CBT to either relaxation training or one of two types of exposure with response prevention: one type focused on pre-binge cues, and the other focused on pre-purge cues. At 5 years, those patients treated with either form of exposure with response prevention were more likely to be abstinent (43% who received the intervention focused on pre-binge cues, whereas 54% who received the intervention focused on pre-purge cues; the difference was not statistically significant) than those treated with relaxation training (27%).

Several studies have examined other factors affecting course and outcome of treatment for bulimia nervosa. Mitchell and colleagues (2004) found that simply telling patients with bulimia nervosa who have achieved abstinence after a course of CBT to return for additional sessions if they fear relapse was not effective for preventing relapse. In this multicenter trial, patients were randomly assigned to follow-up only or to a crisis intervention model. In the follow-up only group, none of the 30 individuals who had relapsed during the study period returned for additional treatment visits. The investigators suggested that planned visits or phone calls should be considered as alternative relapse prevention strategies.

Rowe and colleagues (2008) compared course and outcome in 134 females with bulimia nervosa who received CBT. Patients included 59 with bulimia nervosa alone, 38 with bulimia nervosa plus borderline personality disorder, and 37 with bulimia nervosa plus other personality disorders. No differences

in eating-disorder symptomatology or general psychopathology were seen among the groups at 3-year follow-up.

Studies have examined the use of telemedicine and the Internet as routes for administration of psychotherapy for bulimia nervosa. In a randomized, controlled trial involving 128 females with bulimia nervosa, treatment with CBT delivered face-to-face or via telemedicine for 20 weeks was similarly effective (Mitchell et al. 2008), and telemedicine was more cost-effective (Crow et al. 2009). In this study, patients rated therapeutic factors more highly than did therapists and accepted telemedicine CBT more easily than face-to-face CBT (Ertelt et al. 2011).

In a study of Internet-based CBT plus e-mail support, Sanchez-Ortiz and colleagues (2011) randomly assigned 76 female students with bulimia nervosa or EDNOS to an intervention group or to a wait-list group, who received the intervention after 3 months' delay. At 3- and 6-month follow-up, those students getting immediate treatment had better outcomes than those assigned to the wait list followed by treatment, suggesting the importance of providing services as soon as possible when problems are identified.

SELF-HELP PROGRAMS

As described in the guideline, a variety of self-help programs have been studied and shown to be effective for bulimia nervosa. Studies continue to support the usefulness of self-help programs as well as identify limitations.

One such program is "guided self-help," a CBT-based approach in which patients do much of the treatment on their own, using a workbook, while also receiving some counseling and support from a mental health professional. Several randomized, controlled trials have shown the value of guided self-help and its superiority to wait-list control conditions, including a study by Traviss and colleagues (2011) of 81 patients with bulimia nervosa or binge-eating disorder. The authors found that guided self-help was significantly more effective than being on the waiting list in reducing psychopathology of eating disorders, laxative abuse, exercise behaviors, and global distress, and gains were maintained 3 and 6 months after the intervention. In another study of a CBT-based self-care intervention delivered by CD-ROM, Schmidt and colleagues (2008) randomly assigned 97 patients either to the intervention without support followed by 3 months of a flexible number of therapist sessions or to a 3-month waitlist condition followed by 15 sessions of therapist-delivered CBT. At 3 and 7 months posttreatment, the authors found no significant differences between the two groups

in binge eating or vomiting frequency. In an earlier study, Schmidt and colleagues (2006) randomly assigned 61 patients with bulimia nervosa or binge-eating disorder to 14 sessions of guided self-help with or without personalized feedback that was delivered in various ways. At 6 months following the intervention, those patients receiving the added feedback reported better positive outcomes with regard to self-induced vomiting and dietary restriction.

Some of the studies described above were included in a 2006 Cochrane review by Perkins and colleagues, who concluded that pure self-help and guided self-help have some value for both bulimia nervosa and binge-eating disorder.

FAMILY THERAPY

Studies continue to demonstrate the value of family therapy for patients with bulimia nervosa, particularly for adolescents, yet findings are less strong than for adolescent patients with anorexia nervosa, and there are fewer studies. Le Grange and colleagues (2007) randomly assigned 80 adolescents with full or partial bulimia nervosa to family-based treatment or to individual supportive psychotherapy. Each group received 20 visits over 6 months. At 6-month post-treatment follow-up, 29% of adolescents receiving family-based treatment, compared with 10% of those receiving individual supportive therapy, were abstinent from binge and purge episodes. Other outcome measures similarly favored family-based treatment. Notably, the supportive psychotherapy employed in this study was expressly non-directive and contained no putative active therapeutic components, such as stimulus control or problem-solving techniques, or instruction or implicit advice on changes in diet and eating patterns. The authors found that lower eating concerns were the best predictor of outcome and concluded that family-based treatment may be most effective in patients who have relatively low levels of eating-disorder psychopathology (Le Grange et al. 2008).

Finally, in a randomized, controlled trial of 85 adolescents with bulimia nervosa, Schmidt and colleagues (2007) found slight advantages for guided self-care over family therapy, including more rapid reduction of bingeing, lower cost, and greater acceptability among adolescents.

PHARMACOTHERAPY

In their systematic review for the World Federation of Societies of Biological Psychiatry, Aigner and colleagues (2011) identified 36 randomized, controlled trials of medications for the treatment of bulimia nervosa. They reported that for tricyclic

antidepressants, Grade A evidence exists with a moderate risk-benefit ratio. For fluoxetine, Grade A evidence exists with a good risk-benefit ratio, and for topiramate, there is Grade A evidence with a moderate risk-benefit ratio. These findings and recommendations are consistent with the 2006 APA guideline, which recommends antidepressants, particularly the selective serotonin reuptake inhibitors, as one effective component of the initial treatment program for most patients with bulimia nervosa.

Other pharmaceutical agents, including oxcarbazepine, aripiprazole, and baclofen, have been reported to be effective for bulimia nervosa, but the results were from small case series or studies sponsored by the drug manufacturer. Citalopram was studied by Leombruni and colleagues (2006) in a small single-blind 12-week randomized, controlled trial. In this study, 37 patients with bulimia nervosa received fluoxetine (20–60 mg/day) or citalopram (20–40 mg/day). Both groups improved with respect to eating pathology. Patients receiving fluoxetine reported greater reductions in introjected anger, whereas those receiving citalopram reported greater reduction in depressive feelings.

OTHER SOMATIC TREATMENTS

At the time of guideline publication, repetitive transcranial magnetic stimulation (rTMS) had been studied in case reports for the treatment of bulimia nervosa when co-occurring with major depressive disorder. In a small trial, Walpot and colleagues (2008) randomly assigned 14 women with bulimia nervosa to receive 3 weeks of either active rTMS or sham rTMS, after a 1-week lead-in period in which all 14 women received sham treatment. All patients improved, and no advantage was seen for the active treatment over sham rTMS. Further study of this treatment approach is needed.

COMBINING PSYCHOTHERAPY AND PHARMACOTHERAPY

The practice guideline recommends with moderate confidence the combination of antidepressant medication and CBT for bulimia nervosa. Combination treatment continues to be studied, including in a large randomized, controlled trial of stepped care. In this study, Mitchell and colleagues (2011) randomly assigned 293 patients with bulimia nervosa at four centers to either 1) 20 sessions of CBT alone over 18 weeks, with the addition of fluoxetine if nonresponse was predicted after six sessions, or 2) stepped care that started with therapist-supervised self-help and was followed by fluoxetine if nonresponse was predicted

after six sessions, which in turn was followed, if necessary, by CBT. At the end of treatment no differences were found between groups in inducing recovery (no binge eating or compensatory behaviors for 28 days) or remission (no longer meeting DSM-IV criteria). However, at the end of the 1-year follow-up, the stepped-care arm was significantly superior to the CBT arm in terms of reducing binge eating and all compensatory behaviors (vomiting, laxative abuse, diuretic abuse, and excessive exercise).

INTERVENTIONS TO IMPROVE MOTHERING SKILLS

As noted in the guideline, women with eating disorders who have babies or young children may need guidance, assistance, and monitoring of their mothering skills to minimize the risk of their children developing eating problems or eating disorders. Researchers continue to study interventions to improve the mothering skills of these patients. Stein and colleagues (2006) randomly assigned 80 mothers with bulimia nervosa or similar eating disorders to either supportive counseling or a video-feedback treatment focusing on the mothers' interactions with their infants. The video-feedback treatment produced improvement in these interactions and in infant autonomy, suggesting the value of attending to mother-infant interactions in these patients.

BINGE-EATING DISORDER

Since publication of the 2006 guideline, multiple studies have assessed treatments for binge-eating disorder, which is currently categorized as an EDNOS. Many of the studies described above involved patients with binge-eating disorder in addition to bulimia nervosa. These "transdiagnostic" studies will not be reviewed again here. Instead, the discussion below is specifically limited to studies of binge-eating disorder.

Studies of treatments for binge-eating disorder are inherently limited by the fact that symptoms of binge eating are highly labile and placebo response rates are high in numerous studies. As a result, conclusions about effectiveness must be drawn cautiously.

PSYCHOSOCIAL TREATMENTS

The results and conclusions of recent studies and reviews have been in general agreement with the 2006 guideline, which gives a strong recommendation for individual and group CBT for binge-eating disorders as well as guided self-help programs. The guideline states that IPT and DBT may also be considered.

In a meta-analysis of 38 randomized, controlled trials with 1,973 participants specifically addressing

binge-eating disorder using psychotherapy and structured self-help, both based on cognitive-behavioral interventions, Vocks and colleagues (2010) found both interventions to have large effects on the reduction of binge eating. Uncontrolled studies on weight-loss treatments demonstrated moderate reductions of binge eating. Combination treatments did not result in higher effects compared with single-treatment regimens. Except for weight-loss treatment, none of the interventions resulted in a considerable weight reduction. These reviewers concluded that psychotherapy and structured self-help, both based on cognitive-behavioral interventions, should be recommended as the first-line treatments for binge-eating disorder. Other investigators have concluded that guided self-help is not only effective (Striegel-Moore et al. 2010) but also cost-effective (Lynch et al. 2010).

In a randomized, controlled trial involving 205 male and female patients with binge-eating disorders, Wilson and colleagues (2010) found that individuals who received 20 sessions of IPT or 10 sessions of CBT administered via guided self-help over a 6-month course of treatment had substantial reductions in binge eating compared with individuals who received a behavioral weight loss treatment. However, as demonstrated in a randomized, controlled trial in which 125 patients received group-administered CBT, behavioral weight loss treatment, or a sequence of the two, Grilo and colleagues (2011) found that whereas CBT-based approaches may be more effective for binge eating per se, behavioral weight loss treatment programs appear to be more effective for weight loss in obese binge eaters. Notably, outcomes for these studies were limited to 1-2 years following treatment.

In a study of 259 adults diagnosed with binge-eating disorder who were randomly assigned to 20 weeks of therapist-led, therapist-assisted, or self-help group treatment or a wait-list condition, Peterson and colleagues (2009) found that even though at end of treatment the therapist-led (51.7%) and the therapist-assisted (33.3%) conditions had higher binge-eating abstinence rates than the self-help (17.9%) and wait-list (10.1%) conditions, no between-group differences in abstinence rates were observed at 6- or 12-month follow-up.

Safer and colleagues (2010) conducted a trial in which 101 men and women with binge-eating disorder were randomly assigned to 20 group sessions of DBT specifically designed for binge-eating disorder or to an active comparison group therapy. The group that received DBT had a significantly lower dropout rate (4% vs. 33.3%). Although posttreatment binge-eating abstinence and reductions in binge-eating frequency were achieved more quickly in the DBT

group, these differences did not persist over the 3-, 6-, and 12-month follow-up assessments (e.g., 12-month follow-up abstinence rates were 64% for the DBT group vs. 56% for the active comparison group). The lack of differential findings over follow-up suggests that the hypothesized specific effects of the DBT designed for binge-eating disorder do not show long-term impact beyond those attributable to nonspecific common therapeutic factors.

Other studies have shown that CBT-oriented treatments for binge-eating disorder are effective through individual coaching, via e-mail, and via the Internet (Carrard et al. 2011; Robinson and Serfaty 2008).

In a study of group psychodynamic-IPT by Tasca and colleagues (2006), 135 individuals with binge-eating disorder (123 women, 12 men) were randomly assigned to receive this intervention, group CBT, or a wait-list control condition. After 16 sessions and at 12 months post-treatment, patients in both treatment groups had reduced days binged compared with individuals in the wait-list condition. No significant effects on BMI were observed, but in obese patients both therapies were associated with weight loss. One goal of the study was to compare outcomes between the two treatments, and some differences were found. In the psychodynamic-IPT group, significantly lower depression scores were observed compared with the control condition group at posttreatment, whereas scores in the CBT group and the control condition group were not significantly different. In addition, significant improvements in self-esteem were observed in the psychodynamic-IPT group at 6 months posttreatment, but not in the CBT group. Improvement in susceptibility to hunger was observed in the CBT group at post-treatment, but not in the psychodynamic-IPT group. A second goal of the study was to explore the relationship between women patients' scores on a level of attachment scale and their treatment responses and outcomes. For women who completed group psychodynamic-IPT ($n = 33$), higher attachment anxiety was related to improvements in days binged by posttreatment. In contrast, for women who completed group CBT ($n = 33$), lower attachment anxiety was associated with improvements in days binged by posttreatment.

PHARMACOTHERAPY

As noted earlier in this watch, sibutramine was withdrawn from the market in 2010 because of safety concerns. With respect to other medications for the treatment of binge-eating disorder, the recommendations of the 2006 guideline remain current, despite recent publication of randomized, controlled trials.

The Task Force on Eating Disorders of the World Federation of Societies of Biological Psychiatry

(Aigner et al. 2011) identified 26 randomized, controlled trials of pharmacological treatments for binge-eating disorder. The task force concluded that Grade A evidence supports the use of imipramine (with moderate risk-benefit ratio), sertraline and citalopram/escitalopram (all with good risk-benefit ratios), and topiramate (with moderate risk-benefit ratio). The task force found that Grade D evidence exists for fluvoxamine and fluoxetine (i.e., inconsistent results). In their 2010 meta-analysis, Vocks and colleagues assessed essentially the same literature. The authors combined effect sizes for available randomized, controlled trials, primarily concerning antidepressants, and found overall medium effect sizes for reduction of binge eating.

Randomized, controlled trials not included in the 2011 review by the World Federation of Societies of Biological Psychiatry have failed to provide support for the utility of other medications for the treatment of binge-eating disorder, including acamprosate (McElroy et al. 2011) and lamotrigine (Guerdjikova et al. 2009).

COMBINING PSYCHOTHERAPY AND PHARMACOTHERAPY

The guideline states that for most patients, adding antidepressant medication to a behavioral weight control and/or CBT regimen does not have a significant effect on binge suppression when compared with medication alone. In a 2007 publication, Devlin and colleagues reported findings of a 2-year follow-up on 116 individuals who were studied in a randomized trial, cited in the guideline (Devlin et al. 2005), of group behavioral therapy when combined with fluoxetine, individual CBT, or placebo. Across treatment groups, there was overall improvement in binge-eating frequency and in binge-eating abstinence, with greater improvements in patients who received CBT but no significant change in weight. The authors concluded that short-term treatment may confer long-term benefits and that not all treatments are equivalent in the benefits they confer.

EATING DISORDERS IN MIDDLE AGE AND LATER LIFE

An expanding number of reports and case studies describe eating disorder in the later life of adults (Mangweth-Matzek et al. 2006; Gadalla 2008; Zerbe 2008, pp. 192–220; Patrick and Stahl 2009; Scholtz et al. 2010; Lapid et al. 2010, 2011). However, research in this area remains limited. Some such cases appear to be new onset, but the majority seem to come to psychiatric or medical attention

only after many years of patient suffering. Both biological and psychosocial factors likely play a role in the etiology of late-life eating disorders. For example, subclinical and overt anorexia nervosa and bulimia nervosa may reflect difficulties with body image and self-image as the baby-boomer generation ages. Individuals may also seek care or take it more seriously after age 40 because they are confronted with mortality and other existential issues in these decades. Patient education and therapeutic approaches must be modified to address the medical, psychological, and social needs of this age group that are different from those of younger adults and adolescents.

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NOTES

Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of eating disorders

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Abstract

Objectives: This clinical practice guideline for treatment of DSM-5 feeding and eating disorders was conducted as part of the Royal Australian and New Zealand College of Psychiatrists (RANZCP) Clinical Practice Guidelines (CPG) Project 2013–2014.

Methods: The CPG was developed in accordance with best practice according to the National Health and Medical Research Council of Australia. Literature of evidence for treatments of anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), other specified and unspecified eating disorders and avoidant restrictive food intake disorder (ARFID) was sourced from the previous RANZCP CPG reviews (dated to 2009) and updated with a systematic review (dated 2008–2013). A multidisciplinary working group wrote the draft CPG, which then underwent expert, community and stakeholder consultation, during which process additional evidence was identified.

Results: In AN the CPG recommends treatment as an outpatient or day patient in most instances (i.e. in the least restrictive environment), with hospital admission for those at risk of medical and/or psychological compromise. A multi-axial and collaborative approach is recommended, including consideration of nutritional, medical and psychological aspects, the use of family based therapies in younger people and specialist therapist-led manualised based psychological therapies in all age groups and that include longer-term follow-up. A harm minimisation approach is recommended in chronic AN. In BN and BED the CPG

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recommends an individual psychological therapy for which the best evidence is for therapist-led cognitive behavioural therapy (CBT). There is also a role for CBT adapted for internet delivery, or CBT in a non-specialist guided self-help form. Medications that may be helpful either as an adjunctive or alternative treatment option include an antidepressant, topiramate, or orlistat (the last for people with comorbid obesity). No specific treatment is recommended for ARFID as there are no trials to guide practice.

Conclusions: Specific evidence based psychological and pharmacological treatments are recommended for most eating disorders but more trials are needed for specific therapies in AN, and research is urgently needed for all aspects of ARFID assessment and management.

Expert reviewers

Associate Professor Susan Byrne, Dr Angelica Claudino, Dr Anthea Fursland, Associate Professor Jennifer Gaudiani, Dr Susan Hart, Ms Gabriella Heruc, Associate Professor Michael Kohn, Dr Rick Kausman, Dr Sarah Maguire, Ms Peta Marks, Professor Janet Treasure and Mr Andrew Wallis.

Keywords

Clinical Practice Guideline, eating disorders, evidence-based review

Introduction

This guideline for the clinical management of eating disorders is a project of the Royal Australian and New Zealand College of Psychiatrists (RANZCP). The guideline represents the work of a core working group of health care academics and professionals and wide consultation with key stakeholders and the community.

The guideline is intended to provide current evidence based guidance on the assessment and treatment of people with eating disorders by psychiatrists and other health professionals in the Australian and New Zealand context and includes identifying further research needs. It is written with reference to other international guidelines such as those of the American Psychiatric Association and the United Kingdom National Institute for Health and Care Excellence guidelines and is intended to address both broad but also specific issues, such as those relevant to Māori and Pacific, and Aboriginal and Torres Strait Islander peoples.

Overview

Eating disorders are characterised by disturbances of eating behaviours and a core psychopathology centred on food, eating and body image concerns. Early reports of an anorexia nervosa-like illness date to the 1600s (Silverman, 1983) and anorexia nervosa as a diagnostic entity was described first in 19th century medical reports (Gull, 1874; Lasegue, 1873). In contrast, bulimia nervosa and binge eating disorder were not described until the 20th century. The American Psychiatric Association DSM-5 diagnostic criteria for anorexia nervosa (APA, 2013) include self-imposed or maintained weight loss such that the person is underweight (for age and height) and associated overvaluation of shape and weight (see

Table 1). Two subtypes of anorexia nervosa are specified: restrictive type (with or without compulsive exercise); and binge eating/purging type, with binge eating (uncontrolled overeating) and purging (vomiting, laxative or diuretic misuse). Severity is specified according to BMI (kg/m^2) status.

Bulimia nervosa and binge eating disorder are both defined in the DSM-5 by having regular and sustained binge eating episodes. People with bulimia nervosa also compensate for binge eating with regular extreme weight control behaviours (such as purging). As they do not engage in such compensation regularly, people with binge eating disorder are likely to be overweight or obese. People with bulimia nervosa also have a self-view that is unduly influenced by weight and shape overvaluation. Other specified and unspecified feeding and eating disorders (OSFED and UFED) in the DSM-5 include atypical anorexia nervosa (where BMI may be within the normal range) and sub-threshold forms of bulimia nervosa and binge eating disorder on the basis of insufficient frequency and/or duration of disordered eating behaviours.¹ A new disorder added to DSM-5 is avoidant/restrictive food intake disorder (ARFID) which, like binge eating disorder, and in contrast to anorexia nervosa and bulimia nervosa, is not characterised by body image disturbance. This departure from weight/shape overvaluation as a key feature of all eating disorders is the subject of discussion in the field and likely to also be found in the ICD-11 revision (Al-Adawi et al., 2013). Readers interested in this debate are referred to Russell (2013) and Hay (2013a).

Since the classic writings of Hilde Bruch (Bruch, 1978) the ‘face’ of anorexia nervosa and eating disorders has changed dramatically. Eating disorders are not the ‘preserve’ of females, the wealthy or ‘westerners’. In the general population, lifetime prevalence of anorexia nervosa is around 1% in women and < 0.5% in men, bulimia nervosa around 2% in women and 0.5% in men, and binge eating disorder around 3.5% in women and 2.0% in men (Favaro et al., 2003; Hudson et al., 2007; Keski-Rahkonen et al., 2007; Lewinsohn et al., 2000; Oakley Browne et al., 2006; Preti et al., 2009; Raevuori et al., 2009; Striegel-Moore et al., 2003; Wade et al., 2006). Point (three-month) prevalence in Australia is estimated at around 1% for bulimia nervosa, 2% for binge eating disorder (using the DSM-5 criteria of weekly frequency of binge eating and extreme weight control behaviours) and 3% for other eating disorders (specified or unspecified according to the new DSM-5 criteria) (Hay et al., 2008). The gender ratio in bulimia nervosa is similar to that of anorexia nervosa but binge eating disorder has a more even gender distribution (Hudson et al., 2007). Accurate point prevalence has not been estimable for anorexia nervosa in Australia but 12-month prevalence in the New Zealand survey was <1% (Wells et al., 2006).

Eating disorders are associated with notable quality of life impairment and impact on home, work, personal, and social life (Jenkins et al., 2011; Mitchison et al., 2012; Mond et al., 2012) and economic cost (Butterfly Foundation, 2012). Eating disorders also frequently co-occur with other mental health disorders, particularly anxiety disorders and depression (Hudson et al., 2007). The peak age of onset of anorexia nervosa is in early to mid-adolescence but may occur at any age, including in childhood, where the gender balance is more even (Madden et al., 2009). The reasons for the greater number of boys presenting in childhood years are unclear. In bulimia nervosa and binge eating disorder onset is more commonly in later adolescence and young adulthood (Stice et al., 2013) and binge eating disorder is more likely a mid-life disorder with a much more even gender frequency. It is important to be aware that all eating disorders can, and do, arise at any age, and in both females and males. In addition, eating disorders often go undiagnosed and untreated. Thus it is common for

adults to present for treatment many years after onset, even into late middle-age (Bulik et al., 2012; Hart et al., 2011b). However, most people make a sustained recovery with treatment. This includes people with anorexia nervosa, where up to 40% of adults (and a higher percent of adolescents) will make a good five-year recovery, a further 40% a partial recovery and those with persistent illness may yet benefit from supportive therapies. For those with bulimia nervosa at least 50% fully recover and the outcomes with treatment are also good if not better for binge eating disorder (Steinhausen, 2002; Steinhausen and Weber, 2009; Steinhausen et al., 2003).

Aetiology

Socio-cultural, biological and psychological factors all contribute to the aetiology of eating disorders (Mitchison and Hay, 2014; Smink et al., 2012; Stice, 2002). The strongest socio-demographic risk factor for having an eating disorder continues to be being of female gender and being from the developed world where the ‘thin ideal’ prevails. Migrants from the developing world seem to be at particular risk. Also at risk are those living in urban areas and undertaking life pursuits where body image concerns predominate, for example, competitive gymnastics and fashion modelling.

In all eating disorders there is an increased genetic heritability and frequency of a family history. A family history of ‘leanness’ may be associated with anorexia nervosa and a personal or family history of obesity with bulimic eating disorders. Early menarche (controlling for body weight) also increases risk. Also likely important are epigenetic changes to DNA structure that are not encoded by the DNA sequence itself but which nonetheless result in enduring changes in gene expression and which are transmitted to subsequent generations. These can occur following periods of food deprivation (e.g. the Dutch starvation in World War 2), food repletion, or severe environmental stress (Campbell et al., 2011).

Psychological factors include a ‘milieu’ of weight concern in formative developmental years and specific personality traits, mostly notably low self-esteem (all eating disorders) and high levels of clinical perfectionism for those with anorexia nervosa, and impulsivity for bulimic disorders. Adverse experiences including emotional and sexual child abuse increase personal vulnerability, most likely through impeding a robust sense of self-worth and adaptive coping. The eating disorder then provides a sense of improved self-esteem and self-control for the individual (Stice, 2002).

Aim and scope

This clinical guideline will aim to provide guidance in the clinical treatment of people with eating disorders, namely anorexia nervosa, bulimia nervosa, binge eating disorder, ARFID. The clinical practice guideline (CPG) may have clinical utility to corresponding forms of other specified or not specified eating disorders that fail to meet DSM or ICD diagnostic criteria for anorexia nervosa, bulimia nervosa, binge eating disorder or ARFID. It will focus on two age groups in anorexia nervosa: (1) adults and older adolescents (18 years and above) and (2) children and adolescents living at home, as treatment and outcomes differ between these groups. One special population, people who are obese or overweight with an eating disorder, will also be addressed.²

There is much more space given to anorexia nervosa in this CPG than other disorders. This does not reflect the prevalence of disorders but rather the added complexities of assessment and management for anorexia nervosa compared to bulimia nervosa and binge eating disorder, and the paucity of knowledge in ARFID. In contrast to bulimia nervosa and binge eating disorder, anorexia nervosa presents more frequently in children and adolescents as well as in adults, it is more likely to become severe and enduring and has more extensive medical co-morbidities. We decided not to separate the two disorders of recurrent binge eating (bulimia nervosa and binge eating disorder) as there is much overlap in assessment and treatment approaches and evidence for a transdiagnostic approach.

Method

This guideline was developed as part of the Royal Australian and New Zealand College of Psychiatrists, Clinical Practice Guidelines Project 2013–2014. It was developed in accordance with best practice as outlined by the National Health and Medical Research Council (NHMRC, 2007).

The literature review focused on recent systematic reviews that would include relevant treatment trials since the RANZCP guidelines were written and subsequently reviewed and updated for the consumer guidelines in 2009 (Beumont et al., 2003; RANZCP, 2004; RANZCP, 2009). A comprehensive literature review was thus conducted with dates 2008–2013 to systematically identify and synthesise all studies that were potentially relevant to the guideline. The search was undertaken using PubMed and the search terms ‘anorexia nervosa’ OR ‘bulimia nervosa’ AND ‘treatment guidelines’ OR ‘systematic review’ OR meta-analysis’. Reference lists of identified systematic reviews were also searched for relevant empirical studies on which the CPG recommendations are based. Forty-nine papers were generated and inspected for relevance and quality (including level of evidence grade according to NHMRC categories). Twenty-seven potentially relevant systematic reviews and empirical trials were reviewed by each of two members of the working group for inclusion, and 21 papers were included (members being ineligible to review literature that they had authored or co-authored themselves). Inclusion criteria were reaching a gradable level of evidence according to NHMRC categories of at least level III or higher. Five papers (three from expert reviewers, one from a working group member and one by a member of the public who was consulted) had also been identified by members of the working group and reviewed according to the same process. The results of the search are depicted in [Figure 1](#).

Evidence based recommendations (EBR) were formulated after appraising the evidence using the NHMRC levels of evidence ratings (see [Table 2](#)). Where evidence was weak or lacking, consensus based recommendations (CBR) have been formulated. A consensus based recommendation is the lowest level of evidence. It is the consensus of a group of experts in the field and is informed by their agreement as a group according to their collective clinical and research knowledge and experience. In this process level IV articles were considered where higher level evidence was lacking and they informed the CBR.

A series of drafts were then prepared and refined by the working group. The final draft was then reviewed by national and international expert advisers, professional bodies (medicine, psychology, dietetics, nursing, social work and occupational therapy) and special groups (consumer, carer, Aboriginal and Torres Strait Islander, Māori and Pacific and migrant) prior to

an extensive community consultation process. A full list of people and groups consulted and tables of included and excluded studies are available on the [RANZCP web site](#).

General principles of treatment for all eating disorders

Person-centred informed decision-making. Safe and empirically supported treatment options based on available research and expert consensus should be discussed with the individual and their family. These options should be centred wherever possible on an informed decision made with the person and (where appropriate) their family. For children and adolescents the decision balance will be age appropriate and will involve their parents or legally appointed guardian.

Involving family and significant others. Unless there are contraindications or the individual is opposed, family or significant others should be enlisted as partners in the assessment and treatment process. Given the considerable burden on family members it is important that the family is provided with appropriate support and information.

Recovery-oriented practice. Care for people with eating disorders should be provided within a framework that supports the values of recovery-oriented care (Australian Health Ministers Advisory Council, 2013). Recovery-oriented practice encapsulates mental health care that:

- recognises and embraces the possibilities for recovery and wellbeing created by the inherent strength and capacity of all people experiencing mental health issues
- maximises self-determination and self-management of mental health and wellbeing
- assists families to understand the challenges and opportunities arising from their family member's experiences
- provides evidence-informed treatment, therapy, rehabilitation and psychosocial support that helps people to achieve the best outcomes for their mental health, physical health and wellbeing
- works in partnership with consumer organisations and a broad cross-section of services and community groups
- embraces and supports the development of new models of peer-run programs and services
- maximises choice
- supports positive risk-taking
- recognises the dignity of risk, i.e. the individual's right to make treatment choices that the treating health care team might not see as being the most effective decision
- takes into account medico-legal requirements and duty of care
- promotes safety.

Least restrictive treatment context. Where possible, treatment should be offered in the setting that is least restrictive and best suited to the individual's needs and preferences.

Many people with eating disorders are difficult to engage as they are ambivalent, or fear giving up their eating disorder behaviours, or deny the illness or the seriousness of their symptoms. Offering options and control can help with therapeutic engagement. Legislation in both New Zealand and Australia allows for involuntary assessment or treatment if a person with anorexia nervosa has impaired decision-making capacity, and is unable or unwilling to consent to interventions required to preserve life. Although involuntary treatment may provide the opportunity to prevent fatal complications, the potential adverse effects on therapeutic alliance needs to be considered (Carney et al., 2007). The short-term weight gain response of involuntary patients with anorexia nervosa has been shown to be comparable to those admitted voluntarily (Watson et al., 2000). Many of those who are treated on an involuntary basis later agree that treatment was necessary and remain therapeutically engaged (Guarda et al., 2007; Tan et al., 2010; Watson et al., 2000).

Multidisciplinary approach. Expert consensus and clinical cohort studies (e.g. NICE, 2004b) support a multidisciplinary approach to ensure that the individual gets access to the combined medical, dietetic (Dietitians Association of Australia, 2012) and psychological interventions required to maximise the chances of a full recovery. Ideally, team members will have specialist knowledge, skills and experience in the area of eating disorders, and be situated in the same location or at least in places easily accessible for those being treated and their families. Although team members may have differing perspectives, a united approach in delivering treatment is critical. The general practitioner is often in the best position to be the key coordinating clinician, especially if the treating specialists are not co-located.

Stepped and seamless care. Ideally, a range of options including outpatient, intensive outpatient with meal support, day program, and inpatient treatment should be available. As many people will not be seen by a specialist service, specialists should build strong links with primary care, general hospital and community providers in order to facilitate access and smooth transitions of care between general practice, emergency departments, medical wards, mental health settings, private clinicians and specialist services (House et al., 2012).

A dimensional and culturally informed approach to diagnosis and treatment. Establishing the presence of the core syndrome of an eating disorder is crucial in terms of informing treatment, but significant symptom variability occurs within and between individual experiences of anorexia nervosa, bulimia nervosa and binge eating disorder and other eating disorders. A rigid approach to diagnosis should be avoided (Pike, 2013). Empirically supported definitions of severity are still in development (Maguire et al., 2008) and although physical measures (e.g. BMI and more specific indicators of malnutrition such as amenorrhoea, hypotension, bradycardia, hypothermia and neutropaenia) are commonly used as markers of severity, psychological symptoms and clinical history should also inform severity formulations (Maguire et al., 2012). Comparative studies (EBR III) highlight possible cultural and ethnic variability in the presentation of anorexia nervosa or other eating disorders (Soh et al., 2006). There are insufficient studies on gender differences to inform the need for major differences in assessment approaches or treatment delivery for males (Murray and Touyz, 2013).

Indigenous care. Clinicians must demonstrate the appropriate knowledge, skills, awareness, and attitudes ('cultural competence') when working with people with eating disorders from indigenous and other cultural backgrounds. Assessment and treatment of eating disorders in Aboriginal and Torres Strait Islander and Māori and Pacific peoples should ascribe to the broader principles of mental health care as recommended in the RANZCP online training guide (RANZCP, 2012).

Approaches to care of people of Aboriginal and Torres Strait Islander background should be informed by an understanding of their history and culture even though there is little written about specific approaches to treatment for those who suffer from an eating disorder. However, epidemiologic evidence indicates that Aboriginal and Torres Strait Islander people are no less likely, and may be more likely, to experience an eating disorder as non-indigenous Australians (Hay and Carriage, 2012). In particular, poor nutrition and health-related consequences such as Type II diabetes are well recognised problems in this population. The reasons for this are complex, but the loss of traditional values and practices in food choices and replacement with foods of less nutritional value may be part of a broader process of cultural dispossession combined with social disadvantage. In addition, Aboriginal and Torres Strait Islander adolescents do have body image concerns which appear to focus around a desired 'muscular' shape (Cinelli and O'Dea, 2009) and may be less concerned about being slim or losing weight (McCabe et al., 2005; Ricciardelli et al., 2004).

Epidemiological data are scarce in Māori and Pacific peoples, with older data suggesting a lifetime prevalence of 3.1% (0.7% anorexia nervosa; 2.4% bulimia nervosa) and 3.9% respectively (Baxter et al., 2006). However, there are high levels of obesity in both Māori and Pacific peoples compared with the New Zealand adult population overall (Ministry of Health, 2012a, 2012b). Thus, whilst the prevalence of binge eating disorder is unknown, because of an associated risk with obesity it is possible that Māori and Pacific peoples are at increased risk of binge eating disorder.

In New Zealand 'cultural competence' explicitly includes application of te Tiriti o Waitangi (the Treaty of Waitangi) principles of partnership, participation and protection. This may require different assessment practices, for example the presence of wider whānau (family) at consultations, styles of treatment engagement and the communication of treatment information. These competencies are further outlined by the Medical Council of New Zealand and the New Zealand Psychologists Board (MCNZ, 2006a, 2006b, 2010; NZPB, 2011). In every aspect, working with different cultural groups requires respect for different world views, values and meanings. Clinicians should seek cultural advice and leadership from cultural support staff/whānau advisers to maximise engagement and therapeutic alliance.

Section one: anorexia nervosa

Anorexia nervosa in adults

Introduction

The following section outlines core assessment and treatment guidelines for adults with anorexia nervosa. There is a lack of high quality evidence to guide the clinician in the treatment of adults who have anorexia nervosa. Methodologically robust studies are small in number and inconclusive, meaning that conflicting results are common. Many studies are limited by methodological issues including small samples, low quality design, and short follow-up periods (Watson et al., 2010). There have however been improvements in the evidence base for treatments for adults with anorexia nervosa since the 2003 RANZCP Clinical Practice Guidelines (Beumont et al., 2003; Watson and Bulik, 2012). Clinical practice is as well best informed by considering recent systematic reviews and accessing empirically investigated treatments in conjunction with consensus opinions of experts in the field (Beumont et al., 2003; RANZCP, 2004; Watson et al., 2010; Yager et al., 2006).

Assessment

A comprehensive assessment of the individual and their circumstances should be undertaken to confirm the diagnosis of anorexia nervosa and any comorbid psychiatric or medical diagnoses, to evaluate medical and psychiatric risks, and to develop a biopsychosocial formulation. Collecting assessment information is an ongoing task as clinical issues and priorities unfold throughout treatment. Comprehensive initial assessment of adults should include the following components:

- Collating a thorough history including the various symptoms of anorexia nervosa which include but are not limited to: dietary restriction; weight loss; inability to restore weight; body image disturbance; fears about weight gain; binging; purging; excessive exercise; early satiety; constipation; and the use of laxatives, diuretics, or medications to lose or maintain low weight (APA, 2013). Other symptoms may include disturbed eating behaviours, e.g. eating apart from others and ritualistic patterns of eating such as prolonged meal times and division of food into very small pieces (Wilson et al., 1985). It is important to accurately assess nutritional and fluid intake, with specific enquiries made as to the adequacy of main meals and snacks consumed. Where possible, collateral sources such as family members and other clinicians involved in the person's care should be utilised. The perspective of others is especially important given that symptom minimisation, poor insight or genuinely poor understandings of the seriousness of symptoms are common aspects of anorexia nervosa (APA, 2013).
- Investigating any medical complications and the current level of medical risk. This is essential and should include a brief physical examination including measurement of weight, height, calculation of BMI, seated and standing pulse rate to detect resting bradycardia and/or tachycardia on minimal exertion due to cardiac deconditioning, blood pressure (seated and standing) and temperature. These findings are needed to determine if immediate hospital admission is required (see **Table 3**). Investigations should include serum biochemistry to detect hypokalaemia, metabolic alkalosis or acidosis, hypoglycaemia, hypophosphataemia, and hypomagnesaemia, serum liver

function tests, serum prealbumin levels and a full blood examination looking for evidence of starvation-induced bone marrow suppression such as neutropaenia and an electrocardiogram (ECG). A bone mineral density scan should be performed routinely if the person has been underweight for six months or longer with or without amenorrhea and thereafter every two years whilst still struggling with an eating disorder (Mehler et al., 2011). The assessment should also include any history of fainting, light-headedness, palpitations, chest pain, shortness of breath, ankle swelling, weakness, tiredness and amenorrhoea or irregular menses

- Assessing psychiatric comorbidity, e.g. anxiety, depression, substance misuse, suicidality, personality disorders, anxiety disorders and deliberate self-harm. Comorbidity in people with anorexia nervosa is common and therefore assessment for such should be routine. Lifetime prevalence of comorbidity has been reported ranging from 55% in community adolescent samples to 96% in adult samples (Godart et al., 2007; Madden et al., 2009; Milos et al., 2003; Swanson et al., 2011). All forms of anxiety disorder may occur and in one study the most common was social phobia (42%), followed by post-traumatic stress disorder (26%) and generalised anxiety disorder (23%) (Swinbourne et al., 2012). Furthermore, social anxiety is not only related to eating in public but may pre-date the onset of the eating disorder. Rates of comorbidity are similar in men and women (Raevuori et al., 2009). However, clinicians should be aware that depression, obsessional thinking, anxiety and other psychiatric symptoms can represent the reversible effects of starvation on the brain (Keys et al., 1950).
- Assessing cognitive changes due to starvation such as slowed thought processing, impaired short-term memory, reduced cognitive flexibility and concentration and attention difficulties (Hatch et al., 2010). Whilst brain imaging is not routine, these problems reflect consistent findings of reduced grey matter volumes that often do not reverse following weight recovery (Phillipou et al., 2014).
- Considering possible predisposing and precipitating factors including a family history of eating disorders, early attachment and developmental difficulties, premorbid obesity, interpersonal problems, and dieting or other causes of rapid weight loss (Mitchison and Hay, 2014; Stice, 2002). Rapid weight loss from any cause, including physical illness, can trigger cognitive changes including obsessive thinking about food, in turn precipitating and perpetuating the symptoms of anorexia nervosa (Keys et al., 1950).

Treatment

Setting priorities. Thorough assessment should lead to a working diagnosis or diagnoses, risk assessment and case formulation setting immediate treatment priorities. The case formulation should include preliminary hypotheses about predisposing, precipitating and maintaining factors, as well as noting the individual's strengths and protective factors. Given the typically prolonged time between onset and presentation, and the diverse pathways into anorexia nervosa, early firm statements about causal factors pertaining to an individual should be avoided. It is generally agreed that treatment priorities should be set as follows: engagement, medical stabilisation, reversal of the cognitive effects of starvation, and provision of structured psychological treatment. These are discussed in more detail below.

Engagement. Engaging with the individual with anorexia nervosa and their family at the first appointment can be challenging as there is typically extreme anxiety at the prospect of increased nutrition and weight gain, which are essential for recovery. To enable therapeutic engagement it is crucial that the clinician take a non-judgemental, inclusive, empathetic and non-threatening stance. Although lacking level I empirical evidence, sensible practices for improving engagement have included psychoeducation, enlisting the support of the family (Treasure et al., 2007), motivational interviewing around what the individual themselves reports as important, and appealing to the 'healthy' part of the person (Nordbø et al., 2008; Vitousek et al., 1998).

Medical stabilisation. Admission to hospital is indicated if the person is at imminent risk of serious medical complications, or if outpatient treatment is not working (Beumont et al., 2003). Indicators of high medical risk requiring consideration for admission (see **Table 3**) include any one of the following: heart rate <40 bpm or tachycardia on standing due to cardiac deconditioning with >20 bpm increase in heart rate, blood pressure <90/60 mm Hg or with >20 mm Hg drop on standing, hypokalaemia, hypoglycaemia, hypophosphataemia, temperature <35.5°C, or BMI < 14 kg/m². It is important to note that patients can report feeling well even when the risk of cardiac arrest is high. Admission is also indicated if there is rapid weight loss, several days of no oral intake, supervision required for every meal, uncontrolled purging or exercise, or suicidality.

Ideally, whenever possible and practicable, people with anorexia nervosa requiring admission should be admitted to a specialist eating disorders unit. There is debate about rates of weight gain in inpatient settings with recommended rates ranging from 500–1,400g/week (NICE, 2004b; Yager et al., 2006). There is evidence that where weight gain is the key prioritised treatment goal, inpatient treatment is superior to less intense forms of treatment due to the faster weight gain in those settings (Hartmann et al., 2011). However, inpatient beds are unfortunately scarce and can be difficult to access. In such situations, another model that has been effective in managing acute problems is admission to general medical or psychiatric beds, with support provided to generalist clinicians by a specialist eating disorder consultation-liaison service (EDOS, 2011). Where patients are at very high medical risk (e.g. with BMI < 12 or significant medical complications), they will need to be admitted to a medical setting with input from psychiatry consultation-liaison services until medically stabilised, before being transferred to a psychiatric or eating disorders specialist unit for ongoing nutritional rehabilitation and psychiatric treatment. Discharge from hospital should only occur when the person is medically stabilised, has had enough nutrition to reverse any cognitive effects of starvation so that she or he can benefit from outpatient or day patient psychotherapy (often several weeks of nutrition are required to achieve this), has had trials of leave to demonstrate that she or he can eat outside hospital, and has a direct link in with appropriate outpatient monitoring, support and treatment (EDOS, 2011).

Following discharge to less intense treatment settings, there is insufficient evidence to point to the best means of maintaining weight (Hartmann et al., 2011). One small randomised control trial found a manualised cognitive behavioural therapy for anorexia nervosa (CBT-AN) was superior to nutritional counselling and usual care (all treatment including nutritional counselling delivered by psychologists) in preventing relapse (Pike et al., 2003). Nutritional counselling alone should not be the sole treatment for people with anorexia nervosa; a multidisciplinary approach is more supported (Dietitians Association Australia, 2003) and

there is strong clinical consensus that continuity of treatment should be provided. For people with severe and enduring eating disorders, a more flexible and patient-centred approach may need to be taken when considering criteria for admission and discharge (see separate section on severe and enduring eating disorders in this clinical practice guideline).

Medical complications and their treatment. Table 4 lists the common medical complications and their management. If the medical complication is secondary to malnutrition, effective treatments must always include regular and adequate nutrition. It is important to ensure that prescribed nutrition is being consumed by the individual, either through supervision and support during mealtimes by staff in hospital or family/carers out of hospital; or if the person is well enough, through self-recording of oral intake discussed at outpatient treatment sessions. Similarly, if medical complications are due to purging or other behaviours, measures need to be taken to address these.

Refeeding syndrome. Refeeding syndrome is a serious and potentially fatal medical complication of aggressive refeeding of an individual who has been malnourished for a lengthy period. Refeeding syndrome is understood to be due to the switch from fasting gluconeogenesis to carbohydrate-induced insulin release triggering rapid intracellular uptake of potassium, phosphate and magnesium into cells to metabolise carbohydrates (Kohn et al., 2011). This, on top of already low body stores of such electrolytes due to starvation, can lead to rapid onset of hypophosphataemia, hypomagnesia and hypokalaemia. In addition, insulin-triggered rebound hypoglycaemia can occur, exacerbated by the fact that such patients have depleted glycogen stores. The risk factors for refeeding syndrome include the degree of malnutrition and adaptation to this state, the levels of serum minerals and electrolytes such as phosphate and potassium and the rate of provision of carbohydrate in relation to other nutrients (Gentile et al., 2010; Kohn et al., 2011; Mehler et al., 2010; O'Connor and Goldin, 2011; Ornstein et al., 2003).

There is a wide range of opinion as to ideal starting doses of nutrition for adults with anorexia nervosa, with often little evidence to support the varied opinions (Gaudiani et al., 2012; Katzman, 2012; Kohn et al., 2011). Traditionally, it has been thought that the risk of refeeding syndrome can be reduced by 'starting low' and 'going slow' with nutrition, and monitoring serum phosphate, potassium and magnesium daily for the first 1–2 weeks of refeeding, and replacing these electrolytes immediately if they fall below normal range (Beumont et al., 2003; NICE, 2004b; Yager et al., 2006).

All authors agree on the importance of regularly monitoring and replacing phosphate, potassium and magnesium. However, traditional recommendations for refeeding designed to prevent refeeding syndrome are now seen by many to be too conservative, and unnecessarily put the severely malnourished person at risk of 'underfeeding syndrome' and further medical deterioration. Findings from case series studies range from those reporting large numbers of adolescents being fed on relatively high initial rates of up to 8400kJ of low-carbohydrate continuous nasogastric feeds with supplemental phosphate without causing refeeding syndrome (Kohn et al., 2011; Whitelaw et al., 2010), to those of severely malnourished adults reporting that 45% of participants developed significant refeeding-induced hypophosphataemia with much lower mean initial refeeding doses of 4000kJ/day (Gaudiani et al., 2012). Thus, refeeding syndrome has been observed even with very low initial feeding doses, and initial dose has not been shown to be a predictor of refeeding

hypophosphataemia or refeeding syndrome (Gaudiani et al., 2012; O'Connor and Goldin, 2011). It is unclear whether the recent literature supporting safe use of higher refeeding doses in adolescents (for more information, see the section in these guidelines on treating anorexia nervosa in children and adolescents) is applicable to adults who may have been more severely malnourished for much longer periods, theoretically putting them at higher risk of refeeding syndrome.

In light of the conflicting and inadequate literature, the CPG group recommend taking a 'middle path' with adults, commencing refeeding at 6000kJ/day. This should be increased by 2000kJ/day every 2–3 days until an adequate intake to meet the person's needs for weight restoration is reached. This diet should be supplemented by phosphate at 500mg twice daily and thiamine at least 100mg daily for the first week, and thereafter as clinically indicated for people at high risk of refeeding syndrome (e.g. BMI <13). For people at high risk of refeeding syndrome, commencing with continuous nasogastric feeding with low-carbohydrate preparations (i.e. 40–50% of energy from carbohydrates) seems prudent to avoid triggering postprandial rebound hypoglycaemia due to insulin secretion in people with inadequate glycogen stores. The most important aspects of preventing refeeding syndrome are a heightened physician awareness of the syndrome, and regular monitoring of the person's clinical status, including physical observations and biochemical monitoring, especially to guide phosphate prophylaxis or supplementation.

Refeeding protocols should, however, be individualised where necessary to minimise both the risk of refeeding syndrome and complications due to underfeeding, and involve the input of a dietician experienced in the treatment of eating disorders. Methods of nutritional provision include supervised meals, high energy high protein oral liquid supplements and nasogastric feeding. On very rare occasions where the above methods are unable to be utilised, parenteral nutrition may be indicated. The least intrusive and most normal method of nutrition that can be reliably provided should be used.

Monitoring progress and reviewing priorities. In assessing whether an individual's nutritional health has been adequately restored, weight is only an approximate indicator. Other indicators of normal physiological functioning should be considered, including normal blood glucose levels, reversal of hypotension and bradycardia, normal blood cell counts with bone marrow suppression reversed, return of menstruation and normal cognitive functioning.

Assessing psychological progress is more difficult given that many features of anorexia nervosa involve internalised symptoms and behavioural deficits. However, such assessment should include monitoring dietary intake, compensatory behaviours and body image disturbance and dissatisfaction. Absence of progress in treatment after reasonable trial periods should prompt a treatment review and consideration for changing interventions and/or increasing treatment intensity.

Specific treatments. Providing psychoeducation, support and building a therapeutic relationship are all crucial activities at all stages of treatment. The more intense structured psychological therapies should generally be initiated only after the individual is sufficiently stabilised and cognitively improved from the acute effects of starvation. It is important that the treatment plan is individualised and addresses any comorbid conditions.

Individual therapies. There are major shortcomings in the literature, making any robust and direct comparison between commonly used psychological treatments (e.g. cognitive behaviour therapy, interpersonal psychotherapy, or psychodynamic psychotherapy) very difficult. These limitations include small numbers of trials and lack of statistical power.

Cognitive behavioural therapy (CBT) and its many forms, for example CBT-Enhanced (Fairburn, 2008), are frequently recommended approaches for anorexia nervosa. Common to these approaches are the activities of directly challenging anorexia-related behaviours, cognitions and patterns of thinking, especially symptoms that maintain the disorder. In inpatient settings, less restrictive behavioural approaches are likely to be more effective than strict regimens which are often perceived by the individual as punitive and demeaning (Touyz et al., 1984). Despite the popularity of CBT and improving evidence of its effectiveness, further investigation is required (Bulik et al., 2007; Hay, 2013b; Zipfel et al., 2014). There is no empirical evidence that guided self-help CBT (CBT-GSH) is a useful treatment for anorexia nervosa, with some concluding that it is contraindicated (Wilson and Zandberg, 2012).

Specialist supportive clinical management (SSCM) (McIntosh et al., 2006) has been shown in one trial to be more effective than CBT or interpersonal therapy (McIntosh et al., 2005). SSCM has as its primary focus resumption of normal eating and the restoration of weight, but it also allows a flexible approach to addressing life issues impacting on the eating disorder.

The Maudsley model of anorexia nervosa treatment for adults (MANTRA), not to be confused with the 'Maudsley' model of family based therapy, is a recently developed manualised individual therapy for adults with anorexia nervosa, drawing on a range of approaches including motivational interviewing, cognitive remediation and flexible involvement of carers. It aims to address the obsessional and anxious/avoidant traits that are proposed as being central to the maintenance of the illness (Schmidt et al., 2012). In a randomised controlled trial (RCT) it was, however, shown to be no more effective than SSCM, with recovery rates low in both arms of the trial (Schmidt et al., 2012).

Motivation-based therapies (motivational interviewing, motivational enhancement etc.), either as the main treatment or in conjunction with another therapy, have been adapted to eating disorders (Casasnovas et al., 2007; Nordbø et al., 2008; Treasure et al., 2007) including anorexia nervosa. Meaningful engagement in therapy is a crucial component in all treatments for anorexia nervosa, as are techniques to enhance change. Recent critical reviews question whether purely motivation-based therapies improve treatment efficacy in anorexia nervosa (Knowles et al., 2012; Waller, 2012). This does not dismiss the crucial importance of challenging resistance to change and targeting behavioural changes alongside wider psychological changes: these processes underpin most psychotherapies.

Other individual approaches that may be helpful in adults with anorexia nervosa include interpersonal psychotherapy, cognitive analytic therapy, focal psychoanalytic and other psychodynamic therapies (Watson, 2010; Zipfel, 2014), although again the level of evidence for each of these is modest, and generally limited to a very small number of trials. Interpretation of findings where specific psychological therapies are compared with other therapies is hampered by methodological problems (Hartmann et al., 2011).

Web-based therapies for anorexia nervosa have not been sufficiently investigated by EBR II research (Aardoom et al., 2013). A single RCT has shown that a CBT-based program

delivered on the internet may reduce the risk of relapse after hospitalisation (Fichter et al., 2012). It is advised that any treatment via the internet poses unique risks in providing responsible care. There is increased likelihood of miscommunications and there are significant regulatory issues if the practice occurs across different jurisdictions. Given the very limited evidence of effectiveness, these additional factors contribute to a high degree of caution if using internet-based therapies to treat anorexia nervosa.

Family therapies. There is moderate research-based evidence for family therapies in younger people with anorexia nervosa up to their late teens, living with family and with an illness duration of less than three years, with evidence that family therapy is more effective than individual treatment (Russell et al., 1987). Whilst family therapy approaches vary in their focus and etiological stances, a common theme is the involvement of family in treatment to help recovery especially in regard to interventions to restore weight.

Recent evidence reviews have reported that family therapy and a specific form of family therapy termed 'family based treatment' (FBT) remains the most well-studied treatment for young people with anorexia nervosa, and has been associated with persistent positive outcomes on physical and psychological parameters (Keel and Haedt, 2008; NEDC, 2010; Watson and Bulik, 2012); however, views are mixed (Couturier et al., 2013; Fisher et al., 2010; Strober, 2014). One of these reviews (Couturier et al., 2013) found that although FBT was not superior to individual treatment at the end of treatment, there did appear to be significant benefits at the 6–12 month follow-up. It is important to note that FBT has not been shown to be an effective treatment for anorexia nervosa in adults older than 18 years.

There is wider clinical consensus that families play an important role in assessment and overall treatment processes for younger people. Thus, unless contraindicated, family functioning should be assessed and appropriate support provided to manage the burden to families of anorexia nervosa. Other promising models of family interventions have been developed for adults, such as skills-based training for family members (Treasure et al., 2007) and couples work with partners (Bulik et al., 2011), but these are yet to be evaluated in well-designed studies. Further research and guidance with regards to family therapy in children and adolescents is discussed later in this guideline.

Pharmacotherapy. Recent systematic reviews of RCTs and meta-analyses of the pharmacological treatment of anorexia nervosa suggest weak evidence for the use of any psychotropic agents (Aigner et al., 2011; Flament et al., 2012; Hay and Claudino, 2012; Kishi et al., 2012). Prescribing for comorbid conditions (e.g. anxiety or mood disorders) is best left until it is clear that such symptoms are not simply secondary to starvation, although low doses of antipsychotics such as olanzapine may be helpful when patients are severely anxious and demonstrate obsessive eating-related ruminations, but more trials are needed (Hay and Claudino, 2012). Caution is required for any psychotropic medication, as physical problems secondary to anorexia nervosa may place individuals at greater risk of adverse side effects. Evidence for the effectiveness of medications to reverse bone density loss is lacking (Mehler et al., 2011).

Other treatments. A variety of other treatments have been proposed as primary treatments or as an adjunct to treatment of anorexia nervosa, but not established because of inadequate

evidence to support their routine use. Zinc deficiency is common in anorexia nervosa and may be associated with dermatological change (Kim et al., 2010; Lask et al., 1993). In a single small double-blind trial, zinc supplementation was associated with a more rapid rate of body mass increase (Birmingham et al., 1994). Zinc supplementation is, however, not a routine component of therapy, because assessment of zinc status is difficult, the purported benefit limited, and deficiency will correct with general nutritional improvement (Lask et al., 1993).

Clinical observations and animal studies of decreased thermogenic activity with application of external heat have led to the incorporation of warming as a component of some treatment programs (Bergh et al., 2002; Birmingham et al., 2004; Gutierrez and Vazquez, 2001). A controlled trial of warming for three hours a day failed to demonstrate any advantage for weight gain compared with 'treatment as usual'. Biofeedback focused on satiety and rate of eating underpins the Mandometer, a computer-based device that attempts to retrain eating patterns, has support from small observational studies and a small RCT compared to a wait-list control group (Bergh et al., 1996, 2002), but not from another larger controlled study (van Elburg et al., 2012). Recently, stereotactic surgery and deep brain stimulation have been considered for the management of refractory anorexia nervosa (Lipsman et al., 2013b). A pilot study of six adult patients with chronic refractory anorexia nervosa underwent implantation of electrodes to the sub-callosal cingulate region of their brain and then long-term deep brain stimulation (Lipsman et al., 2013a). While there may be some benefits to this approach, assessment has been inadequate and the wider response has been cautious (Hutton, 2013; Treasure and Schmidt, 2013).

Relapse prevention. Prospective and retrospective studies show varying rates of relapse, but it is generally agreed that the rates are substantial. A recent prospective study (Carter et al., 2012) showed a relapse rate of 41%, with the highest risk for relapse within 4–9 months after treatment. There is insufficient evidence about treatments to reduce relapse, but well-designed studies are consistent in finding that those with anorexia nervosa-binge purge subtype have higher rates of relapse, meaning that these individuals should receive more intense follow-up.

Outcomes and prognosis. Steinhausen (2002) reported that 70% of a multicentre European cohort with anorexia nervosa had fully recovered at follow-up at a mean of 6.4 years, and around 75% had no other evidence of psychiatric illness. Strober and colleagues documented in detail the follow-up of a cohort of 95 individuals with anorexia nervosa followed longitudinally. Eighty-seven percent recovered at least partially (loss of three of four diagnostic criteria of anorexia nervosa) at a mean of 59 months from assessment, and 76% experienced full recovery at a mean of 79 months. In an adolescent cohort, it was reported that recovery was still occurring 11 years after initial assessment (Strober et al., 1997). Steinhausen also reported lower mortality rates than 'all-age' data, with a 2.9% crude mortality rate in an adolescent European cohort (Steinhausen et al., 2003).

Summary of recommendations with level of evidence base (EBR) or consensus (CBR)

Recommendation	Grade
Assessment of adults with anorexia nervosa <ul style="list-style-type: none"> • Be person-centred and culturally informed in assessment practices. • Involve family and significant others unless there are clear contraindications. • Take a multidisciplinary approach. • Use a dimensional approach to the illness, i.e. tailor management based on stage of illness severity and symptom profile. • Conduct detailed assessments of core symptomatology including restriction methods, psychological symptoms related to fear of weight gain, weight loss, drive for thinness, and body image disturbance/dissatisfaction, establishing both severity and (where possible) duration of illness. • Conduct detailed evaluations for any comorbid psychiatric diagnoses. • Conduct detailed physical, medical, and laboratory examinations, thereby setting priorities for any specific medical interventions. 	EBR III
Treatment of adults with anorexia nervosa <ul style="list-style-type: none"> • Treat in the least restrictive environment possible. Many people can be treated in outpatient care (EBR II). • Provide 'stepped and seamless care' options, with smooth transition between services (including between primary care, general hospital settings and other community services). • Admit to hospital when indicated for those at high risk of life-threatening medical complications, extremely low weights, and other uncontrolled symptoms. • Use refeeding and weight gain regimes that minimise the risk of refeeding syndrome, 'underfeeding' and other medical complications arising from increased nutritional intake. • Take a multi-axial approach to assessing treatment progress, including considering nutritional, medical and psychological aspects. • Provide psychoeducation, support and a therapeutic relationship at all stages of treatment and initiate more intense psychological therapies after the person is sufficiently medically stabilised and cognitively improved from the effects of starvation. • Initiate longer-term follow-up as recovery rates are low and relapse rates are high. This will limit the need for re-intensified treatment. 	EBR III

Summary of recommendations with level of evidence base (EBR) or consensus (CBR) (continued)

Recommendation	Grade
Specific pharmacological treatments <ul style="list-style-type: none"> There is only weak evidence for pharmacological treatment of anorexia nervosa. Low-dose antipsychotics such as olanzapine may be useful in reducing anxiety and obsessive thinking, but results of trials are mixed and such individuals are at greater risk of adverse side effects (EBR I). Exercise caution in prescribing psychotropic medication for severe comorbid conditions/symptoms until it is clear that such symptoms are not secondary to starvation. 	EBR III
Specific psychological treatments <ul style="list-style-type: none"> Psychological therapy is considered essential, but there is limited high quality evidence to direct the best choice of therapy modality. There is modest evidence that family based therapies are effective for younger people (up to the age of 18) living with families. Specialist therapist-led manualised based approaches show the most promising evidence base, and as such should be first-line options. 	EBR I
Future research <ul style="list-style-type: none"> Future research should include methodological designs that are robust and can overcome past problems by recruiting larger samples and enabling longer follow-up periods. 	EBR I

Anorexia nervosa in adolescents and children

Introduction

Anorexia nervosa is the third most common chronic disorder affecting adolescent girls, with a mean mortality rate of 5% in adults and 2% in adolescents (Steinhausen et al., 2002). The mortality rate is up to 18 times greater than in non-affected women aged 15–24 years (Steinhausen et al., 2003). The peak age of onset for anorexia nervosa is 15 to 19 years, accounting for approximately half of all presentations (73.9 to 270 females per 100,000 person years and 6.4 to 15.7 males per 100,000 person years) with nearly all people with anorexia nervosa presenting between 10 and 29 years (Herpertz-Dahlmann, 2009). Individuals between 10 and 14 years account for approximately one in five new presentations of anorexia nervosa (Keski-Rahkonen et al., 2007; Lucas et al., 1999; Raevuori et al., 2009). The incidence of early onset (children aged 5–13 years) eating disorders in Australia is estimated to be 1.4–2.8 per 100,000 children (Madden et al., 2009).

Lifetime prevalence rates for anorexia nervosa are higher in younger women compared with older age women, with rates consistently higher in more recent studies. This is consistent with the findings of Lucas et al. (1999), who demonstrated that the incidence of anorexia nervosa in 15 to 24 year old women has increased over the past 50 years. In the 10 to 14 year old age group, rates of anorexia nervosa also appear to have increased since the 1960s (Lucas et al., 1999), though the limited number of studies that have looked at this group make it difficult to be definitive. What can be clearly stated about this younger age group is that males make up a far greater proportion of those with anorexia nervosa, making up between one in six and one in four presentations (Madden et al., 2009; Nicholls et al., 2011b) compared with between one in eight and one in 15 presentations in adults (Hoek and van Hoeken, 2003; Lucas et al., 1999; Miller and Golden, 2010; Preti et al., 2009).

While two thirds of children aged less than 12 years with weight loss due to an eating disorder present with similar psychological symptoms to older adolescents and adults with anorexia nervosa, there are also differences. Children in this age group are less likely to report fear of weight gain or fatness (Lask and Bryant-Waugh, 1992; Madden et al., 2009; Nicholls et al., 2011b; Walker et al., In Press), more likely to fail to appreciate the severity of their illness (Fisher et al., 2001), more likely to present with non-specific somatic symptoms (Blitzer et al., 1961; Madden et al., 2009; Nicholls et al., 2011b), more likely to be diagnosed with other specified or unspecified feeding or eating disorder or ARFID, more likely to be boys, less likely to report vomiting or laxative abuse, more likely to have lost weight more rapidly and more likely to have a lower percent ideal body weight (%IBW) than older individuals with anorexia nervosa (Madden et al., 2009; Nicholls et al., 2011b; Peebles et al., 2006; Walker et al., In Press).

Complications from malnutrition and compensatory behaviours associated with anorexia nervosa include growth retardation, osteoporosis, infertility and changes in brain structure (Katzman, 2005) as well as psychological complications including depression, anxiety, obsessive compulsive disorder and cognitive impairment (Hatch et al., 2010). These complications are greatest during early adolescence due to disruption of critical periods of physical, psychological and social development (Golden et al., 2003; Katzman, 2005).

Assessment

There is limited evidence to guide the assessment of children and adolescents with anorexia nervosa with all recommendations based on expert consensus. At assessment, every child or adolescent suspected of having anorexia nervosa needs a comprehensive review of psychological and physiological signs and symptoms. Ideally assessments should be multidisciplinary and include professionals with expertise in psychiatric diagnosis, medicine and dietetics. Assessment should involve both children and their families or carers unless this is contraindicated due to safety concerns such as abuse or domestic violence (Mariano et al., 2013). Assessments in children and adolescents should be developmentally informed.

Psychological assessment should include a review of both eating disorder symptoms and comorbid psychiatric symptoms. The most common comorbid illnesses in adolescents with anorexia nervosa are anxiety disorders, including obsessive compulsive disorder (OCD) and major depressive disorder (MDD) (Milos et al., 2003; Steinhausen, 2002; Swanson et al., 2011). As in adult care, minimising mortality associated with anorexia nervosa is key

to initial medical care. Some people will require admission for medical compromise (see Tables 3, 4 and 5). Medical instability is the key indicator for acute hospitalisation.

Treatment

Current evidence supports outpatient care as the first-line treatment in adolescent anorexia nervosa, and there is a growing body of evidence to guide such care, particularly the role of family treatment (Lock, 2011; Smith and Cook-Cottone, 2011). There are, however, few studies into the role of inpatient treatment in anorexia nervosa. Hospitalisation of adolescents with anorexia nervosa for the management of acute medical instability (e.g. hypothermia, hypotension, electrolyte abnormalities and cardiac arrhythmias) is thought to be essential in preventing mortality associated with anorexia nervosa (Golden et al., 2003; Katzman, 2005).

Treatment, especially of children and adolescents with more severe disease, should be multidisciplinary, and include focused psychological therapy of the eating disorder and comorbid psychological problems. It should typically include psychoeducation of families, nutritional and medical therapy (at times pharmacotherapy) and may require case management involving schools and other agencies.

A total of nine RCTs have looked at treatment of anorexia nervosa exclusively in adolescents, and 12 RCTs have included adolescents (see Table 6). (Ball and Mitchell, 2004; Crisp et al., 1991; Eisler et al., 2000; Godart et al., 2012; Gowers et al., 2007; le Grange et al., 1992; Lock et al., 2005, 2010; Rhodes et al., 2008; Robin et al., 1994, 1999; Russell et al., 1987). All 12 of these studies included an outpatient intervention and all but one of these trials (Gowers et al., 2007) included an evaluation of some form of family intervention, including four trials that have compared different structures or doses of family interventions (Eisler et al., 2000; le Grange et al., 1992; Lock et al., 2005; Rhodes et al., 2008). Eight of the trials have looked at individual psychological interventions in anorexia nervosa, five in a direct comparison with family treatment (Ball and Mitchell, 2004; Lock et al., 2010; Robin et al., 1994, 1999; Russell et al., 1987), one comparing individual treatment with individual treatment augmented with family treatment (Godart et al., 2012) and two trials comparing individual outpatient treatment to inpatient treatment (Crisp et al., 1991; Gowers et al., 2007).

Psychological treatment

Family therapy. There have been 11 RCTs in adolescent anorexia nervosa that have included family interventions, though of these interventions only the one created by investigators from the Maudsley Hospital in the 1980s (Family Based Treatment – FBT) has been systematically investigated (Lock, 2011). Based on the outcomes of these RCTs and a recently published systematic review (Hay, 2013b), there is a clear and growing body of evidence that supports the efficacy of family treatment in adolescent anorexia nervosa, in particular family treatment that focuses on eating disorder behaviours and weight gain. Of these treatments FBT has been the most extensively studied and has not only demonstrated efficacy in the treatment of adolescent anorexia nervosa but also superiority to some types of individual therapy. There is a general consensus that FBT is now the first-line treatment for adolescents with anorexia nervosa who are aged less than

19 years and have a duration of illness of less than three years (le Grange et al., 2010; Lock, 2011; Russell et al., 1987).

Individual therapy. A total of eight RCTs in adolescent anorexia nervosa have included individual therapy interventions, including five that have compared individual therapy with family treatment. The three largest of these trials compared family treatment with ego orientated individual therapy (EOIT) or a modification of it called adolescent focused therapy (AFT). Both therapies are psycho-dynamically informed, individual, adolescent psychotherapies focusing on issues of adolescent development including autonomy, self-efficacy, individuation, assertiveness and psychological barriers to eating (Lock et al., 2010; Robin et al., 1995, 1999). While family treatment led to significantly higher weight gain and menstruation at treatment completion and improved remission rates 12 months after treatment completion in comparison to EOIT/AFT (Lock et al., 2010), individual treatment did lead to improvements in weight, menstruation and eating disorder pathology. In the two remaining RCTs comparing family and individual treatment the individual interventions included a supportive or 'treatment as usual' (TAU) intervention (Russell et al., 1987) and an eating disorder specific CBT intervention (Ball and Mitchell, 2004). This second study was hampered by small numbers and demonstrated no difference between CBT and family therapy. A recently published case series has suggested that CBT-E (enhanced cognitive behavioural therapy) may be effective in adolescent anorexia nervosa (Dalle Grave et al., 2013).

TAU has been examined in three RCTs. It has been described as supportive, educational and problem centred, focusing on both eating disorder specific issues and those related issues considered to prolong eating disorder behaviours. In the two studies comparing TAU with either FBT or TAU and family treatment, outcomes from TAU were inferior (Godart et al., 2012; Russell et al., 1987). In the third trial, outcomes from TAU were equivalent to specialist inpatient care (Crisp et al., 1991).

Positive prognostic factors for FBT are early weight gain (approximately 2kg in the first four weeks), while individuals with more severe eating disorder symptoms (assessed using the eating disorder examination (Fairburn, 2008)) and/or comorbid OCD appear to have a poorer outcome or are more likely to need additional sessions of FBT (Lock et al., 2005). In addition, high expressed emotion families were shown to do better with separated FBT (Eisler et al., 2000).

There is little evidence to guide clinicians as to which adolescents may do poorly with family therapy and better with an individual approach. Lock et al. (2010) have emphasised the importance of compliance. Thus, a relative contraindication to family therapy is inability on the part of the family to commit to the treatment for whatever reason, including parental illness (Lock et al., 2010). While there is clearly much need for further studies of individual therapy in adolescents, particularly CBT, evidence to date suggests that in those adolescents and their families who do not respond to, or are unable to engage in, FBT, options for individual interventions that may be considered would include AFT and eating disorder specific CBT, with little evidence to support TAU.

Inpatient treatment. Hospitalisation of adolescents with anorexia nervosa for the management of acute medical instability (e.g. hypothermia, hypotension, electrolyte

abnormalities and cardiac arrhythmias) is thought to be essential in preventing associated mortality (Golden et al., 2003; Katzman, 2005). However, the benefits of inpatient weight restoration and the assumption that hospital is the best venue for refeeding once medical stability has been achieved remain unsupported by current evidence.

There is little evidence to guide the role of inpatient care in adolescent anorexia nervosa. Expert consensus currently recommends outpatient therapy as the first-line treatment (NICE, 2004b). This position is supported by two RCTs comparing inpatient treatment for anorexia nervosa with a number of individual outpatient interventions (Crisp et al., 1991; Gowers et al., 2007). In both of these trials, adolescents with anorexia nervosa were admitted to psychiatric units with experience in treating eating disorders, though not restricted to the treatment of individuals with eating disorders. In both trials there was no significant difference in outcomes between inpatient treatment and outpatient individual therapy, though Gowers et al. (2010) reported improved treatment adherence and cost effectiveness with outpatient treatment. Patient satisfaction was highest with specialist treatment, either inpatient or outpatient (Gowers et al., 2010). Previous findings have suggested that outpatient care costs approximately 10% of the cost of inpatient care (Katzman et al., 2000).

Pharmacotherapy. There is insufficient evidence to recommend psychotropic medication in adolescents with anorexia nervosa. The use of anxiolytic or antidepressant medications to relieve symptoms should be done with caution.

Nutritional and medical treatment. There is a need to formulate appropriate nutritional goals for weight regain. There are, however, widespread views and practices in relation to weight goals in treatment. A UK and European survey of services identified a 24kg range of target-weights for a 14 year old girl of average height (Roots et al., 2006), albeit that prediction of physiological 'normality' is imprecise. BMI centiles can be utilised to predict the weight at which endocrinological normality will be achieved, but they need to be interpreted in the light of other physical assessments. Golden recommends a 'target-weight' between the 14th and 39th BMI percentile for age (Golden et al., 2008). Key and colleagues (2002) have promoted the use of pelvic ultrasound demonstration of ovarian follicles as an indicator of normal weight. This is likely to be achieved between the 13th and 30th BMI centile (Allan et al., 2010; Key et al., 2002; Madden et al., 2009). It is essential to note that as recommended healthy weight for height changes with age, BMI centile charts for children and adolescents must be utilised when determining weight goals in treatment. Charts are freely available from the [World Health Organization](#) and [Centers for Disease Control and Prevention](#) websites (CDC, 2013; WHO, 2013), as are the freely available computer program EpilInfo (CDC, 2008) and AnthroPlus (WHO, 2007), which can be used for calculating age related centiles.

Nutritional therapy in children and adolescents may be provided using regular food or special supplements and delivered orally or via nasogastric tubes to ensure timely provision of adequate nutrients (Rigaud et al., 2007; Zuercher et al., 2003). Gastrostomy feeding and parenteral nutrition have been utilised but should not be part of routine therapy (Diamanti et al., 2008; Findlay et al., 2011; Melchior and Corcos, 2009; Silber, 2008).

As with adults, initiation of nutritional therapy in significantly malnourished adolescents has risks, and should be undertaken carefully, by experienced clinicians who are cognisant

of the risk of refeeding syndrome (MARSIPAN, 2011). While there is disagreement and lack of clear evidence regarding the optimal rate of feeding (orally or by nasogastric tube), it is generally accepted that for medically unstable adolescents the process should proceed cautiously, that 'full feeds' for longer-term weight recovery should be achieved within 5–7 days of initiation, usually with the use of nasogastric tube feeding to ensure that nutrients are delivered, and that the risk of hypoglycaemia and electrolyte shifts is minimised (Kohn et al., 2011; MARSIPAN, 2011; O'Connor and Goldin, 2011). Many groups routinely supplement with phosphate and thiamine during this period (Kohn et al., 2011; MARSIPAN, 2011). Monitoring of serum electrolytes and minerals is important during initiation of feeding.³

Nutritional therapy needs to continue after the achievement of a healthy weight and discharge. This needs to involve regular monitoring of nutritional status (anthropometry, assessment of physiological function through measuring temperature, pulse, blood pressure and capillary refill, as well as intermittent measurement of biochemical parameters such as hormonal profiles and vitamin D). This should involve an experienced dietitian who can assess nutrient intake and aid in setting appropriate dietary goals (MARSIPAN, 2011).

Sustained malnutrition in childhood and adolescence may be associated with a range of complications such as growth failure, pubertal delay, osteopaenia and osteoporosis, and in the longer-term increased risk of obesity, hypertension and heart disease are common sequelae. In order to minimise these risks long-term maintenance of healthy weight is important. Osteopaenia and osteoporosis are most likely to develop in girls who become malnourished early in pubertal development, and those with prolonged malnutrition and amenorrhoea (Swenne and Stridsberg, 2012; Turner et al., 2001). Worryingly, recovery from anorexia nervosa does not ensure resolution of osteopaenia (Wentz et al., 2007). It has been recognised that restoration of normal hormonal function via restoration and maintenance of normal weight is the best way of dealing with this problem (Misra and Klibanski, 2011). The common practice of prescription of the oral contraceptive pill in malnourished adolescent girls with amenorrhoea is not recommended because it does not improve bone density, and may provide false reassurance about physiological normality (Golden et al., 2002). Recently, use of physiological levels of oestrogen (via a hormonal patch) and progesterone in an RCT was associated with improvement in bone density, and may have a place in therapy (Misra and Klibanski, 2011; Misra et al., 2011).

Outcomes and prognosis. A small Swedish cohort of patients with adolescent-onset anorexia nervosa who were followed for 18 years experienced full recovery in 88%, despite more than a third having a persisting identifiable psychiatric disorder (Wentz et al., 2007). The outcomes for young onset eating disorders appear generally better than for older adolescent and adult onset eating disorders.

Transitioning from child and adolescent services into adult streams can be a potentially stressful and destabilising time for adolescents and their families or carers. Careful planning and appropriate levels of support are necessary to ensure this changeover proceeds smoothly.

Summary of recommendations

Recommendation	Grade
Outpatient treatment is the first-line treatment in adolescent anorexia nervosa	EBR I
For most children and adolescents with anorexia nervosa, family based therapy (FBT) or an alternate family therapy is the treatment of choice	EBR I
Individual therapy should be considered in older adolescents with anorexia nervosa where family therapy is inappropriate or not suitable	EBR II
Options for individual therapy include adolescent focused therapy	EBR II
Options for individual therapy include CBT	EBR III
'Treatment as usual' is not supported in adolescent anorexia nervosa	EBR II
Use anxiolytic or antidepressant or other medications with caution	CBR
Selective serotonin reuptake inhibitors (SSRIs) are not indicated in the acute or maintenance stages of anorexia nervosa	EBR I

Severe and long-standing anorexia nervosa

Introduction

People with severe and long-standing anorexia nervosa⁴ have one of the most challenging disorders in mental health care (Strober et al., 2010; Wonderlich et al., 2012). They have the highest mortality rate of any mental illness with a marked reduction in life expectancy (Steinhausen et al., 2002; Arcelus et al., 2011) and impose a heavy burden on health and other public services. Furthermore, they are often under or unemployed, on sickness benefits, suffer multiple medical complications (renal, liver, cardiac failure and osteoporosis), have repeated admissions to general and specialist medical facilities and are frequent users of primary care services with considerable strain on carers and families.

Robinson (2009) has argued that those with a severe and enduring eating disorder (SEED) need to be considered as having a serious illness which comprises not only psychiatric and medical sequelae but family, social and occupational complications as well. He conducted a series of qualitative studies in which he found that people with SEED scored similarly to severely depressed people on quality of life measures. More worrisome was the finding that life skill scores were on a par with people with schizophrenia. As a result he advocates a psychiatric rehabilitation model that comprises long-term follow-up, crisis intervention, specific psychological interventions, and attention to substance misuse. He also includes basic self-care needs which pay attention to nutrition, housing, financial issues, recreational activities as well as occupational ones (Robinson, 2009).

Evidence of efficacy for treatment approaches for people with severe and enduring anorexia nervosa (SE-AN) is very limited (Hay et al., 2012). To date, there has only been one RCT (Touyz et al., 2013) that specifically tested two psychological treatments for such individuals. Touyz and colleagues (2013) compared two standard treatments (SSCM and CBT) which were modified for those patients who suffered from a profound and persistent disorder. The findings suggest that CBT for severe and enduring (SE) illness was superior in reducing core symptoms at follow-up, but that both CBT-SE and SSCM-SE contributed to improvements over time in health-related quality of life, body weight, depression and motivation to change. These findings should not only provide hope for those suffering from severe and enduring anorexia nervosa but also stimulate interest in developing new psychosocial treatments.

Clinical and research implications

People with severe and enduring anorexia nervosa require a special treatment paradigm as they have usually experienced multiple treatment failures and present with a myriad of mental health and medical problems (Wonderlich et al., 2012). Goals of therapy need to be reconceptualised. The general clinical wisdom to date has been to reduce the focus on changing eating disorder symptoms and instead work collaboratively with the individual in a measured manner to reduce harm, maintain symptom stability and in particular enhance their quality of life. Because of their history of negative treatment experiences and repeated treatment failures, both the clinician and patient often share the experience of hopelessness and despair about the likelihood of meaningful change.

Treatment

Paradigm of management for severe and long-standing eating disorders. Adapted from approaches discussed by Strober et al. (2010), Williams et al. (2010), and Wonderlich et al. (2012).

It is important to collaboratively agree and articulate goals with the patient and (where appropriate) significant others, so as to create an environment of support and comfort. The individual is best served by a safe and secure treatment strategy that allows them to feel contained but yet allows for very gradual change. Elements of this framework include the following:

- A prolonged period of assessment allowing the development of a shared understanding of the maintaining factors for their eating disorder and the identification of simple achievable goals that are embarked upon using extremely small steps.
- Focus on improved adaptive function as a primary goal. Restoration of a normal weight or BMI may not be a primary focus of treatment unless desired by the individual. Refeeding is a collaborative enterprise so as to avoid unnecessary distress and further evasion or avoidance of therapy.
- Changes to eating behaviours that improve nutrition and that are emphasised. This is done cognisant that most people with severe and long-standing anorexia nervosa can increase their caloric content to 1200 kilocalories per day without resultant weight gain or loss due to reduced energy metabolism or adaptations to starvation, although most people would lose weight on 1200 kilocalories. Careful encouragement so that any endeavours in this regard are recognised and the fear involved understood. There should be no reproach if aborted as this challenge can easily be visited again.

- Assessment and encouragement of improved interpersonal function and social or other activity that enables the experience of feelings of pleasure or mastery. This can also stimulate the individual's cognitive function. Independence and autonomy are actively fostered.
- Careful monitoring of physical health by an empathic medical practitioner with decisions being made in a supportive and respectful manner, maintaining safety and avoiding crises wherever possible. Short-term admissions for medical stabilisation can, however, be life-saving.
- Inclusion of meetings with family members and pertinent others providing education and ongoing support, with an aim to minimise anger and negative affect displayed towards the person with anorexia nervosa. It is also very important to give permission to loved ones to take leave of absence.
- Some patients benefit from multidisciplinary case management services offered through public hospitals or others who work with other long-term psychiatric patients.

Hospitalisation and partial hospitalisation. Many people with long-standing disorders have multiple previous negative experiences of inpatient care (La Puma et al., 2009). Hospitalisation should be in order to achieve realistic, collaboratively agreed goals of care or for achievement of medical rescue based on achieving well defined medical parameters such as systolic BP above 90mmHg, pulse rate above 50 bpm, normal white cell count or albumin, etc. General inpatient psychiatric hospitals tend to be ill suited for this type of patient. Refeeding, if required, should be undertaken by a medical team with both the knowledge and experience of treating such patients (George et al., 2004). George et al. have reported a pilot day hospital program designed specifically for those with severe and enduring anorexia nervosa. Such programs that cater specifically for the needs of people with severe and enduring symptomatology are not only able to retain them in longer-term treatment but result in clinically significant changes, for example unexpected but encouraging requests to be transferred to a traditional day program as greater changes in weight and lifestyle are desired.

Countertransference. Treating someone with severe and enduring anorexia nervosa is an entirely different experience to more conventional treatment and the work can be long-term and not immediately rewarding. However, clinicians who work with people who have long-standing eating disorders consistently report in the literature the importance of never giving up hope or expectation of improvement (Theander, 1985).

In the view of the authors of this CPG, no therapist should ever be placed in a position to take on people who have long-standing eating disorders unless there is a clear will to want to do so, as this often turns into a formidable task with the therapist's patience, anxieties and energies challenged, especially when the individual may be close to death. Outpatient teams usually comprise a psychiatrist and/or clinical psychologist, physician and dietitian. It is an absolute imperative that there is regular communication amongst team members and any medical and/or non-medical decisions are negotiated carefully with the individual. Therapists are reminded that the words of Tom Main in 'The ailment' (1957) remain relevant today: '*The sufferer who frustrates a keen therapist by failing to improve is always in danger of meeting primitive human behaviour disguised as treatment*' (Main, 1957: 9).

Summary of recommendations

Recommendation	Grade
Maintain realistic hope and expectations for improvement.	EBR II
Take a harm minimisation approach to nutrition, medical complications and weight control behaviours.	EBR II
Focus on supporting functions, relationships and quality of life.	EBR II
Collaboratively set achievable eating and health-related goals and be clear with the individual and family what the goals of treatment are.	EBR III
Reserve hospitalisation for medical rescue, management of psychiatric risk.	EBR II
Be prepared to treat comorbidity to improve quality of life.	EBR III
Have appropriate monitoring and management of medical and psychiatric risk.	EBR III
Communicate regularly with all team members.	EBR III
Meet with family members and relevant others on an 'as-needs' basis.	EBR III

Section two: bulimia nervosa and binge eating disorder

Introduction

This section addresses management guidelines for the major eating disorders found in those who are not underweight, namely bulimia nervosa and binge eating disorder. In the DSM-5 (APA, 2013), those who do not meet full diagnostic criteria for bulimia nervosa or binge eating disorder because of low frequency and/or duration of behaviours may be categorised under 'other specified' or if there is another reason for not meeting criteria (e.g. 'binge' episodes are not objectively large) the diagnosis may be 'unspecified feeding or eating disorder'. Whilst there is little evidence base for these related disorders it is likely that strategies effective for the full disorder may also be effective for sub-threshold disorders.

Several systematic reviews published in the past decade are in agreement on the evidence base for psychosocial and pharmacological treatments in bulimia nervosa and binge eating disorder and where more research is required (Aigner et al., 2011; Bulik et al., 2007; Hay, 2013b; Hay and Claudino, 2012; Hay et al., 2009; NICE, 2004b; Wilson and Zandberg, 2012).

Assessment

Assessment of people with bulimia nervosa or binge eating disorder should include inquiry into characteristic eating disorder: (a) behaviours, namely binge eating (uncontrolled episodes of overeating large amounts of food), weight control behaviours that may or may not be compensatory for binge eating (self-induced vomiting, laxative, and/or diuretic

misuse), dietary restriction and/or fasting, compulsive or driven exercise and others such as insulin misuse in diabetic patients or misuse of diet pills or illicit stimulant drugs such as methamphetamine; and (b) cognitions of weight and/or shape overvaluation, and body image and eating preoccupations. People should be assessed for a past history of other eating disorders, especially anorexia nervosa, as this may be associated with increased likelihood of relapse and a poorer outcome in some (but not all) studies (Eckert et al., 1995; Goldschmidt et al., 2013; Mitchison et al., 2013; Vaz-Leal et al., 2011). Other common psychiatric co-morbidities are anxiety and mood disorder(s), impulse control and substance use disorder (Hudson et al., 2007; Lacey and Evans, 1986).

Physical examination is important as there is evidence of an increased risk of medical co-morbidities including, but not exclusive to, those associated with obesity, notably Type II diabetes, mellitus and hypertension (Kessler et al., 2013). Assessment should include measurement of weight, height, pulse rate and blood pressure and calculation of BMI. Serum biochemistry should be done to check for hypokalaemia and dehydration (effects of purging behaviours). Other assessments such as random glucose and cardiovascular examination and ECG should be done as medically indicated. Where primary psychological treatment is provided by a therapist without medical training, a general practitioner will need to assist with medical assessment and/or ongoing care.

Treatment

Psychological therapies. First-line treatment for bulimia nervosa and binge eating disorder in adults is an individual psychological therapy. The best evidence for such therapy is for CBT. CBT has been found to be superior consistently to wait-list control and most other psychological therapies for bulimia nervosa (NICE, 2004b). The evidence is weaker due to fewer trials in binge eating disorder where behavioural weight loss management is also effective in the short (Hay, 2013b; Hay et al., 2009) but not longer-term (Wilson et al., 2010).

A specific transdiagnostic enhanced therapy (CBT-E) developed by Fairburn (Fairburn, 2008) has been found more efficacious than other psychological approaches (Fairburn et al., 2009), although the specificity of CBT-E requires more evidence (Spielmans et al., 2013). As CBT-E is a well delineated and manualised form of CBT it is described here in detail. However, in accordance with evidence based practice, clinicians may apply variations of CBT and/or use other evidence based psychological therapies according to their expertise and individual preference. CBT/CBT-E has four well defined stages over 20 weeks. It begins with psychoeducation and a CBT informed formulation of the processes maintaining the person's disorder, and uses it to identify problems to be targeted in therapy. This is followed by the introduction of monitoring of key behaviours, establishment of regular meals and snacks, and within session weighing (sessions 1–7 over one month). The second stage (sessions 8 and 9, weeks 5 and 6) is a 'taking stock', or reflection and review phase with revisiting and modification of the formulation as appropriate. The third stage (sessions 10–17, weeks 7–14) is a personalised program where the main mechanisms maintaining the eating disorder are addressed. This includes the utilisation of behavioural experiments to reduce problematic behaviours, particularly those associated with weight/shape overvaluation such as body checking, and an additional module addressing a core maintaining factor, namely mood intolerance. Stage 4 (sessions 18–20, weeks 15–20) looks to the future, ensuring improvements are maintained and includes relapse prevention. A broad version

(CBT-Eb) has been developed to address additional core maintaining factors with three optional modules addressing interpersonal deficits, clinical perfectionism and low self-esteem if applicable. CBT-Eb has been found to have an advantage over the original 'focused' CBT-Ef for people with comorbid personality disorder or other complex psychopathology (Fairburn et al., 2009).

Self-help and scalability of CBT. Where access to a therapist is delayed or there are costs or other barriers, CBT can be provided as a first-step, or stand-alone therapy in guided self-help form. An example of such an evidence based self-help book that has been evaluated for delivery within 10 half-hour session times by Australian general practitioners (Banaszak et al., 2005) is *Bulimia Nervosa and Binge Eating: A Guide to Recovery* (Cooper, 1995). Pure or unguided self-help may be effective in binge eating disorder; however, it has poorer outcomes compared to guided self-help CBT or specialist provided CBT in bulimia nervosa (Hay, 2013b).

Wilson and Zandberg's (2012) systematic review similarly supported self-help CBT as an effective, accessible and time and cost-efficient alternative to specialist delivery of CBT. Furthermore, it has been translated into delivery via telemedicine and the internet. They noted, however, that most CBT-guided self-help books have not kept up to date with developments in CBT such as CBT-Eb (see above).

Other psychological therapies. There is a small and weak evidence base for interpersonal psychotherapy and dialectical behaviour therapy in both bulimia nervosa and binge eating disorder, and mindfulness in binge eating disorder (Kristeller and Wolever, 2011). Where therapists have expertise in these therapies and not in CBT and a CBT-trained therapist is not accessible then it may be appropriate to use either of these for adults. Findings are mixed for FBT in older adolescents or adults and, unlike in anorexia nervosa, FBT would not be first-line in bulimia nervosa or binge eating disorder (le Grange et al., 2007; Schmidt et al., 2007).

Pharmacotherapy. RCTs and meta-analysis have found that tricyclic antidepressants may be efficacious for people with bulimia nervosa (Flament et al., 2012; Hay and Claudino, 2012) but adverse effects limit clinical utility. In contrast, high dose fluoxetine (60mg/day) is effective for people with bulimia nervosa and this or other SSRI antidepressants are effective for both bulimia nervosa and binge eating disorder. The antiepileptic topiramate also is effective in both conditions and is associated with weight loss. However, topiramate may cause problematic side effects such as paresthesias and taste perversion (Arbaizar et al., 2008; Hay and Claudino, 2012).

Where psychological therapy is not available, antidepressants or antiepileptic medication such as topiramate⁵ may be used (Flament et al., 2012; Hay and Claudino, 2012). However, trials of drug alone treatments have seldom followed participants up in the long-term, and therefore how long the medication should be continued for is unclear. High attrition rates and binge eating abstinence rates have consistently been found to be lower for drug alone treatments than when combined with CBT (Flament et al., 2012; Hay and Claudino, 2012). Trials in bulimia nervosa and binge eating disorder (Flament et al., 2012; Hay and Claudino, 2012) find an additive benefit for combined psychological and pharmacological treatment,

but findings are inconsistent. Thus, when people have limited response to psychotherapy alone, or they have a comorbid mood disorder such as depression, pharmacotherapy may have a role as an adjunctive treatment.

Indicators for admission. The majority of people with bulimia nervosa may be treated as outpatients. Although evidence is lacking, people who are not responding to outpatient care or otherwise have an increased risk (e.g. because of suicidality or pregnancy) may benefit from the increased intensity of therapy and eating supervision available in an inpatient or day patient unit.

Medical assessment. Most medical problems in people with bulimia nervosa occur as a result of purging behaviours. Table 4 lists these and their management. A dental evaluation should be considered if self-induced vomiting has been a prominent symptom. An increasing problem is comorbid weight disorder and metabolic syndrome, both of which may require further medical assessment and treatment.

Management of weight disorder

Many people who have a binge eating disorder and increasing numbers with bulimia nervosa are also obese with consequential medical complications. Behavioural weight loss therapy for those with bulimia nervosa may be as effective as CBT in reducing binge eating and more effective in attaining weight loss in the short-term, but not the longer-term (Wilson et al., 2010). Similarly, topiramate and/or orlistat may aid weight loss and binge eating in the short-term (Arbaizar et al., 2008; Golay et al., 2005; Grilo et al., 2005).

Where comorbid obesity is problematic some people may benefit from weight loss management strategies but evidence is weak for any specific approach (Bulik et al., 2012).

Outcomes for bulimia nervosa and binge eating disorder

Most people with bulimia nervosa, binge eating disorder or other specified feeding or eating disorders (OSFED) experience a good outcome in long-term follow-up studies, with 50% or more free of symptoms at five years or more (Fairburn et al., 2000; Steinhausen and Weber, 2009). Steinhausen and Weber conducted a quantitative analysis of outcome data from 79 studies of bulimia nervosa (Steinhausen and Weber, 2009). He reported a recovery rate of 45%, whilst 27% of patients improved considerably and 23% had a chronic protracted course and a crude mortality rate of 0.32%. There was a 10–32% mean rate of crossover to other eating disorder diagnoses, most commonly to OSFED, followed by anorexia nervosa. A low rate of conversion to binge eating disorder may have been partially because the term had not been introduced when many of the older outcome measures were performed. Childhood obesity, substance use disorder and having a personality disturbance have most consistently been poor predictors of outcomes in bulimia nervosa, although it has been difficult to establish such predictors across studies (NICE, 2004a; Steinhausen and Weber, 2009). The long delays from illness onset to presentation likely contribute to poorer outcomes but there is, to our knowledge, no direct evidence for this.

Summary of recommendations

Recommendation	Grade
<p>During the assessment of adults with possible binge eating disorder or bulimia nervosa:</p> <ul style="list-style-type: none"> • Take a history enquiring into any binge eating, dietary restriction and/or fasting, compulsive or driven exercise, or additional weight control behaviours. • Assess for cognitions of weight and/or shape overvaluation, and body image and eating preoccupations. • Enquire about any past history of eating disorders, or other psychiatric comorbidities. • Conduct a physical examination, including measurement of weight, height, BMI calculation, pulse rate, and blood pressure. Consider cardiovascular examination as clinically indicated. • Arrange for serum biochemistry. Consider random glucose and ECG as indicated medically. • Consider involvement of a general practitioner and/or dentist as appropriate. 	CBR
Consider admission to an inpatient or day program unit where there is increased risk of non-response to outpatient/community based care.	CBR
First-line treatment for bulimia nervosa and binge eating disorder in adults is an individual psychological therapy; the best evidence is for therapist-led CBT and a specific enhanced form, CBT-E focused, has been found to be more efficacious than some other psychological approaches. There is also evidence for CBT adapted for internet delivery, or in guided self-help form.	EBR I
Consider topiramate or orlistat for those with comorbid obesity, the latter for the effect of weight loss.	EBR II
Where psychological therapy is not available, evidence supports pharmacological treatment.	EBR I
High dose fluoxetine has the strongest evidence base for bulimia nervosa; other selective serotonin reuptake inhibitors are also effective in both bulimia nervosa and binge eating disorder.	EBR I
Monitor adverse effects of any antiepileptic or antidepressants used and modify use as required.	EBR II
Consider pharmacotherapy as an adjunctive treatment, since an additive benefit has been shown for combined psychological and pharmacological therapy.	EBR I
Further research is required into CBT regarding both the specificity of CBT-E, and other forms of delivery. RCTs of alternate treatment approaches, longer-term studies and the best management of comorbid obesity are also required.	EBR I

Section three: avoidant/restrictive food intake disorder (ARFID)

Introduction

ARFID (APA, 2013) is a new disorder to DSM-5. It replaces and extends the DSM-IV diagnosis of feeding disorder of infancy and early childhood as well as DSM-IV somatoform disorders that were characterised by phobic food avoidance. Due to general paucity of data and absence of published data concerning this condition in older adolescents or adults, consideration of ARFID in this guideline is confined to the following brief overview.

Overview

The key diagnostic features of ARFID are restriction of food intake accompanied by one of the following: significant weight loss; significant nutritional deficiency; marked interference with social functioning; or dependence on enteral feeds or oral supplements, in the absence of body image concerns. It may occur at any age. Data from three recently published studies on early onset eating disorder has shown that between 21.2% and 35.2% of children aged 12 years and under presenting with weight loss and deliberate food avoidance do not report abnormal body image or fear of weight gain. These children presented with similar physical complications of their malnutrition and similar rates of psychiatric comorbidity to children meeting diagnostic criteria for anorexia nervosa. To date there have been no published studies to guide appropriate treatment interventions or inform prognosis for this group (Madden et al., 2009; Nicholls et al., 2011a; Pinhas et al., 2011).

Section four: future research in treating eating disorders

The most important challenge for future research is the elucidation of assessment and treatment of the newly introduced disorders, especially ARFID. Second, although CBT is a first-line therapy for people with bulimia nervosa, further evaluation of CBT and alternate therapies is needed. This is particularly needed for anorexia nervosa (where in adults there is no clear first-line psychological therapy) and those with additional complex problems such as borderline personality disorder for which broader treatment approaches have been found to be associated with improved outcomes (Fairburn et al., 2009). More randomised controlled trials of approaches with an emerging evidence base, for example acceptance and commitment therapy (ACT) and psychodynamic therapy, and novel biological treatments such as neuromodulation and deep brain stimulation, are also needed.

From a psychopharmacological perspective, greater clarification of the neurobiological basis of eating disorders and mechanisms of action of treatments may help elucidate other treatment options, for example in bulimia nervosa antidepressants appear to have actions on satiety separate to their effects on mood modulation. In addition, data on the combination or augmentation of psychological and pharmacological approaches may guide further management of those who do not respond to first-line treatments.

More information on the long-term efficacy of treatments would be gained by longer-term trials and post-treatment follow-up, since many studies last less than six months. Inclusion and subgroup analyses of more heterogeneous and clinically complex patients (e.g. those

with severe co-morbidities, as seen clinically) would expand the data on effectiveness of what treatments work and for whom.

In bulimia nervosa even after treatment is successful in reducing behaviours such as binge eating and purging, abstinence rates may remain low. Since the long-term outcome is likely better if abstinence is achieved, improvement of such rates is important. Further identification of features differentiating those who achieve remission from those who remain symptomatic may clarify factors moderating outcome.

Further research is also needed into non-specialist therapist-guided self-help, given that in comparison to therapist-led CBT, adherence to therapy and outcomes may not be as good, especially in treatment of bulimia nervosa; more specificity about the provision of such guidance would also be helpful. In binge eating disorder associated with obesity, energy restriction has, in the short-term, been associated with weight loss; however, longer-term studies of weight reduction management in this population are required.

Future studies should also address specific treatment needs and approaches as they may apply to groups underrepresented in current research. This includes, but is not limited to males and to Aboriginal and Torres Strait Islander peoples and Māori.

Conclusion

Assessment and management of people with anorexia nervosa should be multidisciplinary and include specific specialist psychological therapies and family based treatments in younger people. Recommendations for treatment in this CPG were based on evidence (see [Table 7](#)) of variable levels. The evidence base for therapies is stronger in bulimia nervosa and binge eating disorder where a specific transdiagnostic CBT has a high level of evidence. CBT can also be provided in less intensive guided self-help and online forms for less severe eating disorders. The majority of people can be treated as an outpatient with inpatient or day patient care needed for more severe illness, and particularly low weight people with anorexia nervosa. In the absence of evidence, trials evaluating treatments for ARFID are urgently needed to guide clinical practice.

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Disclaimer

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The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Notes

1. At the time of writing the other major international diagnostic scheme, the World Health Organization's international classification of diseases and related health problems (ICD), was under revision. The 10th revision of the ICD (ICD-10) and previous DSM-IV schemes used similar diagnostic terms and the same numerical systems. The ICD-11 also proposes introducing binge eating disorder and ARFID. However, there is potential for confusion with the DSM-5 using some ICD-10 terms, e.g. 'atypical' anorexia nervosa and bulimia nervosa, with different criteria, and the 11th revision of the ICD may remove the requirement of an objectively large amount in the criterion for binge eating episodes (Al-Adawi et al., 2013).

2. The guideline will address the most common feeding and eating disorders but it does not cover Pica UFED, OSFED or rumination disorder. It does not address general management of obesity, other disorders of body image such as body dysmorphic disorder, subclinical problems of disordered eating or body dissatisfaction or the economic costs of eating disorders and their treatment.
3. At the time of writing, refeeding practices are currently under review in the *Journal of Adolescent Health*.
4. There is no agreed definition about how many years constitutes 'long-standing'; however, most researchers agree that it is at least several years (Tierney and Fox, 2009).
5. The use of topiramate for weight loss was approved in 2012 by the United States Food and Drug Administration but is not yet approved for this use in New Zealand or Australia.

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Tables and Figures

Figure 1. PRISMA flow diagram.

From: (Moher et al., 2009). For more information visit www.prisma-statement.org.

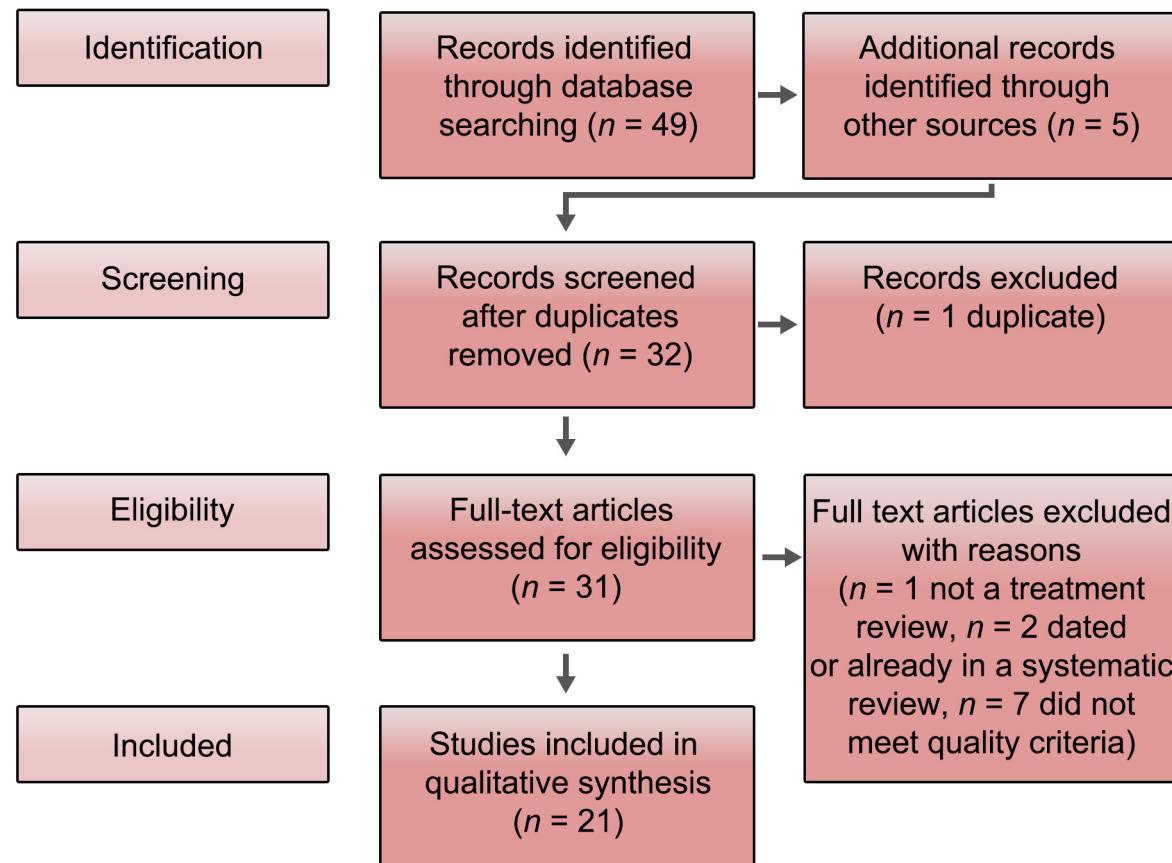


Table 1. Comparative clinical features of DSM-5 eating disorder diagnostic groups.

	Anorexia nervosa (AN)	Atypical anorexia nervosa ¹	Bulimia nervosa (BN)	Binge eating disorder	Avoidant/ restrictive food intake disorder	Purging disorder
Overvaluation of weight/shape	Required	Required	Required	May occur	Not required	May occur
Fear of fatness and/or behaviour preventing weight gain	Required	Required	May occur	Uncommon	No fear of fatness but food is restricted	May occur
Underweight	Required	Not present	NA	NA	May occur	May occur
Unmet nutritional and/or energy needs	Required	Required	May occur	NA	Required	May occur
Overweight	NA	May occur	May occur	Not required but is common	NA	May occur
Regular (weekly) binge eating	May occur	May occur	Required	Required with distress and 3/5 descriptors	NA	Absent
Regular (weekly) compensatory behaviours	May occur	May occur	Required	Do not occur	NA	Regular purging required, not compensatory

Table 1. Comparative clinical features of DSM-5 eating disorder diagnostic groups. (continued)

	Anorexia nervosa (AN)	Atypical anorexia nervosa ¹	Bulimia nervosa (BN)	Binge eating disorder	Avoidant/ restrictive food intake disorder	Purgng disorder
AN not concurrent	NA	NA	Required	Required and no BN	Required and no BN	Not meeting full criteria for AN or ARFID
Subtypes	Restricting or binge purging	None	None	None	None	NA
Remission specifier	Partial/full	None	Partial/full	Partial/full	In remission	NA, is a subtype of OSFED
Severity specifier	BMI scale	None	Frequency of compensatory behaviours	Frequency of binge eating	None	None

Table 2. National Health and Medical Research Council designations of level of evidence based recommendation (EBR).

Level	Intervention	Diagnostic accuracy
EBR I	A systematic review of level II studies	A systematic review of level II studies
EBR II	A randomised controlled trial	A study of test accuracy with: an independent, blinded comparison with a valid reference standard, among consecutive persons with a defined clinical presentation
EBR III-1	A pseudo-randomised controlled trial (i.e. alternate allocation or some other method)	A study of test accuracy with: an independent, blinded comparison with a valid reference standard, among non-consecutive persons with a defined clinical presentation
EBR III-2	A comparative study with concurrent controls: <ul style="list-style-type: none"> • Non-randomised, experimental trial • Cohort study • Case-control study • Interrupted time series with a control group 	A comparison with reference standard that does not meet the criteria required for level II and III-1 evidence
EBR III-3	A comparative study without concurrent controls: <ul style="list-style-type: none"> • Historical control study • Two or more single arm studies • Interrupted time series without a parallel control group 	Diagnostic case-control study
EBR IV	Case series with either post-test or pre-test/post-test outcomes	Study of diagnostic yield (no reference standard)

Table 3. Indicators for consideration for psychiatric and medical admission for adults.

	Psychiatric admission indicated ^a	Medical admission indicated ^b
Weight	Body mass index (BMI) <14	BMI <12
Rapid weight loss	1kg per week over several weeks or grossly inadequate nutritional intake (<100kcal daily) or continued weight loss despite community treatment	
Systolic BP	<90 mmHg	<80 mmHg
Postural BP	>10 mmHg drop with standing	>20 mmHg drop with standing
Heart rate		≤40 bpm or > 120 bpm or postural tachycardia > 20/min
Temperature	<35.5°C or cold/blue extremities	<35°C or cold/blue extremities
12-lead ECG		Any arrhythmia including QTc prolongation, non-specific ST or T-wave changes including inversion or biphasic waves
Blood sugar	Below normal range*	< 2.5 mmol/L
Sodium	<130 mmol/L*	<125 mmol/L
Potassium	Below normal range*	<3.0 mmol/L
Magnesium		Below normal range*
Phosphate		Below normal range*

Table 3. Indicators for consideration for psychiatric and medical admission for adults.(continued)

Psychiatric admission indicated ^a		Medical admission indicated ^b
eGFR		<60ml/min/1.73m ² or rapidly dropping (25% drop within a week)
Albumin	Below normal range	<30 g/L
Liver enzymes	Mildly elevated	Markedly elevated (AST or ALT >500)*
Neutrophils	<1.5 × 10 ⁹ /L	<1.0 × 10 ⁹ /L
Risk assessment	Suicidal ideation Active self-harm Moderate to high agitation and distress	

*Please note, any biochemical abnormality which has not responded to adequate replacement within the first 24 hours of admission should be reviewed by a medical registrar urgently

^aPatients who are not as unwell as indicated above may still require admission to a psychiatric or other inpatient facility.

^bMedical admission refers to admission to a medical ward, short stay medical assessment unit or similar.

Table 4. Physical and laboratory findings and their management.

System	Physical/lab findings	Action/investigation
Cardiac	<ul style="list-style-type: none"> Bradycardia and/or hypotension and/or tachycardia and/or prolonged QT interval and/or arrhythmias^a 	<ul style="list-style-type: none"> ECG Cardiac monitoring Cardiology consultation Nutritional assessment/resuscitation Re-hydration: preferential use of oral fluids because of risk of cardiac failure, note glucose based solutions may increase risk of refeeding syndrome
Core body temperature	<ul style="list-style-type: none"> Hypothermia (may mask serious infection) 	<ul style="list-style-type: none"> Monitor; warm with external heat, nutrition
Endocrine	<ul style="list-style-type: none"> Hypoglycaemia^b Poor metabolic control in co-existent Type I diabetes Amenorrhoea Secondary hyperaldosteronism^c 	<ul style="list-style-type: none"> If in first week of refeeding, give thiamine; ensure adequate, steady carbohydrate supply and monitor blood glucose levels Specialist management of diabetes Nutritional restoration until menstruation returns^g Provision of very slow IV fluids
Fluid and electrolyte changes	<ul style="list-style-type: none"> Hypokalaemia, hypochloraemia, metabolic alkalosis^c Hypophosphataemia (frequently emerges during refeeding) Hypomagnesaemia^c Hyponatraemia 	<ul style="list-style-type: none"> Suspect purging, careful K+ replacement: best orally and correct alkalosis first, monitor closely Phosphate Sandoz 500mg bd then recheck phosphate level, keep replacing until normal^e Replace magnesium Suspect fluid loading, or over drinking as part of weight loss behaviours. 1.5 litre/day fluid restriction. Monitor in all patients
Haematological	<ul style="list-style-type: none"> Anaemia^d Neutropaenia 	<ul style="list-style-type: none"> Monitor in all patients. Consider iron level and stores of B₁₂ and folate. Replace as necessary,^f Improve nutrition

Table 4. Physical and laboratory findings and their management. (continued)

System	Physical/lab findings	Action/investigation
Gastro-intestinal	<ul style="list-style-type: none"> Severe acute pancreatitis^{c,i} Parotid and salivary gland hypertrophy^c Reduced gastric motility (and early satiety) Mallory-Weiss tears, ruptures^c Oesophagitis Constipation Raised liver enzymes and low albumin 	<ul style="list-style-type: none"> Bowel rest, nasogastric suction and IV fluid replacement Nil specific Smaller but more frequent meals may be preferred Urgent surgical referral Consider proton pump inhibitor for severe symptoms – symptomatic relief for mild symptoms Reassure, increase nutrition, stool softeners (do not use stimulant laxatives such as senna) Monitor/improve nutrition
Skin/bone	<ul style="list-style-type: none"> Osteopaenia, stress fractures Brittle hair, hair loss, lanugo hair Dorsal hand abrasions, facial purpura, conjunctival haemorrhage^c 	<ul style="list-style-type: none"> Monitor bone density, nutritional restoration until menstruation returns, calcium^h and Vitamin D, specialist referral No specific treatment No specific treatment
Dental	<ul style="list-style-type: none"> Erosions and perimylolysis 	<ul style="list-style-type: none"> Dental referral

^aCardiac arrhythmia is a common cause of death.

^bHypoglycaemia in the first weeks is generally post prandial and occurs several hours after refeeding, hence some units preferentially use nasogastric feeding (Hart et al., 2011a).

^cComplications caused by purging behaviours as well as starvation (Bahia et al., 2012).

^dMay be normocytic and normochronic, as characteristic of nutritional deficiency, but microcytic (iron-deficiency) is increasing as more people choose vegetarianism. Copper deficiency may also play a role.

^eFor patients at risk of refeeding syndrome (e.g. first 7–10 days of inpatient refeeding) prophylactic phosphate is recommended.

^fIron injections should not be given to the medically compromised patient as it is potentially hepatotoxic. Oral replacement is preferred.

^gOral contraceptives are not effective in restoring bone health.

^hPhosphate required to prevent or treat refeeding syndrome should take precedence over calcium. Calcium should not be given at the same time as phosphate.

ⁱMild acute pancreatitis is almost universal and not an indication for the proposed intervention.

Sources: Eating Disorders Outreach Service, Queensland (EDOS, 2011) Royal Australian and New Zealand College of Psychiatrists (RANZCP, 2004).

Table 5. Guidelines for inpatient admission for children.

Indicators for admission ^a and specialist consultation		
Medical status ^b	Heart rate Cardiac arrhythmia Postural tachycardia Blood pressure Postural hypotension QTc Temperature Hypokalaemia Neutropaenia	<50 bpm > 20/min <80/50 mm >20 mm >450 msec <35.5°C
Weight	Children < 75% of expected body weight or rapid weight loss	

NB: These are a guide only and do not replace the need for individual clinical judgement.

^aFor children, admission would generally be to a medical ward.

^bPeople may also require admission for:

- Uncontrolled eating disorder behaviour.
- Failure to respond to outpatient treatment.
- Severe psychiatric comorbidity.

Table 6. Randomised controlled psychotherapy trials in adolescent anorexia nervosa.

Study	N	Mean Age (Yrs)	Treatments	Results
1. Russell et al., 1987	21	16.6	Family based treatment (FBT) vs individual supportive therapy	FBT produced significantly superior outcome to individual treatment in a subset of 21 patients with anorexia nervosa of less than 3 years duration and onset prior to 19 years on Morgan Russell criteria at 12 month (60% vs 9%) and 5 year follow-up (90% vs 36%).
2. Crisp et al., 1991	90	21.7	Treatment as usual (TAU) with or without family treatment sessions vs group therapy vs inpatient treatment vs single assessment	No significant difference in outcomes between active treatment arms with all active treatments demonstrating significantly superior outcomes to a single assessment only.
3. le Grange et al., 1992	18	15.3	Conjoint family based treatment (CFT) vs separated family based treatment (SFT)	No significant difference in outcomes between CFT and SFT.
4. Robin et al., 1994 ^a	24	14.7	Behavioural systems family therapy (BSFT) vs ego orientated individual therapy (EOIT)	BSFT produced significantly greater weight gain and higher rates of return of menstruation at the end of treatment. There were no differences in 12 month outcomes.

Table 6. Randomised controlled psychotherapy trials in adolescent anorexia nervosa.
(continued)

Study	N	Mean Age (Yrs)	Treatments	Results
5. Robin et al., 1999 ^a	37	14.2	BSFT vs EOIT	BSFT produced significantly greater weight gain and higher rates of return of menstruation at the end of treatment. There were no differences in 12 month outcomes.
6. Eisler et al., 2000	40	15.5	CFT vs SFT	No significant difference in outcomes between CFT and SFT on global outcomes, though families with high levels of expressed maternal criticism did better with SFT.
7. Ball and Mitchell, 2004	25	18.5	BSFT vs cognitive behavioural therapy (CBT)	No significant difference in outcomes between BSFT and CBT.
8. Lock et al., 2005	86	15.2	20 session FBT vs 10 session FBT	No significant difference in outcomes between the short and longer duration FBT, though post hoc analysis suggests individuals with severe obsessive compulsive eating disorder symptoms from non-intact families do better with longer treatment.
9. Gowers et al., 2007	167	14.9	Multidisciplinary inpatient psychiatric treatment vs specialist outpatient eating disorder treatment (CBT, parental counselling, dietary consultation, multimodal feedback) vs TAU in community mental health service	No significant differences in outcomes between the three interventions. Outpatient treatment more cost effective with higher treatment adherence. Increased parental satisfaction with specialist eating disorder treatment.

Table 6. Randomised controlled psychotherapy trials in adolescent anorexia nervosa.
(continued)

Study	N	Mean Age (Yrs)	Treatments	Results
10. Rhodes et al., 2008	20	14.0	FBT vs FBT with parent to parent consultation	No significant differences in outcomes between the two treatment arms, though qualitative analysis suggested parents felt empowered and less alone in the parent to parent consultation arm.
11. Lock et al., 2010	121	14.4	FBT vs adolescent focused therapy (AFT)	FBT led to significantly greater weight gain and significantly greater reduction in the global eating disorder examination score at the end of treatment. No difference in remission rates at the end of treatment, though FBT demonstrated significantly higher remission rates at 6 and 12 month follow-up (49% vs 23%).
12. Godart et al., 2012	60	16.6	TAU and adjunctive relationship focused family therapy vs TAU	Adjunctive family therapy and TAU produced significantly superior outcomes to TAU using Morgan Russell criteria (40.0% vs 17.2% good outcome).

^aThe later trial by Robin and colleagues was an extension of the first and overlapped in design and participants.

Table 7. Role and evidence base support for specific treatments in eating disorders.

	Treatment	Indication	Grade
Anorexia nervosa	Family therapy	Improved eating disorder symptoms and weight	Level I – family based treatment
	Individual psychotherapy	Improved eating disorder symptoms and weight	Level I
	Antipsychotic medication	Improved weight gain	Level I – inconsistent support Level II – olanzapine, amisulpride only
		Reduced eating disorder symptoms	Level I – not supportive
		Improved mood	Level I – mixed support
		Reduced anxiety or ruminations	Level I – inconsistent support
	Antidepressant medication	Improved weight gain or relapse prevention	No robust and/or conflicting evidence
Bulimia nervosa	Individual psychotherapy	Reduction in binge eating & reduced eating disorder psychopathology	Level I – cognitive behaviour therapy especially CBT-E Level I – interpersonal psychotherapy
			Level II – dialectical behaviour therapy – weaker evidence
	Family therapy	Reduction in binge eating & reduced eating disorder psychopathology	Level II – conflicting evidence

Table 7. Role and evidence base support for specific treatments in eating disorders.
(continued)

	Treatment	Indication	Grade
Binge eating disorder	Antidepressant medication	Reduction in binge eating especially when combined with psychotherapy	Level I – tricyclics, mono-amine oxidase inhibitors, selective serotonin reuptake inhibitors
		Relapse prevention	Level III – other antidepressant classes
	Anticonvulsants	Reduction in binge eating and purging Improved health-related quality of life	Level II – conflicting evidence, high attrition
			Level I – topiramate
	Individual psychotherapy	Reduction in binge eating & reduced eating disorder psychopathology	Level II – topiramate
	Behaviour weight loss therapy	Reduced binge eating and weight loss	Level I – cognitive behaviour therapy especially CBT-E
			Level I – guided and pure self-help CBT
			Level I – interpersonal psychotherapy
	Antidepressant medication	Reduction in binge eating especially when combined with psychotherapy	Level II – dialectical behaviour therapy – weaker evidence
			Level I – but long-term effects unclear
	Mood stabilising medication	Reduced binge eating & improved weight loss in obese	Level I – SSRIs
			Level II – atomoxetine
			Level III – other antidepressant classes
			Level I – topiramate
			Level II – zonisamide but problematic adverse effects

REVIEW

Open Access



Canadian practice guidelines for the treatment of children and adolescents with eating disorders

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Abstract

Objectives: Eating disorders are common and serious conditions affecting up to 4% of the population. The mortality rate is high. Despite the seriousness and prevalence of eating disorders in children and adolescents, no Canadian practice guidelines exist to facilitate treatment decisions. This leaves clinicians without any guidance as to which treatment they should use. Our objective was to produce such a guideline.

Methods: Using systematic review, the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system, and the assembly of a panel of diverse stakeholders from across the country, we developed high quality treatment guidelines that are focused on interventions for children and adolescents with eating disorders.

Results: Strong recommendations were supported specifically in favour of Family-Based Treatment, and more generally in terms of least intensive treatment environment. Weak recommendations in favour of Multi-Family Therapy, Cognitive Behavioural Therapy, Adolescent Focused Psychotherapy, adjunctive Yoga and atypical antipsychotics were confirmed.

Conclusions: Several gaps for future work were identified including enhanced research efforts on new primary and adjunctive treatments in order to address severe eating disorders and complex co-morbidities.

Keywords: Guidelines, Adolescent, Anorexia nervosa, Bulimia nervosa, Avoidant/restrictive food intake disorder

Plain English summary

The objective of this project was to develop Canadian Practice Guidelines for the treatment of children and adolescents with eating disorders. We reviewed the literature for relevant studies, rated the quality of the scientific information within these studies, and then reviewed this information with a panel of clinicians, researchers, parents and those with lived experience from across the country. The panel came up with a list of recommendations regarding specific treatments. These recommendations

included strong recommendations for the provision of Family-Based Treatment, as well as care provided in a least intensive environment. Weak recommendations were determined for Multi-Family Therapy, Cognitive Behavioural Therapy, Adolescent Focused Psychotherapy, adjunctive Yoga, and atypical antipsychotics. The panel also identified several areas for future research including the development of new treatments for severe and complex eating disorders.

Introduction

Eating disorders are common and serious conditions affecting up to 4% of the population [1]. The mortality

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rate, particularly for Anorexia Nervosa (AN) is high [2, 3], and has been shown to increase by 5.6% for each decade that an individual remains ill [4, 5]. It is well-documented that interventions targeted at earlier stages of illness are critically important, given the evidence showing that earlier treatment leads to better outcomes [6, 7]. Despite the seriousness and prevalence of eating disorders in children and adolescents, no Canadian practice guidelines exist to facilitate treatment decisions. This leaves clinicians without any guidance as to which treatment they should use. We systematically reviewed and synthesized the knowledge available on treatments for children and adolescents with eating disorders to develop our guidelines.

Review of existing guidelines

In the United States, practice parameters have been published by the American Academy of Child and Adolescent Psychiatry for youth with eating disorders [8]. These parameters reflect good clinical practice rather than making statements as to the strength of the evidence to support the recommendations. Clinical practice guidelines have also been developed by the National Institute of Health and Care Excellence [9], however, grading of the evidence is also not presented in these guidelines. The Academy for Eating Disorders has also published guidelines on their website that focus on medical management, but do not focus on psychotherapeutic/psychopharmacological interventions, nor the strength of the evidence (<http://aedweb.org/web/downloads/Guide-English.pdf>). In summary, guidelines that are currently available tend to focus on medical stabilization, and neglect psychotherapeutic/psychopharmacological approaches to treating eating disorders. Furthermore, they do not rate the strength of evidence. No Canadian guidelines focused on eating disorders in the pediatric age group exist.

Objectives

Our aim was to synthesize the best available evidence on treatments for children and adolescents with eating disorders resulting in the production of a practice guideline. The research questions to drive this knowledge synthesis were discussed by our research team and guideline development panel, and are listed below.

Research questions

What are the best treatments available for children and adolescents diagnosed with eating disorders?

- a) How effective is Family-Based Treatment for Anorexia Nervosa?
- b) How effective is Family-Based Treatment for Bulimia Nervosa?
- c) How effective is Cognitive Behavioural Therapy for Bulimia Nervosa?

- d) How effective is Dialectical Behaviour Therapy for Bulimia Nervosa?
- e) How effective are Atypical Antipsychotics for Anorexia Nervosa?
- f) How effective are Selective Serotonin Reuptake Inhibitors for Bulimia Nervosa?
- g) How effective is day treatment for any type of eating disorder?
- h) How effective is inpatient treatment for any type of eating disorder?

Methods

Overview

We used systematic review of the literature to arrive at a knowledge synthesis of the best treatments for children and adolescents with eating disorders. This was followed by a grading of the evidence using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system [10–12]. These evidence profiles were then presented to a panel of stakeholders from across Canada, followed by a voting system and arrival at consensus on the recommendations. The Appraisal of Guidelines, Research, and Evaluation (AGREE II) tool was used to inform guideline development and reporting [13].

Synthesis methods

Eligibility criteria

Following the principles outlined in the Cochrane Reviewer's Handbook [14] and the Users' Guides to Medical Literature [15], our inclusion criteria were:

- A) Criteria pertaining to study validity: i) meta-analyses, randomized controlled trials, open trials, case series, and case reports,
- B) Criteria pertaining to the subjects: i) involving children and adolescents (under age 18 years), ii) with eating disorders (Anorexia Nervosa, Bulimia Nervosa, Eating Disorder Not Otherwise Specified, Other Specified Feeding and Eating Disorder, Avoidant/Restrictive Food Intake Disorder, Binge Eating Disorder),
- C) Criteria pertaining to the intervention: i) focusing on treatments including, but not limited to, Family-Based Treatment, Cognitive Behavioural Therapy, Dialectical Behavioural Therapy, Atypical Antipsychotics, Selective Serotonin Reuptake Inhibitors, Day Treatment, and Inpatient Treatment,
- D) Criteria pertaining to the Outcome: i) weight (along with variants of weight such as BMI, treatment goal weight (TGW), etc.), ii) binge/purge frequency, iii) psychological symptoms such as drive for thinness, weight/shape preoccupation, and
- E) Articles written in any language.

Exclusion criteria included: i) studies involving primarily adults (18 years or above), ii) studies focusing on medical management, iii) studies focusing on medical outcomes such as bone density, heart rate, iv) studies examining medical treatments such as hormone therapy, calcium, nutrition therapy, v) studies examining other medications. These exclusion criteria were developed for several reasons. We wanted to focus on treatments that were psychopharmacological and psychological in nature, along with outcomes that were central to the core features of eating disorders. We were trying to keep things as simple as possible when thinking of outcomes, especially with the goal of trying to combine studies in a narrative summary or even in a meta-analysis if possible. We focused on a couple of core outcomes with these goals in mind, so therefore excluded papers focusing on other physical outcomes (although these outcomes may indeed be related to weight status).

Identifying potentially eligible studies

Databases

A literature search was completed using the following databases: Medline, PsycINFO, EMBASE, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL) and CINAHL. The references of relevant articles obtained were also reviewed. This was an iterative process, such that search terms were added based on developing ideas and articles obtained.

Literature search strategy

Initially, an environmental scan of existing guidelines for children and adolescents with eating disorders was completed by the core research team using search terms “guidelines” and “eating disorders” in children and adolescents. Our library scientist then designed and executed comprehensive searches in the databases listed above to obtain evidence to align with each of the guideline questions. The searches included a combination of appropriate keyword and subject heading for each concept. The sample search strategy included, but was not limited to, various combinations of the following terms as appropriate for the questions being addressed: Anorexia nervosa OR bulimia nervosa OR eating disorder not otherwise specified OR other specified feeding and eating disorder OR avoidant/restrictive food intake disorder; AND family-based treatment OR cognitive behavioural therapy OR dialectical behavioural therapy OR atypical antipsychotics OR selective serotonin reuptake inhibitors OR day treatment OR day hospital OR inpatient treatment. The search string was developed further and was modified for each database as appropriate. The search strategy was completed in August 2016. The screening and reviewing process then ensued. Some treatments emerged as important through our search strategy that were not initially

identified by our research team and guideline panel as interventions to evaluate. We later included these treatments through panel discussions.

Forward citation chaining

In November 2018 we used a forward citation chaining process to search each included article to see if it had been cited by any additional articles since August 2016 up until November 2018. We then screened the newly found articles to decide whether to include them. The forward chaining process involved the use of Google Scholar to locate all articles citing our included articles from the primary search.

Other strategies

Grey literature was also reviewed, including conference proceedings from the International Conference on Eating Disorders dating back the last 10 years (2008–2018). Databases of ongoing research were searched including The Cochrane Central Register of Controlled Trials (CENTRAL). We also hand searched the International Journal of Eating Disorders from the last 10 years for relevant articles (2008–2018).

Applying eligibility criteria and extracting data

Two team members independently evaluated the results generated by our searches and came to consensus on which studies met eligibility criteria. We used the software Endnote and DistillerSR to organize our studies. DistillerSR was used for article screening and data extraction. Duplicate records identifying the same study were removed. Titles and abstracts were used to exclude obviously irrelevant reports by two reviewers. Potentially relevant articles were reviewed in full text by two reviewers who had to agree on inclusion, with a third resolving disputes. Authors of publications were contacted if any ambiguity existed about inclusion or exclusion. Data abstraction included the number of subjects, sex and/or gender of subjects, age range, type of treatment, type of control group if any, methodology (blinding, allocation concealment, intent-to-treat analysis), types of outcomes, and results. Sex was defined as biological sex, categorized into male or female. Gender was defined as the individual’s self-identified gender role/identity, categorized as girl, boy, or transgendered.

Appraising studies

The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system explicitly describes how to rate the quality of each study, as well as how to synthesize the evidence and grade the strength of a recommendation [10–12]. Using this system, we developed an evidence profile of each included study that detailed all of the relevant data about the quality and

strength of evidence for that particular study. Each evidence profile was created using GRADEpro software. We then used the GRADE system to synthesize and classify the overall quality of evidence for each intervention based on the quality of all of the studies using that intervention combined, taking into account risk of bias, inconsistency, indirectness, imprecision, publication bias, dose-response, and effect size. Although we looked at each outcome independently, when the rating of the evidence was the same, we collapsed the outcomes in the GRADEpro tables for the sake of efficiency.

Guideline-related frameworks

The Appraisal of Guidelines, Research, and Evaluation (AGREE II) tool is an international standard of practice guideline evaluation that was used to inform our guideline development and reporting, and was developed by a co-author (MB) [13]. The Guideline Implementability for Decision Excellence Model (GUIDE-M) is a recent model that identifies factors to create recommendations that are optimally implementable [16]. We used these models to guide our methodological processes in the development of our practice guideline.

The guideline team

The Guideline Team was comprised of a core research team and a larger guideline development panel (GDP). The core team presented the research questions to the GDP, reviewed evidence summaries, formulated practice recommendations, drafted the guideline, and limited biases that could impeach upon the guideline development process [17–19]. The chair of the GDP (MB) is an expert in guideline development having produced the AGREE framework [13]. She is a non-expert in the field of eating disorders, and as such, was an impartial chair. She led the consensus discussions of the GDP and she oversaw conflict-of-interest disclosures and management. A multidisciplinary GDP of 24 diverse stakeholders from across Canada was established including members from academic centres who are experts in the field of eating disorders, multi-disciplinary front-line clinicians/knowledge users from community settings, parent and patient representatives, hospital administrators, and policy-makers (all authors on this guideline).

Procedures

An initial teleconference was held on May 18, 2016 with the core research team and the GDP to confirm the research questions prior to starting the systematic reviews. The initial teleconference oriented GDP members to the guideline development process, the roles and responsibilities of the GDP, as well as reviewed all conflicts of interest. The research questions were refined, the clinical population and outcomes were discussed, and the target audience reviewed.

Once the reviews were completed and the evidence profiles were generated, an in-person meeting was held at a central location on December 20, 2018. The core research team presented their evidence profiles for discussion with the GDP. The in-person meeting focused on a facilitated discussion of the evidence profiles and draft recommendations generated by the core team. For each question, the panel reviewed the evidence, and discussed: i) whether the interpretation of the evidence put forward by the core team aligned with that of the GDP, ii) strengths and limitations of the evidence base, iii) considerations of the generalizability of the studies, precision of the estimates, and whether the evidence aligned with values and preferences of Canadian patients and clinicians. Alternative interpretations and suggestions for further research were discussed. Minority or dissenting opinions were noted. Issues regarding implementability of the recommendations were considered, and suggestions for dissemination of the guideline were elicited.

Following the in-person meeting, GDP members were provided with the draft guidelines for review and approval. Group consensus on recommendations and strength of recommendations was obtained using a modified Delphi method [20], with voting by all GDP members using an anonymous web-based survey platform, Lime Survey (www.limesurvey.com). For a recommendation to be approved, at least 70% of the GDP were required to identify their agreement with the recommendation [12]. Consensus was achieved in the first round of voting. The GDP agreed to review and update the guideline every 5 years.

External review

The purpose of the external review was to add validity to our guideline, but also initiate the dissemination process and elicit suggestions for dissemination and implementation. We invited review from four clinical and research experts in the area of pediatric eating disorders. Upon receiving external review, a summary of the review comments and suggestions was circulated to the GDP, along with a final version of the guideline for approval. The panel again discussed and voted on the changes suggested by the reviewers which included the addition of one further recommendation.

Results

Family therapy

Three thousand, five hundred and twenty-two abstracts were identified for review within the family therapy section of our guideline (see PRISMA flow diagram, Fig. 1). Nineteen additional abstracts were identified through citation chaining (up to November 23, 2018) and review of reference lists. Two additional papers were identified through external review. After duplicates were removed, abstracts screened, and full text articles reviewed, 74

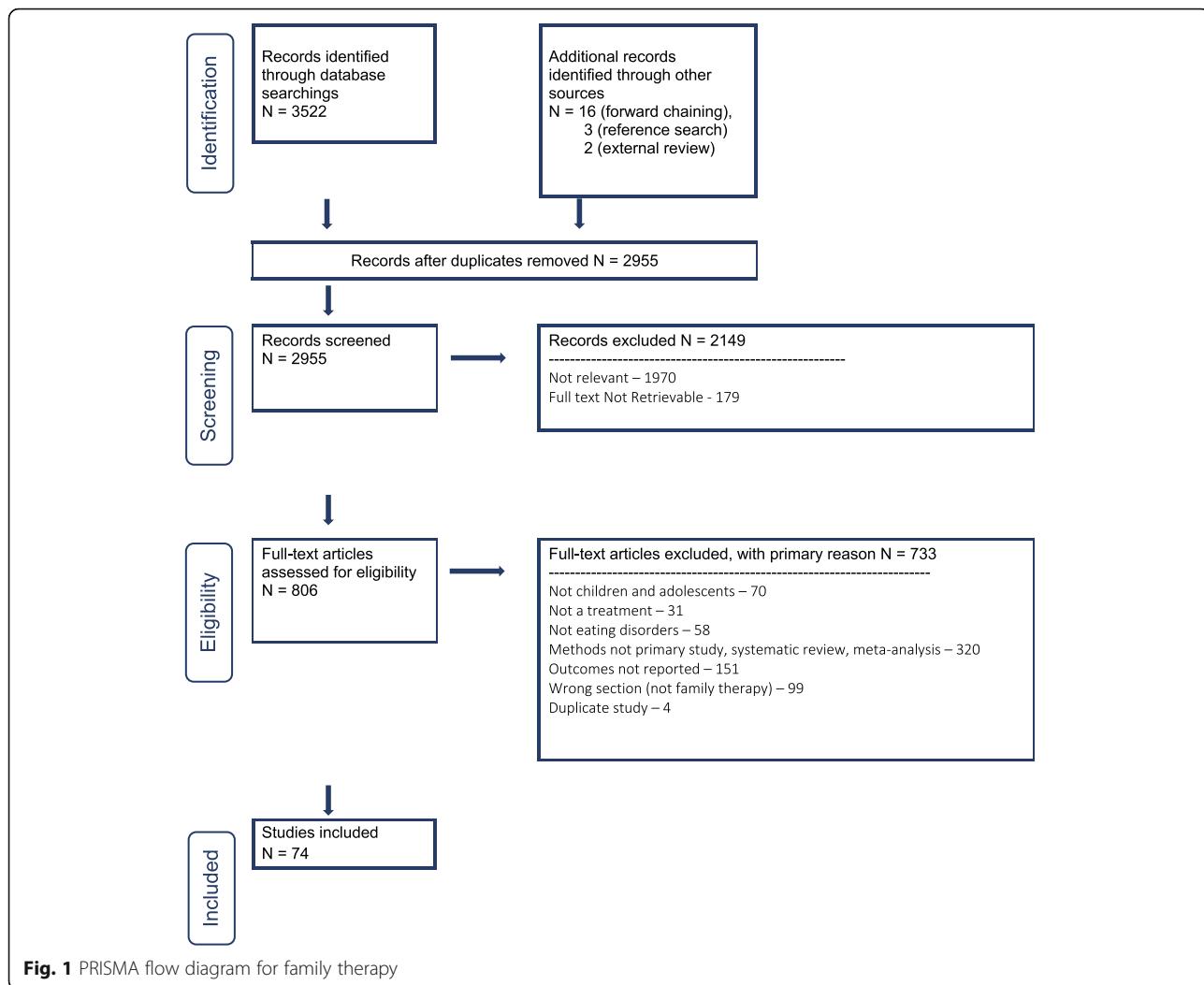


Fig. 1 PRISMA flow diagram for family therapy

studies were included within the family therapy section of our guideline.

Family-based treatment

Anorexia nervosa Of all treatments examined, Family-Based Treatment (FBT), in which parents are placed in charge of the refeeding process, had the most evidence to support its use in children and adolescents with Anorexia Nervosa (AN). One meta-analysis [21] and three high quality RCTs have demonstrated that greater weight gain and higher remission rates are achieved in FBT compared to individual treatment, especially when looking at 1 year follow up [6, 22, 23] (Table 1). One RCT compared a similar behavioural family systems therapy to Cognitive Behavioural Therapy (CBT) and found no significant differences [24], however the sample size was small (Table 1).

In terms of nonrandomized studies, a case-control study of 34 patients treated with FBT compared to 14 treated with “nonspecific therapy” indicated that those in FBT made greater gains in body weight and were less likely to be hospitalized [25]. Seven case series (223 patients) also showed improvement in weight following treatment with FBT [26–32]. Eleven additional case reports (number of total patients = 29) are described showing benefit of FBT in terms of weight gain [33, 35–38, 40–44]. Some of these focus on twins [35, 42, 44], comorbid conversion disorder [43], FBT in a group home setting [38], FBT started on a medical unit [39], and FBT combined with medication [42].

Parent-Focused Family Therapy; a type of FBT in which most of the session is spent with the parents alone, may be just as effective as traditional FBT where the family is seen together [45–47] (Table 2).

Bulimia nervosa Three high quality RCTs for Bulimia Nervosa (BN) have been completed and compared FBT

Table 1 Family-based treatment – anorexia nervosa

Certainty assessment							Impact	Certainty	Importance
No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
FBT vs supportive/dynamic individual- outcomes - Remission (assessed with: attaining target weight, good outcome category)									
3	randomised trials	not serious	not serious	not serious	not serious	none	Weight gain	⊕⊕⊕⊕ HIGH	CRITICAL
							One meta-analysis indicated superiority of FBT at 6- and 12- month follow up. Three RCTs 43/90 (47.8%) with good outcome or in full remission with FBT, compared to 26/89 (29.2%) in individual group. Total n = 179.		
							Weight gain greater in the FBT group compared to individual therapy group at end of treatment.	⊕⊕⊕⊕ HIGH	CRITICAL
RCT (FBT vs CBT) Remission/Good Outcome (assessed with: Morgan Russell Scale)									
1	randomised trials	not serious	not serious	not serious	not serious	none	7/13 (53.8%) had a good outcome in FBT group vs. 7/12 (58.3%) in the CBT group. No significant difference.	⊕⊕⊕⊕ HIGH	CRITICAL
Weight Gain (assessed with: kg and %BW)									
1	Case control	serious ^b	not serious	not serious	not serious	none	One case control retrospective chart review, 32 treated with FBT model compared to 14 in nonspecific therapy. Those in FBT made greater gains in weight.	⊕○○○ VERY LOW	CRITICAL
Weight (assessed with: kg)									
7	Case series	very serious ^{ab}	not serious	not serious	not serious	none	7 large case series (total n = 223). Of these, 32 were children under age 13. Weight was significantly improved, pre to post.	⊕○○○ VERY LOW	CRITICAL
Weight (assessed with: kg)									
11	Case reports	very serious ^{ab}	not serious	not serious	not serious	none	11 case reports detailing 29 patients who restored weight with FBT. Some described twins, comorbid conversion disorder, FBT within a group home setting, or FBT starting on a medical unit or use of FBT combined with medication.	⊕○○○ VERY LOW	CRITICAL

Bibliography:

- RCTs - Russell 1987 [6], Lock 2010 [23], Robin 1999 [22] (compared to psychodynamic individual)
 RCT - Ball 2004 [24] (compared to CBT)
 Case Control-Gusela 2017 [25]
 Case Series - Paulson-Karlsson 2009 [26], Lock 2006 [27], Le Grange 2005 [28], Loeb 2007 [29], Goldstein 2016 [30], Couturier 2010 [31], Herscovici 1996 [32]
 Case Reports - Le Grange 1999 [33], Le Grange 2003 [34], Krautter 2004 [37], Aspen 2014 [38], Matthews 2016 [39], Turkiewicz 2010 [40], O'Neil 2012 [41], Duvvuri 2012 [42], Goldstein 2013[43]

Table 2 Parent focused FBT compared to standard FBT for children and adolescents with anorexia nervosa

Certainty assessment Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Remission (assessed with: Weight greater than 95% and EDE score within 1 SD), Weight (kg), Psychological symptoms (EDI score)									
3	Randomized Trials	not serious	not serious	not serious	not serious	none	one RCT ($n = 107$) adolescents aged 12–18. Remission higher in Separated FBT (43% vs. 22%) compared to Standard FBT at end of treatment.	⊕⊕⊕⊕	CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	one RCT ($n = 40$), found no differences in weight outcome at end of treatment, except when subgroups analyzed. Those with high expressed emotion did better in separated family therapy in terms of weight gain. One pilot RCT ($n = 18$) found no differences in weight outcome at the end of treatment; both groups improved.	⊕⊕⊕⊕	CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	Improvement in EDI score was greater in the standard FBT group compared to the separated group. One pilot RCT ($n = 18$) found both groups improved in EAT scores with no difference between groups.	⊕⊕⊕⊕	CRITICAL HIGH

Bibliography:

RCTs - Eisler 2000 [45], Le Grange 1992 [47], Le Grange 2016 [46]

to varying groups [48–50]. When FBT was compared to CBT, remission rates were significantly higher in the FBT group (39% versus 20%) [50]. Remission rates were also significantly better in the FBT group compared to supportive psychotherapy (39% versus 18%) [48]. However, when family therapy (with some elements consistent with FBT) was compared to guided self-help CBT, there were no significant differences (10% versus 14%) [49]. The adolescents in this study were slightly older and had the option to involve a “close other” rather than a parent, which may have resulted in lower remission rates. A case series and case report also support the use of FBT for BN [34, 51] (Table 3).

Family-based treatment with other populations

Family-Based Treatment has been used for children and adolescents with atypical AN [52]. This case series of 42 adolescents who were not underweight but had lost a significant amount of weight, indicated that there were significant improvements in eating disorder and depressive symptoms, but no improvement in self-esteem (Table 4).

Two case reports describe the application of FBT for children with Avoidant/Restrictive Food Intake Disorder

(ARFID) [53, 54]. These case reports ($n = 7$ cases total) indicate that weight improved in all cases (Table 4).

Family-Based Treatment and other family therapies for children and adolescents with eating disorders across the gender spectrum, including those who are gender variant or nonconforming requires more study. However, there is one case report describing the application of FBT with a transgendered youth, along with complexities that arose [55] (Table 4).

Adaptations to family-based treatment for anorexia nervosa

Adaptations to FBT, such as shorter or longer treatment [56], removal of the family meal [57], guided self-help [58], parent to parent consult [59], adaptive FBT involving extra sessions and another family meal [60], short term intensive formats [61, 62] and delivery of FBT by telehealth [63, 64], appear promising, but require more study (Table 5).

Adjuncts to family-based treatment for anorexia nervosa

Adjuncts to FBT, in which additional treatments have been added to FBT, such as cognitive remediation therapy versus art therapy [65], parental skills workshops [66] and Dialectical Behavioural Therapy (DBT) [67] for

Table 3 Family-based treatment for bulimia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Remission (assessed with: Abstinence from binge or purge behaviour for 4 weeks) Psychological Symptoms (assessed with: EDE), Depression (assessed with: BDI),								
3	randomised trials	not serious	serious ^{a,b,c}	not serious	not serious	none	⊕⊕⊕○ MODERATE	CRITICAL
Binge Purge Frequency (assessed with: Frequency Scores)								
2	Case Reports	very serious ^{d,e}	not serious	not serious	not serious	none	⊕⊕⊕○ VERY LOW	CRITICAL

^aone of three RCTs did not find a difference at end of treatment^bone RCT found a difference in psychological symptoms and the other did not^cone RCT showed a difference in depression scores and the other did not^dno randomization^eno control condition**Bibliography:**

RCTs – Le Grange 2015 [50], Le Grange 2007 [48], Schmidt 2007 [49]

Case Reports - Dodge 1995 [51], LeGrange 2003 [34]

children and adolescents with AN show promise, but require further study (Table 6).

Two case reports describe the application of adjunctive emotion coaching and attachment based strategies to FBT for one male and one female patient with AN [68, 69] (Table 6).

Cognitive Behavioural Therapy has also been added as an adjunct to FBT for young patients with AN or BN. For AN, three case series [70–72] and two case reports [73, 74] indicate improved weight and psychological symptoms with added modules on perfectionism or exposure (Table 7). For BN, one case control study exists

that compared one patient treated with FBT plus CBT to another patient treated with FBT alone, finding that both patients improved in terms of binge/purge symptoms and Eating Disorder Examination (EDE) scores [75] (Table 8).

Multi-family therapy

One large high quality RCT ($n = 169$) found that Multi-Family Therapy (MFT) conferred additional benefits compared to single family therapy (FT) in terms of remission rates for adolescents with AN (75% in MFT versus 60% in FT), although no differences were found on the EDE [76]. There is one case control study examining MFT versus

Table 4 Family-based treatment for other populations

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Atypical AN - Depressive symptoms - Hughes 2017 (atypical AN) [52]									
1	Case series	very serious ^{a,b}	not serious	not serious	not serious	none	Case series of 42 adolescents (age 12 to 18 years) with Atypical AN, that is adolescents who had lost a significant amount of weight, but were not currently underweight. There were significant decreases in eating disorder and depressive symptoms during FBT but no improvement in self esteem.	⊕○○○	CRITICAL VERY LOW
Case Reports - Spettigue 2018 [53], Murray 2012 [54] (ARFID)									
2	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	Two case reports describe 7 cases in total (2 male, 5 female) in which ARFID was treated using a combination of FBT techniques, as well as some behavioural rewards and cognitive strategies. Food variety improved by clinical impression.	⊕○○○	CRITICAL VERY LOW
Case Report - Strandjord 2015 (transgendered youth) [55]									
1	Case Report	very serious ^{a,b}	not serious	not serious	not serious	none	Weight improved in all cases.	⊕○○○	CRITICAL VERY LOW
Transgendered Youth -BMI									
1	Case Report	very serious ^{a,b}	not serious	not serious	not serious	none	16 yo female sex assigned at birth treated with FBT to weight restoration then disclosed gender dysphoria with a desire to transition to male gender. BMI 14.9 before treatment, and 19 with treatment.	⊕○○○	CRITICAL VERY LOW

^ano control condition^bno randomization

treatment as usual (TAU) in 50 female adolescents with AN [77]. Those in the MFT group had a higher percent body weight (99.6%) versus the TAU group (95.4%) at the end of the study. Two case series have also demonstrated a benefit of MFT for adolescents with AN [78, 79], and one case series with a mixed sample of adolescents with AN or BN showed benefit in psychological symptoms [80]. There is also one small case series examining MFT for adolescents with BN that found improvements in eating disorder symptoms [81] (Table 9).

Other forms of family therapy

Systemic Family therapy has been used in one RCT [82] and three case reports [83–85] for AN. The high quality RCT compared Systemic Family Therapy to FBT and found no significant differences in terms of remission rates, however, rate of weight gain was greater in the

FBT group and the use of hospitalization was also significantly lower in the FBT group (Table 10). Structural Family Therapy has been studied within two case series [86, 87] and two case reports [88, 89]. Remission rates in the case series were 75% (38/51) by clinical impression (Table 11). Both of these types of family therapy (Systemic and Structural) might be helpful for children and adolescents with AN, but the evidence generally does not indicate superiority to FBT, especially when costs are taken into consideration.

When looking at other nonspecific, family therapies in which family dynamics were examined, there is one high quality RCT which compared family therapy plus TAU to TAU alone [90] and three case reports [91–93] indicating a benefit of family therapy (Table 12). Family therapy has also been compared to family group psychoeducation with no significant differences in

Table 5 FBT adaptations for children and adolescents with anorexia nervosa

Certainty assessment	No of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Weight and Psychological Symptoms										
1	randomised trials 10 vs 20 sessions	not serious	not serious	not serious	not serious	none	RCT comparing 10 sessions of FBT to 20 sessions of FBT ($n = 86$). No differences in weight seen at 1 year. Those with nonintact families and severe eating related obsessive-compulsive features fair better in FBT.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	IMPORTANT
		not serious	not serious	not serious	not serious	none	No differences in psychological symptoms (EDE) seen at 1 year. Those with nonintact families and severe eating related obsessive-compulsive features fair better in FBT.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	IMPORTANT
Weight	1	randomised trials Adaptive vs. Standard FBT	not serious	not serious	not serious	not serious	45 adolescents in RCT comparing Adaptive FBT (3 extra sessions) to Standard FBT. No differences in outcomes in terms of weight.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	CRITICAL
	1	Randomized trial FBT +/– family meal	not serious	not serious	not serious	not serious	One RCT examined FBT with and without the family meal intervention ($n = 23$). No differences were found in weight at the end of the study.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	CRITICAL
	1	randomised trials FBT alone vs. FBT plus parent consultation	not serious	not serious	not serious	not serious	RCT of 20 adolescents aged 12–16 all female. 10 received FBT plus parent to parent consultation and 10 received FBT alone. Small increase in rate of weight restoration was seen in FBT plus consultation group.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	CRITICAL
Weight	4	Case Series guided self help, short term intensive, telemedicine	very serious ^{a,b}	not serious	not serious	none	Uncontrolled feasibility study looked at Parental guided self help FBT for AN ($n = 19$). Improvement in weight was seen at the end of the study. Uncontrolled Short-Term Intensive Family Based Treatment for AN ($n = 19$). 18/19 patients gained and maintained weight. 30 month outcome of 74 patients treated with this Short Term Intensive Model indicated 61% remained in full remission. One case series ($n = 10$) showing benefit of FBT delivery via telemedicine.	⊕○○○ VERY LOW	⊕○○○ VERY LOW	CRITICAL
	1	Case Report telemedicine	very serious ^{a,b}	not serious	not serious	none	One case report of FBT delivered by telehealth. Weight improved pre to post treatment.	⊕○○○ VERY LOW	⊕○○○ VERY LOW	CRITICAL

Explanations

^ano control condition^bno randomization

Bibliography:

RCT - Lock 2005 [56], Lock 2015 [60], Herscovici 2017 [57], Rhodes 2008 [59]

Case Series - Lock 2017 [58], Anderson 2017 [64], Marzola 2015 [62], Rockwell 2011 [61]

Case Report - Goldfield 2003 [63]

Table 6 FBT adjuncts for children and adolescents with anorexia nervosa

Certainty assessment № of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact		Importance
							Certainty	Impact	
Psychological symptoms (EDE)									
1	randomised trials Art therapy vs. CRT	not serious	not serious	not serious	not serious	none	⊕⊕⊕⊕ HIGH	CRITICAL	
Weight Restoration (assessed with: Median BMI)									
1	Case control FBT +/-skills workshop	serious ^a	not serious	not serious	not serious	none	One case control study described 45 families who had FBT with 45 families who had FBT plus a parent education and skills workshop. Week 4 weight gain was higher in those with the workshop, but there were no significant differences at the end of the study.	⊕○○○ VERY LOW	CRITICAL
Weight (assessed with: pounds and %expected body weight)									
1	Case series DBT added	very serious ^{ab}	not serious	not serious	not serious	none	One case series ($n = 11$) of DBT added to FBT in a community-based clinic. 2/11 achieved full weight restoration at end of treatment	⊕○○○ VERY LOW	CRITICAL
Weight									
2	Case reports Emotion coaching	very serious ^{ab}	not serious	not serious	not serious	none	6/11 had normal EDE scores at the end of the study.	⊕○○○ VERY LOW	CRITICAL
							Two case reports of two patients with AN (one male) treated with adjunctive emotion coaching and the other with Attachment Based Family Therapy during a course of FBT. Both improved in weight to be fully weight restored.		

^ano randomization^bno control condition

Bibliography:

RCT – Lock 2018 [65]

Case Control – Ganci 2018 [66]

Case Series - Accurso 2018 [67]

Case Reports - Peterson 2016 [68], Wagner 2016 [69]

Table 7 FBT plus CBT for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight (assessed with: percent ideal body weight) Psychological Symptoms of ED (assessed with: EDE and EDI)								
3	Case series adding CBT to FBT	very serious ^{a,b}	not serious	not serious	not serious	none	Total n = 78. Three case series looked at a perfectionism module added to FBT, or an exposure component to FBT. Weight increased significantly. One case series looked at Acceptance-Based Separated Family Treatment (n = 47), and also noted weight improved to ideal weight in about 50% of cases from pre to post treatment (20 sessions over 24 weeks).	⊕○○○ CRITICAL VERY LOW
Perfectionism (assessed with: Child and Adolescent Perfectionism Scale)								
2	Case reports	very serious ^{a,b}	not serious	not serious	not serious	none	Two case reports (n = 9 total) report on decreased perfectionism scores with the addition of a CBT perfectionism module or the addition of acceptance-based strategies	⊕○○○ IMPORTANT VERY LOW

Table 9 Multi family therapy for eating disorders

Certainty assessment							Impact	Certainty	Importance
DE	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Good Outcome at End of Treatment (assessed with: Morgan Russell Scale), Psychological Symptoms (EDE)									
1	randomised trials	not serious	not serious	not serious	not serious	none	RCT ($n = 169$) of adolescents with AN aged 11–18 comparing MFT to FBT (91% female). 65/86 (75.6%) good outcome at end of treatment in MFT versus 48/83 (57.8%) in the FBT group - significant difference. No differences between groups seen on the EDE. Both groups improved over time on the EDE.	⊕⊕⊕⊕ HIGH	CRITICAL
Weight (assessed with: Percent ideal body weight)									
1	Case control	serious ^a	not serious	not serious	not serious	none	Retrospective case control study looking at MFT versus TAU for AN. 50 female adolescents aged 11–18 were included (25 in MFT group and 25 in TAU group). Those in MFT restored weight to a higher percentage (99.6% vs. 95.4%).	⊕⊕⊕ VERY LOW	CRITICAL
Weight (assessed with: kg and BMI) Psychological Symptoms (assessed with: EDE, EDI)									
4	Case Series	very serious ^{ab}	not serious	not serious	not serious	none	Four studies without a control condition. Total $n = 142$ adolescents (5 males, 137 females). Diagnoses were mixed including AN, EDNOS and BN. Significant improvements in weight were reported.	⊕⊕⊕ VERY LOW	CRITICAL

^ano randomization
^bno control condition
Bibliography:

RCT – Eisler 2016 [76]

Case control - Gabel 2014 [77]

Case Series - Gelin 2015 [80], Hollesen 2013 [78], Salaminiou 2017 [79], Stewart 2015 [81]

Table 10 Systemic family therapy for anorexia nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Systemic Family Therapy vs. FBT- Remission (assessed with: greater than 95% IBW)									
1	randomised trials	not serious	not serious	not serious	not serious	none	One RCT n = 164 (82 in each group, 141 were female). Remission rates were 27/82 in the FBT group and 21/82 in the Systemic Group - not significantly different.	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	Rate of weight gain were significantly faster in the FBT group compared to the Systemic Group.	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	No differences were seen in EDE score at end of treatment between FBT and Systemic Therapy	⊕⊕⊕⊕ HIGH	CRITICAL
Weight (assessed with: kg)									
3	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	Three case reports describe the use of systemic family therapy to good effect in terms of weight restoration. One case was a 14 yo male in which only the parents came to some of the sessions, another was a 15 yo female with comorbid osteosarcoma, and another is a 15 yo male.	⊕○○○ VERY LOW	IMPORTANT

Explanations^ano control condition^bno randomization**Bibliography:**

RCT - Agras 2014 [82]

Case Reports - Carr 1989 [83], De Benedetta 2011 [85], Merl 1989 [84]

outcomes [94]. Both groups were recruited through an inpatient program. Both groups gained weight and were receiving other forms of treatment including medical monitoring and nutritional advice, in addition to the interventions of interest (Table 13).

Emotion focused family therapy (EFFT) was compared in a randomized trial to CBT for 13 adolescents with BN [95] (Table 14). No differences were found in terms of binge/purge symptoms or psychological symptoms at the end of the study, however, the study was likely underpowered to detect differences.

Individual and group outpatient psychotherapies

Twelve thousand and eleven abstracts were identified in our database searches for the individual and group psychotherapy section of our guideline (see PRISMA flow diagram, Fig. 2). Twenty-five were added with

forward chaining up to November 21, 2018, and 15 more through reference list review. Nine thousand, two hundred and eight abstracts were excluded during the abstract screening phase, and a further 1457 were excluded based on full article review, leaving a total of 48 articles included.

Cognitive Behavioural therapy

Anorexia nervosa A small RCT ($n = 22$) did not show any difference between CBT and Behavioural Family Therapy (similar to FBT) in terms of weight, or psychological symptoms on the EDE for children and adolescents with AN, however, both groups improved [24] (Table 15). One large case series [96] indicated that CBT resulted in weight gain and improvement in eating disorder psychological symptoms for children and adolescent with AN

Table 11 Structural family therapy for children and adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Recovery (assessed with: clinical impression), Weight Gain									
2	Case series	very serious ^{a,b}	not serious	not serious	not serious	none	Two large case series of 51 female adolescents total used structural family therapy. 38/51 (75%) were deemed recovered by clinical impression.	⊕○○○	CRITICAL VERY LOW
			very serious ^{a,b}	not serious	not serious	not serious	One of these case series reported between 5 and 31 kg of weight gain with the treatment ($n=25$).	⊕○○○	CRITICAL VERY LOW
Weight Gain (assessed with: kg)									
2	Case reports	very serious ^{a,b}	not serious	not serious	not serious	none	Two case reports ($n=2$ both female) report weight restoration - one of these cases had co-morbid asthma.	⊕○○○	CRITICAL VERY LOW

Explanations

^ano randomization^bno control condition

Bibliography:

Case Series - Minuchin 1975 [86], Wallin 2002 [87]

Case Reports - Combrinck-Graham 1974 [88], Liebman 1974 [89]

($n=49$). Eight additional case reports [97–104] support these results as well. Improvements have also been shown when CBT is delivered in a group setting for AN in a case control design involving 22 patients [105], and in a case series of 29 adolescents [106] (Table 16).

Bulimia nervosa For BN, three high quality RCTs were found examining CBT (Table 17). One RCT compared CBT to psychodynamic therapy in primarily adolescents, but also some young adults. This trial did not find any difference in terms of remission from BN. There were

Table 12 Family therapy (dynamic) for children and adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
RCT - Good Outcome (assessed with: Morgan Russell)									
1	randomised trials	not serious	not serious	not serious	not serious	none	one RCT involving 60 adolescents randomized to TAU or TAU plus Family Therapy looking at family dynamics. 12/30 had a good outcome in the FT group compared to 5/30 in the TAU group ($p < 0.05$).	⊕⊕⊕⊕	CRITICAL HIGH
Weight (assessed with: kg)									
3	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	three case reports looking at 4 female patients (one set of twins) treated with family therapy (one solution focused). Weight improved in all cases.	⊕○○○	IMPORTANT VERY LOW

Explanations

^ano randomization^bno control group

Bibliography:

RCT - Godart 2012 [90]

Case Reports - Debow 1975 [91], Lane 1987 [92], O'Halloran 1999 [93]

Table 13 Family therapy compared to family group psychoeducation for adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight Restoration (assessed with: kg)									
1	randomised trials	not serious	not serious	not serious	not serious	none	No differences in weight restoration were seen at the end of the study between treatments. Both groups gained weight. (n = 25).	⊕⊕⊕⊕	IMPORTANT HIGH
Bibliography: Geist 2000 [94]									

small differences in terms of a greater reduction in binge-purge frequency in the CBT group [107]. There were also two high quality RCTs identified comparing CBT to family-based approaches for BN [49, 50]. There are conflicting results between these two studies, with the study by Le Grange and colleagues [50] indicating significantly greater remission rates in the FBT group compared to the CBT group, whereas the study by Schmidt and colleagues [49] showed no significant difference between the groups with only a small proportion remitted in each group. Two large case series indicate significant decreases in binge-purge frequency pre to post treatment [108, 109]. Several case reports indicating improvement in binge-purge symptoms exist [110–114].

Avoidant/restrictive food intake disorder There were 13 case reports identified in which CBT was used to treat ARFID [115–127]. One of these described the delivery of CBT by telemedicine [127]. One case described the combined treatment of CBT with fluoxetine for a

significant choking phobia [120]. Although these reports are preliminary, improvements in food avoidance were noted in all cases (Table 18).

Adolescent focused psychotherapy

Anorexia nervosa Adolescent Focused Psychotherapy (AFP: based on psychodynamic principles) [22, 23, 128] and other psychodynamic treatments [129] have some evidence to support their use (Table 19). Remission rates were not significantly different between AFP and FBT in two RCTs involving a total sample of 158 adolescents with AN [22, 23]. Rates of 20% (12/60) remitted in AFP compared to 34% (21/60) in FBT were found in a study by Lock and colleagues [23], whereas 41% in the AFP group met the weight goal of the 50th percentile in a study by Robin and colleagues [22] compared to 53% in the FBT group. Differences between AFP and FBT became more apparent at 1 year follow-up with FBT demonstrating an advantage [23]. Group analytic psychotherapy also has some evidence to support its use for AN [130] (Table 20).

Table 14 Emotion focused family therapy compared to cognitive behavioural therapy for children and adolescents with Bulimia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Binge Purge Frequency (assessed with: frequency), Psychological Symptoms (assessed with: EDI)									
1	randomised trials	not serious	not serious	not serious	serious ^a	none	n = 13 adolescents with BN randomly assigned to EFFT or CBT. No differences in terms of binge purge frequency at end of study.	⊕⊕⊕○	CRITICAL MODERATE
		not serious	not serious	not serious	serious ^a	none	No differences in terms of psychological symptoms at end of study. Very small sample size.	⊕⊕⊕○	CRITICAL MODERATE

Explanations

^avery small sample size

Bibliography:

RCT - Johnson 1998 [95]

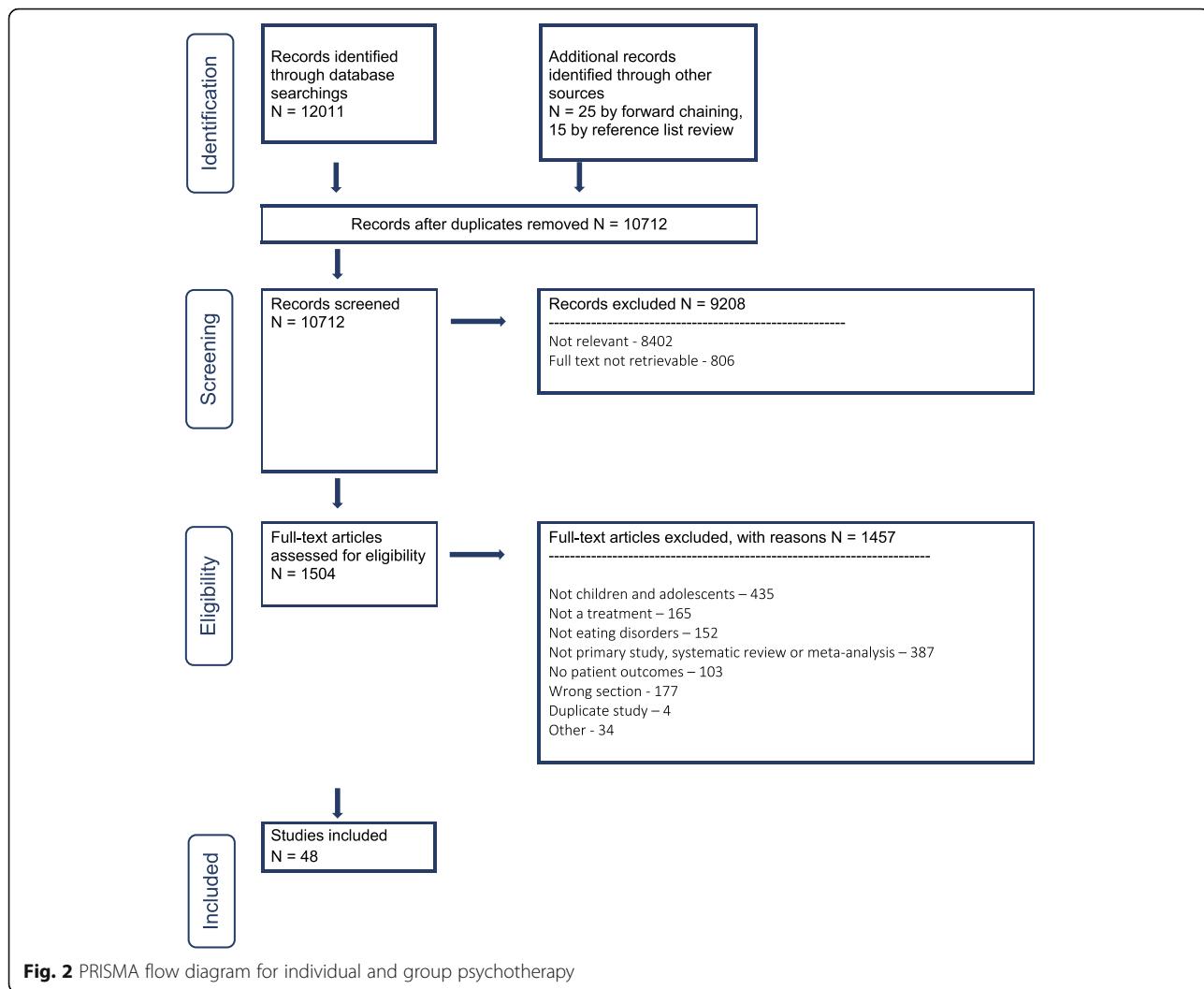


Fig. 2 PRISMA flow diagram for individual and group psychotherapy

Psychodynamic Therapy (group or individual) for AN may be beneficial, however other treatments have some advantages over psychodynamic therapy in terms of cost and more rapid improvement in symptoms.

Dialectical Behavioural therapy

Dialectical Behavioural Therapy (DBT) for eating disorders has been applied for youth with AN, BN, Eating Disorder Not Otherwise Specified (EDNOS) and Binge Eating Disorder (BED) with promising results [131–133]. Two case series report decreases in binge-purge symptoms, and improvements in psychological eating disorder symptoms [131, 133], along with reductions in frequency of self-harm in multi-diagnostic youth [131] (Table 21).

Adjunctive treatments

Cognitive Remediation Therapy (CRT) has been mentioned in the family therapy section of this guideline

as an adjunct to FBT [65], however, it has also been studied as an adjunct to other therapies in a case series [134] and a case report [135] for AN (Table 22). It has been used in multiple settings and will be touched upon again within the level of care section of this guideline.

One high quality study suggests some benefits of adjunctive yoga in terms of psychological symptoms of eating disorders, as well as depression and anxiety [136]. In this study, 50 girls and 4 boys were randomly assigned to an 8-week trial of yoga plus standard care versus standard care alone. The majority of the participants had AN (29/54), and others were diagnosed with BN (9/54) and EDNOS (15/54). Eating disorder symptoms measured by the EDE decreased more significantly in the yoga group. Both groups demonstrated maintenance of body mass index (BMI), along with decreases in anxiety and depression scores (Table 23).

Table 15 Cognitive behavioural therapy for Anorexia Nervosa

Certainty assessment № of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact		Certainty	Importance
Weight (assessed with: BMI), Psychological symptoms (EDE)										
1	randomised trials	not serious	not serious	not serious	not serious	none	RCT with 11 adolescents and young adults in CBT group compared to 11 in the Behavioural Family Therapy group (age range 13–23). There were no significant differences in terms of weight.	⊕⊕⊕⊕ HIGH	CRITICAL	
		not serious	not serious	not serious	not serious	none	No differences seen in the eating psychopathology on the EDE between treatment groups.	⊕⊕⊕⊕ HIGH	CRITICAL	
Weight (assessed with: kg), psychological symptoms with EDE										
1	Case Series	very serious ^{a,b}	not serious	not serious	not serious	strong association	This was a large case series of 49 adolescents age 13 to 17 years, all female. 40 sessions weekly for 45 min. Weight was significantly increased by an average of 8.6 kg comparing pre to post weight.	⊕○○○ VERY LOW	CRITICAL	
		very serious ^{a,b}	not serious	not serious	not serious	strong association	EDE scores were substantially decreased by a score of 2.03 (range 0–6) indicating psychological symptoms were much improved from pre to post treatment.	⊕○○○ VERY LOW	CRITICAL	
Weight (assessed with: kg), psychological symptoms										
8	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	8 case reports describing 8 adolescents (7 females, 1 male) with AN treated with CBT. One case had comorbid OCD. Weight improved with treatment. Age range 11.5 to 17 years.	⊕○○○ VERY LOW	CRITICAL	
		very serious ^{a,b}	not serious	not serious	not serious	none	Improved EDE scores and EDI scores as well as improved eating behaviours in terms of a reduction in restricted eating.	⊕○○○ VERY LOW	CRITICAL	

Explanations

^ano randomization
^bno control condition

Bibliography:

RCT - Ball 2004 [24]
Case Series - Dalle Grave 2013 [96]
Case Reports - Cowdrey 2016 [97], Cooper 1984 [98], Martin-Murcia 2011 [99], Heffner 2002 [100], Sigrin 1971 [101], Fundudis 1986 [102], Ollendick 1979 [103], Wildes 2011 [104]

Table 16 Group cognitive behavioural therapy for children and adolescents with Anorexia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight (assessed with: kg) Psychological Symptoms of ED (assessed with: EDE)								
1	Case Control	serious ^a	not serious	not serious	not serious	none	This controlled study involved 11 adolescents in the CBT group condition compared to 11 adolescents in the treatment as usual condition. CBT group involved 24 sessions (90 min each) over a six-month period. There were no significant differences in terms of weight at the end of treatment.	⊕○○○ CRITICAL VERY LOW
Weight (assessed with: BMI) Psychological Symptoms of ED (assessed with: EDE)								
1	Case Series	very serious ^{a,b}	not serious	not serious	not serious	none	Significant difference on the EDE subscale of Restraint (0.56 vs. 0.70 - clinical significance questionable).	⊕○○○ CRITICAL VERY LOW
Case series of 29 adolescent females (22 AN-R, 7 AN-BP). No control group. 40 sessions of group CBT over 40 weeks. Weight (BMI) improved pre to post treatment. EDE restraint and EDE weight concern improved Pre to Post treatment.								

Explanations^ano randomization^bno control condition**Bibliography:**

Case Control – Pegado 2018 [105]

Case Series - Ohmann 2013 [106]

Medications**Atypical antipsychotics**

Two hundred and thirty-six abstracts were identified through database searching for the atypical anti-psychotic section of our guideline (see PRISMA flow diagram Fig. 3). Seven additional articles were found through citation chaining and reference list review. After excluding 97 abstracts and then excluding 73 full text articles we arrived at 32 included studies for the atypical antipsychotic section. We then divided up the antipsychotics into their respective categories – Olanzapine, Risperidone, Quetiapine, and Aripiprazole.

Olanzapine

Anorexia nervosa Olanzapine has been the most commonly studied psychotropic medication for children and adolescents with AN (Table 24). At present, only one double blind placebo-controlled trial in this population has been published. Kafantaris and colleagues [137] examined olanzapine in 20 underweight adolescents being treated in inpatient ($n = 9$), day treatment ($n = 6$) and

outpatient ($n = 5$) settings (age range 12.3 to 21.8 years). In a 10-week pilot study, they found no differences in beneficial effect between the olanzapine and placebo groups in the 15 subjects who completed the trial; however, the treated group showed a trend towards increasing fasting glucose and insulin levels by the end of the study. The mean dose of olanzapine was 8.5 mg daily. Of note, only 21% of eligible patients were recruited into the study and there was a high attrition rate. Although other research teams have also attempted RCTs using olanzapine in this population, trials have been hampered by a myriad of confounding and recruitment issues [155].

Three case control studies have examined the use of olanzapine in children and adolescents with AN [138–140]. The most recent of these studies enrolled 38 patients with AN; 22 of whom took olanzapine and 10 who declined medication and were retained as a comparison group [138]. The mean dose of medication was 5.28 mg daily over a 12-week trial period. Those in the medication group demonstrated a significantly higher rate of weight gain in the first 4 weeks, although approximately one third of participants discontinued olanzapine early due to side effects [138]. Norris and colleagues [139] completed a retrospective chart

Table 17 Cognitive behavioural therapy for Bulimia Nervosa

Certainty assessment	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance	
No of studies										
CBT vs FBT - Remission (assessed with: abstinence from BP for 4 weeks)										
2	randomised trials	not serious	not serious	not serious	not serious	none				
							RCT n = 130 aged 12–18 years. 18 sessions over 6 months. 20% remitted in CBT group versus 39% remitted in FBT group ($p < 0.04$, NNT = 5). RCT n = 85 (guided self care CBT) remitted 6/44 in CBT group versus 4/41 in family group. no significant difference.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	CRITICAL
CBT vs. Psychodynamic - Remission Rates (assessed with: Diagnostic Criteria)										
1	randomised trials	not serious	not serious	not serious	not serious	none				
							one RCT 81 females mean age 18.7 years (range 14–20), 33.3% remitted in the CBT group and 31.0% in the psychodynamic group. No significant differences. Mean of 37 sessions. Both groups improved, there were small between groups effect sizes for binge eating ($d = 0.23$) and purging ($d = 0.26$) in favour of CBT and for eating concern ($d = 0.35$) in favour of PDT.	⊕⊕⊕⊕ HIGH	⊕⊕⊕⊕ HIGH	CRITICAL
Binge Purge Behaviour (assessed with: EDE)										
2	Case Series	very serious ^{a,b}	not serious	not serious	not serious	none				
							Two large case series ($n = 68$ including 2 males, 66 females, and $n = 34$ all female). Total age range 12–19. Number of sessions 16–20. Frequency of binge and purge episodes decreased significantly pre to post treatment.	⊕○○○ VERY LOW	⊕○○○ CRITICAL	
							Case series of 68 adolescents - EDE significantly improved global EDE score from 3.6 to 1.8 from pre to post treatment.	⊕○○○ VERY LOW	⊕○○○ CRITICAL	
Binge Purge Frequency (assessed with: Frequency), Psychological Symptoms (EDE or EAT)										
5	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none				
							Case reports involving 9 patients in total. Frequency of binge and purge behaviours described as decreased.	⊕○○○ VERY LOW	⊕○○○ CRITICAL	
							7 cases -EDE or EAT significantly improved.	⊕○○○ VERY LOW	⊕○○○ CRITICAL	

Explanations

^ano randomization
^bno control condition

Bibliography

- RCT – Le Grange 2015 [50]. Schmidt 2007 [49] (CBT vs. FBT) Stefini 2017 [107] (CBT vs. psychodynamic)
Case Series - Dalle Grave 2015 [108], Lock 2005 [109]
Case Reports – Chapman-Williams 2006 [110], Cooper 2007 [111], Anbar 2005 [112], Schapman-Williams 2007 [113], Sysko 2011 [114]

Table 18 Cognitive behavioural therapy for ARFID

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Avoidance of Food (assessed with: clinical impression)								
12	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	⊕○○○	IMPORTANT VERY LOW
Telemedicine - Increased food variety (assessed with: bites of nonpreferred food)								
1	Case Report	very serious ^{a,b}	not serious	not serious	not serious	none	⊕○○○	IMPORTANT VERY LOW

Explanations

^ano randomization^bno control condition

Bibliography:

Case Reports - Murphy 2016 [125], Fischer 2015 [124], Nock 2002 [119], Okada 2007 [122], Ciyiltepe 2006 [121], de Roos 2008 [123], Culbert 1996 [117], Siegel 1982 [115], Reid 2016 [126], Chattoor 1988 [116], Chorpita 1997 [118], Bloomfield 2018 [127], Bailly 2003 [120]

Table 19 Adolescent focused psychotherapy/psychodynamic for Anorexia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Remission (assessed with: normal weight and EDE score)								
2	randomised trials	not serious	not serious	not serious	not serious	none	⊕⊕⊕⊕	CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	Those in FBT had greater change on EDE scores at end of treatment.	⊕⊕⊕⊕ CRITICAL HIGH
Weight								
2	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	Two case reports describing three cases total (age 12–16 years, all female) in which psychodynamic therapy over 1–2 years of therapy resulted in weight restoration.	⊕○○○ CRITICAL VERY LOW

Explanations

^ano control condition^bno randomization

Bibliography:

RCT - Lock 2010 [23], Robin 1999 [22]

Case Reports - Fitzpatrick 2010 [128], Pharis 1984 [129]

Table 20 Group analytic therapy for children and adolescents with AN and BN

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Psychological Symptoms (assessed with: EDI, SEED-short evaluation eating disorders)									
1	Case Reports	very serious ^a	not serious	not serious	not serious	none	8 female adolescents aged 15–17 (3 with AN, 5 with BN). SEED AN and EDI maturity fears significantly decreased from pre to post. Setting was outpatient - 2 years 1.5 h per week	⊕○○○	IMPORTANT VERY LOW

Explanations

^ano control condition

Bibliography:

Case Report - Prestano 2008 [130]

review of 22 inpatients treated with olanzapine compared to an untreated age-matched group. The rate of weight gain was not significantly different, however, the treated group had more psychiatric co-morbidities than those not taking olanzapine and experienced side effects of sedation and dyslipidemia [139]. Hillebrand and colleagues [140] also reported on olanzapine use in seven patients (mean age 16.0 years) with AN. Most were taking 5 mg of olanzapine, with one patient receiving 15 mg once daily. The authors found reductions in activity levels in the adolescents taking olanzapine in comparison to 11 adolescents not treated with olanzapine. All patients were receiving either inpatient or day hospital care and there were no significant differences in weight [140].

In terms of case series, Leggero and colleagues [142] reported on 13 young patients (age 9.6 to 16.3 years) treated with a mean dose of 4.13 mg daily of olanzapine. Significant improvements were seen in weight, functioning, eating disorder symptoms and hyperactivity. Similarly, Swenne and Rosling [141] reported on 47 adolescents with AN treated with a mean dose of 5.1 mg daily. A mean weight gain of 9 kg was noted. The patients were treated for a mean of 228 days with olanzapine and were followed for three months following medication discontinuation. Biochemical side effects were closely monitored and were felt to be more related to refeeding processes than to medication [141].

Table 21 Dialectical behavioural therapy for eating disorders

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Binge Frequency (assessed with: number per month) Purge Frequency									
2	Case Series	very serious ^a	not serious	not serious	not serious	none	Two case series and one case report for a total of 22 patients (10 EDNOS, 6 AN, 6 BN) reported a significant decrease in binge frequency. Reduction in vomiting pre and post treatment.	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	There were decreases in psychological symptoms.	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	A decrease in self harm also noted.	⊕○○○	IMPORTANT VERY LOW
Binge Frequency, EDE scores									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	N=1 female with BED – decreased frequency of binge episodes	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	improvement in EDE scores.	⊕○○○	IMPORTANT VERY LOW

Explanations

^ano control group

Bibliography:

Case Series – Salbach-Andrae 2008 [133], Fischer 2015 [131]

Case Report - Safer 2007 [132]

Table 22 Cognitive remediation therapy for children and adolescents with Anorexia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
ART vs. CRT - Weight (assessed with: BMI), ED symptoms, depression, anxiety								
1	randomised trials	not serious	not serious	not serious	not serious	none	RCT comparing Art Therapy and CRT (both receiving FBT) n = 30 (3 male, 27 female). BMI not significantly different.	⊕⊕⊕⊕ HIGH CRITICAL
		not serious	not serious	not serious	not serious	none	Art Therapy significantly better than CRT in terms of global EDE score at the end of 15 sessions.	⊕⊕⊕⊕ HIGH CRITICAL
		not serious	not serious	not serious	not serious	none	No difference between CRT and Art Therapy with respect to depression scores.	⊕⊕⊕⊕ HIGH CRITICAL
		not serious	not serious	not serious	not serious	none	No difference between CRT and Art Therapy with respect to Anxiety scores	⊕⊕⊕⊕ HIGH CRITICAL
Weight (assessed with: BMI), Depression (BDI), Anxiety (STAI)								
1	Case Series	very serious ^{a,b}	not serious	not serious	not serious	none	One open trial of 20 patients (10 inpatients, 10 outpatients) describes weight improvement with 10 sessions of CRT. Open trial was pre post CRT.	⊕○○○ VERY LOW CRITICAL
		very serious ^{a,b}	not serious	not serious	not serious	none	Depression scores decreased significantly following CRT (pre compared to post)	⊕○○○ VERY LOW CRITICAL
		very serious ^{a,b}	not serious	not serious	not serious	none	No differences pre and post were seen in terms of Anxiety.	⊕○○○ VERY LOW CRITICAL
Weight								
1	Case Report	very serious ^{a,b}	not serious	not serious	not serious	none	Case report – 12 year old female with AN - pre post and 7 month follow up after 10 sessions CRT. Weight improved at the follow up assessment to a healthy weight range.	⊕○○○ VERY LOW IMPORTANT

Explanations

^ano control group^bno randomization

Bibliography:

RCT - Lock 2018 [65]

Case Series -Dahlgren 2013 [134]

Case Report - van Noort 2015 [135]

Thirteen case reports (Table 24) have also been published [42, 143–154]. Pisano and colleagues [143] reported on five cases of adolescents with AN treated with 2.5 to 7.5 mg of olanzapine. At 6 month follow-up these patients demonstrated increased oral intake and improved BMI. Dennis, Le Grange, and Bremer [144] used olanzapine at a dose of 5 mg daily in five adolescent females with AN and found an increase in BMI, reduction of body concerns, and improvements in sleep and anxiety surrounding food and weight. Another case series involving four young patients aged 10 to 12 years reported on the use of olanzapine at a dose of 2.5 mg daily to treat AN [145]. These authors reported improvements in compliance and

weight gain, as well as decreases in agitation. Mehler et al. [146] reported on five female patients aged 12 to 17 years on a dose range of 5 mg to 12.5 mg daily of olanzapine. They found improvements in body image distortion and rigidity. La Via, Gray, and Kaye [147] described two females with AN who experienced reduction of inner tension and “paranoid ideas” with use of 10 mg daily of olanzapine. Finally, there is a case report using olanzapine 5 mg daily to treat a 17 year old girl with AN and co-morbid pervasive developmental disorder not otherwise specified [150]. These authors reported weight restoration and improvements in eating behavior within 5 months of initiating treatment.

Table 23 Yoga for eating disorders

Nº of studies	Study design	Risk of bias	Certainty assessment			Impact	Certainty	Importance
			Inconsistency	Indirectness	Imprecision			
Psychological Symptoms (assessed with: EDE), weight, anxiety, depression								
1	randomised trials	not serious	not serious	not serious	not serious	none	In this RCT 50 girls and 4 boys were randomized to yoga plus standard treatment, or standard treatment alone. There were no differences in weight between the yoga group and the no yoga group at the end of the study.	⊕⊕⊕⊕ CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	The yoga group demonstrated greater decreases in EDE score at 12 weeks.	⊕⊕⊕⊕ CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	Anxiety scores improved over time in the yoga group and were significantly improved compared to the no yoga group.	⊕⊕⊕⊕ CRITICAL HIGH
		not serious	not serious	not serious	not serious	none	Depression scores were significantly improved in the yoga group compared to the control group.	⊕⊕⊕⊕ CRITICAL HIGH

Bibliography:

RCT - Carei 2010 [136]

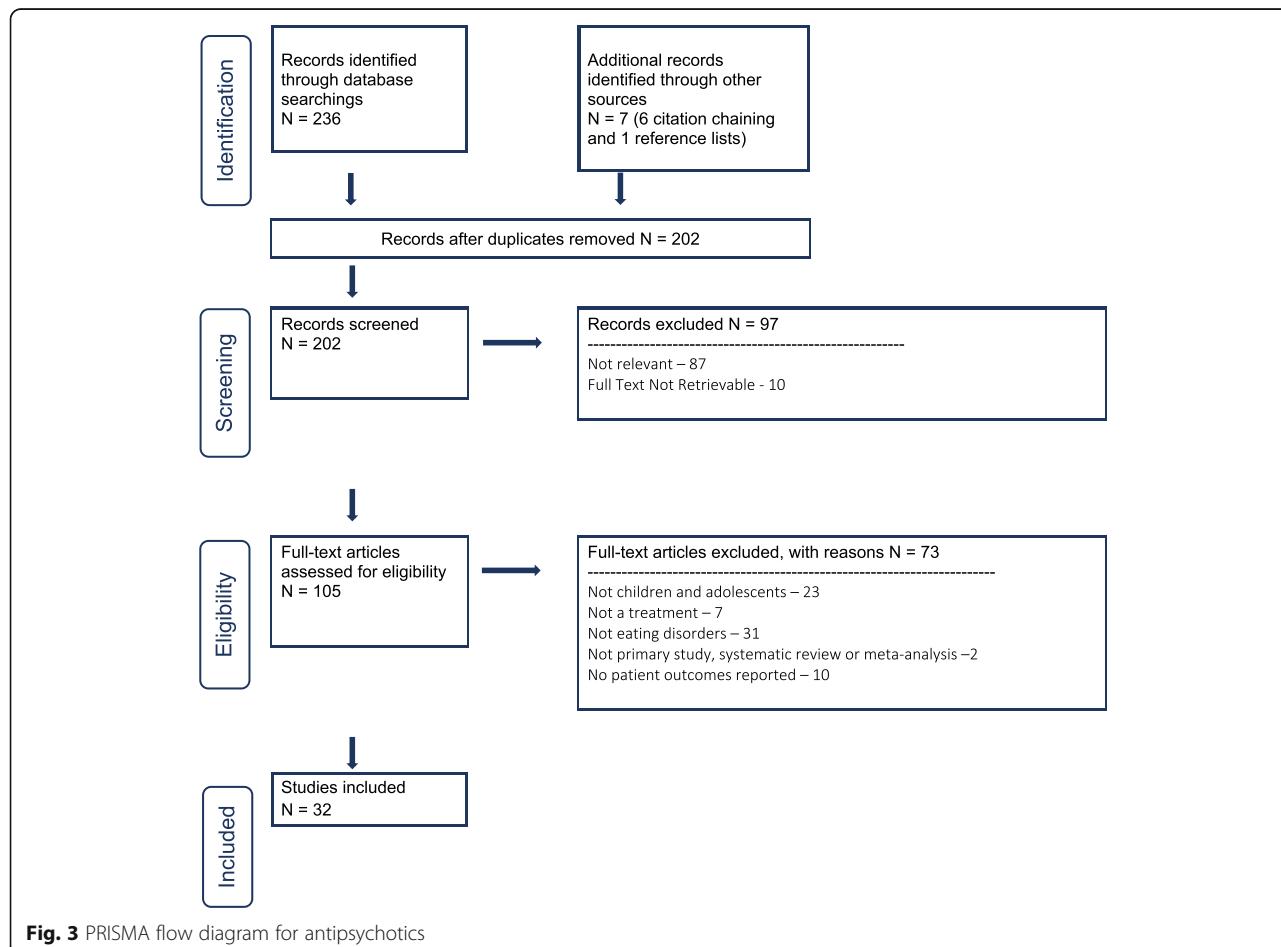


Table 24 Olanzapine for children and adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight (assessed with: BMI), Psychological Symptoms, Side Effects									
1	randomised trials	not serious	not serious	not serious	not serious	none	RCT with 10 subjects in olanzapine group and 10 in placebo group. No differences were found between groups in rate of weight restoration or final weight. Difference in BMI was 0.4 kg/m ² and was not significant. Mean dose was 8.5 mg/day.	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	No differences in eating disorder symptoms or psychological functioning.	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	A trend of increasing fasting glucose and insulin levels were found in the olanzapine group.	⊕⊕⊕⊕ HIGH	CRITICAL
Weight gain, activity levels, side effects									
3	Case Control	serious ^a	not serious	not serious ^a	not serious	none	There are three non randomized case control studies. One of the studies found the rate of weight gain was greater in the olanzapine group, while another study found no differences between cases and controls in terms of weight gain.	⊕○○○ VERY LOW	CRITICAL
		serious ^a	not serious	not serious ^a	not serious	none	Reduced activity levels were observed in one study.	⊕○○○ VERY LOW	CRITICAL
		serious ^a	not serious	not serious ^a	not serious	none	Sedation and dyslipidemia was found in 56% of patients in one study. One study found that 32% of patients discontinued the treatment due to a side effect.	⊕○○○ VERY LOW	CRITICAL
Weight, hyperactivity, side effects									
2	Case Series	very serious ^a	not serious	not serious	not serious	none	60 patients total involved in these two case series. Improvements in weight noted.	⊕○○○ VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	not serious	none	Improvements in hyperactivity are noted.	⊕○○○ VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	not serious	none	No long term adverse effects were seen 3 months after discontinuing medication.	⊕○○○ VERY LOW	CRITICAL
Weight, side effects									
13	Case Reports	very serious ^a	not serious	not serious	not serious	none	Thirteen studies report on 30 cases. All studies report improvement in weight.	⊕○○○ VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	not serious	none	One case study reports on QTc prolongation (a problem on the ECG), another reports a case with neuroleptic malignant syndrome.	⊕○○○ VERY LOW	CRITICAL

Explanations^aobservational study, non randomized**Bibliography:**

RCT - Kafantaris 2011 [137]

Case Control - Spettigue 2018 [138], Norris 2011 [139], Hillebrand 2005 [140]

Case Series - Swenne 2011 [141], Leggero 2010 [142]

Case Reports - Pisano 2014 [143], Duvvuri 2012 [42], Dennis 2006 [144], Boachie 2003 [145], Mehler 2001 [146], La Via 2000 [147], Dadic-Hero 2009 [148], Hein 2010 [149], Tateno 2008 [150], Ercan 2003 [151], Dodig-Curkovic 2010 [152], Ayyildiz 2016 [153], Ritchie 2009 [154]

Table 25 Olanzapine for children and adolescents with OSFED/EDNOS

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Global improvement (assessed with: Clinical Global Impressions Scale)									
1	Case Report	very serious ^a	not serious	serious ^b	not serious	none	Single case report of 12 year old female with EDNOS. CGI improved with olanzapine 10 mg daily.	⊕○○○	IMPORTANT VERY LOW

Explanations

^asingle case report, no control^boutcome measured does not really answer our clinical question

Bibliography:

Case Report - Bozabali 2002 [156]

Eating disorder not otherwise specified Olanzapine was used in a case report of a 12 year old female with EDNOS with improvements on the clinical global impressions scale at a dose of 10 mg daily [156] (Table 25).

Avoidant/restrictive food intake disorder In a recent case series, Spettigue and colleagues [53] described six patients with ARFID and co-morbid anxiety (median age 12.9 years) who were treated with a combination of family therapy plus pharmacotherapy (Table 26). All patients were treated with olanzapine in combination with other medications, making interpretation of the results difficult: three cases were treated with a combination of

olanzapine and fluoxetine, one case was treated with olanzapine followed by fluvoxamine, and two cases were treated with a combination of olanzapine, cyproheptadine and fluoxetine. All six cases reached their treatment goal weights.

Another recent case series reported beneficial effects from olanzapine in the treatment of patients with ARFID [157]. These authors completed a retrospective chart review and described a significant increase in weight, as well as improvements in anxiety and depressive symptoms in nine patients with ARFID treated with olanzapine. The mean final dose of olanzapine was 2.8 mg daily. All nine patients had comorbid mental health diagnoses including separation

Table 26 Olanzapine for children and adolescents with avoidant/restrictive food intake disorder

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight (assessed with: lbs), Anxious/Depressive Symptoms									
2	Case Reports	very serious ^a	not serious	not serious	not serious	none	<i>N</i> =15 total in two studies. Nine patients aged 9–19 years in this pre-post study. Rate of weight gain increased significantly with olanzapine treatment from 3.3lbs to 13.1 lbs. All patients were in a residential treatment facility. Another case series of 6 patients indicated all patients gained to their target weight with olanzapine (2.5 to 7.5 mg daily) in combination with SSRIs and family therapy.	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	The Clinical global impressions scale was used to rate anxious/depressive symptoms for 9 patients pre and post. The rating changed from markedly ill to mildly ill. All patients were in a residential treatment facility.	⊕○○○	IMPORTANT VERY LOW

Explanations

^asmall sample size, no control group

Bibliography:

Case Reports - Brewerton 2017 [157], Spettigue 2018 [53]

Table 27 Risperidone for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight (assessed with: kg), Psychological Symptoms, Side Effects								
1	randomised trials	not serious	not serious	not serious	not serious	none	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	⊕⊕⊕⊕ HIGH	CRITICAL
		not serious	not serious	not serious	not serious	none	⊕⊕⊕⊕ HIGH	CRITICAL
Weight (assessed with: kg), Psychological Symptoms								
4	Case Reports	very serious ^a	not serious	not serious	serious ^a	none	⊕○○○ VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	serious ^a	none	⊕○○○ VERY LOW	CRITICAL

Explanations

^aThese are four case reports with no comparison condition

Bibliography:

RCT - Hagman 2011 [158]

Case Reports - Fisman 1996 [159], Kracke 2014 [160], Umehara 2014 [161], Newman-Toker 2000 [162]

anxiety, obsessive-compulsive disorder, posttraumatic stress disorder, generalized anxiety disorder, and social anxiety disorder. Six of the nine also had significant major depressive symptoms.

Risperidone

Anorexia nervosa The use of risperidone for AN has been studied in one high quality RCT and four case reports (Table 27). Hagman and colleagues [158] conducted a double-blind placebo-controlled trial of risperidone in adolescents and young adults with AN (age range 12 to 21 years). These authors randomized 40 patients to risperidone or placebo. The mean dose of risperidone was 2.5 mg daily over a mean duration of 9 weeks. There were no differences found between the groups at the end of the study [158]. Personal communication with the primary author indicates that even when the subgroup of patients under age 18 years was examined, no differences were found. These authors concluded that their results do not support the use of

risperidone in the weight restoration phase of treatment for young patients with AN [158].

Four case reports were found on the use of risperidone in the treatment of AN [159–162]. Weight generally increased in all four cases described, and willingness to eat increased. Of these was a case report of a 12 year old girl with autism and AN who is described as benefitting from treatment with risperidone at a dose of 0.5 mg twice daily [159]. One of these cases describes the use of risperidone long-acting injection [161].

Avoidant/restrictive food intake disorder Pennell and colleagues [163] described two cases of ARFID where significant weight loss occurred with stimulant treatment for Attention Deficit Hyperactivity Disorder (ADHD), resulting in the need for hospitalization. These cases were managed by temporarily stopping the stimulant and adding risperidone to help with appetite and behaviour (Table 28).

Table 28 Risperidone for children and adolescents with avoidant/restrictive food intake disorder

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight, psychological symptoms									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	In two cases of ARFID on dose of 1 mg daily of risperidone. Weight gain was observed to target weight over several weeks.	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	Oppositional behaviour and rigidity around eating improved.	⊕○○○	IMPORTANT VERY LOW

Explanations

^atwo case reports with no control group

Bibliography:

Case Report - Pennell 2016 [163]

Quetiapine

Anorexia nervosa Very few studies could be found on the treatment of AN with quetiapine (Table 29). One case series described quetiapine use in three subjects, aged 11 to 15 years with severe AN (lengthy hospitalization, use of nasogastric tubes, and BMI 12.3 to 13.9) [164]. Two of these patients were treated with quetiapine 100 mg twice daily, and one patient was treated with 250 mg twice daily. Authors reported improvements in body image disturbance, weight phobia, and “paranoid ideas”. Sedation and constipation were noted as side effects.

Aripiprazole

Anorexia nervosa One case control study and two case reports were found on the use of aripiprazole in AN (Table 30). Frank and colleagues completed a retrospective case control study [165] and a case report [166] on the use of aripiprazole in adolescents with AN. The chart review described 22 adolescents with AN taking aripiprazole at a mean dose of 3.59 mg daily compared to an untreated comparison group of 84 adolescents with AN. These authors found a greater increase in BMI

in the treated group [165]. The case report described four adolescents who benefitted in terms of weight and improved eating disorder cognitions [166]. One other case report was found on the use of aripiprazole [167]. The adolescent received a dose of 5 mg daily. The authors report an improvement in anxiety and rigidity around eating with aripiprazole.

Avoidant/restrictive food intake disorder One case report described the beneficial use of fluoxetine (20 mg daily) in combination with aripiprazole (2.5 mg daily) for a 15 year old girl with severe choking phobia [168] (Table 31).

Antidepressants

Nine hundred and ninety-six abstracts were identified through our database searches along with six additional articles through citation chaining and reference list searching for the antidepressant section of our guideline (see PRISMA flow diagram Fig. 4). Six hundred and fifty-seven citations were excluded on screening. On full text review, 197 articles were excluded, leaving 19 papers for data extraction.

Table 29 Quetiapine for children and adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight, fear of weight gain, side effects									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	Three cases described in which weight increased.	⊕○○○	CRITICAL VERY LOW
		very serious ^a	not serious	not serious	not serious	none	Fear of weight gain improved.	⊕○○○	CRITICAL VERY LOW
		very serious ^a	not serious	not serious	not serious	none	Side effects - Initial Fatigue, constipation.	⊕○○○	CRITICAL VERY LOW

Explanations

^athis a series of three cases with no control group

Bibliography:

Case Report - Mehler-Wex 2008 [164]

Table 30 Aripiprazole for children and adolescents with Anorexia Nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight									
1	Case Control	serious ^a	not serious	not serious	not serious	none	Retrospective case-control study with 22 subjects treated with aripiprazole, 84 no treatment. BMI was slightly different between groups 18.8 vs. 17.9 $p < 0.35$.	⊕○○○	CRITICAL VERY LOW
Weight									
2	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	5 cases report a benefit in terms of weight gain	⊕○○○	CRITICAL VERY LOW

Explanations

^athe study was not randomized^bthere are five cases reported on in total with no comparison group

Bibliography:

Case Control - Frank 2017 [165]

Case Reports - Frank 2016 [166], Trunko 2011 [167]

Selective serotonin reuptake inhibitors

Anorexia nervosa In terms of Selective Serotonin Reuptake Inhibitors (SSRIs) for AN, one case control study and five case reports were found (Table 32). One retrospective study compared 19 adolescent patients with AN taking SSRIs to 13 patients with AN not treated with SSRIs [169]. These authors found no differences between groups in terms of BMI, eating disorder psychopathology, or depressive and obsessive-compulsive symptoms after evaluating patients on admission, discharge and one-year follow-up. The SSRIs involved in this study included fluoxetine ($n = 7$, mean dose 35 mg daily), fluvoxamine ($n = 8$, mean dose 120 mg daily), and sertraline ($n = 4$, mean dose 100 mg daily).

Five adolescent case reports have been published on the use of SSRIs in AN. One of these focused on the use of sertraline in an adolescent with AN and symptoms of

purgings [170], another on the use of fluoxetine in an adolescent with AN and depressive features [171], and another on the use of fluoxetine for comorbid obsessive compulsive disorder [172]. All of these cases described a benefit in terms of anxiety, mood and weight restoration. Two additional case reports examined SSRIs in combination with antipsychotics [151, 162]. Newman-Toker [162] described two cases of adolescents with AN in which risperidone (1.5 mg daily) was added to anti-depressant treatment, with improvements in anxiety and weight gain. Similarly, Ercan and colleagues [151] described a case of a 15 year old female with severe AN treated with olanzapine, fluoxetine, alprazolam, and thioridazine, demonstrating that polypharmacy is sometimes needed for severe symptoms of AN including agitation and fear of weight gain. These authors also reported that once stabilized in terms of agitation, a maintenance dose of 10 mg of olanzapine daily resulted in an

Table 31 Aripiprazole for children and adolescents with avoidant/restrictive food intake disorder

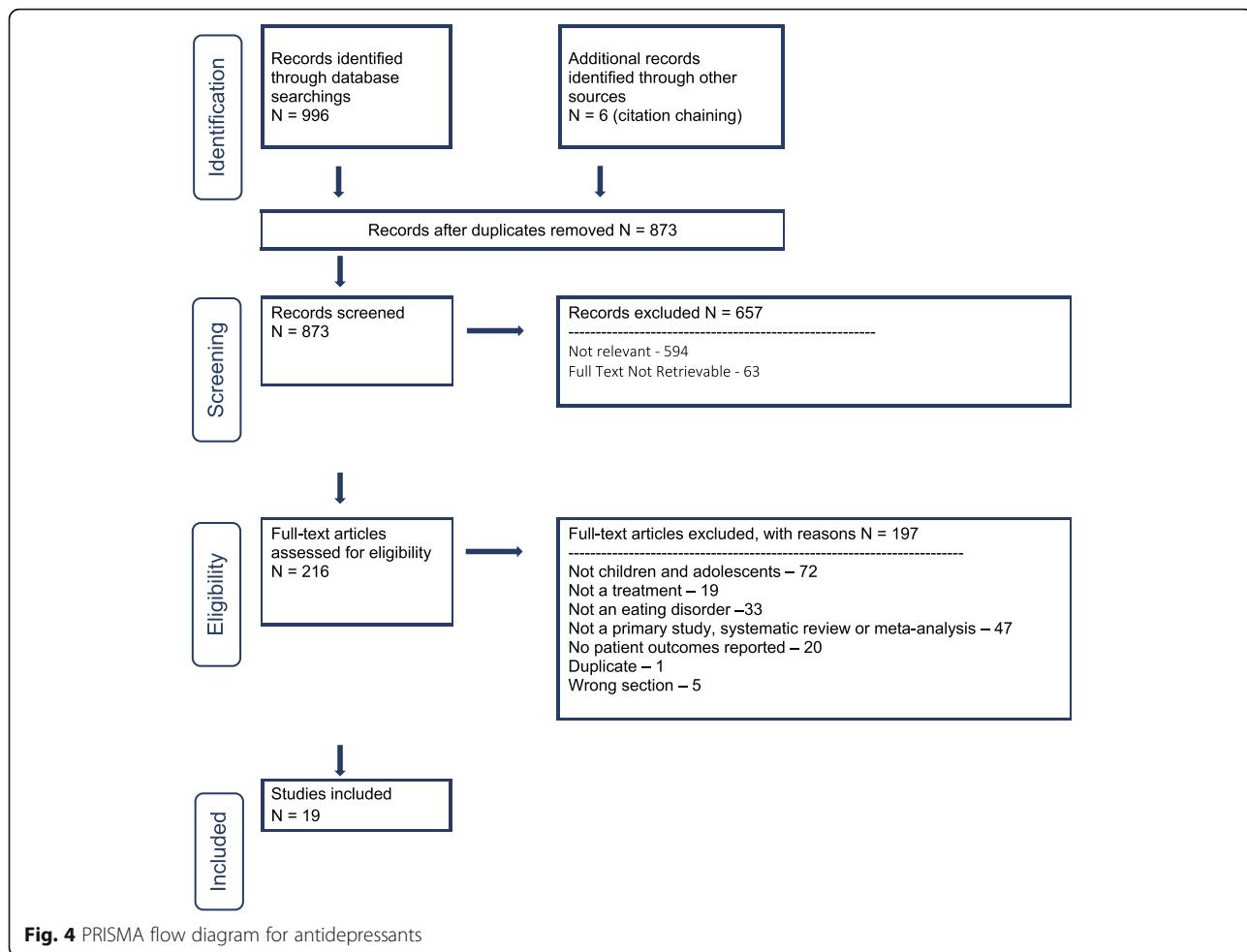
Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight (assessed with: kg), psychological Symptoms									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	Only one case report. Patient gained 10 kg. Also on fluoxetine.	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	Psychological symptoms including anxiety and rigidity improved.	⊕○○○	IMPORTANT VERY LOW

Explanations

^aone case report, no comparison

Bibliography:

Case Report - Sivri 2018 [168]

**Fig. 4** PRISMA flow diagram for antidepressants

increase in BMI, along with a reduction of obsessive-compulsive symptoms, exercising, and eating disorder cognitions [151].

Bulimia nervosa Selective serotonin reuptake inhibitors have been studied in children and youth with BN, although the evidence is scant (Table 33). One open trial of fluoxetine in ten adolescents aged 12 to 18 years [173] reported on 8 weeks of a titrating dose of fluoxetine (maximum 60 mg daily) along with supportive psychotherapy. Frequencies of binge episodes decreased significantly from a mean of 4.1 to zero episodes per week, and weekly purges decreased from 6.4 to 0.4 episodes per week [173]. Seventy percent of patients were rated as improved or much improved on the clinical global impressions-improvement scale. No significant side effects were noted. Whether patients maintained these benefits over the long term is unknown.

One case report describes the use of valproate 200 mg twice daily following onset of mania felt to be related to the use of fluoxetine in an adolescent female with BN. In this report mood stabilized and binge eating and purging

symptoms resolved once the fluoxetine had been stopped and valproate was initiated [174].

Other specified feeding and eating disorders Our review identified one case report of a patient with Other Specified Feeding and Eating Disorder (OSFED), atypical AN, whose depressive symptoms were treated with escitalopram with improvement noted [175]. She had lost almost 40 kg over a period of 4 months, but remained within a normal weight range (Table 34). Body image concerns remained.

Avoidant/restrictive food intake disorder In terms of the 'post-traumatic' subtype of ARFID where there has been a choking event followed by refusal to eat and drink, the SSRIs have been described in case reports as being helpful (Table 35). Several SSRIs have been mentioned in case reports including; escitalopram [177] and fluoxetine [120, 178]. Of note, Celik and colleagues reported a case of two 2-year old twins who were treated with fluoxetine 5 mg daily for a severe posttraumatic food avoidance, with good effect [178]. Similarly, a case

Table 32 SSRIs for children and adolescents with Anorexia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight (assessed with: BMI), Core Eating disorder Symptoms (assessed with: ANIS), Depression (assessed with: DIJK)								
1	Case Control	serious ^a	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
							Retrospective chart review - 19 patients on SSRIs (7 fluoxetine 20-60 mg, 8 fluvoxamine 100-150 mg, 4 sertraline 50-150 mg) compared to 13 on no medication. No differences in BMI.	
			serious ^a	not serious	not serious	not serious	none	⊕○○○ CRITICAL VERY LOW
			serious ^a	not serious	not serious	not serious	none	⊕○○○ CRITICAL VERY LOW
			serious ^a	not serious	not serious	not serious	none	⊕○○○ CRITICAL VERY LOW
			serious ^a	not serious	not serious	not serious	none	⊕○○○ CRITICAL VERY LOW
Weight (assessed with: kg)								
5	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
							Five case reports (3 fluoxetine 20 mg, 2 sertraline 75-100 mg) are described in which patients had a good response to various SSRIs and gained weight.	

Explanations

^aNon randomized study^bNo control condition

Bibliography:

Case Control - Holtkamp 2005 [169]

Case Report - Frank 2001 [170], Newman Toker 2000 [162], Lyles 1990 [171], Ercan 2003 [151], Gee 1999 [172]

Table 33 SSRIs for children and adolescents with Bulimia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Binge Frequency (assessed with: average weekly binges), purge frequency, psychological symptoms, depression (BDI)								
1	Case Series	very serious ^a	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
							Ten subjects all female, no control group. 8 week study of fluoxetine 60 mg/day. Binge frequency decreased from 4.1 to 3.8 ($p < 0.01$). Purge frequency decreased from 6.4 to 5.2 ($p < 0.005$).	
		very serious ^a	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
		very serious ^a	not serious	not serious	not serious	none	EDI Bulimia Subscale decreased significantly from 10.6 to 4.2 ($P < 0.01$).	
		very serious ^a	not serious	not serious	not serious	none	BDI scores were not significantly different pre and post.	⊕○○○ CRITICAL VERY LOW
Adverse Effect - Mania								
1	Case Report	very serious ^{a,b}	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
							Case described of teen with BN treated with fluoxetine 20 mg who developed mania - fluoxetine stopped and valproate started.	

Explanations

^ano control group

Bibliography:

Case Series - Kotler 2003 [173]

Case report - Tor 2008 [174]

Table 34 SSRIs for children and adolescents with OSFED/EDNOS

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Depressive symptoms (assessed with: clinical impression)									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	Single case report of adolescent female, initially overweight with depressive symptoms. Treated with escitalopram 10 mg and depressive symptoms improved.	⊕○○○	IMPORTANT VERY LOW

Explanations^ano control group, single case report**Bibliography:**

Case Report - Wolter 2009 [175]

series of three children with “severe choking phobias” were successfully treated with low-dose SSRIs (sertraline and paroxetine) [176]. Spettigue and colleagues [53] also described the treatment of six children with ARFID treated with combinations of SSRIs and antipsychotics (described above in more detail in the olanzapine section).

restoration and mood improvement, and suggested further study of the medication was needed. More recently, Naguy and Al-Mutairi [181] described the case of a 16 year old boy hospitalized for severe AN who responded well to mirtazapine 30 mg/day in terms of weight restoration.

Other antidepressants - mirtazapine

Anorexia nervosa To date, one case control study as well as two case reports involving the use of mirtazapine in AN have been published (Table 36). Hrdlicka and colleagues [179] examined nine adolescent patients with AN who had been treated with mirtazapine for anxiety or depression compared to nine female controls with AN. The two groups were matched in terms of age and BMI. The mean dose of mirtazapine was 21.7 mg daily. There were no significant differences in terms of weight or BMI at the end of this study [179].

In terms of the case reports, the first case report described a 16 year old female hospitalized for AN and depression treated with mirtazapine [180]. These authors found positive results in terms of weight

restoration and mood improvement, and suggested further study of the medication was needed. More recently, Naguy and Al-Mutairi [181] described the case of a 16 year old boy hospitalized for severe AN who responded well to mirtazapine 30 mg/day in terms of weight restoration.

Avoidant/restrictive food intake disorder For ARFID, mirtazapine has also been used to good effect, although the evidence is limited to one case series and one case report (Table 37). The case series described 14 cases with the rate of weight gain reported pre and post initiation of mirtazapine (average dose 25.5 mg daily) [182]. Rate of weight gain was significantly greater after the initiation of the medication. An additional case report described the treatment of a 10 year old girl with ARFID and Obsessive-Compulsive Disorder (OCD). Anxiety and eating improved with 15 mg daily [183].

Lack of evidence No studies could be found on the use of Selective Norepinephrine Reuptake Inhibitors (SNRIs)

Table 35 SSRIs for children and adolescents with avoidant/restrictive food intake disorder

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
Anxiety (assessed with: clinical impression)									
5	Case Reports	very serious ^a	not serious	not serious	not serious	none	13 patients (3 male, 10 female) treated with various SSRIs including fluoxetine (8), paroxetine (2), fluvoxamine (1), sertraline (1), escitalopram (1). All cases experienced an improvement in anxiety and improved eating.	⊕○○○	CRITICAL VERY LOW

Explanations^ano control group**Bibliography:**

Case Reports - Banerjee 2005 [176], Hosoglu 2018 [177], Spettigue 2018 [53], Celik 2007 [178], Bailly 2003 [120]

Table 36 Mirtazapine for children and adolescents with Anorexia Nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight (assessed with: kg)								
1	Case Control	serious ^a	not serious	not serious	not serious	none	⊕○○○	CRITICAL VERY LOW
Weight (assessed with: kg) Depression (assessed with: clinical impression)								
2	Case Reports	very serious ^{a,b}	not serious	not serious	not serious	none	Two case reports (one male, one female) with AN and depression. Both improved in weight.	⊕○○○ CRITICAL VERY LOW
		very serious ^{a,b}	not serious	not serious	not serious	none	One of these case reports mentioned remission of depression in the context of AN with treatment with mirtazapine (30 mg).	⊕○○○ CRITICAL VERY LOW

Explanations

^asubjects were not randomized^bno control condition

Bibliography:

Case Control - Hrdlicka 2008 [179]

Case Report - Jaafar 2007 [180], Naguy 2018 [181]

for this population. The same was true for Mood Stabilizers.

Level of care

The database search initially provided 7136 citations, as reported in the PRISMA flow diagram (Fig. 5). An additional 49 citations were added through review of references, and forward citation chaining. After removing the duplicates, 6426 records remained, of which 5881 were eliminated on screening given that they did not meet the inclusion criteria. Of the 545 full text articles

assessed for eligibility, 440 full text articles were excluded because they were longitudinal follow-up studies, primarily adult studies, review or secondary analysis papers, book chapters or guidelines, did not provide sufficient description of the treatment provided, did not focus on inpatient treatment or otherwise did not meet the inclusion criteria. Ultimately, 105 studies were selected for inclusion in the level of care section of this guideline – 70 within the inpatient subsection, 29 within the day hospital subsection, and six within the residential subsection.

Table 37 Mirtazapine for children and adolescents with avoidant/restrictive food intake disorder

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Mealtime Anxiety (assessed with: clinical impression)								
1	Case Series	very serious ^a	not serious	not serious	not serious	none	Retrospective chart review of 14 cases pre and post documentation of rate of weight gain pre and post mirtazapine. Rate of gain significantly greater after mirtazapine (mean dose 25.5 mg).	⊕○○○ CRITICAL VERY LOW
Anxiety								
1	Case Report	very serious ^a	not serious	not serious	not serious	none	Single case report of 10 yo girl with ARFID and OCD treated with 15 mg/day of mirtazapine. Anxiety improved and she began to eat solid food within 1–2 weeks.	⊕○○○ CRITICAL VERY LOW

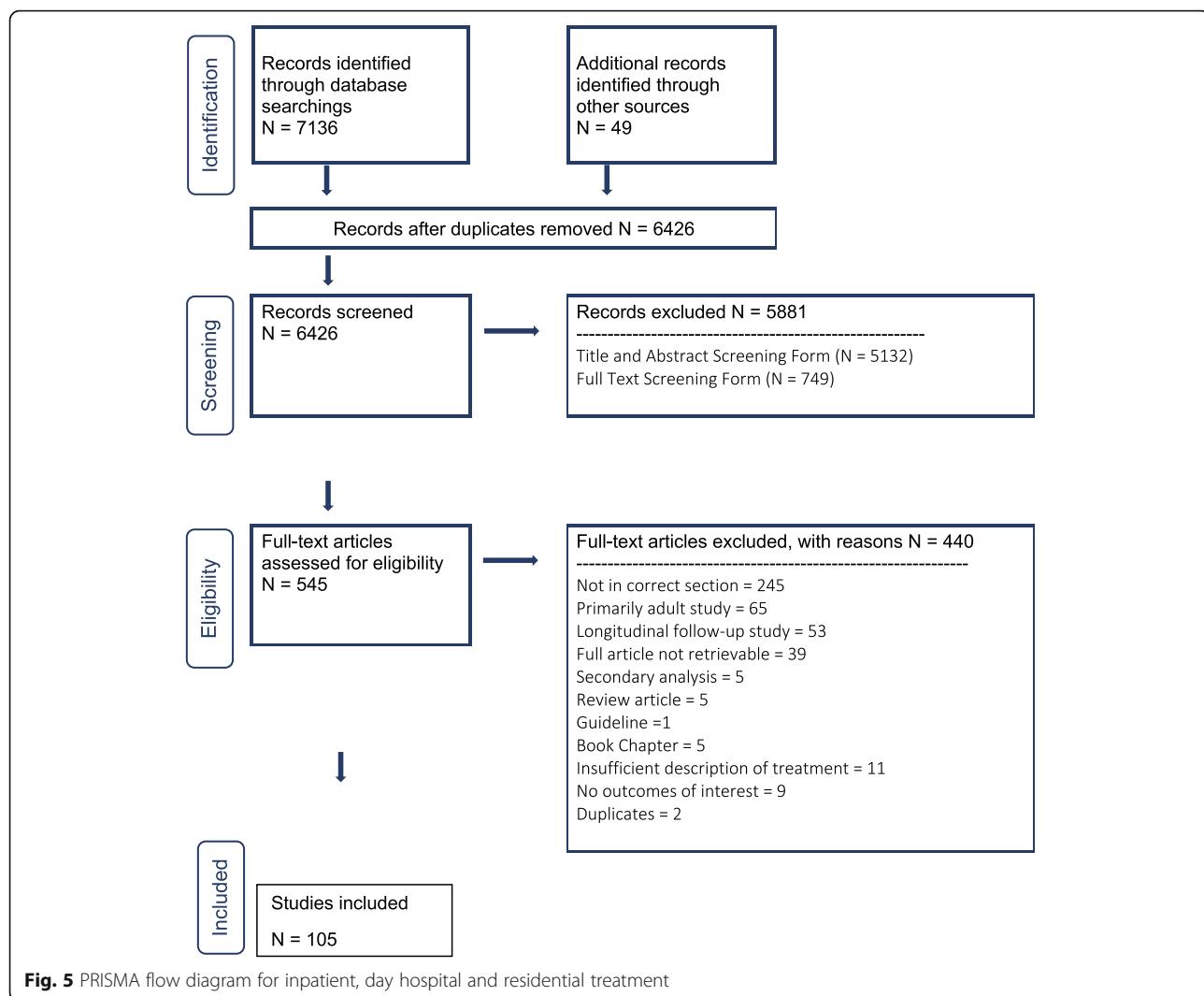
Explanations

^ano control condition

Bibliography:

Case series – Gray 2018 [182]

Case Report - Tanidir 2015 [183]



Inpatient Multimodal treatment

Anorexia nervosa Twenty-one observational studies, none of which included control or comparison groups, have been published for a combined total of 1347 patients (Table 38) [184–191, 193–196, 198, 199, 201–207]. Various measures of change in weight were used across these studies including BMI, absolute weight in kg, percent Treatment Goal Weight (%TGW), weight gain per week and percent of patients attaining a predetermined discharge weight prior to discharge. Mean change in weight was positive in all studies. Mean length of stay ranged from 20.10 to 328.5 days.

While all of the observational studies of multimodal inpatient treatment reported on change in weight, fewer reported on change in eating disorder symptoms. Three studies (total n = 88) reported on Eating Disorders Examination-Questionnaire (EDE-Q) and one of the

three studies reported significant change ($n = 44$, $p < 0.05$) [187, 201, 207]. This pre-post difference was attributed predominantly to the restraint and eating concerns subscales. Mean length of stay for these studies was between 203 and 115 days. Three studies (total n = 126) reported improvements in Eating Attitudes Test (EAT) scores at admission and discharge [186, 198, 203]. Length of stay varied between these three studies (29.8 days, 91 days and not reported). One study (total n = 44), with a mean LOS of 115 days reported on Eating Disorder Inventory (EDI) scores at admission and discharge [187]. This study found no significant change in total or subscales of the EDI. One study reported on frequency of binge, laxative and exercise symptoms, however the total number of patients reporting these symptoms at admission was small (i.e. laxatives 0, bingeing 3, exercise 5) [188]. Overall the study population was small (total n = 11 at admission and 7 at discharge). No statistical change was noted in any of these outcomes.

Table 38 Multimodal inpatient treatment for anorexia nervosa and/or low weight eating disorders

Certainty assessment	Impact	Certainty	Importance						
				Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision
Weight (assessed with: Change in Weight Measures from Admission to Discharge), ED Symptoms (EDE-Q, EDI, EAT), motivational stage of change, laxative use, binge eating									
20 Case Series	very serious ^b	serious ^a	not serious	serious ^c	none	Twenty studies examined change in weight during inpatient treatment for total 1346 patients. Various measures of change in weight used across studies including BMI, absolute weight in KG, %TGW, weight gain per week and % of patients attaining predetermined D/C weight prior to d/c. Seventeen (N = 1319) used BMI as measure of weight. Mean BMI at admission varied from 13.2 to 16.3 between studies. Mean BMI at d/c varied from 16.3 to 19.49. Change in BMI from admission to d/c varied from 1.4 to 4.1. One study (n = 40) reported on mean BMI% change which rose from BMI 8.98 (+/-2.07) to 21.25 (+/- 3.13). Six studies (n = 134) reported mean absolute weight gain during admission which varied from 5.4 to 10.1 kg. Three studies (N = 151) reported mean %TGW change admission to discharge of 10.3 and 10.5%. One study (n = 40) only reported weight outcomes as rate of weight gain per week which was 1.86 kg/wk. with a mean LOS of 20.63 days (SD 13.03). Finally 2 studies reported on the % of patients attaining a pre-determined adequate weight as inpatients with 1 study reporting 76.1% (n = 196) reaching a mean BMI of > 17.63 and 1 study reporting 79.6% (n = 108) attaining > 90% TGW at time of d/c. LOS varied considerably which is likely related to difference in weight change as an inpatient. Mean LOS ranged from 20.10 to 328.5 days between studies. One study noted that longer LOS, lower age at admission and no previous inpatient treatment was associated with greater improvement in BMI.	⊕○○○	CRITICAL VERY LOW	
very serious ^d	serious ^e	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	Three studies - Two self-report measures of symptoms were used (EDI-3 and EDE-Q), change reported from admission to discharge. Treatment provided was multimodal. Three studies (total n = 88) reported on EDE-Q. Change in EDE-Q was found to be significant in one of these studies (n = 44, p < 0.05) - this difference was attributed to the restraint and eating concerns subscales. In the other 2 studies there was no difference in EDE scores from admission to discharge. LOS for	⊕○○○	CRITICAL VERY LOW		

Table 38 Multimodal inpatient treatment for anorexia nervosa and/or low weight eating disorders (Continued)

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
very serious ^d	serious ^e	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	these studies was a mean of 203 and 115 days. BMI at discharge was higher in the study which found significant change in EDE-Q (ie BMI 19.49 vs 18.5 and BMI% 21.25 at discharge).	All three studies (total n = 126) reported EAT scores at admission and discharge. Two studies used the EAT-26 and 1 study used the EAT-40. Treatment was multimodal and varied between studies. The difference in EAT score was noted to be statistically different in 2 studies ($p < 0.001$) and the third study reported a difference of 19 on the EAT-26 pre-post. LOS varied between studies (29.8 days, 91 days and not reported). Mean BMIs at discharge in these 3 studies were 19.2, 18.4 and 16.3.	⊕○○○	CRITICAL VERY LOW
very serious ^f	serious ^e	not serious	serious ^g	all plausible residual confounding would reduce the demonstrated effect	One study - Number of patients reporting laxative use, binge/purge, exercise symptoms, even at admission were exceedingly small (ie laxatives 0, bingeing 3, exercise 5). Overall study small (total n = 11 at admission and 7 at discharge). No statistical change noted in any of these outcomes.	One study - Number of patients reporting laxative use, binge/purge, exercise symptoms, even at admission were exceedingly small (ie laxatives 0, bingeing 3, exercise 5). Overall study small (total n = 11 at admission and 7 at discharge). No statistical change noted in any of these outcomes.	⊕○○○	IMPORTANT VERY LOW
very serious ^d	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study with n = 49 patients and mean LOS 30 days. Change in mean ANSOCQ was statistically significant, however both admission and d/c scores fall into "preparation" phase of motivation and confidence intervals wide (ie admit score 53.6, SD 19.7 and d/c score 62.9, SD 24.5). During the course of the study BMI rose from 15.5 to 18.4.	One study with n = 49 patients and mean LOS 30 days. Change in mean ANSOCQ was statistically significant, however both admission and d/c scores fall into "preparation" phase of motivation and confidence intervals wide (ie admit score 53.6, SD 19.7 and d/c score 62.9, SD 24.5). During the course of the study BMI rose from 15.5 to 18.4.	⊕○○○	IMPORTANT VERY LOW
very serious ^d	serious ^e	not serious	serious ^c	strong association all plausible residual confounding would reduce the demonstrated effect	Three studies (n = 353), mean LOS 115 days, 33.61 and 81.9 days respectively, reported on EDI-2 outcomes. One study (LOS 115 days) found no significant change in total or subscales of EDI-2 from admission to discharge. One study (n = 71 and LOS 33.61 days) found statistically significant improvement on Drive for Thinness (13.19 +/- 6.86 at admission and 11.23 +/- 6.52 at discharge, $p < 0.05$) and Bulimia (1.50 +/- 2.15 at admission and 0.66 +/- 1.08 at discharge, $p < 0.05$), but no change in Body Dissatisfaction. The final study (n = 238) found statistically significant improvements in global (ES 0.8) and all subscales of the EDI-2. The largest effect size was found for Drive for Thinness (ES = 1.1) and the lowest for	Three studies (n = 353), mean LOS 115 days, 33.61 and 81.9 days respectively, reported on EDI-2 outcomes. One study (LOS 115 days) found no significant change in total or subscales of EDI-2 from admission to discharge. One study (n = 71 and LOS 33.61 days) found statistically significant improvement on Drive for Thinness (13.19 +/- 6.86 at admission and 11.23 +/- 6.52 at discharge, $p < 0.05$) and Bulimia (1.50 +/- 2.15 at admission and 0.66 +/- 1.08 at discharge, $p < 0.05$), but no change in Body Dissatisfaction. The final study (n = 238) found statistically significant improvements in global (ES 0.8) and all subscales of the EDI-2. The largest effect size was found for Drive for Thinness (ES = 1.1) and the lowest for	⊕○○○	CRITICAL VERY LOW

Table 38 Multimodal inpatient treatment for anorexia nervosa and/or low weight eating disorders (Continued)

Certainty assessment Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
							"Maturity Fears" (ES = 0.3).		
Weight									
1	Case Study	very serious ^d	serious ^e	not serious	serious ^c	strong association all plausible residual confounding would reduce the demonstrated effect	One case report describing a 17.1 kg wt gain	⊕○○○	CRITICAL VERY LOW

Explanations^aObservational studies with no comparison group^bMultimodal treatment not well described/defined^cConfidence interval wide and cross over threshold for change^dSelf-report measures and no control/comparison group^eDiffering inclusion/exclusion criteria and treatments provided^fUnclear how these symptoms were measured and study took place over two sites which may have resulted in variation^gNumber of patients in study small and numbers reporting these particular symptoms even smaller

Case Series – Anis 2016 [184], Ayton 2009 [185], Castro-Fornieles 2007 [186], Fennig 2017 [187], Goddard 2013 [188], Heinberg 2003 [189], Kalisvaart 2007 [190], Leon 1985 [191], Lievers 2009 [192], Mekori 2017 [193], Morris 2015 [194], Nova 2007 [195], Roux 2016 [196], Schlegl 2016 [197], Shugar 1995 [198], Tasaka 2017 [199], Treat 2008 [200], Vall 2017 [201], Bourion-Bedes 2013 [202], Rothschild-Yakar 2013 [203]

Case Reports – Toms 1972 [204]

Although not a focus of our guideline, one study measured motivation for change using the Anorexia Nervosa Stage of Change Questionnaire (ANSOCQ) at admission and then again at discharge [186]. The study included 49 patients whose mean length of stay was 30 days. Change in mean ANSOCQ score was noted to be statistically significant, however both admission and discharge scores fell into the “preparation” phase of motivation and the confidence intervals were wide.

Mixed diagnoses Two studies of multimodal inpatient treatment were found which reported on weight gain during inpatient treatment for patients with mixed eating disorder diagnoses (Table 39). One study differentiated between patients with AN restricting type versus those with AN binge-purge type or BN [203], and the other differentiated between those with AN restricting type or AN binge-purge type versus those with BN or Eating Disorder Not Otherwise Specified binge-purge type (EDNOS-B/P) [193]. Multimodal treatment was provided in both studies but varied between studies. Total number of patients studied was 150 across the two studies. In both cases there was a significantly greater increase in BMI for the group containing AN restricting type patients (total $n = 94$). In both cases this group started with a much lower BMI. Length of stay in these studies was approximately 6–7 months.

One of these studies compared symptom change using the EAT at admission to discharge in the group of patients with AN restricting type ($n = 33$) versus AN

binge-purge type or BN ($n = 29$) [203]. Overall there was a statistically significant improvement in EAT scores over the course of the admission. There was no significant difference in change on EAT by diagnosis.

Avoidant/restrictive food intake disorder Four articles were found which reported on the inpatient treatment of a total of thirteen children treated using either a family-based or cognitive behaviour therapy approach [53, 208–210] (Table 40). Length of stay for these studies varied from 16 days to 60 days. In two of these studies weight gain was reported as an outcome and all patients gained weight [53, 208]. One of these studies reported on caloric intake in kcal/day which rose for all three patients [208]. The third study reported on two cases of females ages 17 and 13 years who were “severely underweight” due to the onset of vomiting and food refusal [209]. After admission, nasojejunum (NJ) tubes were placed to initiate refeeding when oral feeding was not tolerated. The authors reported that the use of an individualized behaviour plan for each patient providing reinforcements for eating was the critical factor which helped these patients to tolerate oral intake without vomiting and allowed for the removal of the NJ tubes.

Family-based inpatient care

Anorexia nervosa There were three studies found examining inpatient treatment utilizing a family-based

Table 39 Multimodal inpatient treatment for children and adolescents with eating disorders

Explanations

^aObservational Study with no control/comparison

^bDiffering inclusion/exclusion criteria and treatments provided

^cSelf-report scale

^dWide confidence intervals which cross over threshold of change

Bibliography:

Case Series - Rothschild-Yakar 2013 [203], Mekori 2017 [193]

approach, one of which included 37 patients [211], and the other two studies which included one patient each (i.e. case reports) [39, 63] (Table 41). Length of stay in hospital was a mean of 20.6 weeks ($SD = 13.6$, range 3–58) in the first study [211] and 10 days in one case report [39] and unclear in the second case report [63]. Mean weight gain was reported as 7.5 kg in the case series [211], a change in BMI from 16.32 to 17.5 in one case report [39], and a change in BMI of 15.4 to 19.5 in the other case report [63]. In the case report by Goldfield and Boachie [63], the family received eight sessions of family-based informed therapy via telepsychiatry as one parent and siblings were not local.

CBT-based inpatient care

Anorexia nervosa Three studies reported on inpatient treatment utilizing a CBT framework [197, 212, 213] (Table 42). These studies included two case series without a control group [197, 213] and one case study [212], for a total of 296 patients. Mean length of stay in these studies varied from 6 days to 90 days. In all studies patients gained weight in hospital.

One of these studies also reported on symptom change and included 238 patients [197]. Global EDI score and all subscales showed significant improvements. Forty-five percent showed “clinically significant” changes in EDI

Table 40 Inpatient Treatment for ARFID

Explanations

^aObservational study, no comparison/control

^bCase studies only, likely biased reporting on patients with successful outcomes

^cResults descriptive only, no quantitative outcomes re frequency of amount of food tolerated

Bibliography:

Case Reports - Pitt 2018 [209], Singer 1992 [208], Spettigue 2018 [53], Rhodes 2009 [210]

Table 41 Family-based inpatient treatment for children and adolescents with anorexia nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Change in weight (assessed with: Absolute weight gain during admission in kg)									
1	Case Series	very serious ^a	not serious	not serious	not serious	none	One case series including 37 patients. LOS in hospital was a mean of 20.6 weeks (SD = 13.6, range 3–58) in this study. Weight gain was reported as 7.5 kg (SD 4.4, range –1.1 to 14.8 kg)	⊕○○○ VERY LOW	CRITICAL
Weight									
2	Case Reports	very serious ^a	not serious	not serious	not serious	none	Two case reports – LOS in hospital was 10 days in one case report and unclear in the second case report. A change in BMI from 16.32 to 17.5 (ie 82%TGW to 85.8%TGW) in one case report, and a change in BMI of 15.4 to 19.5 in the second case report. In the second case report the family received 8 sessions of family-based informed therapy via telepsychiatry as one parent and siblings were not local.	⊕○○○ VERY LOW	CRITICAL

Explanations

^aObservational study with no comparison or control

Bibliography:

Case Series - Halvorsen 2018 [211]

Case Reports - Goldfield 2003 [63], Matthews 2016 [39]

Global Scores, 23.6% showed “reliable” changes, 28% of patients remained “unchanged” and 3.7% “deteriorated”.

Behaviour therapy based inpatient care

Anorexia nervosa Fifteen studies reported on in-patient treatment utilizing a behaviour therapy approach (4 case series and 11 case reports) [214–228] (Table 43). These studies included a total of 219 patients. Length of stay in these studies ranged from 13 days to 6.25 weeks [215, 217, 218]. In all studies patients gained weight.

Two of the case reports described change in intake as measured by kcal/day from admission to discharge. Only one of these studies reported the length of stay, which was 39 days. Calorie intake increased from 1600 kcal/d at admission to 3900 kcal/d at discharge in this study [214]. The other study did not report the length of stay, but stated that intake increased from 850 kcal/d at admission to 1700 kcal/d at discharge [221].

Several studies reported on symptom change during admission to hospital. One case report described a decrease in purging after meals from 48% of meals/week to 0% of meals per week, although the length of stay for this patient was not noted [221]. Two studies reported on EAT scores over the course of inpatient treatment. One was a case report describing that EAT scores remained high for the first 7 weeks of treatment and then dropped (from total score of 60 to 10) over the last 3 weeks of a 10-week admission [225]. The other study measured EAT scores in 24 patients at admission and

discharge (mean length of stay 11 weeks) and reported a change from total mean EAT of 37.1 at admission to 12.7 at discharge ($p = 0.0001$) [224].

Bulimia nervosa Only one case series of 24 patients was found that examined inpatient treatment specifically for BN, and the treatment provided was based on behaviour therapy [229] (Table 44). The only eating disorder related outcome that was reported was weight. The mean LOS was 9.9 wks. (+/- 3.5 wks.). Weight decreased slightly over admission from a mean BMI of 20.6 to 20.5.

Psychodynamic based inpatient care

Anorexia nervosa Only two reports of a total of six patients being treated as inpatients using a psychodynamic based approach were found [230, 231] (Table 45). The length of stay for these patients varied between 1.5 months and 5 months. Patients were reported to have gained between 1.3 kg/month to 6 kg/month while admitted.

Admission to pediatric unit

Mixed diagnoses Four studies including a total of 200 patients, examined the effect of admission to a pediatric unit in terms of weight change in hospital [232–235] (Table 46). These studies did not include comparator groups and included patients with AN, BN and EDNOS. Mean length of stay varied between studies from 31 days to 85 days. In all studies weight improved.

Table 42 CBT-based inpatient treatment for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight Change (assessed with: Pre-post weight measures), EDI-2 Scores pre and post								
2	Case Series	very serious ^a	not serious	not serious	serious ^b	none	Two studies - Total 295 patients. In all studies patients gained weight in hospital. Weight change reported differently across studies. One study reported BMI pre/post with BMI increasing from 14.83 (+/- 1.22) at admission to 17.34 (+/- 1.37) at discharge signifying an ES of 2.1. One study reported change in BMI % which rose from mean of 1.46 (+/- 2.41) at admission to 9.44 (+/- 6.68) at discharge.	⊕○○○ VERY LOW CRITICAL
		very serious ^a	not serious	not serious	serious ^b	all plausible residual confounding would reduce the demonstrated effect	One study which included 238 patients, mean LOS 81.9 (+/- 31.9) days. Global score and all subscales of the EDI-2 showed significant improvements. The ES of the Global score was 0.8. For subscales the highest ES was found for Drive for Thinness with an ES of 1.1, and the lowest ES was for Maturity Fears with an ES of 0.3. Forty-five % showed "clinically significant" changes in EDI-2 Global Scores, 23.6% showed "reliable" changes, 28% of patients remained unchanged and 3.7% deteriorated.	⊕○○○ VERY LOW IMPORTANT
Weight								
1	Case Report	very serious ^a	not serious	not serious	serious ^b	none	In the case study weight increased 1.1 kg in 6 days.	⊕○○○ VERY LOW CRITICAL

Explanations

^aObservational study, no comparison/control

^bConfidence intervals wide in some studies and overlapping with any true effect

Bibliography:

Case Series - Salbach-Andrae 2009 [213], Schlegl 2016 [197]

Case Report - Paul 2013 [212]

Inpatient adjunctive treatments

Adjunctive multi-family/parent group therapy

Mixed diagnoses One study with total 112 patients with various eating disorder diagnoses reported on symptom change as measured by the EDI during admission to a multimodal inpatient eating disorders unit in two groups of patients; those who received adjunctive multi-family group therapy (MFT, $n = 62$) and those who received adjunctive multi-parent group therapy (MPT, $n = 50$) [236] (Table 47). Both MPT and MFT interventions “promoted an autonomy-supportive parental attitude and the adolescents’ autonomy and self-determination.” Parents were encouraged to “create the conditions supporting their daughters’ autonomy in establishing healthy eating at home to indirectly increase their daughters’ motivation”. Affected children were only included in the MFT group. Group format was one introductory 3-h session followed by five 2-h

sessions every 2 weeks. Measures were taken pre/post of the intervention. Patients were not randomized, but rather were allocated to MFT versus MPT depending on the time of admission. Results reported a main effect of time on drive for thinness ($p < 0.001$) and body dissatisfaction ($p < 0.001$) as measured by EDI. Both scales improved independent of type of intervention. A separate case series of 32 inpatient adolescents (29 with AN, 3 with BN) described improvements in EDI score pre-post delivery of Family-Oriented Group Therapy [237].

Meal support

Mixed diagnoses Three studies were found that examined the effect of meal support/supervision as part of in-patient treatment for groups of patients with mixed eating disorders diagnoses [238–240] (Table 48). There were no significant differences between cohorts who

Table 43 Behaviour therapy based inpatient treatment for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Change in Weight (assessed with: Pre-post measures of weight), Change in EAT scores, EDI Scores								
4	Case Series	very serious ^a	not serious	not serious	serious ^b	none	⊕○○○	CRITICAL VERY LOW
						Four Case series utilizing a behaviour therapy approach. Total 198 patients. Various approaches to reporting change in weight. One study reported absolute weight change of 1.89 kg (+/- 1.41) over a mean of 23 days in hospital; one study reported a rise from a mean of 65.9%TGW to 87.4%TGW over 11 weeks. One study reported that patients admitted at > 75%TGW all reached 100% of their TGW by discharge, 91% of those admitted at < 75%TGW not requiring NGT feeds reached their TGW by discharge and only 62% of patients admitted at < 75%TGW and requiring NGT feeds reached 100% of their TGW at discharge. This study also noted that those admitted at > 75%TGW had a mean LOS of 20.8 d, those < 75%TGW at admission had a mean LOS of 18.4d and those < 75%TGW and NGT fed had a mean LOS of 32.7d. The final case series reported weight gain under 2 types of behaviour contracts, varying only with regards to the expected rate of weight gain (ie 0.36 kg/q4d vs 0.55 kg/q4d). Those treated under the contract requiring greater weight restoration gained weight at a faster rate (0.09 kg/d, range 0.04–0.4 kg/d vs 0.17 kg/d, range 0.01–0.64 kg/d), thereby attaining a greater weight gain overall during admission (LOS 28 days). Most case series reported weight gain observed while patients were adhering to a behaviour contract. LOS in these studies ranged from 13 days to 6.25 weeks. In all cases patients gained weight (ranging from 0.17 to 0.63 kg/day).		
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	⊕○○○	IMPORTANT VERY LOW

Table 43 Behaviour therapy based inpatient treatment for children and adolescents with anorexia nervosa (Continued)

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Change in Weight, Change in EAT score, change in intake, change in rate of purging								
11	Case reports	very serious ^a	not serious	not serious	serious ^b	none	⊕○○○	CRITICAL VERY LOW
						Case reports all described patients gaining weight in hospital ranging from 0.45 kg/wk. to 4.0 kg/wk. Two case reports did not note the LOS and stated that the patients gained 10 kg total and change in BMI from 13.5 to 16.5 during their admissions.		
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	⊕○○○	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	strong association	⊕○○○	CRITICAL VERY LOW
		very serious ^a	not serious	not serious	not serious	none	1 case report describing a decrease in purging after meals from 48% of meals/week to 0% of meals per week. LOS not noted.	⊕○○○ IMPORTANT VERY LOW

Explanations

^aObservational studies with no comparison group or control^bWide confidence intervals in some studies, overlapping with any true effect^cConfidence intervals not noted

Bibliography:

Case series - Collins 1983 [222], Solanto 1994 [227], Steinhausen 1985 [224], Nygaard 1990 [226]

Case reports - Alessi 1989 [225], Blanchet-Collet 2016 [228], Blinder 1970 [215], Boey 1985 [223], Cinciripini 1983 [221], Clark 1981 [220], Garfinkel 1973 [216], Halmi 1975 [217], Leitenberg 1968 [214], Pertschuk 1978 [218], Poole 1978 [219]

Table 44 Behaviour therapy based inpatient treatment for children and adolescents with bulimia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Change in weight (assessed with: Pre/post BMI)								
1	Case Series	very serious ^a	not serious	not serious	not serious	none	One case series, including 24 patients. Mean LOS was 9.9 wks (+/-3.5 wks). Weight decreased slightly over admission from mean BMI of 20.6 +/- 4.3 to 20.5 +/- 2.7.	⊕○○○ IMPORTANT VERY LOW

Explanations

^aObservational study with no comparison/control

Bibliography:

Case Series - Wockel 2009 [229]

Table 45 Psychodynamic based inpatient treatment for children and adolescents with anorexia nervosa

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Change in weight (assessed with: Pre/post measures of weight)									
2	Case Reports	very serious ^a	serious ^b	not serious	not serious	none	Two reports of 6 patients total. LOS varied between 1.5 months and 5 months. Patients were reported to have gained between 1.3 kg/month to 6 kg/month while admitted.	⊕○○○	CRITICAL VERY LOW

Explanations

^aCase reports only, no comparison/control^bLarge variation in results, likely due to individual factors of patients described in studies

Bibliography:

Case Reports - Kronenberg 1994 [231], Groen 1966 [230]

received meal support and those who did not on the rate of weight gain per day or week, although there was a trend towards greater weight gain in the group who received meal support. One of these studies reported on the difference in the rate of nasogastric tube (NGT) feeds in the cohort of patients treated on inpatient unit before the institution of consistent meal support versus after [238]. Eight of 12 patients not receiving meal support (66.7%) and 1 of 9 (11.1%) of those receiving meal support required NGT feeds as part of inpatient admission, which was a statistically significant difference.

Selective versus non-selective menus

Anorexia nervosa One study was found which included 22 patients with AN who received non-selective menus compared to 18 patients who received selective menus as part of their multimodal inpatient treatment [241] (Table 49). Length of stay varied between groups (although non-significantly) with patients on non-select menus remaining in hospital a mean of 60.3 (+/- 22.8) days vs 74.2 (+/- 28.7) days in the selective menus group. The non-selective menu group gained a significantly greater amount of weight. No significant differences were found on the EDE.

Table 46 Inpatient admission on pediatric unit for children and adolescents with eating disorders

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight Change (assessed with: Pre-post weight measures)									
3	Case Series	very serious ^a	not serious	not serious	not serious	none	Three case series including a total of 195 patients. Mean LOS varied between studies from 31 days to 85 days. Two studies reported change in weight using %TGW. In both studies weight rose during admission from mean %TGW of 68% (+/- 5.5) to 99% (+/- 7.7); mean %TGW 75.89% (+/- 2.3) to 85.4% (+/- 1.7) and 73.7% (+/- 2.5) to 86.4% (+/- 3.0 kg) (note: results reported in two groups in second study based on whether the patients were followed after discharge).. The final study including 102 children aged 8–12 yrs. with diagnoses of restrictive ED (93.1%) or bulimia (7.1%). At admission the mean weight was 32.3 kg (SD 7.7) and at discharge mean weight was 35.4 kg (SD 8.9).	⊕○○○	CRITICAL VERY LOW
Weight Change (assessed with: Pre-post weight measures)									
1	Case Report	very serious ^a	not serious	not serious	not serious	none	In one case report (<i>n</i> =6) study change in weight was reported in kg and rose a mean of 8.8 kg from admission to discharge (<i>n</i> =5)	⊕○○○	CRITICAL VERY LOW

Explanations

^aObservational study with no comparison/control

Bibliography:

Case Series - Lock 2003 [234], Jenkins 1987 [233], Meilleur 2012 [235]

Case Report - Maxmen 1974 [232]

Table 47 Multi-family therapy during inpatient treatment versus multi-parent therapy during inpatient treatment for children and adolescents with eating disorders

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Change in eating disorder symptomatology (assessed with: Pre/post EDI-2)									
1	Case Control	serious ^a	not serious	not serious	not serious	none	One study with total 112 patients (MFT = 62 and MPT = 50). Intervention took place during inpatient multimodal treatment. Both MFT and MFT interventions "promoted an autonomy-supportive parental attitude and the adolescents' autonomy and self-determination." Parents were encouraged to "create the conditions supporting their daughters' autonomy in establishing healthy eating at home to indirectly increase their daughters' motivation". Group format was one introductory 3-h session followed by five 2-h sessions every 2 weeks. Measures were taken pre/post the intervention. Patients were not randomized, but rather allocation to MFT vs MPT depended on time of admission. Results reported a main effect of time for drive for thinness ($p < 0.001$) and body dissatisfaction ($p < 0.001$) as measured by EDI-2. Both scales improved independent of type of intervention.	⊕○○○	IMPORTANT VERY LOW
Change in EDI score									
1	Case series	very serious ^a	not serious	not serious	not serious	none	One case series describing the addition of Family-Oriented Group Therapy to an inpatient sample of 32 adolescent patients (29 with AN, 3 with BN). Improvements in EDI scores were noted.	⊕○○○	IMPORTANT VERY LOW

Explanations

^aDue to design, no blinding possible

Bibliography:

Case Control - Depestele 2017 [236]

Case Series – Salbach 2006 [237]

Bright light therapy

Anorexia nervosa and major depressive disorder One study of patients with AN and depressive symptoms admitted to a CBT-based inpatient program and treated adjunctively with Bright Light Therapy was found [242] (Table 50). In this study patients were randomized to receive either daily 30 min Bright Light Therapy (BLT) + inpatient treatment ($n = 12$) for 6 weeks or inpatient treatment only for 6 weeks ($n = 12$). Patients in both groups had a significant change in their BMI during the 6-week study, however change from baseline was statistically significant by week 3 ($p = 0.038$) in BLT group versus by week 6 ($p = 0.048$) in the comparison group.

Cognitive remediation therapy

Anorexia nervosa Four studies reported on the addition of Cognitive Remediation Therapy (CRT) to multimodal inpatient treatment [243–246] (Table 51). One study

described change in weight between patients who received 10 sessions of CRT over 10 weeks versus those who received TAU in a quasi-experimental design ($n = 24$ in each group) [244]. Both groups gained weight at a similar rate. The other studies reported on patients (total 79 patients) who received either 4 or 10 sessions of CRT provided as once weekly sessions. In all three studies patients gained weight. Given the design of these last three studies it was not possible to determine whether CRT had an impact on weight above and beyond what would have been expected by inpatient treatment alone.

Several studies of CRT added to inpatient treatment for AN reported on symptom change. One study included a description of two patients who received 10 sessions of CRT over 10 weeks in addition to multimodal inpatient treatment [243]. Scores on EAT decreased for one patient (30 to 16) and increased in the other patient (35 to 36). One study, including 125 hospitalized patients [246], received either group ($n = 55$) or individual ($n = 70$) CRT. Only those patients receiving individual

Table 48 Meal support during inpatient treatment versus no meal support be used in the treatment of children and adolescents with eating disorders

Certainty assessment	Impact	Certainty	Importance				
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	
Rate of Weight Gain (assessed with: Measures of Weight Gain in Kg/Day), Need for NGT Feeds (assessed with: # of Patients Receiving NGT Feeds)							
3	Case Control	serious ^a	serious ^b	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	Three studies examined the effect of meal support/ supervision as part of inpatient treatment for a total number of patients receiving meal support of 88 patients. There were no significant differences between cohorts who received meal support and those who did not on the rate of weight gain per day or week, although there was a trend towards greater weight gain /day or week in the group who received meal support. Weight gain varied from 0.09 kg/day to 0.35 kg/day across studies.
		serious ^d	not serious	not serious	not serious	strong association all plausible residual confounding would reduce the demonstrated effect	One study of these studies reported on difference in the rate of NGT feeds in cohort of patients treated on inpatient unit before the institution of consistent meal support vs after. 8/12 patients not receiving meal support (ie 66.7%) and 1/9 (11.1%) of those receiving meal support required NGT feeds as part of inpatient admission.

Explanations^aDifferences in LOS and age between those receiving meal support and those not receiving meal support may have affected outcomes^bWide variation in # of meals/day supervised between various studies^cWide confidence intervals in some studies/groups^dCriteria for initiating NGT feeds somewhat vague (ie "consistent failure" to meet expected weight gain and/or acute refusal of food)**Bibliography:**

Case Control - Kells 2013 [239], Kells 2017 [240], Couturier 2009 [238]

CRT completed the EDE-Q pre-post. Patients receiving individual CRT did not experience a change in their EDE-Q global score over the course of the 10 weeks they received CRT. One additional case report describes 10 sessions of CRT delivered to an inpatient with AN. Improvements on the EAT were observed [247].

One study, comprising 70 hospitalized patients who received multimodal inpatient treatment along with 10 individual sessions of CRT over 10 weeks reported on change in motivation as measured by the Motivational Stages of Change for Adolescents Recovering from an Eating Disorder (MSCARED) [246]. Patients completed the MSCARED before and after the course of CRT. There was a statistically significant improvement in motivation noted. Due to the design of this study it was not possible to differentiate the effect of inpatient treatment alone from inpatient treatment plus CRT.

Inpatient and day treatment combined

Anorexia nervosa Five reports on 265 patients with AN treated as inpatients followed immediately by day treatment were found [200, 248–251] (Table 52). In all five studies, patients were treated as inpatients and then transferred to day treatment once medically stable. Details regarding the number of hours/days spent in day treatment were not thoroughly reported, although mean length of stay varied from 7.9 weeks to 3.9 months. Weight change was reported in various ways, however, all studies indicated improvement in weight.

Symptom change was reported using various scales in these studies. One study included 35 patients with a mean length of stay of 15.1 weeks [251]. Change in EDI total, drive for thinness and body dissatisfaction were not significantly different between admission

Table 49 Non-selective menus during inpatient treatment versus selective menus for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Rate of Weight Gain (assessed with: Weekly weight gain in kg/week), EDE Scores									
1	Case Control	serious ^{a,b}	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study including 22 patients who received non-selective menus compared to 18 patients who received selective menus. LOS varied between groups (although non-significant) with non-selective patients remaining in hospital a mean of 60.3 (+/- 22.8) days vs 74.2 (+/- 28.7) days in selective menus group. Non-selective menu group gained a mean of 0.95 kg/wk (+/- 0.35) and those in selective menu group gained a mean of 0.72 kg/wk (+/- 0.24) ($p = 0.02$).	⊕○○○ VERY LOW	CRITICAL
		serious ^{a,b}	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	No significant differences were found on any of the EDE items related to eating concern. Overall change in EDE eating concern scores were low ranging from -0.6 to 1.1.	⊕○○○ VERY LOW	IMPORTANT

Explanations

^aUnclear whether groups differed at baseline as these details were not reported^bCohort study design (pre/post introduction of non-selective menus), unclear if other aspects of care may have also varied between groups^cConfidence intervals relatively wide and overlap with actual difference in effect

Bibliography:

Case Control - Leacy 2012 [241]

Table 50 Bright light therapy during CBT-based inpatient treatment versus CBT-based inpatient treatment alone for children and adolescents with anorexia nervosa and major depressive disorder

Certainty assessment						Impact	Certainty	Importance	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
RCT - Change in Weight (assessed with: Change in BMI per week)									
1	randomised trials	serious ^a	not serious	not serious	serious ^b	none	One study randomized patients with AN-R and depressive symptoms (> 17 on HDRS) admitted to CBT-based inpatient treatment to receive either daily 30 min BLT + inpatient treatment ($n = 12$) \times 6 weeks or inpatient treatment only \times 6 weeks ($n = 12$). Patients in both groups had a significant change in their BMI during 6 week study, however change from baseline was statistically significant by week 3 ($p = 0.038$) in BLT group vs only significant change from baseline at week 6 ($p = 0.048$) in TAU group.	⊕⊕○○ LOW	CRITICAL

Explanations

^aNo blinding of subjects to treatment group^bConfidence intervals overlapping with actual size of treatment effect

Bibliography:

RCT - Janas-Kozik 2011 [242]

Table 51 Cognitive remediation therapy during inpatient treatment be used for the treatment of children and adolescents with anorexia nervosa

Nº of studies	Certainty assessment	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact		Certainty	Importance
Change in Weight (assessed with: Pre/Post CRT Measures of Weight), change in EBRS, change in EDE-Q											
3	Case/ control Series	Case/ Series	very serious ^a	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	Three studies reported on addition of CRT to multimodal inpatient treatment. One study described change in weight between patients who received 10 sessions of CRT over 10 weeks vs those who received TAU in a quasi-experimental design ($n = 24$ in each group). Both groups gained weight at a similar rate (change from mean BMI% of 2.2 to 5.7 over 10 weeks in CRT group vs mean BMI% 5.5 to 7.6 over 10 weeks in TAU group). The other studies reported on patients (total 79 patients) who received either 4 or 10 sessions of CRT provided as once weekly sessions. In all 3 studies patients gained weight. Given the design of these studies it is not possible to determine whether CRT had an impact on weight above and beyond what would have been expected by in patient treatment alone.	⊕000	VERY LOW	CRITICAL
			very serious ^b	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	One study included description of 2 patients who received 10 sessions of CRT over 10 weeks in addition to multimodal inpatient treatment. EBRS scores decreased slight for both patients from 26 to 22 and 29 to 26 at end of 10 weeks.	⊕000	VERY LOW	IMPORTANT
			very serious ^a	not serious	not serious	serious ^d	all plausible residual confounding would reduce the demonstrated effect	One study, including 125 hospitalized patients. Received either group ($n = 55$) or individual ($n = 70$) CRT. Only those patients receiving individual CRT completed the EDE-Q pre-post. Patients receiving individual CRT did not experience a change in their EDE-Q global score over the course of the 10 weeks where they received CRT.	⊕000	VERY LOW	IMPORTANT
			very serious ^a	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	One study, comprising 70 hospitalized patients who received multimodal inpatient treatment along with 10 individual sessions of CRT over 10 weeks. Patients completed the MSCARED before and after the course of CRT. There was a statistically significant shift in motivation noted ($p < 0.001$), where at initiation of CRT % of patients in each stages of change category were as follows: pre-contemplation 18.6%, contemplation 38.6%, preparation 28.6%, action 11.4%, maintenance 2.9%. At the end of CRT % of patients in each stage of change were: pre-contemplation 0%, contemplation 4.3%, preparation 31.4%, action 42.9%, maintenance 21.4%,	⊕000	VERY LOW	IMPORTANT

Table 51 Cognitive remediation therapy during inpatient treatment be used for the treatment of children and adolescents with anorexia nervosa (Continued)

Certainty assessment Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
							Due to the design of this study it is not possible to differentiate the effect of inpatient treatment alone from inpatient treatment + CRT.		
		very serious ^b	serious ^c	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	One study included description of 2 patients who received 10 sessions of CRT over 10 weeks in addition to multimodal inpatient treatment. Scores on EAT decreased for one patient (30 to 16) and increased in the other patient (35 to 36).	⊕000 VERY LOW	IMPORTANT
Weight, EAT-26									
2	Case reports	very serious ^b	serious ^c	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	One study involved 7 adolescents inpatients with AN using group CRT. Weight improved as did motivation.	⊕000 VERY LOW	IMPORTANT
		very serious ^b	serious ^c	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	Another study is a single case report describing improvement on the EAT-26 after 10 sessions of CRT with an inpatient with AN.	⊕000 VERY LOW	IMPORTANT

Explanations

^aNot all studies had comparison group and were receiving inpatient treatment which could account for some of the differences observed/reported^bCase report design, no comparison/control^cDiffering results between the 2 reports likely secondary to individual differences^dWide confidence intervals, overlapping with the size of the effect noted

Bibliography:

Case control - Herbrich 2017 [244], Harrison 2018 [246]

Case series – Asch 2014 [243]

Case reports – Kuge 2017 [245], Cwojdzinska 2009 [247]

and discharge. One study included 26 adolescents who received 13 weeks of inpatient treatment based on the Cognitive Behavioural Therapy- Enhanced (CBT-E) model followed by 7 weeks of Day Treatment Program (DTP) [249]. EDE scores decreased significantly pre-post for global score and all subscales other than Shape Concern. This study also reported on frequency of eating disorder symptoms. Binge eating was present in eight patients (30%) at admission and only two patients (7.7%) at discharge. Purging by vomiting was present at admission for 10 patients (28.5%) and at discharge for 4 patients (15.1%). Laxative misuse was present for 3 patients at admission and none at discharge.

One study reported on change in motivation as measured by the ANOSQ in 35 patients [251]. These patients received 15.1 weeks of inpatient and day treatment. Overall scores increased a mean of 21.7 points, which signified moving from contemplation to preparation phases.

One study which included 71 patients who completed 7.9 weeks of combined inpatient and DTP (33 days inpatient and 22 days DTP) reported on “overall outcome” [200]. At the end of DTP 35.2% were deemed to have an excellent outcome, 26.8% were deemed good outcome, 14.1% deemed below average outcome and 23.9% were deemed to have a poor outcome.

Admission to weight restoration versus short admission for medical stabilization with either FBT or day treatment

Anorexia nervosa Two high quality studies examined the difference between patients randomized to receive a relatively short inpatient admission followed by either 20 sessions of FBT ($n = 82$) [252] or Day Treatment ($n = 172$) [253] compared to a lengthy inpatient stay to weight restoration (Table 53). In the Inpatient/FBT study [252]

Table 52 Inpatient and day treatment in combination for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight Change (assessed with: Change in weight during treatment)								
5	Case Control and Case Series	very serious ^a	not serious	not serious	not serious	none	⊕000 VERY LOW	CRITICAL
Eating Disorder Inventory - 2 Score at discharge (assessed with: Rating Scale)								
1	Case Series	very serious ^{a,b}	not serious	not serious	not serious	none	⊕000 VERY LOW	IMPORTANT
Anorexia Nervosa Stages of Change Questionnaire (assessed with: Rating Scale)								
1	Case Series	very serious ^{a,c}	not serious	not serious	serious ^d	all plausible residual confounding would reduce the demonstrated effect	⊕000 VERY LOW	IMPORTANT
Overall Outcome (assessed with: Rating combining weight + compensatory symptoms)								
1	Case series	very serious ^{a,e}	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	⊕000 VERY LOW	IMPORTANT

Table 52 Inpatient and day treatment in combination for children and adolescents with anorexia nervosa (Continued)

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance							
the last week of treatment).																
Eating Disorder Symptomatology (assessed with: Pre-post EDE-Q)																
1	Case series	very serious ^a	not serious	not serious	serious ^d	none	One study, including $n = 26$ adolescents. Patients received 13 weeks of inpatient treatment based on CBT-E model followed by 7 weeks of DTP. EDE scores decreased significantly pre-post for global and all subscales other than Shape Concern. Global EDE at admission 3.7 (+/- 1.3) to d/c 2.0 (+/- 1.1), % of patients with Global EDE < 1 SD above the community mean at admission 2% (+/- 7.7) and at d/c 10% (+/- 38.5). Dietary restraint at admission 4.1 (+/- 1.2) and at d/c 1.1 (+/- 1.0), Eating Concern (3.3 (+/- 1.4) and at d/c 1.5 (+/- 1.4), Shape Concern (3.8 (+/- 1.8) and at d/c 3.2 (+/- 1.4), Weight Concern at admission 3.5 (+/- 1.9) and at d/c 2.3 (+/- 1.4).	⊕OOO VERY LOW	IMPORTANT							
Change in Frequency of Eating Disorder Symptoms (assessed with: Pre-post ED symptom frequency)																
1	Case series	very serious ^a	not serious	not serious	serious ^d	none	One study, including $n = 26$ adolescents. Patients received 13 weeks of inpatient treatment based on CBT-E model followed by 7 weeks of DTP. Binge eating was present in 8 patients (30%) at admission and only 2 patients (7.7%) at discharge. Median frequency of bingeing in previous 28 days was 17 (range 2–148) at admission and 8 (range 1–15) at discharge. Purging by vomiting was present at admission for 10 patients (28.5%) and at d/c for 4 patients (15.1%). Frequency of vomiting in previous 28 days was 25 (range 1–196) at admission and 10.5 (range 0–30) at dscharge. Laxative misuse was present for 3 patients at admission and none at discharge. Frequency of laxative abuse in previous 28 days was 1 (range 1–20) at admission and nil at d/c.	⊕OOO VERY LOW	CRITICAL							
Explanations																
^a Observational study with no comparison/control																
^b Self-rating scale (EDI-2)																
^c Self-rating scale (ANSOCQ)																
^d Lower end of confidence interval overlaps with score that would signify no change																
^e Information on compensatory symptoms was taken only from clinician notes																
Bibliography:																
Case control - El Ghoch 2015 [250], Strober 2006 [248]																
Case series - Delle Gravé 2014 [249], Hillen 2015 [251], Treat 2008 [200]																

patients had all been unwell less than 3 years and in the inpatient/day treatment study [253] the patients were included only if it was their first admission. At the end of FBT or Day Treatment, there were no significant differences between those who were discharged after a short admission versus those who remained in hospital for weight restoration in terms of weight outcome, rate of readmissions over 12-month follow-up, or eating disorder symptoms [252, 253].

Day treatment

Multimodal day treatment

Anorexia nervosa Two case series and one case report describe the outcomes of patients treated in their multimodal day hospital programs [254–256] (Table 54). Admission to day treatment in these studies could occur from an inpatient setting or an outpatient setting based on clinical need. Weight related

Table 53 Inpatient medical stabilization followed by outpatient treatment versus inpatient weight restoration for children and adolescents with anorexia nervosa

Table 53 Inpatient medical stabilization followed by outpatient treatment versus inpatient weight restoration for children and adolescents with anorexia nervosa (Continued)

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
						initial admission, the total hospital days was 45.2 d in this group vs 65.5 in the weight restoration group. In inpatient weight restoration vs DTP F/U 8/87 patients were readmitted during their DTP treatment due to medical instability and 25.3% (inpt WR) vs 15.1% (DTP), $p = 0.12$ required readmission to inpatient unit at 12 months F/U.		
		serious ^a	not serious	not serious	not serious	none	⊕⊕⊕○ MODERATE	IMPORTANT
		serious ^a	not serious	not serious	not serious	none	One study - EDE global scores not significantly different between groups at baseline or at end of FBT, 6 month or 12 month F/U ($n = 69$).	⊕⊕⊕○ MODERATE

Explanations

^aNo blinding of participants possible

Bibliography:

RCT - Herpertz-Dahlmann 2014 [253], Madden 2015 [252]

outcomes were reported in various ways. Improvements in BMI from admission to discharge were described [255]. Two studies reported improvements in %TGW at admission and discharge [255, 256]. One study reported an increase in weight from 81.6 to 84.2%TGW [255]. The other study reported weight change separately for patients above and below 85%TGW at admission and found both cohorts gained weight [256]. Mean length of stay varied between 70 to 92 days. One case report described a weight change from 87 lbs to 101 lbs over the admission to the day program [254].

One study examined eating disorder psychological symptoms with 26 patients remaining in DTP for mean length of 10 weeks [255]. EDI scores for Drive for Thinness and Perfectionism improved significantly, whereas body dissatisfaction and maturity fears did not change significantly.

Two studies reported on percent of patients successfully completing the day treatment program [255, 256]. Definition of "successful completion" was based on a combination of symptom change, weight gain and progression in program (versus leaving against medical advice (AMA) or need for admission to an inpatient unit).

Mean length of stay ranged from 11.6 to 15.3 weeks. Successful completion rates in these studies were 30 to 50%. One study examined whether completion rate varied between those that started at greater than or less than 85%TGW, and reported that there was no difference based on this factor [256].

Mixed diagnoses Several studies address mixed diagnoses of eating disorders within a multimodal day hospital program [257–261] (Table 55). Weight in all studies improved over the course of day treatment. Weight gain was correlated with a diagnosis of AN or EDNOS (versus BN), longer length of stay and lower weight at admission [261]. The length of stay in these studies varied between 15.3 weeks and 13.1 weeks.

Lazaro and colleagues [259] reported outcomes separately for those with AN and BN within their day treatment program. The sample size was 160 patients (116 AN patients and 44 BN patients). Mean length of stay was 15 weeks. For both groups, self-esteem improved in relation to others and in relation to weight and shape. No significant differences were found between the AN and BN groups [259].

Table 54 Multimodal day treatment be used in the treatment of children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Weight Gain From Admission to Discharge (assessed with: BMI/%TGW/Wt), EDI-3, EAT-26, Motivation, successful completion (%)									
2	Case Series	very serious ^a	serious ^b	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	Admission to DTP could occur from inpatient setting or outpatient setting based on clinical judgment of need for this level of care. Weight related outcomes reported in various ways. One study reported admission and discharge BMI with a change from 16.5 (SD 1.5) to 17.1 (SD 1.9). Two studies reported %TGW at admission and discharge. One reported an increase in weight from 81.6 to 84.2%TGW. The other study reported weight change separately for patients above and below 85%TGW at admission. For those < 85%TGW at admission, TGW rose from 81.5 to 88.3%, in those > 85%TGW at admission %TGW rose from 88.0 to 92.2%. Mean LOS varied between 70 to 92 days.	⊕000 VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study - 26 patients in study, remained in DTP for mean LOS of 10 weeks. Eighty-five % of patients were referred to DTP from out patient setting, remainder from in patient program. Only criterion from admission to DTP vs inpatient was medical stability. EDI-3 scores for Drive for Thinness and Perfectionism improved significantly with Drive for Thinness changing from 13.81 (SD 9.08) to 10.08 (SD 8.32) and Perfectionism changing from 8.96 (6.79) to 8.19 (SD 6.87), signifying a small effect size (0.43 and 0.11 respectively). Body dissatisfaction and maturity fears did not change significantly during course of DTP.	⊕000 VERY LOW	IMPORTANT
		very serious	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study - 26 patients in study, remained in DTP for mean LOS of 10 weeks. EAT-26 scores decreased from 28.08 (SD 20.61) at admission to 22.19 (SD 19.34) at discharge which signifies a small effect size (ie 0.30).	⊕000 VERY LOW	IMPORTANT
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study - 26 patients in study, remained in DTP for mean LOS of 10 weeks. ANSOCQ score changed from 53.48 (SD 20.42) to 65.63 (SD 21.27) signifying no change in "stage" (patients remained in "preparation phase" throughout).	⊕000 VERY LOW	IMPORTANT
		very serious ^a	serious ^b	not serious	not serious	none	Two studies reported on "% completing" the DTP, including 53 patients with AN. Definition of "successful completion" was based on a combination of symptom change, weight gain and progression in program (vs leaving AMA or need for admission to inpatient unit). Mean LOS ranged	⊕000 VERY LOW	CRITICAL

Table 54 Multimodal day treatment be used in the treatment of children and adolescents with anorexia nervosa (Continued)

Certainty assessment Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
from 11.6 to 15.3 weeks. "Successful Completion" rates in these studies were 30 to 50%. One study examined whether completion rate varied between those that started at greater than or less than 85%TGW, and reported that there was no difference based on this factor.									
Weight									
1	Case report	very serious ^a	serious ^b	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	The case report described a weight change from 87lbs to 101 lbs. over the DTP admission	⊕○○○ VERY LOW	CRITICAL

Explanations^a Observational study, no comparison/control^bVarying BMI/TGW at admission to various programs, programs provided differing levels/hours of support and results on this outcome varied^cConfidence intervals wider than actual effect in some studies**Bibliography:**

Case series - Ngo 2014 [256], Goldstein 2011 [255]

Case reports – Garner 2002 [254]

Two studies treating mixed diagnoses of eating disorders for total of 61 patients looked at successful completion of the program [257, 258]. Success was defined using various criteria such as adequate weight gain, symptom reduction, and no AMA discharge or inpatient admission. Success rate was 49% [258] and 50% [257].

One study including 30 patients with mixed diagnoses examined motivational stage of change [260]. Length of stay was 10.5 weeks. Motivational Stage of Change was measured pre-post with the MSCARED [260]. Patients were noted to progress through the stages of change during treatment. The change in stage of change from intake to discharge was significantly correlated with the change in the Children's Eating Attitudes Test (ChEAT) score during the same time period [260].

Family-based day treatment

Anorexia nervosa/low weight eating disorders Nine studies for a total of 427 patients examined a family-based day treatment program [262–270] (Table 56). Studies varied with regards to the degree to which they included parents in treatment, number of hours/week of programming and length of stay. Criteria for admission to the day treatment program varied.

Five studies reported improvement in BMI [264, 265, 268–270]. Three studies reported on total weight gained in program [262, 263, 269]. Two studies reported on

change in %TGW which rose from 83 to 93% in one study [266], and 83 to 98% in another study [269]. Length of stay in these studies varied from 28 days to 1.3 years.

One study reported on difference in weight outcomes between their Maudsley and non-Maudsley DTP, noting no difference between these two groups [264]. Another study reported on differences between patients who received "formal psychotherapy" (individual and/or family) outside of program thereby needing to leave program for approx 2 h/week and noted that patients who received external psychotherapy within the first 2 months of entering DTP gained significantly less weight [262]. One study examined predictors of weight restoration in DTP and reported that higher BMI at admission, greater gain in the first 4 weeks and lower caregiver empowerment at baseline were predictive of weight restoration at end of intensive treatment [269].

Six studies examined psychological symptoms with the EDE-Q [264, 266, 267, 269–271]. EDE-Q scores, global and all subscales decreased significantly in these studies. In a study reporting on a control group which was treated in the same program, but without the inclusion of Maudsley/family interventions, the EDE-Q scores decreased more in the Maudsley group than the non-Maudsley [264]. Of note the scores for Weight Concern and Restraint Concerns did not change significantly in the non-Maudsley group whereas they decreased significantly in the Maudsley group [264].

Table 55 Multimodal day treatment be used in the treatment of children and adolescents with eating disorders

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Weight Change (assessed with: BMI/TGW), Change in self esteem, successful completion, change in motivation								
5	Case series	very serious ^a	not serious	not serious	serious ^b	none	⊕OOO VERY LOW	CRITICAL
						Reasons for referral to DTP were based on severity of symptomatology, but could occur from inpatient or outpatient or initial assessment. Two studies reported all patients together, the other ($n = 160$) reported AN ($n = 116$) vs BN ($n = 44$). In one mixed study the mean BMI rose from 18.9 (SD 2.6) to 20.9 (SD 2.9) which related to a change in %TGW from 94% at admission to 102% at discharge. In the other mixed study the weight gain was reported as 0.95 kg over the 2.6 weeks LOS. It was noted that approx one-quarter of patients lost weight, one quarter gained 0–0.9 kg, on quarter gained 0.9–1.8 kg and one quarter gained > 1.8 kg. Weight gain was correlated with dx of AN or EDNOS vs BN, longer LOS and lower weight at admission. The last study reported that patients with AN started at a mean BMI of 18.3 (SD 1.2) and gained 0.9 points, whereas patients with BN started with a mean BMI of 20.3 (SD 3.3) and gained a mean of 0.3 points. The LOS in these studies was 15.3 weeks and 13.1 weeks respectively.		
		very serious ^a	not serious	not serious	serious ^b	all plausible residual confounding would reduce the demonstrated effect	⊕OOO VERY LOW	IMPORTANT
						One study - Total of 160 patients (ie 116 AN patients and 44 BN patients). Mean LOS was 15 weeks. For AN group the SEED in relation to others decreased from 16.5 (SD 9.7) to 15.0 (SD 10.7) ($p = 0.039$) and SEED related to weight and shape changed from 14.6 (SD 7.8) to 13.5 (SD 9.0) ($p = 0.046$). In the BN group SEED in relation to others changed from 17.3 (SD 7.8) to 13.2 (SD 8.5) ($p = 0.000$) and SEED related to weight and shape changed from 17.6 (SD 7.0) to 13.2 (SD 8.0) ($p = 0.001$). No significant difference in effect between AN and BN.		
		very serious ^a	not serious	not serious	not serious	none	⊕OOO VERY LOW	IMPORTANT
						Two studies for total of 61 patients. Success defined using various criteria such as adequate weight gain, symptom reduction, and no AMA discharge or inpatient admission. "Success" rate was 49 and 50% in these 2 studies.		
		very serious ^a	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	⊕OOO VERY LOW	IMPORTANT
						One study including 30 patients. LOS was 10.5 weeks. Motivational Stage of Change was measured pre-post with the MSCARED. Patients were noted to progress through 1.9 +/- 1.3 stages from beginning to end of treatment ($p < 0.0001$). The change in SOC from intake to discharge was significantly correlated		

Table 55 Multimodal day treatment be used in the treatment of children and adolescents with eating disorders (Continued)

Certainty assessment			Impact			Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	
							with the change in the ChEAT score during the same time period ($p = 0.001$).

Explanations

^aObservational study with no comparison/control^bConfidence intervals wider than effect size

Bibliography:

Case series - Bustin 2013 [260], Lazaro 2011 [259], Dancyger 2002 [257], Dancyger 2003 [258], deGraft-Johnston 2013 [261]

One study consisting of 32 patients reported on body image disturbance [263]. Body image disturbance disappeared completely in 59%, decreased partially in 28% and remained unchanged in 13%. Prolonged duration of meals improved during treatment and “normalized” in 87.5% by end of treatment. Eighty-seven percent stopped ritualistic exercise habits by end of treatment.

One study including 60 patients, with median length of stay 8 months showed statistically significant change in EDI Drive for Thinness and body dissatisfaction [268]. Statistically significant change was reported on the EAT.

Mixed eating disorder diagnoses Five case series and one case report for total of 262 patients studied a family-based day treatment program with adolescents with mixed eating disorder diagnoses [272–277] (Table 57). Studies varied with regard to the form of parent involvement, hours/week in treatment and admission criteria. Four studies reported change in BMI from admission to discharge and found that BMI improved [272, 275–277] (Table 57). Three studies reported on change in %TGW and found significant improvements [272, 274, 276]. One study reported weight change as 12/19 patients reaching 100%TGW at 3 months and the other 7/19 reaching a mean %TGW of 94% [273]. The mean LOS varied between these studies from 3.2 weeks to 28.5 weeks. (Table 57).

In terms of psychological symptoms, one study with total of 51 patients looked at EDE-Q scores and found improvements [276]. Two studies for a total of 82 patients reported on change in EDI [273, 275]. EDI drive for thinness subscale decreased in one study [275], and in the second study EDI scores were reported to have improved significantly on all subscales other than maturity fears by 3 months [273]. One study examining ChEAT scores, involved 56 patients, however, only 30 patients had pre-post data to analyze. The mean length of stay was 10.3 weeks [272]. ChEAT scores improved.

One study with 51 patients [276] examined a family therapy with group DBT skills training in an intensive

outpatient program. Fifteen out of 36 patients (30%) were considered not successful due to need for higher level of care, psychiatric hospitalization or left treatment against medical advice.

One study was found with eight patients and their parents [277] describing family-based treatment with CBT principles within a DTP. Statistically significant decreases were seen in all subscales of the EDE-Q and the Yale Brown Cornell Eating Disorder Scale (YBC-EDS) total score decreased significantly [277] (Table 57).

Avoidant/restrictive food intake disorder One study examined 32 patients with ARFID, compared to patients with AN ($n = 68$), BN ($n = 15$) and OSFED ($n = 15$) in the same DTP [278] (Table 58). This study reported that the reason for patients with ARFID to be admitted to their day treatment program was “acute onset of severe food restriction that results in significant weight loss or failure to gain weight.” Length of stay for ARFID patients was significantly shorter than for those with AN, but not compared to those with BN or OSFED. Patients with ARFID gained weight from 86% median BMI to 95% median BMI which did not differ from the median weight gain for the AN or OSFED groups (Table 58). This study also reported that patients with ARFID had total ChEAT scores that were subclinical at admission and demonstrated minimal change in scores during treatment. There were no significant differences between the diagnostic groups at the end of treatment on ChEAT scores [278].

Family-based day treatment combined with dialectical Behavioural therapy

Bulimia nervosa One study including 35 adolescent females with BN examined DBT combined with FBT principles within a day hospital setting [279] (Table 59). Length of stay was 77.18 days. Binge-purge symptoms monitored via self-report on EDE-Q decreased significantly [279]. EDE-Q global, shape and weight concerns decreased significantly pre-post, whereas restraint and

Table 56 Family-based day treatment for children and adolescents with anorexia nervosa and low-weight eating disorders

Certainty assessment						Impact	Certainty	Importance	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Change in Weight (assessed with: Pre-post change in weight outcomes), Change in EDE-Q scores, change in symptoms									
9	Case Control and Case Series	very serious ^a	serious ^b	not serious	serious ^c	strong association all plausible residual confounding would reduce the demonstrated effect	Nine studies for a total of 427 patients. Studies varied with regards to degree/method of including parents in treatment, # of hours/week of programming and LOS. Criteria/reasons for admission to the DTP program varied, studies which reported referral source/reasons described that patients could be referred from either initially assessment, inpatient or outpatient based on the severity of their symptoms. Five studies reported on change in BMI which rose from 17.5 (SD 0.4) to 19.5 (SD 0.4), 16.4 to 19.6, 16.3 (+/- 1.6) to 17.3 (+/- 1.3), 17.01 (range 12.3–22.1) to 20.05 (range 14.8–25.1), and 16.2 (+/- 1.98) to 19.4 (+/- 2.87). Three studies reported on total weight gained in program (8.6 kg +/- 4.5 kg; 5.0 kg +/- 2.5; 7.3 kg +/- 3.1 and 17.58 kg). Two studies reported on change in %TGW which rose from 82.56 to 93.00% in one study and 82.3 to 97.99%. LOS in these studies varied from 27.6 (SD 12.13) days to 1.3 (SD 0.2) years. One study reported on difference in weight outcomes between their Maudsley and non-Maudsley DTP, noting no difference between these 2 groups. One other study reported on differences between patients who received "formal psychotherapy" (individual and/or family) outside of program thereby needing to leave program for approx 2 h/ week and noted that patients who received psychotherapy within the first 2 months of entering DTP gained significantly less weight (ie 5.0 +/- 2.5 kg vs 7.3 +/- 3.1 kg). One study examined predictors of weight restoration in DTP and reported that Higher BMI at admission (range 12.3–22.1), greater gain in %TGW in first 4 weeks (range – 0.18 to 25.27% TGW) and lower care giver empowerment at baseline were predictive of weight restoration at end of intensive treatment (ie DTP + IOP).	⊕OOO VERY LOW	CRITICAL
very serious ^d									
		not serious	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	Five studies receiving a family-based DTP treatment. LOS was 37.05 days, 28.41 days (SD 13.55) over 11.7 weeks (patients did not attend every day as they were transitioning back to school), 27.6 days (SD 12.13) and 11.56 days (SD 6.61), and one was a 3 month follow up. Weight at onset in 4 studies were similar although reported in different	⊕OOO VERY LOW	IMPORTANT

Table 56 Family-based day treatment for children and adolescents with anorexia nervosa and low-weight eating disorders
(Continued)

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
						ways (ie 80.94%TGW in first study, BMI 16.3/79.9% in the second study, 82.56% in third study and BMI 16.4 in forth study). EDE scores, global and all subscales decreased significantly in all studies, although confidence intervals overlapped with size of effect. In the study reporting on a control group which was treated in the same program, but without the inclusion of Maudsley/family interventions, the EDE-Q scores decreased more in the Maudsley group than the non-Maudsley as the Maudsley group started with higher EDE-Q scores and at the end of the treatment period their scores were similar to the non-Maudsley. Of note the scores for Wt Concern and Restraint Concerns did not change significantly in the non-Maudsley group whereas they decreased significantly in the Maudsley group.		
very serious ^e	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect		One study consisted of 32 patients. LOS not reported in study. Body image disturbance disappeared completely in 59%, decreased partially in 28% and remained unchanged in 13%. Prolonged duration of meals improved during treatment and "normalized" in 87.5% by end of treatment. Eighty-seven percent stopped ritualistic exercise habits by end of treatment.	⊕OOO VERY LOW	IMPORTANT
very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect		One study including 60 patients, LOS median stay 8 months (SD 2.27). Statistically significant change was reported in EDI-3 Drive for Thinness (53.40 +/- 35 to 30.68 +/- 31.70) and Dissatisfaction (50.88 +/- 27.60 to 31.62 +/- 29.80), $p < 0.001$.	⊕OOO VERY LOW	IMPORTANT
very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect		One study including 60 patients, LOS median stay 8 months (SD 2.27). Statistically significant change was reported in EAT-26. Mean EAT-26 score was 26.70 (+/- 17.7) at admission and 7.97 (+/- 11.5) at discharge, $p < 0.001$.	⊕OOO VERY LOW	IMPORTANT

Explanations^aMany studies did not include a control or comparison group^bAdmission weight, # hours/weeks of treatment, process of family involvement and LOS varied among studies, likely affecting outcome^cConfidence intervals wider than effect size in some studies^dOnly one study included a control comparison, no blinding of participants possible^eNo validated scale used, no comparison/control group**Bibliography:**

Case control - Bean 2010 [264], Danziger 1989 [262]

Case series - Danziger 1988 [263], Gezelius 2016 [265], Martin-Wagar 2019 [269], Rienecke 2016 [266], Rienecke 2018 [267], Simic 2018 [270], Zanna 2017 [268]

Table 57 Family-based day treatment/intensive outpatient for adolescents with eating disorders

Certainty assessment							Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Improved Weight at Discharge (assessed with: %TGW/BMI), Change in EDE-Q (assessed with: Pre-post EDE-Q scores)									
5	Case Series	very serious ^a	serious ^b	not serious	serious ^c	none	Five studies for total of 254 patients. Studies varied with regard to the form of parent involvement, hours/week in treatment and admission criteria. Referral to receive treatment in DTP or IOP was noted in the studies to be due to the presence of severe symptoms impairing the patients' functioning or physical health. In some cases the patients had to have already received another form of treatment (ie inpatient or outpatient), but in other cases patients could be referred directly for services in DTP/IOP. Weight related outcomes reported as change in BMI or % TGW. Four studies reported change in BMI from admission to discharge and found that weight rose from 17.4 (SD 2.0) to 18.3 (SD 1.8); 16.5 (SD 2.3) to 18.4 (SD 1.6); 18.7 (SD 2.4) to 20.5 (SD 2.0) and by a mean of 0.91 +/− 0.55 in the final study. Three studies reported on change in %TGW and found an increase in %TGW from 86 (SD 10) to 96 (SD 7) and 91.7 (SD 6.1) to 101.8% (SD 7.7) and 88 to 93.47%. One study reported weight change as 12/19 patients reaching 100%TGW at 3 months and the other 7/19 reaching a mean %TGW of 94% with mean %TGW at admission of 88%. The mean LOS varied between these studies from 3.2 weeks to 28.5 weeks.	⊕OOO VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect	One study with total of 51 patients looking at EDE-Q. Fifty-three % of patients were referred directly from the inpatient unit in which case the treating inpatient clinician and insurance provider had to have determined that the patient/family required higher intensity treatment than outpatient could provide. Thirty-five % were referred due to inability to make progress in outpatient treatment. In 12% of cases, no referral source was recorded/available. Previous treatment and route of referral was not noted in other study. LOS was 7 weeks and mean of 40 +/− 17.2 days in each program. Global EDE-Q score decreased from 3.76 (SD 1.55) to 2.08 (SD 1.4) from admission to discharge ($p = 0.001$) in one study and from a mean of 3.83 +/− 0.95 to 1.50 (+/− 1.03) in the other study ($p = 0.012$). Adolescent norm score	⊕OOO VERY LOW	IMPORTANT

Table 57 Family-based day treatment/intensive outpatient for adolescents with eating disorders (Continued)

Nº of studies	Certainty assessment Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty	Importance
							reported in study was 1.6 (SD 1.4).		
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	Two studies for a total of 82 patients reported on change in EDI. Admission to the program was determined based on clinical assessment that the patients required a high level of treatment intensity based on symptomatology, in some cases patients had not received any prior treatment. LOS were 15 and 21.4 weeks. Change in EDI-2 was reported in one study and stated that EDI-DT decreased from 16.05 (SD 6.04) to 11.56 (SD 7.42) and EDI-BD decreased from 19.85 (SD 8.39) to 17.31 (SD 9.21), this study also reported that of those starting above the norm at beginning of study, 40% of patients improved on EDI-DT and 24.6% on EDI-BD). In the second study EDI-3 scores were reported to have improved significantly on all subscales other than maturity fears by 3 months. Scores for EDI-DT decreased from 49.24 (SD 12.61) to 42.06 (SD 11.52) and EDI-BD from 48.47 (SD 11.85) to 46.65 (SD 11.74).	⊕000	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study involved 56 patients, only 30 patients had pre-post data to analyze, mean LOS of 10.3 weeks. ChEAT scores reported only in graph format, all subscales significantly improved, although upper and lower confidence intervals overlapped with median effect in all subscales.	⊕000	IMPORTANT VERY LOW
		very serious ^a	not serious	not serious	not serious	none	Completion rate - One study with 51 patients. Patients were referred from both inpatient and outpatient sources based on severity of symptoms. 15/36 patients (30%) were considered not successful (ie premature d/c) due to need for higher level of care, psychiatric hospitalization or left treatment AMA. Mean LOS was 22.2 (SD 3.8) days.	⊕000	CRITICAL VERY LOW
1	Case Report	very serious ^a	not serious	not serious	serious ^c	all plausible residual confounding would reduce the demonstrated effect	One study with 8 patients and their parents. LOS mean of 40 days +/-17.2. Intervention was	⊕000	VERY LOW

Change in EDE, YBC-EDS (assessed with: Pre/post YBC-EDS), Body Checking Questionnaire

Table 57 Family-based day treatment/intensive outpatient for adolescents with eating disorders (Continued)

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
						family-based with CBT principles. EDE-Q subscales --statistically significant decreases in all subscales (range $p = 0.012$ to 0.028).		
very serious ^a	not serious	not serious	serious ^c			all plausible residual confounding would reduce the demonstrated effect	⊕○○○ VERY LOW	
very serious ^a	not serious	not serious	serious ^c			YBC-EDS total score decreased from mean 39.29 (+/-8.42) to 17.12 (+/-11.47) ($p = 0.028$), Concerns scores from mean of 15.57 to 9.43 ($p = 0.034$) and Rituals from mean of 14.71 to 7.71 ($p = 0.028$).		
very serious ^a	not serious	not serious	serious ^c			BCQ total scores decreased pre/post from 59.67 (+/-20.96) to 43.50 (+/-15.15) ($p = 0.075$). Scores also decreased for idiosyncratic checking and body dimensions subscales ($p = 0.027$ and 0.046)	⊕○○○ VERY LOW	

Explanations

^aObservational study with no control comparison^bDifferences in admission BMI/%TGW, LOS, amount of hours/week of treatment which are likely to affect outcomes^cConfidence intervals wider than effect size in some studies

Bibliography:

Case Series - Girz 2013 [273], Henderson 2014 [275], Johnston 2015 [276], Grewal 2014 [274], Ornstein 2012 [272]

Case Report - Iniesta Sepulveda 2017 [277]

Table 58 Family-based day treatment for children and adolescents with ARFID

Certainty assessment						Impact	Certainty	Importance	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Change in Weight (assessed with: Pre/post % median BMI), Change in ED symptomatology (assessed with: Pre/post ChEAT scores)									
1	Case Control	serious ^a	not serious	not serious	serious ^b	none	One study of 32 patients with ARFID, compared to patients with AN ($n = 68$), BN ($n = 15$) and OSFED ($n = 15$) in the same DTP. Study reported that the reason for patients with ARFID to be admitted to their PHP was "acute onset of severe food restriction that results in significant weight loss or failure to gain weight." LOS for ARFID was significantly lower than AN (7.03 +/- 3.38 weeks vs 11.94 +/- 4.21 weeks), but not BN or OSFED. Patients with ARFID gained weight from 86.21%MBMI (+/- 9.96) to 95.45%MBMI (+/- 7.96) which did not differ from the median weight gain for the AN or OSFED groups.	⊕○○○ VERY LOW	CRITICAL
		serious ^a	not serious	not serious	serious ^b	none	Patients with ARFID had Total ChEAT scores that were subclinical at admission and demonstrated minimal change in scores during treatment. There were no significant differences between the diagnostic groups at the end of treatment on ChEAT scores.	⊕○○○ VERY LOW	NOT IMPORTANT

Explanations

^aNo control or comparison with no treatment, just patients in same program with other ED diagnoses^bConfidence intervals wide

Bibliography:

Case Control - Ornstein 2017 [278]

Table 59 Family-based combined with DBT-based day treatment for children and adolescents with bulimia nervosa

Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	Certainty assessment	Importance
Weight Change (assessed with: Pre-post BMI), Change in frequency of bingeing and purging (assessed with: Pre-post frequency of binge/purge symptoms), Change in EDE-Q (assessed with: Pre-post EDE-Q)									
1	Case Series	very serious ^a	not serious	not serious	not serious	none	Study included 35 adolescent females. Criteria for referral/admission to the program was not reported. BMI did not change. At admission mean BMI was 26.3 (SD 2.34) and at discharge mean BMI was 24.9 (SD 2.87) ($p = 0.068$). LOS 77.18 days.	⊕OOO VERY LOW	IMPORTANT
		very serious ^a	not serious	not serious	serious ^b	none	Study included 35 adolescent females. LOS 77.18 days. B/P symptoms monitored via self-report on EDE-Q reported as monthly frequency of these symptoms. At admission the mean frequency of objective bingeing was 4.03 (SD 6.69) and at discharge it was 1.43 (SD 3.66) ($p = 0.04$). At admission the self-reported (ie EDE-Q) mean frequency of purging was 10.82 (SD 11.57) and at discharge it was 3.51 (SD 2.26) ($p = 0.005$).	⊕OOO VERY LOW	CRITICAL
		very serious ^a	not serious	not serious	not serious	none	EDE-Q global, shape and weight concerns decreased significantly pre-post ($p = 0.001$ – 0.002). Restraint and eating concerns scores were unchanged at end of treatment.	⊕OOO VERY LOW	IMPORTANT

Explanations^aNo comparison/control^bWide confidence intervals, larger than actual effect**Bibliography:**

Case Series - Murray 2015 [279]

eating concerns scores were unchanged at end of treatment [279].

CBT- based day treatment

Anorexia nervosa One case series including 42 patients with AN examined a CBT- based day treatment program [280] (Table 60). Length of stay in day treatment was a mean of 22.2 weeks. Patients gained weight, with a mean increase of 5.37 kg or BMI increase of 1.87 kg/m over the course of treatment (Table 60). It was noted the increase in weight was correlated with the number of months in program, as well as EDI scores and Motivational Stages of Change score. Of note only 38 completed 2 months, 25 completed 4 months and 9 completed 6 months of treatment.

Behaviour therapy based day treatment

Avoidant/restrictive food intake disorder Two case reports were found describing patients aged 4 years (fear

of choking) [281] and 8 years (emetophobia) [282]. Length of stay in the day treatment program was 9 days and 7 days respectively. At the end of treatment, the patients had increased their intake (Table 61). The 4 year old was no longer supplement dependent and accepting 30 new foods. The 8 year old had increased her intake from having nothing by mouth to meeting her daily nutritional needs.

Resistance training as an adjunct in a day treatment program

Mixed diagnoses This randomized controlled study involved 36 patients with mixed diagnoses of eating disorders (18 intervention and 18 control) [283]. The study took place within a day treatment program and consisted of supervised exercise (50–60 min), for 3 days per week for 8 weeks. In order to be included in the study the patients must have had a BMI greater than 14 and could not be “excessive exercisers” (ie < 6 h per week). Intervention patients received resistance training plus 150 kcal extra to compensate for this activity. There was

Table 60 CBT-based day treatment for children and adolescents with anorexia nervosa

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Change in Weight (assessed with: Pre/post measures of weight)								
1	Case Series	serious ^a	not serious	not serious	serious ^b	none	⊕000 VERY LOW	CRITICAL

One study, including 42 patients. Unclear reasons for patients being referred to the program. Mean duration of illness prior to admission to this program was 2.40 years ($SD = 2.02$). LOS in Day Treatment was a mean of 22.2 weeks (range 0–52 weeks). Patients gained weight, with a mean increase of 5.37 kg or BMI increase of 1.87 kg/m over the course of treatment. It was noted the increase in weight was correlated with the number of months in program (0.23, $p < 0.01$), EDI-DT (-4.90 , $p < 0.001$), EDI-BD (-3.56 , $p < 0.001$) and Motivational Stages of Change (6.15, $p < 0.001$). Of note only 38 completed 2 months, 25 completed 4 months and 9 completed 6 months -- unclear how many were discharged due to improved clinical presentation vs deterioration or inability to meet program requirements.

Explanations

^aObservational study with no comparison or control group^bConfidence intervals not reported

Bibliography:

Case Series - Green 2015 [280]

no difference in weight restoration between groups (Table 62).

Residential treatment

Four case series examined residential treatment and included 1068 patients with AN, BN and EDNOS, along with two additional case reports (Table 63). One case series examined patients with AN exclusively [287]. Reasons for admission to residential treatment were not noted and all studies took place in the United

States. These studies measured change in weight in various ways. Four studies utilized BMI [284–287]. Admission mean BMI varied from 15.8 to 18.6. Discharge mean BMI varied from 17.8 to 21.3. Change in mean BMI from admission to discharge varied from 1.92 to 2.72. Two studies additionally reported on %TGW at admission and discharge. Admission mean %TGW were 83.4% [284] and 76.7% [287] and discharge mean %TGW were 94.7 and 86.6% respectively.

Table 61 Behaviour therapy based day treatment for children with ARFID

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Change in eating behaviours/intake (assessed with: Pre/post measures of intake)								
2	Case Reports	very serious ^a	not serious	not serious	not serious	none	⊕000 VERY LOW	CRITICAL

Two case reports, patients were 4 yrs. (fear of choking) and 8 yrs. (emetophobia). LOS in DTP were 9 days and 7 days respectively. At end of treatment the patients had increased their intake. The 4 yo was no longer supplement dependent and accepting 30 new foods. The 8 yo had increased her intake from NPO to meeting her daily nutritional needs.

Explanations

^aCase studies only, no comparison/control

Bibliography:

Case Reports - Seiverling 2016 [281], Williams 2011 [282]

Table 62 Resistance training in combination with day treatment for adolescents with eating disorders

Certainty assessment						Impact	Certainty	Importance
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		
Body Mass Index at Discharge (assessed with: BMI calculated)								
1	randomised trials	serious ^a	not serious	not serious	not serious	none	⊕⊕⊕○ MODERATE	IMPORTANT

36 patients participated (18 intervention and 18 control) another 8 patients were lost to follow-up. Study took place within a day treatment program and consisted of 3 day per week × 8 weeks of supervised exercise (50–60 min). In order to be included in the study the patients must have had a BMI > 14 kg/m and could NOT be "excessive exercisers" (ie < 6 h /week). Intervention patients received resistance training + 150 kcal extra to compensate for this activity. There was no difference in weight restoration between groups. Mean BMI at initiation of study ranged was greater than 17 in both groups and patients had already been hospitalized for a mean of 50.8 and 61.5 days prior to enrollment in the study. Exclusion factor - excessive exercise as part of illness.

Explanations^aNo concealment or blinding for patients or study team noted**Bibliography:**

RCT - Fernandez-del-Valle 2016 [283]

One study reported on 361 patients that were purging at admission a mean of 3.25 times per day [284]. At discharge, they were purging a mean of 0.02 times per day. Differing diagnostic groups were not reported separately. Length of stay was an average of 52 days. Treatment was multimodal.

In terms of psychological symptoms, three studies looked at EDI scores and included 313 patients with AN, BN and EDNOS [285–287]. The treatment provided was multimodal. Length of stay varied between studies from 28.5 to 56.4 days. In general, EDI scores were improved when admission scores were compared with discharge scores. One study looked at the EDE-Q pre to post and included 105 patients with AN, BN and EDNOS [285]. The EDE-Q changed from 3.6 (SD = 1.58) to 1.95 (SD = 1.35).

One study including 65 patients with AN examined readiness for change. Treatment was multimodal [287]. Mean readiness for change (ANSOQC) at admission was 53.98 (SD 16.36) and at discharge was 67.28 (SD 20.06). This difference was statistically significant, but does not signify a change in actual stage of change. Participants were further divided into low readiness and high readiness. High readiness

patients had a shift from 66.86 (SD 11.78) at admission to 76.80 (SD 15.71) at discharge, signifying a shift from Preparation to Action Phases. Low readiness patients shifted from 40.70 (SD 7.12) to 57.47 (SD 19.5), signifying a shift from Contemplative to Preparation Phases.

Two case reports both described patients with AN and Type 1 diabetes and reported weight gains and better glycemic control after residential treatment [288, 289]. Varying types of treatment were provided in multimodal format.

Recommendations**Family therapy****Family-based treatment**

Family-based treatment (FBT) is strongly recommended for any child or adolescent with Anorexia Nervosa or Bulimia Nervosa, especially for those who have been ill less than 3 years. Strong recommendation

Qualifying statements:

There are implementation challenges with Family-Based Treatment (FBT) including requirements for specialized, well-trained staff, access and costs of training.

Table 63 Residential treatment for children and adolescents with eating disorders

Table 63 Residential treatment for children and adolescents with eating disorders (Continued)

Nº of studies	Certainty assessment	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact		Certainty	Importance
								(n = 101) where it decreased 3.45 (SD = 10.88). LOS varied between studies from 28.5–56.4 days, one study did not report their LOS.			
very serious ⁹	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect				One study looked at the EDE-Q Pre to Post and included 105 patients with AN, BN and EDNOS. Treatment was multimodal and mean LOS was 56 days. EDE-Q changed from 3.6 (SD = 1.58) to 1.95 (SD = 1.35), mean change – 1.56 (SD = 1.27) – similar to reported norms in adolescent girls.	⊕OOO VERY LOW	CRITICAL	
very serious ^{c,g}	not serious	not serious	not serious	all plausible residual confounding would reduce the demonstrated effect				One study included 65 patients with AN and treatment was multimodal. Mean readiness for change (ANSOQC) at admission was 53.98 (SD 16.36) and at discharge was 67.28 (SD 20.06). This difference was statistically significant, but signifies no change in actual stage of change (ie Preparation Phase scores are 50–69). They were further divided into low readiness and high readiness. High readiness patients had a shift from 66.86 (SD 11.78) at admit to 76.80 (SD 15.71) at d/c, signifying a shift from Preparation to Action Phases. Low readiness patients shifted from 40.70 (SD 7.12) to 57.47 (SD 19.5), signifying shift from Contemplative to Preparation Phases. LOS was 28.5 days.	⊕OOO VERY LOW	IMPORTANT	
Weight gain											
2	Case Reports	very serious ^g	not serious	not serious	not serious	none		The 2 case reports both described patients with Type 1 diabetes and reported weight gains of 2.2 and 4.3 kg during admission. Varying types of treatment provided in multimodal format. LOS varied among studies from 28 days to 56 days and in one study LOS was not reported.	⊕OOO VERY LOW	IMPORTANT	

Explanations

^aObservational study with no comparison^bMixed diagnostic group (AN, BN and EDNOS)^cLarge or overlapping confidence intervals wide in some studies included here^dConfidence intervals not reported or not reported in all studies^eObservational study with no comparison, self-reported # of purges/day^fMixed diagnostic group (AN-B/P and BN) - results not differentiated^gObservational study with no comparison, self-rated scale

Bibliography:

Case Series - Fisher 2015 [284], Weltzin 2014 [285], Twohig 2016 [286], McHugh 2007 [287]

Case Reports - Pitel 1998 [288], Rodigue 1990 [289]

Parent-Focused Family Therapy – where the patient is seen separately from the family – may be just as effective as traditional FBT where the family is seen together. Adaptations to FBT such as shorter or longer treatment, removal of the family meal, guided self-help, parent to parent consult, short term intensive formats, and delivery of FBT by telehealth, require more study. Structural and Systemic Family therapy might be helpful for children and adolescents with Anorexia Nervosa, but the evidence generally does not indicate superiority to FBT, especially when costs are taken into consideration.

Key Evidence:

Anorexia Nervosa

One meta-analysis [21] and three high quality RCTs [6, 22, 23] have demonstrated that greater weight gain and higher remission rates are achieved in FBT compared to individual treatment, particularly when focusing on one year follow-up. Eight large case series also show improvement in weight following treatment [26–32, 40].

Bulimia Nervosa

Three high quality RCTs for Bulimia Nervosa have been completed and compared FBT to various control conditions [48–50]. When FBT was compared to Cognitive Behavioral Therapy (CBT), remission rates were significantly higher in the FBT group (39% versus 20%) [50]. Remission rates were also significantly better in the FBT group, when FBT was compared to supportive psychotherapy (39% versus 18%) [48]. However, when family therapy (with some elements consistent with FBT) was compared to guided self-help CBT, there were no significant differences in remission (10% versus 14%) [49]. A case series and case report also support the use of FBT for Bulimia Nervosa [34, 51].

Multi-family therapy

Multi-family therapy (MFT) may be a reasonable treatment option for children and adolescents with Anorexia Nervosa. Weak recommendation

Qualifying statements:

Multi-Family Therapy (MFT) provides workshops for multiple families at once and generally is delivered alongside single-family therapy following FBT principles, although some studies just report on the delivery of the multi-family workshops alone. It may be challenging for programs to run MFT as it requires several staff present for several full days and requires several families interested at the same time to begin the treatment. The delivery of MFT for children and adolescents with Bulimia Nervosa may be beneficial but requires more study. Members of the guideline committee indicated that the value of parents having support from each other cannot be understated. The panel voiced that peer support is often a missing component of treatment and hospital

administration can place barriers to the implementation of this option.

Key evidence:

One large high quality RCT found that MFT (multi-family workshops plus single FBT) conferred additional benefits compared to FBT alone in terms of remission rates in adolescents with Anorexia Nervosa (75% in MFT versus 60% in FBT) [76]. Several case series have also demonstrated a benefit of MFT [77–80]. There is one small case series examining MFT for adolescents with Bulimia Nervosa which found improvements in eating disorder symptoms [81].

Additional promising therapies

Other outpatient family therapies exist that have some data showing their promise but where more research is required before definitive recommendations can be made. These are treatment options in which research efforts should be prioritized.

They are:

- FBT for children with atypical Anorexia Nervosa.
- FBT for children with Avoidant/Restrictive Food Intake Disorder (ARFID).
- FBT for children across the gender spectrum, including individuals who are gender variant or gender non-conforming.
- Adjuncts to FBT, such as cognitive remediation therapy, art therapy and cognitive behavioural therapy for children and adolescents with Anorexia Nervosa.
- Emotion focused family therapy (EFFT) for Bulimia Nervosa and Anorexia Nervosa, as stand-alone treatment, or as an adjunct to FBT.

Individual or group outpatient psychotherapies

Cognitive Behavioural therapy

Cognitive behavioural therapy may be a reasonable treatment option for children and adolescents with Anorexia Nervosa or Bulimia Nervosa. Weak recommendation

Qualifying statements:

Across the studies, Cognitive Behavioural Therapy was not offered in a uniform manner. Motivational interviewing as a component of treatment or prior to initiating treatment, may also be helpful although strong scientific evidence is lacking due to a paucity of studies.

Key evidence:

Anorexia nervosa

Eight case reports [97–104] and one large case series [96] indicate that CBT results in weight gain and improvement in eating disorder psychological symptoms for children and adolescents with Anorexia

Nervosa. A small RCT ($n = 22$) did not show any difference between CBT and Behavioural Family Therapy in terms of these outcomes for children with Anorexia Nervosa, however, both improved [24]. Efficacy has also been shown when CBT is delivered in a group setting for Anorexia Nervosa [105, 106].

Bulimia nervosa

For Bulimia Nervosa, three high quality RCTs exist examining CBT. One RCT compared CBT to psychodynamic therapy in primarily adolescents, but also some young adults. This trial did not find any difference in terms of remission from Bulimia Nervosa. There were small advantages in terms of greater reduction in binge/purge frequency in the CBT group [107]. There are also two high quality RCTs comparing CBT to family-based approaches for Bulimia Nervosa [49, 50]. There are conflicting results between these two studies, with the study by Le Grange and colleagues [50] indicating significantly greater remission rates in the FBT group compared to the CBT group, whereas the study by Schmidt and colleagues [49] showed no significant difference between the groups with only a small proportion remitted in each group. Two large case series indicate significant decreases in binge/purge frequency pre to post treatment [108, 109]. Several case reports indicating improvement in binge/purge symptoms exist [110–114].

Adolescent focused psychotherapy

Adolescent focused psychotherapy may be a reasonable treatment option for children and adolescents with Anorexia Nervosa. Weak recommendation

Qualifying statements:

Adolescent Focused Psychotherapy (AFP) could be delivered in situations in which FBT has been attempted, but been ineffective, or if FBT is contraindicated, not possible, or not available.

A manual is not yet available to clinicians, which makes training and dissemination difficult.

It is a challenge to study this type of treatment due to its lengthy nature and lack of clarity around essential elements. Adolescent Focused Psychotherapy includes elements of: an emphasis on therapeutic relationship with a goal to improve symptoms, psychoeducation, the role of the eating disorder as a coping mechanism, along with the development of more positive coping mechanisms. Panel members agreed that treatment of this nature is commonly delivered and can be quite beneficial to some patients. This treatment for Anorexia Nervosa may be beneficial, however other treatments have some advantages in terms of cost and more rapid improvement in symptoms.

Key evidence:

Anorexia Nervosa

Adolescent Focused Psychotherapy (AFP; based on psychodynamic principles) has some evidence to support its use [22, 23, 128], as does individual psychodynamic treatment [129], and group analytic psychotherapy [130]. Remission rates were not significantly different between AFP and FBT in two RCTs involving a total sample of 158 adolescents [22, 23]. Rates of 20% (12/60) remitted in AFP compared to 34% (21/60) in FBT were found in the study by Lock and colleagues [23], whereas 41% in the AFP group met the weight goal of the 50th percentile in the study by Robin and colleagues [22] compared to 53% in the FBT group. Differences between FBT and AFP become more apparent at one year follow up with FBT having an advantage [23].

Additional promising psychotherapies

Other promising outpatient psychotherapies exist that require more research before definitive recommendations can be made.

These include:

- Cognitive Behavioural Therapy for Avoidant/Restrictive Food Intake Disorder.
- Dialectical Behavioural Therapy for eating disorders.

Other therapies - adjunctive yoga

Yoga, in addition to standard treatments, may be a reasonable option for medically stable youth with Anorexia Nervosa, Bulimia Nervosa, and Other Specified Feeding and Eating Disorders. Weak recommendation

Qualifying statements:

There is no evidence to guide the specific regimen (e.g. duration, frequency) of yoga. Yoga should only be undertaken with support by the physician involved in the individual's care. Hot yoga or other strenuous forms of Yoga are not recommended when medical concerns exist. If Yoga interferes with recovery, or worsens symptoms, it should be discontinued.

Key Evidence:

One high quality study suggests some benefits in terms of the psychological symptoms of eating disorders, as well as depressive and anxious symptoms in the context of an eating disorder [136].

Medications

The clinical trials environment to test medications for the treatment of eating disorders is fraught with ethical and methodological complexity. Obtaining the required informed consent to bring a child or adolescent into a study requires disclosure of the study intent, hypotheses, and potential for side effects

attributable to the medication. In some cases, these effects (e.g. weight gain) are connected specifically to outcomes patients may strongly fear. In addition, parents are often reluctant to give their children psychotropic medication. This often results in studies that have prolonged enrollment phases, that struggle or fail to meet recruitment goals, and suffer from high rates of patient drop out. As a consequence, study quality is poor and prone to bias.

Atypical antipsychotics

Olanzapine or aripiprazole may be reasonable treatment options for certain populations of children and adolescents with Anorexia Nervosa if monitored carefully. Weak recommendation

Qualifying statements:

In specific contexts, consideration of olanzapine and aripiprazole use may be undertaken for the adjunct treatment of low weight children and adolescents with Anorexia Nervosa. Although the evidence-base supporting these specific medications is scant and of poor quality, expert opinion suggests potential benefit in carefully selected treatment contexts. Given their propensity for side effects, these medications should only be considered with appropriate consultation and monitoring by trained specialists in Child and Adolescent Psychiatry or Pediatrics who have expertise in the treatment of children and adolescents with eating disorders. When utilized, these medications should be initiated at a very low dose (0.625–1.25 mg for olanzapine, or 0.5–1.0 mg for aripiprazole) and titrated very carefully. Target doses in research trials are often modest. Informed consent from the young person, or their substitute decision maker including risk of side effects must be obtained and appropriate monitoring undertaken while these medications are in use.

Key evidence:

Olanzapine

Olanzapine has been the most commonly studied psychotropic medication for children and adolescents with Anorexia Nervosa. At present, only one small double-blind placebo-controlled trial in this population has been published [137], and no beneficial effect in favour of olanzapine was found in the 15 subjects who completed the trial. Several open trials and case series have examined the use of olanzapine in children and adolescents with Anorexia Nervosa [138–142]. While some have demonstrated benefit (e.g. weight gain), reported adverse effects associated with the medication as well as patient attrition were common.

Aripiprazole

Three small poor-quality studies found aripiprazole showed some modest benefit in adolescents with Anorexia Nervosa [165–167].

Additional promising medications

The use of other medications for the purposes of eating disorder treatment require more research before definitive recommendations can be made. These medications should be a priority for research. These include:

- Selective Serotonin Reuptake Inhibitors (fluoxetine for Bulimia Nervosa).
- Risperidone and Quetiapine for use in Anorexia Nervosa.
- Atypical Antipsychotics for use in Avoidant/Restrictive Food Intake Disorder.
- Mirtazapine use for patients with Anorexia Nervosa.

Medications that are not recommended

The medications below have no evidence to support their use in the treatment of primary eating disorder symptoms, or are harmful.

- Selective Norepinephrine Reuptake Inhibitors – no evidence.
- Mood Stabilizers - no evidence.
- Bupropion - not recommended for use in eating disorders, due to the elevated risks of seizures in this population.

Level of care – inpatient/day treatment/residential care

In contrast to the above sections that examine specific treatment modalities, this section focuses on the level – or setting – where care takes place. Research on level of care is generally sparse. Moreover, the setting where care takes place is often conflated with the treatment activities themselves making it difficult to attribute which mechanism(s) contributed to outcomes. Some tools already exist to guide the practitioner on which level of care might be indicated (e.g. residential, inpatient, day treatment, or outpatient care) based on a variety of clinical factors [290].

Level of care

It is strongly recommended that the least intensive treatment environment be provided (e.g. family-based treatment or day treatment versus lengthy hospitalizations) especially for those children and adolescents with Anorexia Nervosa requiring a first admission to hospital and/or with a duration of illness less than 3 years. Strong recommendation

Qualifying statements:

Definitive clinical research does not currently exist that identifies the specific characteristics of what comprises “least intensive environment” or an agreed upon hierarchy of least to most intensive environments. However, the evidence-base does provide signals of reasonable options and areas that should be prioritized for further study. In addition, definitive clinical research does not currently exist that identifies the specific elements required to optimize inpatient, specialist outpatient, and community outpatient programs.

Key evidence:

Studies comparing different levels of care and length of stay

One trial of 167 adolescents randomized to inpatient care, a specialist outpatient program, or a generalist community outpatient program found significant improvements across all three groups with no differences between the groups [291]. In order to examine length of inpatient treatment related to outcome, two high quality studies examined the difference between patients randomized to receive a relatively short inpatient admission followed by either 20 sessions of FBT ($n = 82$) [252] or day treatment ($n = 172$) [253] compared to a lengthy inpatient stay to weight restoration. In the inpatient/FBT study [252] patients had all been unwell less than 3 years, and in the inpatient/day treatment study [253] the patients were included only if it was their first admission. At the end of FBT or day treatment, there were no significant differences between those who were discharged after a short admission versus those who remained in hospital for weight restoration in terms of: weight outcome, rate of readmissions over 12-month follow-up, or eating disorder symptoms.

Studies examining inpatient treatment only

Multiple low-quality studies have been published examining the outcomes for children and adolescents with eating disorders [187, 188, 193, 194, 197, 213, 216, 222, 224, 227, 232–234, 251, 292]. The most consistent finding is that inpatient treatment leads to weight restoration regardless of the treatment framework used. There are no studies directly comparing treatment modalities. Outcomes related to the cognitive symptoms of the eating disorder were mixed in these inpatient studies. Some low quality studies have examined various adjuncts to inpatient treatment including non-select versus selective menus, meal support, multi-family versus multi-parent group therapy, cognitive remediation therapy, and bright light therapy. Non-select menus conferred a benefit related to rate of weight restoration and meal support appeared to decrease the need for nasogastric tube feeds. Other outcomes were less evident and potentially eclipsed by the effect of the inpatient treatment milieu.

Studies examining day treatment programming only

Several low-quality studies report a benefit of day hospital programming in terms of weight restoration and reduction in eating disorder symptoms [255, 256, 258, 259, 262, 266, 272–276, 280]. Of these studies 14 described using a family-based approach [262, 264–270, 272–277], eight a multimodal approach [254–261] and one a CBT framework [280] in their programs. All studies reported an increase in mean weight during day treatment, and most studies reported improvement in eating disorder symptoms. One study compared cohorts in their program with and without family involvement [264], and found that weight outcomes did not vary with family involvement, but there was a greater improvement observed in overall symptomatology, and in particular weight concerns and dietary restraint with family involvement. Only three small studies have examined the use of day treatment settings for patients with Avoidant/Restrictive Food Intake Disorder [278, 281, 282] and one small study examined this setting for Bulimia Nervosa [279]. One high quality study observed no harm with the addition of a standardized resistance training program to day treatment care as usual for patients with mixed eating disorder diagnoses [283].

Studies examining residential programming only

Six low quality studies examined outcomes for patients with eating disorders treated in a residential setting [284–289]. Studies included patients with Anorexia Nervosa, Bulimia Nervosa and Eating Disorder Not Otherwise Specified for a total of 1070 patients studied. Reasons for admission to residential treatment were not noted, there is a paucity of information reported on treatments received prior to admission to residential facilities, and all studies took place in the United States. Length of stay in these studies varied from 28 days to 56 days. All six studies reported that underweight patients gained weight during treatment. One study reported that episodes of purging were significantly reduced [284]. Three studies reported that eating disorder symptoms decreased significantly during treatment in the residential setting [285–287].

General care considerations when choosing level or setting of treatment

The following are reasonable care considerations as it relates to the choice of environment in which treatment is available for children and adolescents with eating disorders.

Care within an inpatient treatment environment

- Inpatient treatment may promote weight restoration regardless of model of care provided, but requires more study to determine the critical treatment elements related to weight restoration.

- Cognitive Behavioural Therapy (CBT) and family-based inpatient treatment may lead to improvement in eating disorder symptoms.
- Inpatient treatment combined with day treatment follow-up may be helpful in weight restoration, symptom change and motivation for children and adolescents with Anorexia Nervosa.
- Adjuncts to inpatient treatment, such as non-selective menus, meal support, cognitive remediation and bright light therapy may be helpful for certain children and adolescents with eating disorders.
- Inpatient treatment alone or in combination with day treatment for Bulimia Nervosa and Avoidant/Restrictive Food Intake Disorder requires more study.
- Peer support during inpatient treatment by other parents would be an asset.

Preparing for discharge from inpatient care

- Any transition in care is a period of high risk for deterioration and adverse events. Bridging these transitions with added supports is needed to prevent young people from suffering from adverse outcomes due to disruptions in continuity of care.
- Parental support is needed in order to prepare parents for discharge and the treatment that follows.
- Patient and parent preferences should be considered when planning for discharge.
- Issues of consent and capacity should also be considered when making decisions around admission and discharge.

Care within a day treatment environment

- Day treatment may promote weight restoration in Anorexia Nervosa regardless of model of care provided, but requires more study to determine the critical treatment elements related to weight restoration.
- Multimodal, CBT and family-based day treatment may lead to improvement in eating disorder symptoms.
- Day treatment for Avoidant/Restrictive Food Intake Disorder may be helpful in weight restoration and improved outcome.
- Resistance training may be offered to children and adolescents who do not have a history of compulsive exercise while participating in day treatment, but it remains unclear whether this intervention imparts any benefit.
- Day treatment varies significantly from study to study, so comparison is difficult. The common element appears to be a group-based treatment program with meal support.

- Equity and access to day treatment are issues to be considered. Families must live close to such a program in order to be able to attend, or must abandon their home/career to move close to a day treatment program in order for their child to attend.

Care within a residential treatment program

- Although literature was lacking to support a formal recommendation for residential treatment, many of the panel members opined that residential treatment is an essential component of treatment for some individuals with eating disorders who need lengthier treatment in a setting away from home. Based on expert opinion and those with lived experience, it was agreed that individuals who have had repeat admissions to the hospital and those with complex comorbid conditions, might benefit from residential treatment.

Discussion

These are the first Canadian Practice Guidelines to evaluate the evidence on psychotherapeutic and psychopharmacological treatments focused specifically on children and adolescents with eating disorders. Strong recommendations were supported in favour of Family-Based Treatment, and more generally in terms of least intensive treatment environment. Weak recommendations in favour of Multi-Family Therapy, Cognitive Behavioural Therapy, Adolescent Focused Psychotherapy, adjunctive Yoga, and atypical antipsychotics were confirmed. Several gaps for future work were identified including enhanced research efforts on new adjunctive treatments in order to address severe eating disorders and complex co-morbidities. Underlying the specific treatments emerged some general values and philosophies to be upheld, particularly apparent during the panel meeting. These philosophies included mutual trust and respect in the provider/patient/family relationship.

In addition, parent and patient representatives mentioned the critical importance of peer support (patient and parent), particularly in times of transition between different levels of care and from the pediatric to adult system of care. The importance of a co-ordinated continuum of care from outpatient to residential care was emphasized by the panel. The lack of services was also emphasized. Several individuals mentioned the lack of residential care across the country and the great need that exists for certain individuals with eating disorders for intensive inpatient and residential services. This need is particularly apparent for those who are medically stable, but have psychiatric co-morbidities and need longer term treatment in a highly structured environment. The co-

morbidity with substance abuse was mentioned as an area where there is a complete lack of services in Canada. Patient and parent choice/preferences of treatment were also mentioned as essential to consider when thinking of the treatments and levels of care available.

The strengths of this guideline are numerous. We used rigorous methodology for our literature review and synthesis as well as for our guideline development. Our literature synthesis methods included a thorough review of all literature (including gray literature and papers of any language). We translated 25 papers for full text review. In terms of guideline development, conflict of interest statements were reviewed by an impartial chair in order to address any biases. We had a face-to-face meeting to discuss our recommendations, followed by an anonymous voting procedure. Furthermore, our panel included the voices of various stakeholder groups including researchers, clinicians, policy makers, parents and those with lived experience.

Limitations

These guidelines serve as a starting point for Canadian Practice Guidelines for treating children and adolescents with eating disorders, and as such, they have several limitations. Our guidelines did not aim to review treatments within the scope of medical stabilization, or in terms of treatments for the physical complications of eating disorders in children and adolescents. A companion Canadian Guideline focused on these topics for children and adolescents is needed. The reader is encouraged to examine the Academy for Eating Disorders Guidelines on eating disorders, and the Clinical Practice Guidelines for the BC eating disorders continuum of services which includes a Short Term Allocation Tool for Eating Disorders (STATED) [290], specifically outlining medical criteria for hospital admission, and level of care recommendations for the full age spectrum. None of the outpatient treatments mentioned in our current guideline should be delivered with a medically unstable child needing hospital admission for medical reasons. Similarly, if outpatient treatments are attempted, and an individual deteriorates during these treatments, or fails to progress, stepping up to either day treatment, or inpatient care may be needed. Furthermore, if outpatient treatments are not available, then lengthier inpatient stays may be necessary.

We did not examine qualitative literature in our search. The scope of our guideline was so broad already, that these studies could not be incorporated. These studies should be included in future iterations of these guidelines. Qualitative meta-syntheses on the topic of

treatment for and recovery from AN in particular, highlight the importance of therapeutic alliance, treatment targets, building identity and self-acceptance [293, 294]. These qualitative works, can shed light on the concept of recovery which can have several different definitions, not just focused on symptomatic change, but quality of life, and functionality of work and relationships. For the purposes of this guideline, we focused on studies reporting on symptomatic change, however, future iterations should include other outcomes as viewed as essential to those affected by these illnesses and their families. Caregiver outcomes would also be important to include in future guidelines. We also would recommend including transition age youth as an important population with unique needs. A more in-depth examination of transitions in the health care system in general would be beneficial.

Most of the published studies to date on pharmacotherapy of eating disorders in children and adolescents have focused on the role of antipsychotic medication in AN. Despite progress in recent years, the total number of subjects studied remains small, and there is a paucity of randomized controlled trials. Further, it has become increasingly clear that there are substantive challenges involved with the completion of such studies. As a result, there is still insufficient evidence to recommend medication as a first line consideration in children and adolescents with eating disorders. Due to the significant challenges in recruitment and retention in clinical trials to date, large multi-site collaborative trials are necessary to move the field forward in determining which young patients with eating disorders might benefit most from psychotropic medication and in what fashion. In addition, we did not systematically review the literature for certain classes of medications including benzodiazepines, or stimulants. We came across a couple of case reports through searching in the other areas [295, 296], however, searches on these drugs should be included in future iterations of this guideline.

Our search strategy also had limitations. Although our search was very thorough, we were unable to retrieve several citations as full text articles. Some of these were difficult to locate as they were dissertations, conference proceedings, books, or simply did not exist. We attempted to examine sex differences, but the numbers of male subjects were so small that no conclusions could be drawn. Furthermore, although we searched the literature thoroughly for art and music therapies, we could not find any articles on these topics. In addition, two papers in the family-based therapy section were identified through external review, indicating that these papers were not found through the initial search.

Despite these limitations, these guidelines represent a significant step forward in developing a collaborative

process for identifying effective treatments for children and adolescents with eating disorders and will be reviewed every 5 years.

Future directions

Several gaps were noted by the guideline panel and these should be a focus for future study. These gaps included treatments for complex presentations of eating disorders, including complex co-morbidity such as borderline personality disorder, obsessive compulsive disorder, and substance use disorder. Determining which treatment benefits which individual in advance should be a priority for further study. There were also difficulties in making recommendations around medication use. Studies in the area of psychopharmacology are fraught with challenges in terms of a lack of recruitment and retention. Small and poorly designed studies, make it difficult to arise at recommendations. Perhaps multi-site trials, or innovative designs are needed to further promote and enhance the evidence base where psychopharmacology is concerned. The panel noted difficulty in making recommendations on inpatient and residential levels of care, but noted that these are sorely needed services, and should be expanded in Canada, along with a more rigorous investigation of effectiveness. Developing treatments, including new and adjunctive psychotherapeutic approaches for families unable to engage in Family-Based Treatment is essential. In addition, particular populations may have unique needs that have not yet been explored, such as predominantly male populations, and those with non-binary gender identities. Furthermore, creative ways of accessing evidence-based treatment need to be explored including the use of technology to treat patients and families at a distance.

Conclusions

Our Canadian Practice Guidelines for the treatment of children and adolescents with eating disorders recommend the provision of: 1) FBT for those with AN or BN (strong recommendation), 2) MFT for those with AN (weak recommendation), 3) CBT for those with AN or BN (weak recommendation), 4) AFP for those with AN (weak recommendation), and, 5) adjunctive Yoga for those with AN, BN and OSFED (weak recommendation). All of these treatments can only be delivered in a medically stable young person, and more intensive treatment should be considered if treatments are deemed to lack efficacy. In terms of medication, a weak recommendation was confirmed for olanzapine and aripiprazole for those with AN. A strong recommendation was agreed upon for providing care in a least intensive environment. Patient and parental preferences should be considered. Research efforts should be devoted to developing

treatments for severe eating disorders with complex co-morbidity.

Abbreviations

%TGW: Percent treatment goal weight; ADHD: Attention deficit hyperactivity disorder; AFP: Adolescent focused psychotherapy; AGREE II: Appraisal of guidelines, research, and evaluation; AN: Anorexia nervosa; ANSOCQ: Anorexia nervosa stage of change questionnaire; ARFID: Avoidant/restrictive food intake disorder; BED: Binge eating disorder; BLT: Bright light therapy; BMI: Body mass index; BN: Bulimia nervosa; CBT: Cognitive behavioural therapy; CBT-E: Cognitive behavioural therapy - enhanced; ChEAT: Children's eating attitudes test; CRT: Cognitive remediation therapy; DBT: Dialectical behavioural therapy; DTP: Day treatment program; EAT: Eating attitudes test; EDE: Eating disorder examination; EDE-Q: Eating disorder examination - questionnaire; EDI: Eating disorders inventory; EDNOS: Eating disorder not otherwise specified; EFFT: Emotion focused family therapy; FBT: Family-based treatment; GDP: Guideline development panel; GRADE: Grading of recommendations assessment, development, and evaluation system; GUIDE-M: Guideline implementability for decision excellence model; LOS: Length of stay; MFT: Multi-family therapy; MPT: Multi-parent group therapy; MSCARED: Motivational stages of change for adolescents recovering from an eating disorder; NGY: Nasogastric tube; NJ: Nasojejunum; OCD: Obsessive compulsive disorder; OSFED: Other specified feeding and eating disorder; PRISMA: Preferred reporting items for systematic reviews and meta-analyses; SNRIs: Selective norepinephrine reuptake inhibitors; SSRIs: Selective serotonin reuptake inhibitors; TAU: Treatment as usual; YBC-EDS: Yale brown Cornell eating disorder scale

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Authors' contributions

JC conceived the idea for this project with input from MN, WS, MB, MK, GM, CW, SF, NB, and CM. JC was primarily responsible for the overall project design, oversight of the project and drafting of the manuscript. Several authors participated in screening abstracts and full text articles including: JC, LI, MN, WS, MK, CW, NS, and AR. Panel members who contributed to the drafting and finalization of the recommendations included: WP, CM, JC, AB, CS, RL, TL, EW, CF, KB, JG, JG, AL, AL, JS, SG, MJ, GD, and DP. All authors read and edited the manuscript, and approved the final manuscript.

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Evidence-based clinical guidelines for eating disorders: international comparison

Anja Hilbert^a, Hans W. Hoek^{b,c,d}, and Ricarda Schmidt^a

Purpose of review

The current systematic review sought to compare available evidence-based clinical treatment guidelines for all specific eating disorders.

Recent findings

Nine evidence-based clinical treatment guidelines for eating disorders were located through a systematic search. The international comparison demonstrated notable commonalities and differences among these current clinical guidelines.

Summary

Evidence-based clinical guidelines represent an important step toward the dissemination and implementation of evidence-based treatments into clinical practice. Despite advances in clinical research on eating disorders, a growing body of literature demonstrates that individuals with eating disorders often do not receive an evidence-based treatment for their disorder. Regarding the dissemination and implementation of evidence-based treatments, current guidelines do endorse the main empirically validated treatment approaches with considerable agreement, but additional recommendations are largely inconsistent. An increased evidence base is critical in offering clinically useful and reliable guidance for the treatment of eating disorders. Because developing and updating clinical guidelines is time-consuming and complex, an international coordination of guideline development, for example, across the European Union, would be desirable.

Keywords

eating disorders, evidence-based, guideline, therapy, treatment

INTRODUCTION

Anorexia nervosa (AN), bulimia nervosa (BN), and binge-eating disorder (BED) represent the specific eating disorders defined in the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5 [1]). They are characterized – at varying degrees – by persistent disturbances in eating or weight-control behavior and shape and weight overconcern. The central characteristic of AN is a significantly low body weight, induced by restriction of energy intake. The main features of BN and BED are recurrent binge-eating episodes. Although individuals with BN usually attempt to prevent weight gain through inappropriate compensatory behaviors (e.g., self-induced vomiting), those with BED do not make recurrent use of them. All eating disorders result in significant impairments in health, psychosocial functioning, and quality of life [2,3]. Increased healthcare utilization and costs have been documented [4^a,5]. With a first onset that often occurs in adolescence or young adulthood [6], AN and BN

show a long-term natural course with remission in more than 50% of cases, whereas evidence on the natural course of BED is scarce [7]. While AN occurs in up to 4% of young women [7,8^a], BN and BED have a lifetime prevalence of 1.0 and 1.9%, respectively [9].

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KEY POINTS

- The systematic review showed notable commonalities and differences among evidence-based clinical treatment guidelines for eating disorders.
- Regarding the dissemination and implementation of evidence-based treatments, current guidelines endorse main empirically supported treatment approaches with considerable agreement, but additional recommendations are largely inconsistent.
- An increased evidence base is critical in offering clinically reliable and consistent guidance for the treatment of eating disorders.
- Because clinical guideline development is time-consuming and complex, an international coordination, for example, across the European Union, would be desirable.

Given the clinical significance of eating disorder symptomatology, over the past decades sustained effort has been placed on designing and evaluating psychological and medical treatments for eating disorders in rigorous, randomized-controlled efficacy studies [10^{**},11–14]. Despite these advances, a growing body of literature demonstrates that individuals with eating disorders often do not receive an evidence-based treatment for their disorder [15^{**},16]. For example, Kessler *et al.* [9] documented in 24 124 adults from 14 countries that only 47.4% of lifetime cases with BN and 38.3% of lifetime cases with BED ever received a specific treatment for their eating disorder. In a study among 5 658 women 40–50 years old from the United Kingdom, only 27.4% of all women with a DSM-5 life-time diagnosis of an eating disorder had sought help or received treatment for an eating disorder at any point in their life [17^{*}]. Multiple system factors (e.g., lack of screening for eating disorders) and personal patient factors (e.g., lack of information) may account for this ‘treatment gap’ [15^{**},18^{*},19^{*}]. In addition, a ‘research-practice gap,’ indicating a discrepancy between evidence-based treatments and actual treatment delivery, was identified: As an example, the majority of eating disorder therapists do not adhere to evidence-based treatment protocols but rather pursue eclectic combinations of interventions [20,21,22^{*}]; findings such as this highlight the significant challenge of disseminating and implementing of evidence-based eating disorder treatments into clinical practice [15^{**},23,24].

As a first step toward the dissemination and implementation of evidence-based treatments into clinical practice, evidence-based clinical guidelines for eating disorders were issued in several countries

across the world. Their general aim is to inform clinical decision-making of healthcare professionals and patients on efficacious interventions and treatment strategies. Based on a systematic search, selection, and evaluation of the treatment literature, evidence-based treatment guidelines offer specific recommendations to optimize patient care [25–27]. In one narrative review, Herpertz-Dahlmann *et al.* [28] compared several evidence-based clinical guidelines from four European countries (Germany, Spain, The Netherlands, and the United Kingdom) regarding the treatment of AN. They found correspondence in major recommendations, but no consensus on treatment intensity/setting, as well as no consensus and lack of evidence on nutritional rehabilitation and weight restoration. The authors identified a need for European research initiatives on AN to enhance the evidence base and clinical guidance. Since this report, several new guidelines were issued (e.g., The Netherlands, the United Kingdom, Australia); however, current comparative information is lacking, especially for BN and BED. This systematic review sought to compare the available evidence-based clinical treatment guidelines for all specific eating disorders to investigate the necessity of future work on guidelines for translation into practice.

METHOD

Guideline identification

In May 2017, we systematically searched the electronic databases PubMed and Cochrane Database of Systematic Reviews [‘guideline AND (eating disorder OR anorexia nervosa OR bulimia nervosa OR binge-eating disorder)’]; the National Guideline Clearinghouse and the International Guideline Library (‘eating disorder OR anorexia nervosa OR bulimia nervosa OR binge-eating disorder’); the website of the Academy of Eating Disorders through which partners and affiliate organizations were obtained and contacted; and contacted other experts in the field. Relevant clinical guidelines were required to be evidence-based; the latest version; address the treatment of AN, BN, and/or BED; have a focus on adults; to be published in Dutch, English, or German; and have a national or international scope.

Assessments and analysis

To compare the content of the guidelines, key recommendations were summarized regarding pre-defined categories. For AN, BN, and BED, these categories included: first-line treatment setting, criteria for hospitalization, recommended treatment

modalities including nutritional counseling, specific psychological interventions, and medications. For the treatment of AN, guidelines were additionally compared with respect to the following categories: compulsory treatment, criteria for partial hospitalization, criteria for discharge, recommended energy intake and weight gain, feeding supplements, and artificial feeding.

Included guidelines were independently examined by two authors. Relevant content was extracted into a predefined coding table using the guidelines' original text by one author with corrections from the second author. For comparative purposes, it was noted whether a recommendation was given (\checkmark) or not reported, and if possible, the guidelines' recommendations were recoded into three ratings: explicit recommendation in favor (+), recommendation requiring caution [(+)], and recommendation against (−). In addition, and if recoding was not possible, the guidelines' recommendations were reported in text format.

RESULTS

A total of 33 guidelines were identified, as depicted in the PRISMA flow chart (Fig. 1). Most guidelines had to be excluded for not meeting the language criterion ($n=12$). In addition, five guidelines were

earlier versions of included guidelines, four guidelines were non-evidence-based, two guidelines solely focused on childhood eating disorders, and one guideline had a regional scope. Accordingly, nine guidelines from eight countries, published between 2009 and 2017, were included in this report.

Most guidelines ($n=7$) included treatment recommendations for AN, BN, and BED: these were the guidelines from Australia and New Zealand [29], Germany [30], The Netherlands [31], Spain [32], the United Kingdom [33], the United States [34,35], and the World Federation of Societies of Biological Psychiatry (WFSBP; [36]). The guideline from Denmark [37,38] addressed the treatment of AN and BN, while the French guideline [39] focused on AN only. All guidelines are described in Table 1. The guideline by the WFSBP provided recommendations for medical treatment of eating disorders only, whereas all other guidelines addressed several treatment approaches. The majority of guidelines were developed by multiprofessional working groups (Australia and New Zealand, France, Germany, The Netherlands, Spain, the United Kingdom), while both the United States and WFSBP guidelines were developed by psychiatric groups. Regarding the modernity of the guidelines, three guidelines were published within the last 3 years (Australia and New Zealand, Denmark, the United

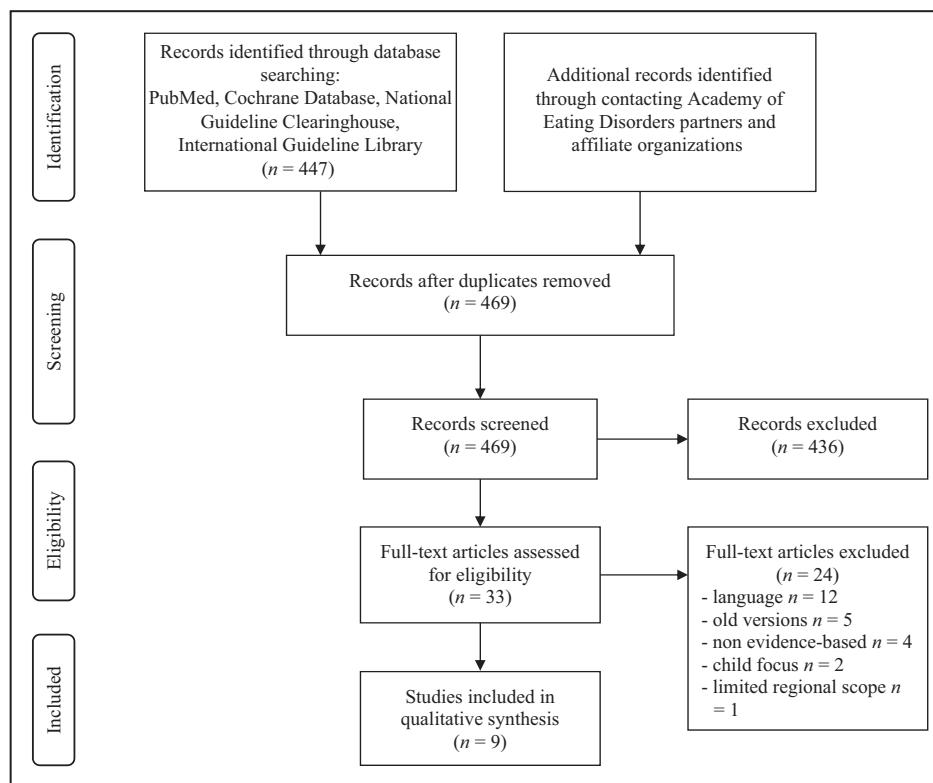


FIGURE 1. PRISMA flow diagram: international comparison of evidence-based clinical guidelines for eating disorders (15 June 2017).

Table 1. Evidence-based clinical guidelines for eating disorders published between 2009 and 2017

Abbreviations	Full guideline name	Year	Country	Status	Scientific society	Target^a	Preparing committee^b	Eating disorders^c
AUS	Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of eating disorders [29]	2014	Australia and New Zealand	Active	Royal Australian and New Zealand College of Psychiatrists	Specialists	Multidisciplinary group of healthcare academics and professionals, consultation with key stakeholders and the community	AN, BN, BED
DEN	National clinical guideline for the treatment of anorexia nervosa – quick guide [37] National clinical guideline for the treatment of moderate and severe bulimia – quick guide [38]	2016	Denmark	Active	Danish Health Authority	Specialists	NR	AN, BN
FR	Clinical practice guidelines anorexia nervosa: management [39]	2010	France	Active	Association Française pour le Développement des Approches Spécialisées des Troubles du Comportement Alimentaire, Fédération Française de Psychiatrie, Haute Autorité de la Santé	Specialists	Multidisciplinary group	AN
GER	S3-guideline for the assessment and therapy of eating disorders [30]	2010	Germany	In revision	Association of the Scientific Medical Societies in Germany (AWMF)	Specialists	Multidisciplinary group of clinicians and researchers with expertise in the field of eating disorders	AN, BN, BED
NETH	Practice guideline for the treatment of eating disorders [31]	2017	The Netherlands	To be published	Dutch Foundation for Quality Development in Mental Healthcare	Population and specialists	Multidisciplinary group of healthcare professionals, health insurance representatives, patients and relatives	AN, BN, BED
SP	Clinical practice guideline for eating disorders [32]	2009	Spain	Active	Catalan Agency for Health Technology Assessment and Research, Ministry of Health and Consumer Affairs	Population and specialists	Multidisciplinary group of professionals involved in the field of eating disorders and experts on Clinical Practice Guidelines' methodology	AN, BN, BED
UK	Eating disorders: recognition and treatment, full guideline [33]	2017	United Kingdom	Active	National Institute for Health and Care Excellence	Specialists	Multidisciplinary group comprised of healthcare professionals, researchers and lay members	AN, BN, BED
US	Practice guideline for the treatment of patients with eating disorders, third edition, Guideline watch (August 2012) [34,35]	2010, 2012	United States	Active, guideline watch	American Psychiatric Association	Specialists	Psychiatrists in active clinical practice and some who are primarily involved in research or other academic endeavors	AN, BN, BED
WFSBP	World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for the pharmacological treatment of eating disorders [36]	2011	-	Active	World Federation of Societies of Biological Psychiatry	Specialists	Psychiatrists of WFSBP task force on eating disorders	AN, BN, BED

^aItalicized words indicate that the information was inferred from the text, where explicit information from the guideline was lacking.

^bNot reported.

^cAN, anorexia nervosa; BN, bulimia nervosa; BED, binge-eating disorder.

Kingdom) or are currently being published (The Netherlands), while the remainder were published at least 5 years ago (France, Germany, Spain, the United States, WFSBP).

Comparison

The comparative results for AN, BN, and BED are summarized in Tables 2–4.

Anorexia nervosa

All guidelines which provided information on the treatment setting ($n=7$) consistently recommended outpatient treatment as a first-line therapy setting for patients with AN. For determining more intense levels of care, most guidelines provided criteria for partial ($n=5$) and full-time hospitalization ($n=7$). The degree of detail and range of hospitalization criteria varied between guidelines. However, the guidelines consistently emphasized the necessity to decide about hospitalization on an individual basis taking multiple factors into account. Overall, hospitalization should be considered for patients who have failed at outpatient care, or who are at high risk for medical complications as determined using patient's weight status (e.g., extremely low body mass index), behavioral factors (e.g., decline in oral intake), vital signs (e.g., heart rate < 40 bpm), psychiatric comorbidity (e.g., suicide risk), or environmental aspects (e.g., family support). For very malnourished patients who do not consent to treatment, most guidelines provided some information on compulsory treatment ($n=7$). Criteria for discharge from hospital were specified by the majority of guidelines ($n=7$).

The majority of guidelines ($n=6$) emphasized the importance to treat patients with AN and eating disorders in general, respectively, by specialized professionals and/or by professionals with substantial experience in the treatment of eating disorders. Regarding specific treatment modalities, most guidelines included recommendations for nutritional management ranging from artificial feeding ($n=8$) to general nutritional counseling ($n=6$). Although the extent to which information on artificial feeding was given differed among guidelines (e.g., concerning refeeding practice, duration, or indication), guidelines consistently favored oral enteral nutrition over parenteral nutrition which should only be used as a last option. Regarding general nutritional counseling, two (Germany, the United Kingdom) of six guidelines explicitly stated that it should be part of a multidisciplinary therapy approach and not used as a stand-alone treatment. Although there was substantial agreement across guidelines about the amount of recommended

weight gain per week in inpatient and outpatient settings, mostly ranging between 0.5–1.5 and 0.2–0.5 kg, respectively, variation in the amount of recommended energy intake per week was apparent. Although some guidelines recommended daily energy intakes of 30–40 kcal/kg (Germany, the United States) or higher (The Netherlands), others recommended considerably lower intakes (Spain, the United Kingdom), particularly for severely malnourished patients at risk for refeeding syndrome. Among the seven guidelines which specified the use of nutritional supplements, there was a large variation of recommendations regarding the type and indication for nutritional supplements. Some guidelines specifically recommended phosphate ($n=6$), thiamine ($n=3$), zinc ($n=2$), or potassium ($n=2$), if indicated, while others made a general recommendation for mineral or vitamin supplements ($n=3$).

Although psychotherapy was deemed a central part of treatment by all guidelines, only seven guidelines recommended specific psychological interventions. All seven guidelines recommended family-based therapy (for greater detail, see Herpertz-Dahlmann in this issue [40,41]), particularly for younger patients. For individual psychotherapy, most guidelines recommended cognitive-behavioral therapy ($n=6$) which intervenes at the symptom level and centers on the modification of dysfunctional behaviors and cognitions that maintain the disorder [42]. It was recommended as a first-line psychotherapy for AN by two guidelines (The Netherlands, the United Kingdom). Lesser agreement was achieved for psychodynamic therapy and interpersonal psychotherapy, which were explicitly recommended as an alternative by four and two guidelines, respectively. While psychodynamic therapy includes treatments that operate on an interpretative-supportive continuum [43], interpersonal psychotherapy is a focused, goal-oriented treatment which seeks to treat an eating disorder through resolving interpersonal problems in the context of what the disorder presents [44,45]. Further, the cognitive-interpersonal approach Maudsley Anorexia Nervosa Treatment for Adults [46] and the Specialist Supportive Clinical Management [47,48] were recommended as first-line therapies by two guidelines (The Netherlands, the United Kingdom). Although the German guideline only made a general recommendation for psychological interventions, it recommended involving the patient's family in the treatment of children and adolescents. Some guidelines noted that psychological interventions would be more effective in medically stabilized and cognitively improved patients ($n=3$) or through combining psychological and nutritional interventions ($n=1$).

Table 2. Comparison of evidence-based clinical guidelines for anorexia nervosa regarding key recommendations

Recommendation	Clinical guideline						WFSBP	
	AUS	DEN	FR	GER	NETH	SP	UK	
Treatment setting								
First-line treatment: outpatient	+	N.R.	+	+	+	+	+	N.R.
Criteria for day hospital treatment	N.R.	N.R.	✓	✓	N.R.	✓	✓	N.R.
Criteria for hospitalization	✓	N.R.	✓	✓	✓	✓	✓	N.R.
Criteria for discharge	✓	N.R.	✓	✓	N.R.	✓	✓	N.R.
Information on compulsory treatment	N.R.	N.R.	✓	✓	✓	✓	✓	N.R.
Treatment modalities								
Refeeding/nutrition ^a								
Recommended energy intake, per day	Start at 6000kJ [1433 kcal], increases of 2000kJ [478 kcal] every 2–3 days until adequate intake for weight restoration	N.R.	N.R.	Start at 30–40kcal/kg for severely underweight patients, 800–1200kcal supplementary intake/day necessary for 100g weight gain/day	Start at 40–60kcal/kg for severely underweight patients, 800–1100kcal supplementary intake/day necessary for 100g weight gain/day	25–30kcal/kg or total kcal <1000 for severe malnutrition, day hospital: supplementary intake of 300–1000 kcal	25–30kcal/kg or total kcal <1000 for severely underweight patients, 800–1100kcal supplementary intake/day necessary for 100g weight gain/day	Start at 30–40kcal/kg (i.e., 1000–1600 kcal), weight gain phase: up to 70–100kcal/kg, male patients with higher energy need
Recommended weight gain per week, inpatient settings	0.5–1.4 kg	N.R.	0.5–1 kg	0.5–1 kg	0.5–1.5 kg	0.5–1 kg	N.R.	N.R.
Recommended weight gain per week, outpatient settings	(+) Phosphate, thiamine [risk of refeeding syndrome]	N.R.	0.25 kg	0.2–0.5 kg	0.25–0.5 kg	N.R.	N.R.	N.R.
Recommended supplements								
Recommendations for artificial feeding	✓	N.R.	✓	N.R.	(+) Phosphate, vitamin and trace elements [risk of refeeding syndrome]	(+) Zinc (skin lesions), potassium chloride (cardiac arrhythmia), iron (iron deficiency anemia), thiamine, riboflavin, niacin, folic acid, phosphate	✓	✓
Nutritional counseling	N.R.	N.R.	+	N.R.	(+) Only in multidisciplinary approach	+	+	(+) Only in multidisciplinary approach
Psychological interventions								
In general	+ (More intense when medically stabilized and cognitively improved from starvation)	+ ^c	+ ^c	+ ^c	Cannot treat severe AN alone, but in conjunction with refeeding	+ ^c	When medically stabilized and cognitively recovered from malnutrition	N.R.
CBT	N.R.	N.R.	N.R.	N.R.	N.R.	+	+ (First)	N.R.
FBT	N.R.	N.R.	N.R.	N.R.	N.R.	+ ^c	+ ^c	+ ^c
Psychodynamic therapy	N.R.	N.R.	N.R.	N.R.	N.R.	+	+	+ (Acute AN and after weight restoration)
IPT	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	+ (After weight restoration)
Other	Specialist therapist-led mandated based approaches first, adolescent focused therapy	N.R.	N.R.	N.R.	MANTRA (first), SSMC Behavioral therapy	N.R.	MANTRA (first), SSMC (first)	+ Nonverbal therapeutic methods (chronic AN), group psychotherapy for adults (after weight restoration)

Table 2 (Continued)

Recommendation	AUS	DEN	FR	GER	Clinical guideline					WFSBP
					NETH	SP	UK	US	WFSBP	
Medication										
In general	N.R.	N.R.		(No specific medication to treat AN) + Depressive disorders, anxious disorders, OCD	N.R.	N.R.	Not as only primary treatment	Not as sole treatment	N.R.	N.R.
Antidepressants	(+) ^c	N.R.			N.R.	N.R.	N.R.	+ Depressive, anxiety, or obsessive-compulsive symptoms, or bulimic symptoms	N.R.	N.R.
SSRIs	- ^c	N.R.		N.R.	N.R.	N.R.	N.R.	- Weight gain + depressive, anxiety, obsessive-compulsive, or bulimic symptoms (in combination with psychotherapy or after weight restoration)	N.R.	N.R.
TCAs	N.R.	N.R.			N.R.	N.R.	N.R.	-	N.R.	N.R.
MAOIs	N.R.	N.R.			N.R.	N.R.	N.R.	-	N.R.	N.R.
Antipsychotics	(+)	Obsessional thinking (olanzapine)	N.R.	(+)	(+) Obsessional thinking (only short-term)	(+) Obsessional thinking (olanzapine)	N.R.	(+) Weight gain (-) Obsessional thinking (only short-term)	(+) Weight gain (+) Obsessional thinking (olanzapine), risperidone, quetiapine, chlorpromazine]	(+) Weight gain (+) Obsessional thinking (olanzapine), risperidone, quetiapine, chlorpromazine]
Appetizers	N.R.	N.R.			N.R.	N.R.	N.R.	-	N.R.	N.R.
Lithium	N.R.	N.R.			N.R.	N.R.	N.R.	-	N.R.	N.R.
Estrogen	N.R.	N.R.			(+)	N.R.	(+)	-	(+)	N.R.
Other medication	N.R.	N.R.			N.R.	N.R.	N.R.	-	+ Protonutrient agents - Bupropion	N.R.
Other treatments	N.R.		+ Meal support/ eating training (as adjunct) + Supervised physical activity (as adjunct during weight gain phase)	N.R.	N.R.	N.R.	- Physical therapy (transcranial magnetic stimulation, acupuncture, weight training, yoga or warming therapy)	- Physical therapy (transcranial magnetic stimulation, acupuncture, weight training, yoga or warming therapy)	- Electroconvulsive therapy (only for severe cooccurring disorders)	N.R.
Special issues	Separate recommendations for children and adolescents and for severe and long-standing AN, refeeding syndrome, medical management		Weighting, pregnancy, medical management	Detailed information on artificial feeding, different settings of care, weighing, specific recommendations for treatment of core symptoms	Separate recommendations for children and adolescents and for severe and long-standing AN, progress monitoring, relapse prevention	Treatment of comorbidities, pregnancy, medical management	Separate recommendations for children and adolescents, detailed information on psychotherapies, carer support, weighing, medical management, treatment of comorbidities, pregnancy	Recommendations for acute AN versus after weight restoration versus chronic AN, refeeding syndrome	Recommendations for acute AN versus after weight restoration versus chronic AN, refeeding syndrome	

Note: ✓ recommendation given; + explicit recommendation in favor; (+) cautious recommendation in favor; - recommendation against; N.R., no recommendation reported; AUS, Australia and New Zealand; CBT, cognitive-behavioral therapy; DEN, Denmark; FBT, family-based therapy; FR, France; GER, Germany; IPT, interpersonal therapy; OCD, obsessive-compulsive disorder; MAOI, monoamine oxidase inhibitor; MANTRA, Maudsley Anorexia Nervosa Treatment for Adults; NETH, The Netherlands; SSCM, Specialist Supportive Clinical Management; SSRI, selective serotonin reuptake inhibitor; SP, Spain; TCAs, tricyclic antidepressants; UK, United Kingdom; US, United States; WFSBP, World Federation of Societies of Biological Psychiatry.

^aRecommendations for weight gain and energy intake were derived from both the guideline's text and recommendations.

^bInformation on energy intake for the UK guideline was obtained from the Management of Really Sick Patients with Anorexia Nervosa (MARSIPAN) guideline, because the UK guideline refers to it in this respect.
^cIndicates that the recommended intervention refers to children and adolescents only.

Table 3. Comparison of evidence-based clinical guidelines for bulimia nervosa regarding key recommendations

	AUS	DEN	GER	NETH	SP	UK	US	WFSBP
Treatment setting								
First-line treatment: outpatient	+	N.R.	+	N.R.	+	+	+	N.R.
Criteria for day hospital treatment	☒	N.R.	☒	N.R.	☒	☒	☒	N.R.
Criteria for inpatient treatment	☒	N.R.	☒	N.R.	☒	☒	☒	N.R.
Treatment modalities	N.R.	+ [Individualized or standardized]	N.R.	N.R.	(+) Only with psychiatrist's approval	N.R.	+ [As part of the treatment]	N.R.
Psychological interventions								
In general	+ [Individual]	N.R.	+ [First]	N.R.	N.R.	N.R.	N.R.	N.R.
CBT	+ [First]	+ [First, individual or group]	+ [First]	+ [First, individual or group]	+ [Individual]	+ [Individual]	+ [First]	N.R.
FBT	N.R.	+ ^a	N.R.	+ ^a	N.R.	N.R.	N.R.	N.R.
Self-Help	+ [Guided, CBT]	N.R.	+ [Guided, CBT]	N.R.	+ [Guided, CBT]	N.R.	+ [First, guided, CBT]	N.R.
Psychodynamic therapies	N.R.	N.R.	+ [Guided, CBT]	N.R.	N.R.	N.R.	+ [First, guided, CBT]	N.R.
IPT	N.R.	N.R.	+ [Guided, CBT]	N.R.	N.R.	N.R.	+ [First, guided, CBT]	N.R.
Other	+ Internet-based CBT	N.R.	N.R.	N.R.	N.R.	N.R.	+ Group psychotherapy + Psychodynamic interventions and CBT and other psychotherapies + Couples therapy + Support groups [as adjunct]	N.R.
Medications								
In general	+ [If psychotherapy is not available or as adjunctive therapy]	N.R.	N.R.	N.R.	Pharmacological treatments other than antidepressants are not recommended	Not as sole treatment	N.R.	N.R.
Antidepressants	+ [Fluoxetine]	N.R.	N.R.	N.R.	+ [Fluoxetine]	N.R.	+ [Fluoxetine]	N.R.
SSRIs	+ [Fluoxetine]	(+)	N.R.	+ [Fluoxetine, in combination with psychotherapy]	+ [Fluoxetine]	N.R.	+ [Fluoxetine]	+ [Fluoxetine, fluvoxamine]
TCAs	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	–	+ [Imipramine, desipramine] – [Pheiazine]
MAOIs	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	–	+ [Tolipramate]
Anticonvulsants	+ [Tolipramate]	N.R.	N.R.	N.R.	N.R.	N.R.	–	N.R.
Lithium	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	–	N.R.
Other	+ Weight loss [orlistat]	N.R.	N.R.	N.R.	N.R.	N.R.	–	N.R.
Other treatments	+ Combined psychological and pharmacological therapy	N.R.	N.R.	N.R.	– Physical therapy [transcranial magnetic stimulation, acupuncture, weight training, yoga or warming therapy]	+ Combined treatment of CBT and antidepressants	+ Bright light therapy [as adjunct]	N.R.
Special issues	Medical management	Treatment of comorbidities	Treatment of comorbidities, options for weight loss	Treatment of comorbidities, pregnancy, medical management	Separate recommendations for children and adolescent with BN, detailed information on psychotherapies, carer support, medical management, treatment of comorbidities, pregnancy	Recommendations for initial versus maintenance phase	No long-term evidence	

Note: ☒ recommendation given; + explicit recommendation in favor; – recommendation against; AUS, Australia and New Zealand; CBT, cognitive-behavioral therapy; DEN, Denmark; FBT, family-based therapy; GER, Germany; IPT, interpersonal therapy; MAOI, monoamine oxidase inhibitor; N.R., no recommendation reported; NETH, The Netherlands; SP, Spain; SSRI, selective serotonin reuptake inhibitor; TCAs, tricyclic antidepressants; UK, United Kingdom; US, United States; WFSBP, World Federation of Societies of Biological Psychiatry.

^aIndicates that the recommended intervention refers to children and adolescents only.

Table 4. Comparison of evidence-based clinical guidelines for binge-eating disorder regarding key recommendations

	AUS	GER	NETH	SP	Clinical guideline	US	WFSBP
Treatment setting							
Firstline treatment: outpatient	N.R. ☒	+ ☒	+ ☒	N.R. ☒	+ ☒	N.R. N.R.	N.R. N.R.
Criteria for inpatient treatment							
Treatment modalities	N.R.		N.R.		(+) [With approval of psychiatrist]		
Nutritional counseling						+ [In the context of behavioral weight-control programs]	N.R.
Psychological interventions							
In general	+ [Individual] + [First]	+ [First]	+ [First]	+ [First, individual or group] + ^a	N.R. + (Guided, CBT)	+ (Group or individual) + (First, individual or group)	N.R. + (First, individual or group)
CBT					N.R. + (Guided, CBT)	N.R. + (First, guided, CBT)	N.R. + (Guided or unguided, CBT)
FBT	N.R. + (Guided, CBT)	N.R. + (Guided, CBT)	N.R. + (Guided, CBT)	N.R. + (Guided or unguided)	N.R. N.R.	N.R. + (First, guided, CBT)	N.R. N.R.
Self-help							
Psychodynamic therapies							
IPT	N.R. N.R.	+ +	N.R. N.R.	N.R. +	N.R. N.R.	N.R. N.R.	N.R. N.R.
Medications							
In general	+ [If psychotherapy is not available or as adjunctive therapy]	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
Antidepressants	+ +	N.R. + (Off-label-use, short-term)	N.R. + Binge eating frequency	N.R. + Binge eating frequency	N.R. N.R.	+ Binge eating frequency (short-term)	N.R. + (Citalopram/ escitalopram, sertraline)
SSRI							
TCA s	N.R. + (Topiramate)	N.R. N.R.	N.R. N.R.	N.R. N.R.	N.R. N.R.	N.R. + (Topiramate, zonisamide)	N.R. + (Imipramine) + (Topiramate)
Anticonvulsants							
Antiobesity medications	+ Weight loss (orlistat)	N.R.	N.R.	N.R.	N.R.	+ Binge-eating frequency (sibutramine, short-term) + Weight loss (orlistat, sibutramine)	N.R. + Fluoxetine plus group behavioral treatment
Other treatments	+ Combined psychological and pharmacological therapy	N.R.	N.R.	N.R.	N.R.	- Physical therapy (transcranial magnetic stimulation, acupuncture, weight training, yoga or warming therapy)	N.R. + Behavioral weight-control programs + Orlistat plus guided self-help CBT
Special issues							
Medical management	No long-term evidence for pharmacological treatment		Treatment of comorbidities, options for weight loss	Treatment of comorbidities, pregnancy	Detailed information on psychotherapies, medical management, treatment of comorbidities, pregnancy		No long-term evidence

Note: ☒ recommendation given; + explicit recommendation in favor; (+) cautious recommendation in favor; – recommendation against; AUS, Australia and New Zealand; CBT, cognitive-behavioral therapy; FBT, family-based therapy; GER, Germany; IPT, interpersonal therapy; MAOIs, monoamine oxidase inhibitor; N.R., no recommendation reported; NETH, The Netherlands; SRI, selective serotonin reuptake inhibitor; SP, Spain; ICA s, tricyclic antidepressants; UK, United Kingdom; US, United States; WFSBP, World Federation of Societies of Biological Psychiatry.

^aIndicates that the recommended intervention refers to children and adolescents only.

Regarding the pharmacological treatment of AN, five of nine guidelines provided specific recommendations with some notable variations. Two guidelines made the general recommendation that medication should not be used as the sole or primary treatment for patients with AN (Spain, the United Kingdom) or that there is no specific medication to treat AN (France). Antidepressants were generally recommended for those with depressive symptoms by four guidelines. At the same time, the German guideline cautioned against the use of antidepressants for weight gain. For selective serotonin reuptake inhibitors (SSRIs), there was one guideline which recommended its use for treating depressive symptoms in conjunction with psychotherapy or after weight restoration (the United States), while two other guidelines made general recommendations against their use, particularly in children and adolescents (Australia and New Zealand, The Netherlands). The use of tricyclic antidepressants (TCAs) was not explicitly favored, given that there was one recommendation against (the United States) and one cautious recommendation in favor (France). The use of monoamine oxidase inhibitors (MAOIs) or bupropion, an atypical antidepressant, was not recommended by the guideline from the United States, the only guideline reporting on these medications. Four guidelines consistently recommended the cautious use of antipsychotics for treating obsessional thinking in patients with AN, particularly olanzapine, because evidence from randomized-controlled trials and regarding long-term effects were lacking. Conflicting results were found for weight gain, given that one guideline recommended antipsychotics for weight gain (the United States), whereas another guideline stated that antipsychotics would not be appropriate for weight gain (Germany). Promotility agents and antianxiety agents were only recommended by the guideline from the United States for treating gastrointestinal problems and to reduce anticipatory anxiety concerning food intake, respectively. The use of appetizers and lithium was not recommended by the German guideline. In addition, four guidelines consistently stated that estrogen should not be routinely offered to patients with AN, as this would depend on the patient's menarche status or chronicity of AN, for example.

Adjunctive treatment recommendations were rarely made and included meal support, eating training, and supervised physical activity, as described by the Danish guideline. Physical therapies (e.g., electroconvulsive therapy, transcranial magnetic stimulation) were not recommended by two guidelines. Of note, four guidelines included information on the medical management of AN and three guidelines additionally reported on pregnancy

and pregnancy attempts. Two guidelines specifically provided information about the treatment of physical and mental comorbidities, as well as artificial feeding including refeeding syndrome.

Bulimia nervosa

Among the guidelines reporting on the prioritized treatment setting of BN, all recommended outpatient therapy as a first-line treatment ($n=5$). Four and five guidelines provided criteria for partial and full-time hospitalization, respectively. Regarding specific treatment modalities, nutritional counseling was generally recommended by the Danish guideline, in individualized or standardized format, while two other guidelines emphasized that nutritional interventions (e.g., to help develop a structured meal plan) should not be offered as stand-alone therapy (Spain, the United States).

Other than the WFSBP guideline, all available guidelines issued recommendations on specific psychological interventions. In agreement, five guidelines recommended cognitive-behavioral therapy as a first-line psychotherapy for patients with BN, particularly in an individual format. The remaining two guidelines also made recommendations in favor of cognitive-behavioral interventions, but prioritized cognitive-behavioral, guided self-help treatment as a first-line treatment (the United Kingdom), or did not provide an explicit treatment hierarchy (Spain). Overall, among the six guidelines which recommended self-help approaches, four highlighted the use of guided self-help based on cognitive-behavioral interventions (Australia and New Zealand, Germany, The Netherlands, the United Kingdom), that is, using structured self-help manuals supplemented with brief supportive sessions [49]. Interpersonal psychotherapy was recommended as an alternative to cognitive-behavioral therapy by most guidelines ($n=4$), while psychodynamic therapy ($n=2$) was rarely recommended. Family-based therapy was in particular recommended for younger patients with BN ($n=4$), and only explicitly recommended for adults by the guideline from the United States. Although the German guideline recommended cognitive-behavioral therapy for children and adolescents with BN, they emphasized the importance of including the patient's family into treatment. Alternative psychological interventions were, for example, the combination of psychodynamic and cognitive-behavioral therapies ($n=1$), couples therapy ($n=1$), or support groups ($n=1$).

Among the recommendations for pharmacological treatment, seven out of eight guidelines consistently recommended antidepressants, specifically the SSRI fluoxetine, although with some restrictions (e.g., to use antidepressants in combination with

psychotherapy). Conflicting recommendations were obtained for the use of TCAs such as imipramine and desipramine, which were recommended by the WFSBP, while the guideline from the United States explicitly did not recommend TCAs for initial treatment in patients with BN. Consistently, two guidelines advised against the use of MAOIs (United States, WFSBP). The use of anticonvulsants, specifically topiramate, was consistently recommended by two guidelines, while the remaining guidelines did not report on anticonvulsants. The only guideline which made a recommendation about lithium cautioned against its use (the United States). For patients with comorbid obesity, one guideline recommended the antiobesity medication orlistat (Australia and New Zealand).

Of note, four guidelines included specific information about the treatment of comorbidities, and three guidelines made recommendations for the medical management of BN.

Binge-eating disorder

Only three out of seven available guidelines explicitly included the recommendation that outpatient treatment is the first-line treatment setting for BED (Germany, The Netherlands, the United Kingdom). Criteria for hospitalization were provided by four guidelines (Australia and New Zealand, Germany, The Netherlands, the United Kingdom). An explicit recommendation for nutritional counseling was made by the guideline from the United States, specifically within the context of behavioral weight loss programs. The Spanish guideline generally recommended nutritional counseling for patients with eating disorders, with a psychiatrist's approval.

All guidelines provided recommendations for specific psychological interventions, except the WFSBP guideline. Cognitive-behavioral therapy was consistently recommended by all six guidelines, followed by guided ($n=6$) or unguided ($n=2$) cognitive-behavioral self-help treatment and interpersonal psychotherapy ($n=4$). An explicit recommendation for psychodynamic therapy was made by the German guideline only. With respect to first-line psychotherapy, four guidelines recommended cognitive-behavioral therapy, while one guideline favored guided cognitive-behavioral self-help treatment (the United Kingdom). Regarding the treatment format, guidelines varied highly, with one guideline specifically recommending individual psychotherapy (Australia and New Zealand), one prioritizing group format (the United Kingdom), and two guidelines not including any preference (The Netherlands, the United States). Family-based treatment was recommended for children and adolescents with BED by the Dutch guideline only.

The use of antidepressants was generally recommended by three guidelines (Australia and New Zealand, Spain, the United States). These three guidelines and three other guidelines (Germany, The Netherlands, WFSBP) consistently made a specific recommendation in favor of SSRIs for reducing binge-eating episodes, at least in the short-term. For TCAs, only the WFSBP recommended their use, particularly imipramine. For anticonvulsants, three guidelines (Australia and New Zealand, the United States, WFSBP) consistently recommended the use of topiramate, while the remaining guidelines did not report on it. Consistently, two out of two guidelines reporting on antiobesity medications explicitly recommended their use, specifically orlistat, for weight loss in patients with BED and comorbid obesity. In addition to weight loss, the antiobesity medication sibutramine was recommended for reducing binge eating (the United States). Two guidelines explicitly made a recommendation for pharmacological treatment in conjunction with psychological therapies (Australia and New Zealand, the United States).

Of note, three guidelines reported on the treatment of comorbidities, and two guidelines made recommendations for the medical management of BED.

DISCUSSION

The current systematic review of evidence-based clinical guidelines for eating disorders revealed many consistent recommendations, but also notable differences among the guidelines.

For the treatment of AN, the guidelines showed a substantial agreement on the amount of recommended weight gain, while recommended daily energy intakes varied considerably, which is consistent with Herpertz-Dahlmann *et al.* [28], who had narratively reviewed four European guidelines for the treatment of AN. Also in line with their findings, the recommendations for nutritional supplements varied widely, against a background of a lack of evidence. More consistently, most guidelines made recommendations for specific psychological interventions in the treatment of AN, especially for family-based therapy for younger patients, because of a large evidence base [40,50,51]. Most guidelines further supported cognitive-behavioral therapy [52]. Cognitive-behavioral therapy, the Maudsley Anorexia Nervosa Treatment for Adults, and the Specialist Supportive Clinical Management were even recommended as first-line therapies by the two current guidelines from The Netherlands and the United Kingdom, based on recently published results [53^{•,54[•]]. Little agreement was found for}

psychodynamic therapy and interpersonal psychotherapy as alternative treatments, because of scant evidence for their use [55–57]. A need for further research on the psychological treatment of AN was noted for all ages [28,58].

Regarding pharmacotherapy of AN, recommendations varied widely – four guidelines, among them the medically oriented WFSBP guideline, made no specific recommendation for any medication, or advocated against their sole or primary use. The greatest level of consistency across four out of nine guidelines was found for the careful use of antipsychotics to reduce associated obsessional thinking in patients with AN, but it was inconsistent whether or not antipsychotics should be recommended for weight gain. In addition, three guidelines generally recommended antidepressants for the treatment of depressive symptoms, but a consistent recommendation for specific types of antidepressants (SSRIs, TCAs) could not be identified. Single guidelines' recommendations emerged regarding other medications, for example, against the use of bupropion. Estrogen was with some consistency recommended to be offered only upon specific indication (see [59^a]). Overall, these inconsistent pharmacological recommendations for the treatment of AN may reflect the scarce evidence base for the pharmacological treatment of this disorder [13,28,60^a].

For the treatment of BN, all guidelines but the medically oriented WFSBP guideline issued recommendations on specific psychological interventions: The majority of them recommended cognitive-behavioral therapy as a first-line treatment for BN, reflecting the treatment literature [11,52]. In contrast, the United Kingdom guideline recommended offering cognitive-behavioral self-help treatment first, presumably because of an emphasis on cost-effectiveness [27], for which initial data are available [61]. Interpersonal psychotherapy was recommended as an alternative to cognitive-behavioral therapy by the majority of guidelines, given its slower short-term efficacy, but equivalent long-term efficacy [52]. Psychodynamic therapy was recommended by the German and guideline from the United States only, despite its limited evidence base [62,63], possibly because of particularities in healthcare systems. Family-based therapy was recommended mostly for younger patients by half of the guidelines, which is supported by recent clinical research [64]. Most guidelines recommended self-help treatment, and the majority of these, especially the more recent guidelines, emphasized guided cognitive-behavioral self-help treatment, documented to be efficacious in the treatment of BN [65]. A few recommendations with unclear rationale and/or

sparse evidence base were issued for alternative treatments (e.g., a combination of psychodynamic and cognitive-behavioral therapies) and nutritional counseling.

Regarding the pharmacological treatment of BN, most guidelines recommended antidepressants for the treatment of BN, specifically the SSRI fluoxetine, albeit with several restrictions (e.g., combined use with psychotherapy only). Fluoxetine has approval for the treatment of adults with BN in several countries (e.g., the United States, Germany). However, only a few and often inconsistent recommendations were made for the use of TCAs and anticonvulsants, specifically topiramate, and against the use of MAOIs and lithium. Again, these singular and contradictory recommendations may mirror the overall paucity of research on pharmacological treatments of BN [13].

For the treatment of BED, all guidelines provided recommendations for specific psychological interventions (except the medically oriented WFSBP guideline). Cognitive-behavioral therapy was consistently recommended by all respective guidelines and mostly as a first-line treatment, given its comprehensive evidence base [10^a]. Cognitive-behavioral therapy was followed by cognitive-behavioral self-help treatment, with the majority of guidelines recommending a guided format, a treatment with an increasing evidence base [65]. Of note, the guideline from the United Kingdom favored guided cognitive-behavioral self-help treatment as a first-line treatment, likely for economic reasons, as described for BN. Interpersonal psychotherapy was further recommended by the majority of the guidelines, based on a small number of studies [52]. An explicit non-evidence-based recommendation for psychodynamic therapy was made by the German guideline only [66] reflecting healthcare system specificities, while family-based treatment was recommended for children and adolescents with BED by the Dutch guideline only, based on emerging evidence for family-based treatment of adolescents with BN [64]. A recommendation for nutritional counseling was made by two guidelines, which may reflect findings of lower efficacy of this treatment regarding binge-eating outcome [67^a].

Regarding the pharmacological treatment of BED, the majority of guidelines made a recommendation for SSRIs, which is in line with current literature [10^a], while only the WFSBP guideline recommended TCAs, based on studies published before 1999. Three guidelines recommended the use of the anticonvulsant topiramate; however, the drug's side-effects, especially cognitive impairment, have been noted [68]. Regarding antiobesity medications,

two guidelines recommended orlistat for weight loss in BED and BN [69,70] and sibutramine for binge eating in BED, the latter being withdrawn from many markets because of adverse cardiovascular events. Combined psychological and pharmacological treatment was recommended by two guidelines; however, this is not supported by current evidence [71^{**}].

Overall, consistency across guidelines seemed to be the greatest for psychological treatments and for single medications with a larger evidence base, while for psychological and medical treatments with a smaller evidence base, recommendations varied considerably, and expert consensus played a greater role. Regarding the dissemination and implementation of evidence-based treatments into clinical practice, the guidelines thus do endorse main empirically validated treatment approaches with considerable agreement, but beyond this, the variability is greater in what recommendations evidence-based clinical guidelines subsume. A larger evidence base is critical in offering clinically reliable and consistent guidance in eating disorders, and many important areas of future clinical research have been identified for all eating disorders at different ages, given the treatment gap and the research-practice gap described at the outset of this article [15^{**},22^{*}].

The available evidence is one reason for differences among guidelines. Among additional reasons, while several guidelines were issued within the past 3 years or are about to be published, the majority were 5 years and older. Especially for disorders such as BED with a large recent increase in clinical research, changes in recommendations over time are to be expected. Several recommendations were non-evidence-based and likely reflected particularities in healthcare systems, for example, the availability of outpatient, day patient, and inpatient settings or of therapists trained in a specific intervention. The guidelines differed as well in their scope, considering treatment in selected aspects (e.g., Denmark, France) or comprehensively (e.g., Germany, the United States). Some guidelines were created by one healthcare profession or one specialized professional organization only (e.g., the guidelines from the United States, WFSBP) and may thus reflect the view of this profession only. Most guidelines, however, pursued a multiprofessional approach in guideline development, and some of them noted the inclusion of other stakeholders as well. In fact, the current literature for guideline development advocates for broad stakeholder involvement of all relevant professions, healthcare providers, and patients (e.g., [25–27]) for optimal acceptance and implementation.

Another additional source for differences among guidelines may be how the evidence was examined, with guidelines based on meta-analyses (e.g., Germany, the United Kingdom), systematic reviews (e.g., Australia and New Zealand, the United States), or unsystematic reviews of the evidence (e.g., France). The transparency with which evidence was converted into specific recommendations further varied across guidelines; several guidelines explicitly evaluated the strength of evidence and provided clear rationale for a specific recommendation (e.g., Germany, the United Kingdom, WFSBP), while others did not (e.g., France), leaving the empirical foundation of a recommendation unclear. To develop a guideline, it has been recommended to use a systematic approach to evaluate the strength of evidence, for example the Grading of Recommendations Assessment, Development, and Evaluation [72], or the system of the Oxford Centre for Evidence-Based Medicine [26,73]. For some guidelines, only summary statements without the systematic review component were available in the review languages, making the empirical background of a recommendation difficult to understand (e.g., Denmark). Guidelines differed further in readability, with most guidelines providing clear or even standardized recommendations that were easily located (e.g., Germany, the United Kingdom), while others provided them in a more complex text format (e.g., the United States). Although these aspects are central to the quality of a guideline, it is notable that a systematic quality evaluation [74] of clinical eating disorder guidelines is currently lacking; this was considered to be beyond the scope of this treatment-oriented review but could help to systematically identify strengths and limitations of current eating disorder guidelines.

Strengths of this study were a systematic compilation of main treatment recommendations of current evidence-based eating disorders guidelines. Not within the scope of this review were: general setting-oriented recommendations (e.g., communication with the patient, therapeutic infrastructure, organization of transitions between different levels of care); methods for the identification, assessment, and diagnosis of eating disorders; and the practical applicability of the guidelines and their actual implementation in clinical settings. Several of these aspects warrant further investigation. One further limitation is that several guidelines had to be excluded from this review because of not meeting the language requirement. For further comparative research, it would be desirable to have guidelines published not only in the national language, but also in other languages for international reception.

CONCLUSION

The current systematic, international comparison demonstrated notable commonalities and differences among current evidence-based clinical guidelines for eating disorders. Currently, several evidence-based clinical guidelines for eating disorders are in progress (e.g., Germany, the United States). Because developing and updating clinical guidelines is time-consuming and complex, an international coordination of guideline development, for example, across the European Union, would be desirable. Collaborative efforts would need to carefully specify the goals and scope of a common 'guideline trunk' which should be based on an elaborated, quality-assuring developmental process, while accounting for different cultures and national requirements. European clinical studies on major research gaps could represent an important first step toward this end.

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Conflicts of interest

There are no conflicts of interest.

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Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

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Eating Disorders

Core interventions in the treatment
and management of anorexia
nervosa, bulimia nervosa and
related eating disorders



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National Clinical Practice Guideline Number CG9

developed by

National Collaborating Centre for Mental Health

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1 Introduction

This guideline has been developed to advise on the identification, treatment and management of the eating disorders anorexia nervosa, bulimia nervosa and related conditions. The guideline recommendations have been developed by a multidisciplinary group of health care professionals, patients and their representatives, and guideline methodologists after careful consideration of the best available evidence. It is intended that the guideline will be useful to clinicians and service commissioners in providing and planning high quality care for those with eating disorders while also emphasising the importance of the experience of care for patients and carers.

Eating disorders comprise a range of syndromes encompassing physical, psychological and social features. Whilst the acute physical complications of these disorders may provoke great concern in family members and health service staff, anorexia nervosa and bulimia nervosa are frequently chronic conditions with substantial long-term physical and social sequelae, from which recovery is difficult. Long-term disabilities include negative effects on employment, fertility, relationships and parenting. The impact of a person's eating disorder on home and family life is often considerable and family members may carry a heavy burden over a long period of time. Family members are often at a loss to know how to help and offer support to an affected relative.

About 1 in 250 females and 1 in 2000 males will experience anorexia nervosa, generally in adolescence or young adulthood. About five times that number will suffer from bulimia nervosa. Other atypical eating disorders are more common still, though many will not receive treatment. As eating disorders commonly develop during adolescence, they can blight physical and social development and many sufferers fail to reach their academic potential. Depressed mood is a common feature, partly because of these adverse consequences and also because of the distressing nature of the central symptoms of these disorders. The adverse physical consequences of dieting, weight loss and purging behaviours are notable and sometimes prove fatal. Indeed, anorexia nervosa has the highest mortality rate of any psychiatric disorder of adolescence.

The treatment experience of those with eating disorders is extremely variable. In part, this relates to the inherent ambivalence to treatment commonly experienced by those with these conditions. It is also due to the uneven provision of effective psychiatric treatments that range from high quality age-appropriate specialist eating disorder services, to basic generic provision in areas of the country where skills and experience are scarce. Sadly, a number of those with eating disorders will receive negative attitudes from inexperienced clinical staff and they may on occasion fear being trapped in treatment rather than helped by it.

This guideline addresses aspects of service provision, physical management and therapeutic approaches for those with eating disorders from the age of 8 upwards. Although the evidence base is rapidly expanding, there are a number of major gaps and future revisions of this guideline will incorporate new scientific evidence as it develops. The guideline makes a number of research recommendations specifically to address these gaps in the evidence base. In the meantime, we hope that the guideline will assist

clinicians, patients and carers by identifying the merits of particular treatment approaches where the evidence from research and clinical experience exists.

1.1 National guidelines

1.1.1 What are clinical practice guidelines?

Clinical practice guidelines are 'systematically developed statements that assist clinicians and patients in making decisions about appropriate treatment for specific conditions' (NHS Executive, 1996). They are derived from the best available research evidence, using predetermined and systematic methods to identify and evaluate the evidence relating to the specific condition in question. Where evidence is lacking, the guidelines will incorporate statements and recommendations based upon the consensus statements developed by the guideline development group.

Clinical guidelines are intended to improve the process and outcomes of health care in a number of different ways. Clinical guidelines can:

- Provide up-to-date evidence-based recommendations for the management of conditions and disorders by health care professionals
- Be used as the basis to set standards to assess the practice of health care professionals
- Form the basis for education and training of health care professionals
- Assist patients and carers in making informed decisions about their treatment and care
- Improve communication between health care professionals, patients and carers
- Help identify priority areas for further research.

1.1.2 Uses and limitations of clinical guidelines

Guidelines are not a substitute for professional knowledge and clinical judgment. Guidelines can be limited in their usefulness and applicability by a number of different factors: the availability of high quality research evidence, the quality of the methodology used in the development of the guideline, the generalisability of research findings and the uniqueness of individual patients.

Although the quality of research in eating disorders is variable, the methodology used here reflects current international understanding on the appropriate practice for guideline development (AGREE: Appraisal of Guidelines for Research and Evaluation Instrument; www.agreecollaboration.org), ensuring the collection and selection of the best research evidence available, and the systematic generation of treatment recommendations applicable to the majority of patients and situations. However, there

will always be some people and situations for which clinical guideline recommendations are not readily applicable. This guideline does not, therefore, override the individual responsibility of health care professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or carer.

In addition to the clinical evidence, cost-effectiveness information, where available, is taken into account in the generation of statements and recommendations of the clinical guidelines. While national guidelines are concerned with clinical and cost-effectiveness, issues of affordability and implementation costs are to be determined by the NHS.

In using guidelines, it is important to remember that the absence of empirical evidence for the effectiveness of a particular intervention is not the same as evidence for ineffectiveness. In addition, of particular relevance in mental health, evidence-based treatments are often delivered within the context of an overall treatment programme including a range of activities, the purpose of which may be to help engage the patient, and provide an appropriate context for the delivery of specific interventions. It is important to maintain and enhance the service context in which these interventions are delivered; otherwise the specific benefits of effective interventions will be lost. Indeed, the importance of organising care, so as to support and encourage a good therapeutic relationship, is at times as important as the specific treatments offered.

1.1.3 Why develop national guidelines?

The National Institute for Clinical Excellence (NICE) was established as a Special Health Authority for England and Wales in 1999, with a remit to provide a single source of authoritative and reliable guidance for patients, professionals and the public. NICE guidance aims to improve standards of care, to diminish unacceptable variations in the provision and quality of care across the NHS and to ensure that the health service is patient centred. All guidance is developed in a transparent and collaborative manner using the best available evidence and involving all relevant stakeholders.

NICE generates guidance in a number of different ways, two of which are relevant here. First, national guidance is produced by the Technology Appraisal Committee to give robust advice about a particular treatment, intervention, procedure or other health technology. Second, NICE commissions the production of national clinical practice guidelines focused upon the overall treatment and management of a specific condition. To enable this latter development, NICE has established seven National Collaborating Centres in conjunction with a range of professional organisations involved in health care.

1.1.4 The National Collaborating Centre for Mental Health

This guideline has been commissioned by NICE and developed within the National Collaborating Centre for Mental Health (NCCMH). The NCCMH is a collaboration of the professional organisations involved in the field of mental health, national patient and carer organisations, a number of academic institutions and NICE. The NCCMH is funded by NICE and is led by a partnership between the Royal College of Psychiatrists' research unit (College Research Unit – CRU) and the British Psychological Society's equivalent unit (Centre for Outcomes Research and Effectiveness – CORE). Members of the NCCMH reference group come from the following organisations:

- Royal College of Psychiatrists (RCPsych)
- British Psychological Society (BPS)
- Royal College of Nursing (RCN)
- Social Care Institute of Excellence (SCIE)
- College of Occupational Therapists (COT), now replaced by the Clinical Effectiveness Forum for the Allied Health Professions (CEFAHP)
- Royal College of General Practitioners (RCGP)
- Royal Pharmaceutical Society (RPS)
- Rethink Severe Mental Illness
- Manic Depression Fellowship (MDF)
- MIND
- Centre for Evidence Based Mental Health (CEBMH)
- Centre for the Economics of Mental Health (CEMH)
- Institute of Psychiatry (IoP).

The NCCMH reference group provide advice on a full range of issues relating to the development of guidelines, including the membership of experts, professionals, patients and carers within guideline development groups.

1.1.5 From national guidelines to local protocols

Once a national guideline has been published and disseminated, local health care groups will be expected to produce a plan and identify resources for implementation, along with appropriate timetables. Subsequently, a multidisciplinary group involving commissioners of health care, primary care and specialist mental health care professionals, patients and carers should undertake the translation of the implementation plan into local protocols taking into account both the recommendations set out in this guideline and the priorities set in the National Service Framework for Mental Health and related documentation. The nature and pace of the local plan will reflect local health care needs and the nature of existing services; full implementation may take a considerable time, especially where substantial training needs are identified.

1.1.6 Auditing the implementation of guidelines

This guideline identifies key areas of clinical practice and service delivery for local and national audit. Although the generation of audit standards is an important and necessary step in the implementation of this guidance, a more broadly-based

implementation strategy will be developed. Nevertheless, it should be noted that the Commission for Healthcare Audit and Inspection (CHAI) will monitor the extent to which these guidelines have been implemented by NHS Trusts and Local Health Boards and specialist secondary care trusts responsible for mental health and social care.

1.2 The national eating disorders guideline

1.2.1 Who has developed this guideline?

The Guideline Development Group (GDG) was convened by the NCCMH based upon advice from the Centre's reference group representatives, and supported by funding from NICE. The GDG included members from the following professional groups: psychiatry, clinical psychology, nursing, family therapy, social work and general practice. In addition, the GDG included a patient¹ and a representative of the Eating Disorders Association.

Staff from the NCCMH provided leadership and support throughout the process of guideline development, undertaking systematic searches, information retrieval, appraisal and systematic review of the evidence. Members of the GDG received training in the process of guideline development from the Centre for Evidence-Based Mental Health (CEBMH), and support from the NICE Patient Involvement Unit. The NICE Guidelines Technical Advisor provided advice and assistance regarding aspects of the guideline development process.

All GDG members made formal declarations of interest at the outset, which were updated at every GDG meeting. The GDG met a total of 23 times throughout the process of guideline development. The GDG formed sub-groups, or 'Topic Groups' for ease of evidence identification and analysis and to address identifiable treatment approaches. Each Topic Group was led by a national expert in the relevant topic and the groups supported by the NCCMH technical team, with additional expert advice from special advisors where necessary. Topic Groups oversaw the production and synthesis of research evidence before presentation to the wider GDG. All statements and recommendations in this guideline have been generated and agreed by the whole GDG.

1.2.2 For whom is this guideline intended?

This guideline will be of relevance to all people with a diagnosis of anorexia nervosa, bulimia nervosa or related eating disorders aged eight years of age and over. The guideline will not explicitly provide guidance on the diagnosis or treatment of people with eating disorders if there is a separate physical or other primary mental disorder of which a disorder of eating is a symptom. This may be dealt with in a future guideline.

¹ The term 'patient' was the preferred term for use in the guideline based on a survey of Eating Disorders Association members.

The guideline will review the issue of diagnosis and assessment, as many people suffer with eating disorders that fall outside established diagnostic criteria.

In sum, this guideline is intended for use by:

- Individuals with a diagnosis of anorexia nervosa, bulimia nervosa or related conditions aged eight years and over and their families/carers.
- Professional groups who share in the treatment and care for people with a diagnosis of an eating disorder, including psychiatrists, clinical psychologists, mental health nurses, community psychiatric nurses, social workers, practice nurses, dietitians, secondary care medical, dental, nursing and paramedical staff, occupational therapists, pharmacists, paediatricians, other physicians, general medical and dental practitioners, physiotherapists and family/other therapists.
- Professionals in other health and non-health sectors who may have direct contact with or are involved in the provision of health and other public services for those diagnosed with eating disorders. These may prison doctors, the police and professionals who work in the criminal justice and education sectors.
- Those with responsibility for planning services for people with a diagnosis of an eating disorder and their carers, including directors of public health, NHS trust managers and managers in PCTs.

The 'Information for the Public' version of this guideline, published by NICE, is a good starting point in providing patients with written information about the sort of care they can expect.

1.2.3 Specific aims of this guideline

The guideline makes recommendations for the identification, treatment and management of eating disorders. Specifically, it aims to:

- Evaluate the role of specific psychological interventions in the treatment and management of eating disorders.
- Evaluate the physical management and role of specific pharmacological agents in the treatment of eating disorders.
- Evaluate the role of specific service delivery systems and service-level interventions in the management of eating disorders.
- Integrate the above to provide best practice advice on the care of individuals with a diagnosis of an eating disorder throughout the course of the disorder.
- Promote the implementation of best clinical practice through the development of recommendations tailored to the requirements of the NHS in England and Wales.

2 Eating disorders

This guideline is concerned with the identification, treatment and management of anorexia nervosa and bulimia nervosa as defined in the 10th edition of the *International Classification of Diseases* (ICD 10) (WHO, 1992). The guideline does not address the management of loss of appetite, psychogenic disturbance of appetite or other conditions that involve significant weight loss but which are due to known physical illness. The guideline is also concerned with other related disorders that do not fulfil diagnostic criteria for anorexia nervosa or bulimia nervosa. These are generally called 'atypical eating disorders' (Fairburn & Harrison, 2003) or 'eating disorder not otherwise specified' (EDNOS) (APA, 1994). The American Psychiatric Association's *Diagnostic and Statistical Manual 4th Revision* (DSM-IV; APA, 1994) further describes the diagnostic category 'binge eating disorder' as a research diagnosis within EDNOS. (See Appendix 17 for further details on these diagnostic systems.)

2.1 Anorexia nervosa

2.1.1 Symptoms, presentation and patterns of illness

Anorexia nervosa is a syndrome in which the individual maintains a low weight as a result of a pre-occupation with body weight, construed either as a fear of fatness or pursuit of thinness. In anorexia nervosa, weight is maintained at least 15 per cent below that expected, or in adults body mass index (BMI) – calculated as weight in kilograms divided by height in metres squared – is below 17.5 kg/m². In younger people, the diagnosis may be made in those who fail to gain weight during the expected growth spurt of puberty, as they can become underweight without weight loss.

Weight loss in anorexia nervosa is induced by avoiding 'fattening foods', sometimes supported by excessive exercising or self-induced purging (by vomiting or misuse of laxatives). As a consequence of poor nutrition, a widespread endocrine disorder involving the hypothalamic-pituitary-gonadal axis develops, manifest in women by amenorrhoea and in men by a lack of sexual interest or potency. In prepubertal children, puberty is delayed and growth and physical development are usually stunted.

The subjective experience of anorexia nervosa is often at odds with the assessment of others. The conviction that weight control is desirable is usually strongly held, particularly when challenged and others are seen as mistaken in believing the person should gain weight, particularly where there is a marked disturbance of body image. Weight loss is experienced as a positive achievement and, therefore, may be strongly reinforcing to someone with low confidence and poor self-esteem. As a result, they will often deny the seriousness of the condition. The essential role of 'weight phobia' is increasingly being questioned however, and is believed by some to be culture specific.

The condition generally starts with dieting behaviour that may evoke no concern. Indeed, some will experience reinforcing compliments. After a while, however, the

commitment to dieting increases, often with a number of secondary features such as social withdrawal, rigidity and obsessiveness, particularly where these traits have previously been features of the person's personality. A number of secondary difficulties may develop including physical adverse effects, social isolation, compromise of educational and employment plans and occupation in the areas of leisure, self-care, daily living and productivity of employment and/or education. A smaller number will enter anorexia nervosa through a pattern of purging behaviour without dieting, following a viral illness, which resulted in weight loss that then became positively valued, or in the context of a chronic illness such as diabetes or Crohn's disease.

Typically individuals are persuaded to seek help by concerned family members, teaching staff or general practitioners with whom they consult about physical consequences. Sometimes, however, the person begins to appreciate the damaging effects of the disorder and may seek help in their own right. Children and adolescents are almost always brought to treatment, very rarely actively seeking help initially and can present more complex diagnostic challenges (Bryant-Waugh *et al.*, 1992).

2.1.2 Diagnosis

The diagnosis of anorexia nervosa in its typical form is a relatively straightforward one in older adolescents and adults. The diagnosis has good validity and reliability, the main obstacle to diagnosis being the person's own willingness or otherwise to disclose his or her motives, symptoms and behaviours. Thus, engagement in a supportive, empathic assessment interview is crucial in enabling the person to reveal fears around weight, dieting behaviour and any purging or other maladaptive behaviour such as excessive exercising. In the absence of this engagement, the individual may fail to reveal weight-controlling behaviours and collude with the doctor in pursuing physical investigations to explain the weight loss. In women, the presence of secondary amenorrhoea (i.e. cessation of menstruation after it has been established) or other physical features of starvation should always alert the physician to the possibility of this diagnosis. Diagnosis may be more problematic in children and younger adolescents, as the existing diagnostic criteria are insufficiently developmentally sensitive (Lask & Bryant-Waugh, 2000).

The diagnosis is made on the basis of the history, supported where possible by a corroborative account from a relative or friend. Physical examination, with measurement of weight and height and calculation of body mass index (BMI), can reveal the extent of emaciation. On occasion, clinical observation during a hospital assessment can enable characteristic behaviours to be observed. Physical investigations are less useful in making the diagnosis but are crucial in assessing the physical impact of the disorder and its complications. Depending on the results of the physical examination, these may include haematological tests, electrocardiography, radiological assessment and ultrasound (Royal College of Psychiatrists, 2002).

A diagnostic challenge occurs in those with comorbid physical disorders, such as diabetes, chronic bowel or thyroid disorder. In diabetes, the patient may be tempted to restrict insulin intake in order to lose calories, whilst on occasions the symptoms of organic intestinal disorder may mask the psychological condition.

The weight loss that occurs with the anorexia of depression can usually be distinguished from that resulting from the dietary control of anorexia nervosa, but the condition can

sometimes be difficult to distinguish from post-viral and other chronic fatigue syndromes where food intake is poor. Weight loss and limited food intake secondary to a brain tumour are also known to have been mistaken for anorexia nervosa.

2.1.3 Physical and social consequences

Although in the acute stages of anorexia nervosa subjective distress may be limited, emotional disturbance is common, chiefly comprising anxiety and mood symptoms. With time, emotional difficulties usually increase along with a range of physical and social difficulties, including becoming unable to care for oneself adequately, reducing or stopping leisure activities, interrupting educational goals and losing personal autonomy. These affect the person's quality of life and increase the reliance on and the importance of the eating disorder.

Depression is a common comorbid diagnosis, with rates of up to 63 per cent in some studies (Herzog *et al.*, 1992), while obsessive-compulsive disorder (OCD) has been found to be present in 35 per cent of patients with anorexia nervosa (Rastam, 1992).

Physical problems can be classified as those due to the effects of starvation and the consequences of purging behaviour. Starvation affects every system in the body. In the musculo-skeletal system, this will be evident as weakness, loss of muscle strength (which also affects heart muscle), loss of bone density and impairment of linear growth. Young women with anorexia nervosa are at increased risk of bone fractures later in life (Lucas *et al.*, 1999). The effects on the endocrine system have their impact on target organs, causing infertility, a risk of polycystic ovaries and loss of bone mineralisation. Where pubertal development has not been completed, incomplete development of secondary sexual characteristics may occur (Goldbloom & Kennedy, 1995) and permanent stunting of growth is common. Patients with anorexia nervosa have disorders in the reproductive hormones (low LH and FSH), suppressed TSH, growth hormone resistance and raised cortisol levels. The effects of purging are described in Section 7.5.2, including long-term disabilities such as erosion of tooth enamel sometimes amounting to destruction of the whole dentition. Worn painful teeth can be a considerable concern to the patient in terms of comfort, appearance and, therefore, self-esteem.

Brain volume is reduced in anorexia nervosa (Dolan, Mitchell & Wakeling, 1988; Kohn *et al.*, 1997; Kingston, Szmukler, Andrewes, Tress & Desmond, 1996; Krieg, Pirke, Lauer & Backmund, 1988; Swayze *et al.*, 1996). There are two small longitudinal studies, which have examined the structural changes in the brain of adolescents after full weight gain (Golden *et al.*, 1996; Katzman *et al.*, 1996). Both found persistent deficits in grey matter (cell bodies of neurons and glial cells) although there was recovery of white matter (mainly myelinated axons). This supports the finding of grey matter deficits in people who have made a full recovery from their eating disorder (Lambe, Katzman, Mikulis, Kennedy & Zipursky, 1997). One post-mortem study reported that there was a reduction in basal dendritic fields and dendritic spine density (Neumarker *et al.*, 1997).

Many of the cognitive deficits in anorexia nervosa are restored after weight recovery. However, some abnormalities in executive function remain after weight restoration. For example, people with eating disorders have scores greater than one standard deviation from the norms on tests of perceptual rigidity, perseveration and set shifting and the neurological sign dysdiadokinesis (Tchanturia, Morris, Surguladze & Treasure, 2002).

Although little is known of the effects short or long term of extreme weight loss on brain development and function in children, it is possible that such weight loss may have both short and long-term effects on cognitive functioning.

Social difficulties may result in continued dependence on family of origin into adult life and often include difficulties engaging in intimate relationships. Employment prospects may be adversely affected either because of the limitations of the disorder or the disruption caused by lengthy hospitalisations.

2.1.4 Course and prognosis

The course of anorexia nervosa is very variable. There is no good evidence on the prognosis for people with anorexia nervosa who do not access formal medical care (Treasure & Schmidt, 2002). A summary of 68 treatment studies published before 1989 with a length of follow-up of one to 33 years, found that 43 per cent of people recover completely, 36 per cent improve, 20 per cent develop a chronic eating disorder and five per cent die from anorexia nervosa (Steinhausen, 1995). The overall mortality in these long-term studies ranged from 0–21 per cent from a combination of physical complications and suicide. The all-cause standardised mortality ratio anorexia nervosa has been estimated at 9.6 (95 per cent Confidence Interval 7.8 to 11.5) Nielsen (2001), about three times higher than other psychiatric illnesses. The average annual risk of mortality has been calculated at 0.59 per cent per year in females averaged from 10 samples, with a minimum follow-up of six years (Nielsen *et al.*, 1998). The mortality rate appears to be higher for people with lower weight during their illness and those presenting between 20 and 29 years of age.

A number of those with anorexia nervosa progresses to other eating disorders, particularly bulimia nervosa, but also binge eating disorder, highlighting the relationship between the disorders. Movement in the other direction is less common, but a number of those with anorexia nervosa gives a premorbid history of obesity in childhood or adolescence.

2.1.5 Anorexia nervosa in children and adolescents

Although the essential psychological features are similar, children and younger adolescents may present with delayed puberty or stunted growth as well as weight loss. Parents or teachers are generally the ones who raise concern and the young person may resist medical attention. Some young people will voice anxieties around unwanted aspects of development, particularly if they have experienced early puberty or feel unable to engage with their peers' increasing adolescent independence and social experimentation. In some, bullying or teasing about weight may have provoked this concern.

Although the principles of making the diagnosis are the same as in adults and are often straightforward, the greatest diagnostic difficulty occurs in the youngest cases. In children between the ages of around eight and 12, the condition is less common than in older individuals and should be distinguished from other types of eating disturbance seen in middle childhood, such as selective eating and food avoidance emotional disorder. By definition feeding disorder of infancy and childhood has onset below age six. In pubescent cases with primary amenorrhoea, it can sometimes be difficult to judge whether puberty has been delayed from the normal variation in timing of puberty.

Reference to height and weight centile charts is useful in evaluating weight in comparison to height. It is particularly helpful to compare presenting centiles for weight and height with historical values, as these may identify stunting of height (where the young person has crossed height centile lines). The result of such stunting is that the person may not appear unduly thin, though his or her weight may be considerably below the projected level as indicated by premorbid height and weight. It is also helpful to plot body mass index on BMI centile charts, as BMI norms are not stable over age. Average BMI increases with age during childhood and adolescence, a BMI of 17.5 kg/m² being close to the mean for a child at the age of 12 (Cole *et al.*, 1995).

In children and adolescents with atypical presentations of an eating disorder, consideration should be given to the possibility of separate underlying physical pathology. In these circumstances the involvement of a paediatrician should be considered.

The prognosis for children and adolescents with anorexia nervosa is variable. Some (particularly those with a rapid and early onset) will make a full recovery from a first episode. This is most likely where early physical and psychosocial development has been healthy and where there is an identified precipitating negative life event such as bereavement (North *et al.*, 1997). In such cases and where onset is pre-pubertal, physical consequences such as stunted growth and pubertal delay are usually fully reversible. Others with a more insidious onset, with earlier social difficulties or abnormal personality development, may go on to have a more chronic course into middle age (Gowers *et al.*, 1991).

2.2 Bulimia nervosa

2.2.1 Symptoms, presentation and pattern of illness

Bulimia nervosa is characterised by recurrent episodes of binge eating and secondly by compensatory behaviour (vomiting, purging, fasting or exercising or a combination of these) in order to prevent weight gain. Binge eating is accompanied by a subjective feeling of loss of control over eating. Self-induced vomiting and excessive exercise, as well as the misuse of laxatives, diuretics, thyroxine, amphetamine or other medication, may occur. As in anorexia nervosa, self-evaluation is unduly influenced by body shape and weight, and there may indeed have been an earlier episode of anorexia nervosa. The diagnosis of anorexia nervosa is given precedence over bulimia nervosa; hence in bulimia nervosa BMI is maintained above 17.5 kg/m² in adults and the equivalent in children and adolescents (see Section 2.1.5). There is some controversy concerning whether those who binge eat but do not purge should be included within this diagnostic category. The ICD10 criteria (WHO, 1992) stress the importance of purging behaviour on the grounds that vomiting and laxative misuse are considered pathological behaviours in our society in comparison to dieting and exercise. The DSM-IV criteria (APA, 1994) agree about the importance of compensatory behaviour but distinguish between the purging type of bulimia nervosa in which the person regularly engages in self-induced vomiting or the misuse of laxatives, diuretics or enemas, from the non-purging type in which other inappropriate compensatory behaviours such as fasting or excessive exercise occur but not vomiting or laxative misuse.

People with bulimia nervosa tend to not disclose their behaviour nor to seek out treatment readily although may be more likely to do so than those with anorexia nervosa. The condition appears to be subjectively less 'valued' than anorexia nervosa; indeed binge eating and purging are commonly associated with extreme subjective guilt and shame. These emotions are sometimes reinforced by the pejorative language used by relatives and others including some clinicians, who may refer to 'confessing' or 'admitting' to purging behaviour. A person's ambivalence towards treatment often arises from the fear that they will be stopped from vomiting and purging and then left to face the consequences of their binge eating, i.e. excessive weight gain.

The condition usually develops at a slightly older age than anorexia nervosa (the mean age of onset is 18 to 19, compared to 16 to 17 for anorexia nervosa). Bulimia nervosa sometimes arises from a pre-existing anorexic illness. Where this is not the case the development of the disturbance is often essentially similar to that of anorexia nervosa, arising from a background of attempts to restrain eating. In bulimia nervosa however, dietary restriction cannot be maintained and is broken by episodes of reactive binge eating, which result from a combination of physiological and psychological factors. Compensatory behaviours follow in order to counteract the effect of binge eating on weight. The person, therefore, maintains a weight, usually within the normal range despite overeating but commonly progresses into a vicious cycle of attempted dieting, binge eating and compensatory purging, frequently on a daily basis. As these behaviours dominate daily life, the person becomes preoccupied with thoughts of food and life may be re-organised around shopping, eating and purging behaviour. Initially, those with bulimia nervosa are generally secretive about their bulimic episodes, though some may leave obvious signs of their disorder such as empty food packaging and occasionally bags of vomit for other family members to discover.

Bulimic episodes are frequently planned, with food purchased or prepared in order to be consumed without interruption. The individual may also avoid situations in which they are likely to be exposed to food or will find it difficult to control their eating, such as when eating out with others. This avoidance behaviour tends to add to any social and relationship difficulties that may be present.

Mood disturbance is extremely common in bulimia nervosa and symptoms of anxiety and tension are frequently experienced. Self-denigratory thoughts may develop out of disgust at overeating or purging whilst low self-esteem and physical self-loathing may in some be rooted in the past experience of physical or sexual abuse. Self-harm, commonly by scratching or cutting, is common. A significant proportion of those with bulimia nervosa have a history of disturbed interpersonal relationships with poor impulse control. Some will abuse alcohol and drugs.

2.2.2 Diagnosis

As in anorexia nervosa, the diagnosis depends on obtaining a history supported, as appropriate, by the corroborative account of a parent or relative. This will require an empathetic, supportive, non-judgemental interview style in which the person is enabled to reveal the extent of his or her symptoms and behaviours. Although those with bulimia nervosa generally have fewer serious physical complications than those with anorexia nervosa, they commonly report more physical complaints when first seen. They may complain of fatigue, lethargy, or feeling bloated, and they may suffer constipation,

abdominal pain and on occasions swelling of the hands and feet or irregular menstruation. There may also be erosion of dental enamel in which the lingual surface of the upper teeth is mainly affected, and it has been argued that this is virtually pathognomonic of vomiting (Mitchell, 1995).

Physical examination is often normal, though the salivary glands (particularly the parotid glands) may be enlarged. Calluses on the back of the hand may be found; these result from the use of the hand to stimulate the gag reflex and induce vomiting. Oedema is common in those who have used laxatives or diuretics whilst these behaviours also lead to fluid loss and subsequent dehydration, which in turn may result in a metabolic alkalosis. This is generally accompanied by hypochloraemia and hypokalaemia. Overall, about 10 per cent of those with bulimia nervosa have electrolyte abnormalities detected on routine screening (Mitchell, 1995). Metabolic acidosis can also occur in patients who are abusing laxatives as a result of the loss of bicarbonate from the bowel. Less commonly hyponatraemia, hypocalcaemia, hypophosphataemia and hypomagnesaemia may develop.

In the gastrointestinal system, oesophagitis may occur. Gastric dilatation that poses the risk of gastric rupture and death occurs rarely but may be the most common cause of fatality (Mitchell, 1997). Constipation is extremely common, mainly due to dehydration; steatorrhoea and protein losing gastroenteropathy have also been reported secondary to laxative abuse. Severe use of laxatives has been reported to cause cardiomyopathy and other types of myopathic disorder as a result of storage of Ipecac in muscle tissue (Mitchell, 1995). Electrocardiography may indicate heart conduction abnormalities and possibly an increase in the risk of mitral valve prolapse.

Abnormal electroencephalographic (EEG) findings have been reported probably secondary to fluid and electrolyte abnormalities; there does not seem to be an association between bulimia nervosa and epilepsy.

Endocrine abnormalities are variable. These include abnormalities in the menstrual cycle and blunting of the thyroid stimulating hormone and growth hormone response to thyroid releasing hormone.

2.2.3 Impairment and disability

There is considerable overlap between the long-term disabling consequences of bulimia nervosa and those of anorexia nervosa. Mood and anxiety symptoms are very common. These symptoms, low self-esteem and body image disturbance can all have a negative effect on social relationships, which in turn may be damaged by a lifestyle that may be chaotic and characterised by impulsivity.

The adverse physical consequences of purging behaviour have been identified in Section 7.5.2. In addition, those with bulimia nervosa may be at risk from the effects of alternating weight loss and weight gain.

Lissner *et al.* (1991) in a series of 3130 participants found that both all-cause and coronary heart disease mortality were increased significantly in both men and women with high levels of weight variability. Morbidity from coronary heart disease was also increased.

Estimates of the prevalence of the diagnoses of personality disorder in people with bulimia nervosa have ranged from 21 per cent to 77 per cent. Obsessive-compulsive and avoidant personality disorders (Cluster C) have been described frequently (Braun *et al.*, 1994). The relationship of borderline personality disorder to bulimia nervosa has been a source of considerable debate (Wonderlich, 1995) with reported rates ranging from two per cent to 47 per cent, these rates apparently influenced by subject and measurement variability across studies, thus BPD probably occurs no more frequently than other PDs in bulimia nervosa.

2.2.4 Course and prognosis

There have been few studies with a lengthy follow-up period of the course and outcome of bulimia nervosa in the community. Many people with bulimia nervosa are not receiving any form of help (Hsu, 1995). Of these, the majority will suffer chronicity or a relapsing course, maintained by over-valued belief in the importance of appearance and thinness in particular (Fairburn *et al.*, 2000). With the most effective treatments about 50 per cent of people with bulimia nervosa can be expected to be asymptomatic two to 10 years after assessment. Twenty per cent are likely to continue with the full form of bulimia nervosa whilst the remainder (30 per cent) have a course of illness characterised either by remissions or relapses or persistent but subdiagnostic bulimia (Hsu, 1995). One 10-year follow-up study of 50 people with bulimia nervosa found that 52 per cent had fully recovered and only nine per cent continued to experience symptoms of bulimia nervosa (Collings & King, 1994). A larger study of 222 followed-up for a mean of 11 years revealed that 11 per cent still met criteria for bulimia nervosa whereas 70 per cent were in full or partial remission (Keel *et al.*, 1999).

There are few consistent predictors of longer-term outcome, though a number of studies have shown strong associations between weight fluctuation (which commonly occurs in bulimia nervosa) and negative health outcomes. Patients with the uni-impulsive form of the illness without additional control difficulties are also thought to do better. The mortality rate associated with bulimia is uncertain but may be higher than in the matched general population (Hsu, 1995).

2.2.5 Bulimia nervosa in children and adolescents

The full syndrome of bulimia nervosa is rarely seen in young people under the age of 14 (Bryant-Waugh & Lask, 1995). Indeed in these authors' uniquely specialised clinic fewer than five per cent of children under the age of 14 presenting with eating disorders were diagnosed with bulimia nervosa. Where these presentations occurred the clinical features were the same as found in the older age group. Young people with this disorder were also, in common with adults with the same diagnosis, depressed and suffered poor self image (Bryant-Waugh & Lask, 1995). There is no substantial literature on treatment or outcome in this age group. Adolescents with bulimia nervosa may sometimes be considered to be suffering incipient personality disorder, though caution should be exercised in diagnosing personality disorder before development is completed. In these cases it can be difficult to judge whether the eating disorder is contributing to abnormal personality development or conversely, if the personality difficulties have acted as a risk factor for the development of bulimia nervosa.

Since bulimia nervosa is very rarely seen in children and uncommonly in younger adolescents, and there has been no research on the treatment of adolescents with bulimia nervosa, in line with much current clinical practice and taking into account the above issues, the GDG took the view that, subject to adaptation to their age, circumstances and level of development, adolescent patients with bulimia nervosa should receive the same type of treatment as adults with the disorder along with appropriate family involvement.

2.3 Atypical eating disorders (eating disorders not otherwise specified; EDNOS) including binge eating disorder

2.3.1 Symptoms, presentation and pattern of illness

A number of people suffer from eating disorders that closely resemble anorexia nervosa and bulimia nervosa, but which are considered atypical, as they do not meet the precise diagnostic criteria for these conditions (Fairburn & Harrison, 2003; Turner & Bryant-Waugh, 2003; Ricca *et al.*, 2001). In Europe, these are often termed 'atypical eating disorders' (Fairburn & Harrison, 2003), the equivalent American term being 'eating disorders not otherwise specified' (American Psychiatric Association, 1994). For example, the patient's weight might be just above the diagnostic threshold for anorexia nervosa or she might still be menstruating. Binge eating and purging may occur less frequently than specified for a diagnosis of bulimia nervosa. Over concern with weight and shape is generally present in these disorders, although in some the primary focus is on maintaining strict control over eating. Although the diagnostic criteria may not be met, many atypical eating disorders are as severe and long lasting as anorexia nervosa and bulimia nervosa. Patients' treatment needs and prognosis may be virtually identical.

Binge eating disorder (BED) is a recently described condition, first defined as a research category in DSM-IV (APA, 1994), though there is some overlap with the ICD 10 category 'Overeating associated with other psychiatric disturbance' (F50.4) (WHO, 1992). In BED, individuals engage in uncontrollable episodes of binge eating but do not use compensatory purging behaviours. These binge eating episodes are associated with three or more of the following:

- Eating much more rapidly than normal
- Eating until feeling uncomfortably full
- Eating large amounts of food when not physically hungry
- Eating alone through embarrassment at the amount one is eating
- Feeling disgust or extreme guilt after overeating.

Marked distress regarding binge eating is present and social avoidance is common.

2.3.2 Diagnosis

Atypical eating disorders are conditions of clinical severity that do not conform to the diagnostic criteria for anorexia nervosa or bulimia nervosa. An example would be someone with extreme dietary restraint, who exercised excessively to control weight, which was maintained in the low normal range. This condition would also include those with the features of anorexia nervosa at low weight who are still menstruating. Many people with atypical eating disorders have suffered with anorexia nervosa or bulimia nervosa in the past.

In comparison with anorexia nervosa and bulimia nervosa, far less is known about binge eating disorder (Fairburn & Harrison, 2003). Apart from binge eating, its systematic profile overlaps little with the other eating disorders. Defining binge eating can be problematic and there may be a discrepancy between the subjective experience and clinical assessment of a binge. The onset of binge eating disorder is usually in the teenage years or early 20s, but people tend to present later, typically in their 30s or 40s, when they have become overweight or obese. The sex ratio is more even and binge eating generally occurs against a background of a tendency to overeat rather than of dietary restraint. Many people with binge eating disorder are obese. By definition self-induced vomiting and laxative misuse are not present or only occasionally present. Depressive features and dissatisfaction with shape is common, though over-evaluation of the importance of weight and shape is less marked than in bulimia nervosa.

As with the other eating disorders, the diagnosis of binge eating disorder is made on the basis of the history, with physical investigations being used to assess any physical consequences. Observation and assessment in hospital is rarely indicated, though where available as part of a day programme, assessment of meal preparation and eating may be a useful adjunct to treatment planning.

2.3.3 Impairment and disability

Where atypical eating disorders are similar to the full syndromes of anorexia and bulimia nervosa, the physical dangers and psychosocial impairments closely resemble those of the diagnostic conditions. Many of those with BED will suffer similar physical complications of binge eating to those with bulimia nervosa, though purging carries greater physical risk than binge eating. Those who are obese are at risk of the psychological and physical disabilities associated with this condition, namely low self-esteem, diabetes, heart disease, hypertension and stroke.

2.3.4 Course and prognosis

The prognosis for those disorders that resemble anorexia nervosa and bulimia nervosa depends on the severity of the associated physical and psychological features. Those with binge eating disorder typically give long histories of proneness to binge eating but these may alternate with extended periods free from binge eating. The spontaneous remission rate may be high (Fairburn *et al.*, 2000). Short-term response to treatment appears better than for anorexia nervosa and bulimia nervosa but there are as yet no studies of long-term course or outcome. There is a certain amount of movement from one diagnosis to another, thus those with atypical eating disorders may go on to develop bulimia nervosa, or more rarely anorexia nervosa.

2.3.5 Atypical eating disorders in children and adolescents

Atypical eating disorders are relatively commonly diagnosed in childhood, in part because of the difficulty in strictly applying existing diagnostic criteria for anorexia nervosa and bulimia nervosa, and in part because of an ongoing lack of clarity about the classification of eating disturbances in this age group. Children and younger adolescents may present with a range of other types of clinical eating disturbance, which may be different in terms of psychopathology to anorexia nervosa/bulimia nervosa presentations (Cooper *et al.*, 2002). They frequently develop in those who have suffered feeding disorders of childhood and sometimes the distinction (particularly in middle childhood) can be a difficult one. Some have suggested that atypical eating disorders probably occur more commonly (Bryant-Waugh, 2000) and some have suggested modification to the ICD10 criteria for the diagnosis of eating disorders in children is required. Binge eating disorder has not been systematically investigated in this age group.

2.4 Incidence and prevalence of eating disorders

The incidence of anorexia nervosa in the general population has been calculated from 12 cumulative studies at 19 per 100,000 per year in females and two per 100,000 per year in males (Pawluck & Gorey, 1998). The highest rates in this study were in female teenagers aged 13 to 19 years where there were 50.8 cases per 100,000 per year. A large Swedish cohort of 16-year-old schoolchildren who were assessed in a two stage screening process gave a prevalence for anorexia nervosa of seven per 1000 girls and one per 1000 boys (Rastam *et al.*, 1989). Anorexia nervosa has long been considered a culture bound syndrome; until recently the condition was thought to be extremely rare in developing countries and black populations. Although there is growing evidence of the existence of eating disorders in a range of cultures, little is known of the incidence or prevalence in Asia, South America or Africa (Treasure & Schmidt, 2002), owing in part to differential rates of awareness and detection.

In community-based studies, the prevalence of bulimia nervosa has been estimated between 0.5 per cent and 1.0 per cent in young women with an even social class distribution (Hay & Bacaltchuk, 2001). About 90 per cent of people diagnosed with bulimia nervosa are female. The numbers of presentations of people with bulimia nervosa in developed countries increased steadily during the 1980s and 1990s; in addition, community surveys suggest a true increase in incidence during this period (Hall & Hay, 1991). The prevalence of eating disorders appears to be lower in developing countries and in rural areas. In Britain, young Muslim Asian women may be at particularly high-risk of developing bulimia nervosa (Mumford & Whitehouse, 1988).

Less is known about the prevalence of binge eating than of bulimia nervosa (Fairburn, Hay & Welch, 1993). This is because two stage surveys designed to detect cases of bulimia nervosa have not generated figures for the prevalence of binge eating and secondly because of variability in interpretation of the term 'binge eating'. Often self-report questionnaires are employed to elicit this behaviour with the possibility of discrepancy between lay and clinical uses of the term. Beglin and Fairburn (1992) have shown that there is relatively poor agreement between self-reported binge eating and the eliciting of this behaviour by the Eating Disorder Examination administered by interview. Probably because of these problems of definition and assessment Fairburn and

Beglin (1990) found great variability in the figures available on the prevalence of binge eating. A review of 16 studies reported a range of seven per cent to 79 per cent for current 'binge eating' and 11 studies revealed a range of five per cent to 39 per cent reporting at least weekly binge eating. Within the normal weight sub group (i.e. those with a BMI below 25 kg/m²) only 1.7 per cent of a subsequent study (Fairburn, Beglin & Davies, 1992) reported weekly binge eating. Thus, binge eating does not appear to be a common behaviour even among young women, though further research is necessary to estimate its prevalence with confidence.

Despite some shortcomings in epidemiological measurement in the area of binge eating, two large population-based studies have estimated the prevalence of binge eating disorder using semi-structured interviews. Hay (1998) gives a prevalence of one per cent for women, while Kinzl *et al.* (1999) estimate this at 3.3 per cent for women and 8.5 per cent for those with obesity. A further epidemiological study by Fairburn *et al.* (1992) sampled 285 women aged 16 to 35 years at random from general practice case registers. In total, 243 agreed to be interviewed using the EDE. Twenty-one (8.6 per cent) reported at least one binge over the previous month whilst 10 reported at least an average of one weekly binge and four (1.7 per cent) at least eight episodes in four weeks, a rate sufficient to make a diagnosis of bulimia nervosa or binge eating disorder.

2.5 The aetiology of eating disorders

The aetiology of eating disorders in common with most other psychiatric disorders is generally considered to be multifactorial; no single aetiological factor in isolation can account for the development of the disorder in an individual, nor can it be seen to account for the variation among individuals (Cooper, 1995). Whether or not a person develops an eating disorder will depend on their individual vulnerability, consequent on the presence of biological or other predisposing factors, their exposure to particular provoking risk factors and on the operation of protective factors. Following the establishment of the disorder a further combination of risk and protective factors may act to maintain the condition or determine whether an individual recovers.

Much of the research in this area suffers from methodological weakness. Firstly much of it has been based on clinical samples often attending specialist eating disorder clinics, which may result in selection biases. Few studies have included the appropriate control groups required to judge whether any putative aetiological factor is specific to eating disorders or might play a role in the development of psychiatric disorder in general. Secondly, a great deal of the published literature concerns cross-sectional or retrospective research. Where the onset of disorder is insidious, it is not always clear whether such factors are causes or consequences of the disorder. This is particularly true of family or life event research where the independence of any event may not be clear. Finally, few studies have included the person's own perspective about his or her eating disorder. One recent study (Tozzi *et al.*, 2003), suggested that those with anorexia nervosa perceived dysfunctional families, dieting behaviour and stressful life events as the main causes of their condition.

A recent meta-analysis of prospective and experimental studies has systematically reviewed the evidence for aetiological and maintaining factors (Stice, 2002).

2.5.1 Genetic factors

The majority of family studies have shown that eating disorders run in families. In a large case-control family study (Strober *et al.*, 2000), female relatives of those with anorexia nervosa were 11.4 times as likely to suffer the disorder than relatives of control subjects, while female relatives of those with bulimia nervosa were 3.7 times as likely to suffer with bulimia. Some family studies have also reported familial aggregation of milder sub-diagnostic eating disorders or related concerns (Strober, 2000). The prevalence of full and partial bulimia nervosa has been shown to be more common in female relatives of those with anorexia nervosa than in relatives of control subjects and vice versa. These findings suggest that eating disorders form a spectrum of clinical severity in which there is a continuum of familial liability. The aggregation of full and subclinical eating disorders suggests that genetic factors are likely to be involved in causation. A twin study of anorexia nervosa has estimated the heritability to be 58 per cent (95 per cent Confidence Interval 33 per cent to 77 per cent) with the remaining variance explained by non-shared environment (Wade *et al.*, 2000). Genetic factors are also purported to play a role in the aetiology of bulimia nervosa (Kendler *et al.*, 1991). Fifty-four per cent to 83 per cent of the variance in liability has been thought to be due to common genetic factors (Bulik *et al.*, 2000), but again the confidence intervals around the estimation of heritability are broad, thus the relative contribution of genetic to other factors is unclear. The contribution of twin studies to the estimates of heritability of eating disorders has been criticised (e.g. Fairburn *et al.*, 1999) on the grounds of ascertainment bias, small sample sizes or violation of the equal environment assumption, which assumes that both identical and non-identical twins are equally exposed to aetiological environmental factors.

2.5.2 Physical risk factors

A history of premorbid obesity has been documented in series of those with both anorexia nervosa (seven to 20 per cent) and bulimia nervosa (18 to 40 per cent) (Cooper, 1995) as has constitutional leanness/thinness. There is prospective evidence that this experience leads to a propensity to an increase in body dissatisfaction and likelihood of dieting behaviour (Stice, 2002) as well as greater self-evaluation in terms of weight. However, there is little prospective evidence that high body mass leads to an increase in eating pathology.

Early feeding difficulties in infancy or early childhood are often documented but it is unclear whether this constitutes a physical risk factor or is related to the mother child relationship.

Although a range of neuro-endocrine and metabolic disturbances occurs in those with eating disorders, the evidence suggests that these disturbances are secondary rather than primary to the disorder.

Early menarche has long been considered a risk factor for eating disorder through a putative relationship with adiposity and body dissatisfaction.

The dietary restraint model suggests that calorie restriction increases the risk for binge eating and bulimia nervosa. Although dieting appears to increase negative affect and may contribute to eating difficulties, dieting has a small effect size in the contribution to the development of eating pathology (Stice, 2002).

2.5.3 Adverse life events and difficulties

Severe life stresses have been implicated in the aetiology of both anorexia nervosa and bulimia nervosa, with approximately 70 per cent of cases being triggered by severe life events or difficulties. These stresses most commonly occur in the area of close relationships with family or friends (Schmidt et al., 1997, Welch et al., 1997). One controlled study of anorexia nervosa in adolescents (North et al., 1997) suggested that a severe independent negative life event had occurred in the year before onset of approximately one quarter of an adolescent series and this was associated with a good prognosis. Particular attention has focused on the experience of childhood sexual abuse as a potential predisposing factor. There is little persuasive evidence that either sexual abuse or other stressful life events are specific predisposing factors for eating disorders rather than psychiatric disorder *per se*. Childhood sexual abuse did not emerge as a significant predictor of the onset of binge eating in the only prospective study to date (Vogelantz-Holm et al., 2000)

2.5.4 Family factors

Mounting evidence from family studies suggests increased rates of affective disorder among first and second degree relatives of people with both anorexia nervosa and bulimia nervosa. This is three times greater than for relatives of normal control participants (Cooper, 1995). Several family studies have revealed higher rates of alcohol abuse among first degree relatives of those with bulimia nervosa but again, the specificity to eating disorder as opposed to psychiatric disorder in general is unclear. A family history of substance abuse may however be a specific risk factor for bulimia nervosa (Cooper, 1995).

A number of studies have looked at family environment and functioning. There are difficulties extrapolating from disturbance within the family after the disorder has developed and assuming that it predated the onset of disorder. Prospective studies have to date failed to provide support for the causative role of dysfunctional family systems (Stice, 2002). Familial faddy eating and undue concern about the importance of weight and shape have been described in family members of those with eating disorders and may contribute to weight and shape concern in vulnerable adolescents (Gowers & Shore, 2001). There is also growing evidence of disturbance of eating in the children of mothers with eating disorders (Stein, 1995) but it is as yet unclear whether these children will be at risk of anorexia and bulimia nervosa in their own adolescence. One controlled study demonstrated a style of 'high concern' parenting in a number of adolescent cases of anorexia nervosa, which arose in infancy and long predated the onset of eating difficulties. In a quarter of cases, this followed an earlier severe obstetric tragedy prior to the subject's birth. These rates were significantly higher than in a matched control group (Shoebridge & Gowers, 2000) and challenge the notion that observed parenting styles are solely a response to the development of an eating disorder in adolescents.

2.5.5 Socio-cultural factors

A number of socio-cultural theories have been put forward to explain the aetiology of eating disorders. Such theories include the meaning of weight and shape for women in

different cultures and the impact of advertising and other media. It is argued that societal pressure to be thin fosters an internalisation of a thin ideal and body dissatisfaction, which in turn leads to dieting behaviour and places the person at risk for eating pathology (Striegel-Moore *et al.*, 1986). This perceived pressure does appear to predict dieting and eating pathology (Stice, 2002). Furthermore, in prospective studies perceived pressure to be thin predicted the onset of binge eating, bulimic symptoms and increases in eating pathology (Stice, 2002).

2.5.6 Perfectionism

This personality trait has long been considered a risk factor for eating pathology as it may promote the relentless pursuit of the 'thin ideal'. Fairburn (1997) has implicated perfectionism as a maintenance factor for bulimic pathology as it encourages rigid dieting thought to underlie the binge-purge cycle. Meta-analysis of prospective studies provides support for the notion of perfectionism as a risk factor for bulimic pathology and a maintenance factor for more general eating pathology (Stice, 2002).

2.5.7 Impulsivity

General problems in the area of impulse control have been proposed as risk factors for eating pathology as they may render the individual vulnerable to episodes of uncontrollable binge eating (Hawkins & Clement, 1984). The empirical support for this association is weak (Stice, 2002), however some indirect support is offered by the finding of an association between substance use and bulimic pathology (Stice & Agras, 1998).

2.6 Use of health service resources

Eating disorders can be chronic, recurrent mental disorders with important psychiatric co-morbidities (depression, generalised anxiety disorder, alcoholism, phobias, panic disorder and post-traumatic stress disorder) and physical complications such as cardiovascular and renal problems, gastrointestinal disturbance, fluid and electrolyte abnormalities, menstrual and fertility problems, osteoporosis and osteopenia, dental and dermatological abnormalities (Fairburn & Brownell, 2001). As such they can place considerable burdens on the health care system. Eating disorders are at 15th place among the top 20 causes of disability in Australian women measured in years lost due to disability (Vos *et al.*, 2001). Similar rates probably apply in the UK.

In an Australian burden of mental diseases study (Vos *et al.*, 2001), the estimated average duration for anorexia and bulimia nervosa was eight and five years, respectively. These assumptions were based on follow-up studies reporting 24 per cent persistence of anorexia nervosa after 10 to 15 years and 20 per cent persistence of bulimia nervosa after five to 10 years (Strober *et al.*, 1997; Keel & Mitchell, 1997). Anorexia nervosa has the highest mortality rate for any psychiatric condition from the effects of starvation or by committing suicide. At 10-year follow-up the standardised mortality ratio was six per cent, at 20-year follow-up the mortality rate was estimated to be 13 to 20 per cent (Howlett *et al.*, 1995). The annualised mortality rate for individuals with anorexia nervosa was found to be 0.56 per cent in a meta-analysis (Sullivan, 1995) and it was not

elevated in bulimia (Nielsen *et al.*, 1998). Very little is known about the mortality associated with BED and EDNOS, although the obesity common in BED is expected to increase the mortality risk (Crow & Peterson, 2003).

Physical complications and mortality in these illnesses are well recognised, but other social, occupational and economic costs and the negative impact on quality of life (Keilen *et al.*, 1994) have received far less attention. The chronic nature of eating disorders and the numerous co-morbidities and complications suggest that people with eating disorders need multi-dimensional treatment and are high consumers of medical and social care. However, a comprehensive study of health or social services use of these individuals has not been carried out either in the UK or internationally (Garvin, 2001). Only a limited literature exists about the broader costs of eating disorders in the health care system and this research evidence indicates significant economic burden posed by eating disorders.

2.6.1 Primary care

Studies from the US and continental Europe suggest that only a fraction of people with eating disorders receive specialised treatment for their eating disorders. For example, in a large sample of female primary care and obstetric gynecology attendees in the US fewer than one in 10 cases with bulimia nervosa or BED were recognised by the physician (Johnson *et al.*, 2001). In the Netherlands, on average, only 40 per cent of the community cases of anorexia nervosa are detected by general practitioners and 79 per cent of these patients are referred on for mental health care (Hoek, 2003). In the case of bulimia nervosa, only a small subgroup, an average 11 per cent of the community cases, are detected in primary care and 51 per cent of these cases are referred to secondary care. A general practitioner with a list of 2000 people could expect to have one or two patients with anorexia nervosa and 18 patients with bulimia nervosa (Hoek, 1991). Importantly, the poor detection rates for eating disorders do not suggest that these patients avoid their general practitioners. Indeed, over the five years prior to the diagnosis of the eating disorder, these individuals consult their general practitioners significantly more frequently than do people without an eating disorder (Ogg *et al.*, 1997). In these earlier consultations, patients typically present with psychological, gastro-intestinal or gynaecological complaints prompted by symptoms of the eating disorder or its complications. These findings suggest that there are high levels of hidden eating disorder morbidity at primary care level leading to a considerable underestimate of costs, and greatly emphasise the importance of primary care in the detection and early treatment of eating disorders.

In the UK, an epidemiological study using the general practice research database found similar figures for referrals, 80 per cent of cases of anorexia nervosa and 60 per cent of cases of bulimia nervosa were referred on to secondary care, the majority to psychiatrists. The study also revealed that general practitioners tend to prescribe laxatives or diuretics for 27 of 100 people with the diagnosis of bulimia nervosa and psychotropic medication in 45 per cent of the eating disorders cases (Turnbull *et al.*, 1996) It should also be noted that many GPs may fail to consider an eating disorder as possible diagnosis in children presenting with typical eating disorder features (Bryant-Waugh *et al.*, 1992). The only calculation of the total cost of eating disorders in primary care was done based on the Third National Survey of Morbidity in General Practice which found that 1/1000 females and 0.6/1000 males consulted their general practitioner for anorexia nervosa (no data for bulimia nervosa, EDNOS or BED were available) in one year (Office of Health Economics, 1994). Applying these rates to the

UK populations of 1990 suggest that approximately 47,000 individuals consult their GP with anorexia nervosa each year, which yields an estimated cost of £580,000 for anorexia nervosa consultations in primary care in 1991 prices (Office of Health Economics, 1994).

2.6.2 Secondary and tertiary care

A recent North American study analysing a national insurance claim database found that specialist eating disorder treatment provision is rare and eating disorders usually remain undetected or undertreated especially in the case of men (Striegel-Moore, 2000). A UK study of patients with anorexia nervosa revealed that under-diagnosis is common. Some patients may spend months or years in non-specialist units posing enormous extra costs for the NHS (Howlett, 1995). The NICAPS study (O'Herlihy *et al.*, 2001) has shown that more beds were occupied by young people with eating disorders than any other diagnostic group, with the same number of patients with eating disorders in specialist eating disorders services being found as in non-specialist psychiatric units. In all, there was a total of 22.2 per cent of the inpatient population with a diagnosis of an eating disorder.

In the US as in the UK, outpatient treatment is the norm with low hospitalisation rates for eating disorders. Striegel-Moore (2000) reviewed costs for the disorders in the US. The average numbers of outpatient episodes are 17, 15.6 and 13.7 for anorexia nervosa, bulimia nervosa and EDNOS, respectively. Only 21.5 per cent of women with anorexia nervosa are hospitalised per year with an average length of stay in the US of 26 days, and very much lower hospitalisation rates were found for bulimia nervosa and EDNOS. Mean annual treatment (outpatient and inpatient) costs for female patients were \$6,045 for anorexia nervosa, \$2,962 for bulimia nervosa and \$3,207 for EDNOS. These costs of treating eating disorders were compared with treatment costs of schizophrenia and obsessive-compulsive disorder (OCD). The mean treatment cost for anorexia nervosa was significantly higher than the mean cost for schizophrenia, but mean treatment cost for bulimia nervosa was significantly lower than for schizophrenia. Treatment costs for any eating disorder were much greater than that of OCD. These cost estimates are likely to represent an underestimate of the true costs of these illnesses since costs were calculated based on diagnostic codes (Crow & Peterson, 2003).

In the UK in 1985 an estimated 25,748 bed days were allocated to inpatient treatment of women and girls with anorexia nervosa (Hospital Inpatient Enquiry) with the average length of 21.5 days per episode. Only a fraction of the medication costs were estimated in the same study. There are no more recent UK estimates about inpatient treatment, other medication, outpatient treatment and psychotherapy costs, and no data are available for bulimia nervosa, EDNOS or BED. When looking at the organisation of eating disorders care in the UK, it is important to mention the significant role of private providers even though they are acknowledged as being a more expensive way to contract with providers (Brown, 1997).

The most recent estimate of the health care costs of eating disorders comes from Germany. Krauth *et al.* (2002) calculated that the health care costs of anorexia nervosa for the year 1998 amounts to 64.9 million euros and that of bulimia nervosa to 9.8 million euros without the costs of primary care, outpatient care (including psychotherapy) and pharmaceuticals. The estimated hospitalisation cost of 12,800 euros per patient with anorexia nervosa was found to be much higher than the hospitalisation cost of 3600

euros for an average patient with bulimia nervosa (Krauth *et al.*, 2002). However, it is worth mentioning that in Germany the threshold for inpatient admission for anorexia nervosa is probably much lower than in the NHS in the UK if not in the private sector.

The cost of managing physical and dental complications (such as infertility, osteoporosis and reconstructive dentistry) in secondary care has not been quantified but may be considerable.

2.6.3 Non-health care burden

Eating disorders have a substantial impact on social functioning, including occupational and educational impairment. These disorders are the most common at an age when people are in secondary school, in higher education or at the beginning of their working careers. Eating disorders often result in lost productivity due to the inability of people to work or premature death. The lost productivity costs of anorexia nervosa were estimated to be 130.5 million euros (inability to work: eight million euros, death: 122.5 million euros) for the 82 million German population in the year 1998. The same figure for the indirect economic burden of bulimia nervosa was 113.9 million euros (inability to work: 1.7 million euros, death: 112.2 million euros) (Krauth *et al.*, 2002).

The average duration of an episode of anorexia nervosa is six years (Herzog *et al.*, 1997) and the family are usually the main carers for most of the duration of the illness.

A recent UK pilot study found that carers of anorexic patients reported similar experiences in terms of the difficulties experienced to those of carers of adults with psychosis, but had significantly higher level of psychological distress (Treasure *et al.*, 2001). The burden of caregiving has never been examined in economic terms.

These estimates suggest that the broader social costs of eating disorders may be even more substantial than their health care costs, and that early diagnosis, prevention of chronicity and appropriate and cost-effective treatments may greatly reduce the broad economic burden of eating disorders.

2.7 The treatment and management of eating disorders in the NHS

Until the last few decades of the 20th century, in the UK, general physicians generally managed anorexia nervosa. Treatment consisted of bed rest, often in a side room of a general medical ward. A few psychiatrists started to take an interest in the condition from the middle of the 20th century. Dally and Sargant used physical methods of treatment such as insulin and chlorpromazine (Dally, 1969). Then two academic psychiatrists, Professor Arthur Crisp and Professor Gerald Russell, took an interest in the condition initially with a particular interest in the endocrine and metabolic aspects. They developed specialised units, which were replicated across the UK and the world and trained most of the current generation of psychiatrists working in eating disorder services. Skilled, supportive nursing was the cornerstone of such units and over time more specific forms of psychotherapy were developed. At the Maudsley Hospital, for example, there was a particular interest in family therapy.

The description of bulimia nervosa by Gerald Russell in 1979 was a landmark event. An explosion of research followed this into both psychotherapeutic and physical (antidepressants and appetite suppressants) treatments. The most widely researched treatment has been cognitive behaviour therapy developed by Chris Fairburn.

At the present time, there are wide variations in the provision of eating disorder services and models of service delivery throughout the UK. Services range from 'generic', in which outpatient therapies are provided by community mental health teams, backed up by psychiatric admission, to variable models of specialist eating disorder service. These latter vary widely in staffing, service configuration and therapeutic interventions offered. At the more modest end of the spectrum, an outpatient-only service may offer therapeutic input, but little in the way of medical assessment or management, responsibility for which remains with primary care. More fully comprehensive models are organised around intensive day-patient provision, an inpatient unit, or both. Many of the better-funded resources function as tertiary services, serving a large (on occasions, national) catchment area.

Children and younger adolescents (up to the age of 16) are generally treated in generic child and adolescent mental health services (CAMHS) supported as required by paediatric services. Where inpatient treatment is thought necessary, children and adolescents are admitted either to paediatric wards often with CAMHS liaison, to 'general-purpose' children's or adolescent units, or to private-sector specialist eating disorder services, funded by the NHS.

Where young people are admitted to paediatric medical wards, appropriate communication with CAMHS staff is crucial. The care plan should be agreed between the medical and mental health services and appropriately co-ordinated. There are very few specialist eating disorder inpatient services for this age group in the NHS and none with a comprehensive range of out, day and inpatient provision. Many services attempt to avoid inflexible age boundaries, preferring to take into account the young person's developmental level and whether they are in full-time education or living at home with parents when deciding the appropriate service for them.

Ensuring appropriate communication and handover across transitional boundaries is a particular challenge for those treating children and adolescents. Some services offer combined adolescent/adult treatment, which offer experience in the management of eating disorders, but need to ensure developmentally appropriate therapeutic intervention and social support. In many parts of the country, the potential advantage of specialist inpatient treatment may be offset by the disadvantages of treatment a long way from home, with problems posed for therapeutic involvement of the family, maintaining educational and social contacts and most importantly, ensuring continuity of care post-discharge.

2.7.1 Pharmacological treatment

Pharmacotherapy has not been the treatment of first choice for eating disorders, but it has been used as an adjunct to psychological therapies or to treat physical or co-morbid psychological problems. In anorexia nervosa, medication has to date been disappointing in influencing the core symptoms of the disorder, promoting weight gain or reducing associated mood disturbance (Treasure & Schmidt, 2001). Where modest improvements

have been reported, consideration of unwanted effects (e.g. in prolonging the QT cardiac interval), have led researchers to conclude that drugs confer little advantage when added to standard treatment (e.g. Vandereycken, 1984). In bulimia nervosa and binge eating disorder, whilst drugs are not the first option, there is some evidence that antidepressants, particularly selective serotonin reuptake inhibitors (SSRIs) contribute to the cessation of binge eating and purging. As endogenous opiates play a role in the hypothalamic regulation of hunger and satiety, a few trials have been conducted with opiate antagonists.

2.7.2 Psychological interventions

Choosing the most effective treatment approach for someone with an eating disorder should take account of a number of variables, including physical and psychological risk, motivation, social support, comorbidity, and age. Often and particularly in anorexia nervosa, treatment planning will require co-ordinated, multidisciplinary, physical, psychological and service interventions. Psychological interventions are, however, considered to be crucial in addressing the core attitudes that underlie these disorders and in influencing the longer-term outcomes. The nature of the psychological therapies chosen will be influenced by patient preference, their motivation, the nature of associated psychological features and their age or stage of development. Some will prefer a non-verbal projective therapy, using art, drama or music. Younger patients in particular or those who are dependent on relatives or carers are seen as often requiring family or systemic therapy. Of the individual therapies, cognitive behaviour therapy (CBT) is the best researched, though the evidence base in bulimia nervosa and binge eating disorder (BED) is far larger than in anorexia nervosa. The evidence base for other psychological therapies such as supportive psychotherapy and interpersonal psychotherapy (IPT) is growing, while more specialised therapies such as cognitive analytic therapy (CAT) and dialectical behaviour therapy (DBT) have been considered in complex cases, and for DBT those complicated by repeated self-harm (Treasure & Schmidt, 2003).

2.7.3 Service-level interventions

Decisions about the right treatment setting in which to manage a person with an eating disorder currently depend on the nature of the disorder, the level of risk, physical and psychological complications and patient preference. Within the NHS currently, the availability of different models of service is a major consideration with patients and referrers sometimes having to weigh up the advantages of a locally accessible service with those of a more comprehensive service at some geographical distance. In general, those with bulimia nervosa and binge eating disorder will be treated on an outpatient basis either in primary care or secondary services. Those with anorexia nervosa will generally be treated in secondary care, the choice of in, out, or day patient provision depending on the above considerations. Most will have a trial of outpatient intervention first. A stepped-care model in which patients move up from secondary to tertiary care subject to locally agreed protocols makes clinical sense, but there is at present little evidence to guide decisions about service setting. There is also considerable debate over the requirement for some or all of people with eating disorders to be treated in specialist eating disorder services. In general the current practice would seem to favour the treatment of the large majority of adult patients with anorexia within specialist

eating disorder services, whereas such specialist services may only be needed for patients with severe forms of bulimia nervosa. However, irrespective of the service setting (specialist secondary or tertiary, or generalist) the key aim of this guideline will be to ensure that as far as the evidence allows, effective treatments should be provided. Whatever the service, the setting should be age-appropriate, with the social, and educational needs of children and adolescents requiring particular attention in order to avoid the development of secondary handicaps. Inpatient management will require comprehensive physical and psychological management; currently a number of models exist from medical admission with psychiatric/psychological liaison to psychiatric admission with medical supervision. Children, in particular are often admitted to general medical (paediatric) services.

2.7.4 Primary–secondary care interface

Many patients with eating disorders will require treatment for a considerable time, often for a number of years. During this time, they may require treatment in primary care, secondary and on occasions, tertiary care services. The boundary between primary and secondary care is one of a number of interfaces that need to be managed effectively. Others include the interface between medical and psychiatric services, between inpatient and outpatient services, and for adolescents, between Child and Adolescent Mental Health Services (CAMHS) and adult services. It is particularly important for effective management that communication is good and that areas of responsibility are clear. Sometimes, for example a patient may be receiving psychological therapy from a secondary care service, but responsibility for physical monitoring may remain with primary care. Clear treatment protocols will ensure smooth management across these interfaces.

2.7.5 Physical health care

Patients with eating disorders always require assessment of their physical health and any associated risk as part of a comprehensive assessment. This should also be reviewed as treatment progresses. Physical complications can be classified as follows:

- The complications of starvation (chiefly in anorexia nervosa)
- The consequences of purging behaviours (including dental complications)
- The complications of associated physical conditions (such as diabetes or pregnancy)
- The complications of excessive exercise
- Physical aspects of stunted or incomplete development (in younger people); the main effects being on skeletal growth and the reproductive system
- Physical complications of dietary imbalance (e.g. a high fibre, low fat diet)
- Physical complications of refeeding or restoration of normal diet.

Many of these may have effects on a number of systems within the body. In any treatment plan, it must be clear who is taking responsibility for physical assessment and how any risk identified is to be managed. This often involves effective communication between primary and secondary care services (see Section 2.7.4).

2.7.6 The relationship of the evidence base for adults to that for children and adolescents.

In the absence of a strong body of treatment research in the child and adolescent literature, it is tempting to extrapolate from adult findings, but the validity and limitations of doing so requires careful consideration. A key argument in favour of extrapolating from adult findings is that adolescence is a developmental stage that is not defined merely by age. It can be argued that many young adults with eating disorders are still in the throes of addressing the challenges of adolescence and indeed developmental difficulties have been thought to underlie the aetiology of anorexia nervosa in particular (e.g. Crisp, 1995). A second argument is that the essential features of anorexia nervosa and bulimia nervosa are consistent across the age spectrum – both in terms of characteristic behaviours (dieting, binge eating, purging), specific psychopathology (over-evaluation of the self in terms of weight and shape) and non-specific features (low self-esteem, perfectionism, poor interpersonal confidence). Thirdly some of the literature reports combined adolescent/adult case series without separate analysis. Finally some of the treatments that have been found to be effective in adult eating disorders (e.g. CBT and antidepressants) are effective in the treatment of adolescents with other conditions (particularly depression).

There are, however, a number of reservations about extrapolating from adult findings. In younger patients, the disorders less commonly fall neatly into the ICD10 or DSM-IV categories; that is to say, atypical forms are more commonly diagnosed. Some clinical eating disturbances seen in childhood and early adolescence currently classified as atypical eating disorders may not have much in common with the adult category of EDNOS. As treatments for EDNOS are poorly developed in adults, there are few findings in any case to draw on. The *treatment aims*, particularly in anorexia nervosa are often different in childhood and adolescence, because of the different physical issues involved, i.e. where the onset is before growth and development are complete, treatment needs to address the completion of puberty and growth. Unlike the treatment of adults with anorexia nervosa where recovery usually involves returning to a premorbid healthy physical state, in younger patients it is more a question of coming to terms with a new physical state. In terms of weight targets this involves 'constantly moving the goal posts' as healthy weight is recalculated with the attainment of greater height. All this might indicate a need for a longer duration of treatment for younger cases, whilst a shorter duration of illness before treatment might argue for the opposite.

When considering the literature on pharmacotherapy, one should be aware of differences in the pharmacodynamics and pharmacokinetics in children. In general the latter means that children and adolescents require higher doses of drugs per kg body weight to attain similar blood levels and therapeutic effect, owing to children's more rapid metabolism by the liver and clearance by the kidney.

Irrespective of any consideration of aetiological variables, parents will usually need to be involved in the management of younger patients. This is especially so if they are at risk and parental involvement is likely to reduce the risk. Both anorexia nervosa and bulimia nervosa require aspects of behavioural management and parents will need to be involved if management of these is to be effective; at a practical level, parents usually have a role in shopping for food, meal planning, and managing meal times. The involvement of siblings is generally regarded as beneficial, for the sibling if not for the patient, as this provides an opportunity for them to express fears or guilt and to dispel any false ideas about the nature of the condition, its likely causes and prognosis.

Additional attention will need to be given to the different social and educational needs of this age group in treatment, particularly when treated in hospital.

In addition, carers and parents of adolescents have identified a lack of and need for support, involvement and education about eating disorders for themselves (Kopec-Schrader *et al.*, 1993; Haigh & Treasure, 2003).

2.8 Assessment

Eating disorders may present to the NHS in primary care or to a range of tertiary medical services including mental health, gastroenterology, endocrinology and reproductive medicine. Some patients will volunteer symptoms of eating pathology and disclose the characteristic behaviours, or a relative or other carer will report them (particularly in childhood and adolescence). Others will present with the symptoms of physical or psychological complications either because they are unaware that they are symptoms of an eating disorder, or because they do not wish to reveal it. A most important step in the identification of eating disorders, therefore, is to be open to the possibility of the disorder (see Section 5.1).

Assessment encompasses making a diagnosis and eliciting the necessary information to prepare a care plan, including the assessment of severity and risk. The details of assessment methods are provided in the primary care chapter (Sections 5.2.4.1, 5.2.4.2). Wherever assessment takes place however, some common principles apply:

- Keeping an open mind
- Maintaining a supportive, non-judgmental approach
- Focusing on engagement (see Section 2.9)
- Assessing risk (see Sections 6.4.3, 7.5)
- The patient's right to confidentiality (see Section 2.11.2).

As eating disorders are commonly characterised by ambivalence, assessment should not be seen in isolation from treatment, as the patient's first impressions of services may have a powerful impact on their willingness to consider referral to secondary care and subsequently accept treatment. Specialist eating disorder services are increasingly adopting a motivational approach to assessment and induction into treatment

(Bauer & Treasure, 2003). Throughout this guideline, reference is often made to the comprehensive assessment of physical, psychological and social needs. This should be taken as a general indication as to the content of a comprehensive assessment which will vary from person to person but will often include:

- Current and past physical health and treatment
- Cognitive capacities
- Any present physical disabilities
- A historical and current assessment of family and interpersonal relationships
- Mental state and personality factors
- Social circumstances and supports
- Occupational and social functioning
- Educational and vocational needs.

2.8.1 Clinical practice recommendations

- 2.8.1.1 Assessment of people with eating disorders should be comprehensive and include physical, psychological and social needs, and a comprehensive assessment of risk to self. (C)
- 2.8.1.2 The level of risk to the patient's mental and physical health should be monitored as treatment progresses because it may increase – for example following weight change or at times of transition between services in cases of anorexia nervosa. (C)
- 2.8.1.3 Health care professionals assessing children and adolescents with eating disorders should be alert to indicators of abuse (emotional, physical and sexual) and should remain so throughout treatment. (C)
- 2.8.1.4 The right to confidentiality of children and adolescents with eating disorders should be respected. (C)
- 2.8.1.5 Health care professionals working with children and adolescents with eating disorders should familiarise themselves with national guidelines and their employers' policies in the area of confidentiality. (C)

2.9 Engagement, consent and the therapeutic alliance

Many people presenting to NHS services are ambivalent about revealing their symptoms and behaviours and are uncertain about or indeed actively opposed to treatment. There are a number of reasons for this ambivalence. Firstly, the patient may believe that they will be criticised or treated unsympathetically. This belief may be based in guilt about engaging in vomiting or binge eating, or a belief that they will be expected to exert control over these maladaptive behaviours. Alternatively they may have heard about the negative treatment experiences of others (see Section 2.10), or fear compulsory treatment. Anorexia nervosa in particular is sometimes perceived by the patient as a valued life-style choice or the only possible way for them to live. Many will fear the effects of treatment; someone with anorexia nervosa may believe that treatment will make them fat, whilst a patient with bulimia nervosa may fear that stopping vomiting will render them vulnerable to impulsive binge eating without recourse to compensatory purging.

A style of empathic engagement is helpful, therefore, in addressing patient anxieties, but probably also has an important bearing on treatment outcome. Although considerable attention may be necessary to address the physical complications of eating disorders, these interventions rarely address the core attitudes and behaviours underlying the disorders, which are generally addressed by psychological therapies. As in the treatment of any disorder, effective psychological therapy requires engagement in a therapeutic relationship and agreement about treatment aims. Whilst a forceful approach may result in a degree of weight gain in anorexia nervosa, clinicians are increasingly drawing attention to the importance of engagement and positive motivation if short-term gains are to be maintained in the long term, whatever the treatment setting (Ward *et al.*, 1996).

In most cases for adults treatment is offered on the basis of fully informed consent. In rare cases, almost exclusively of anorexia nervosa, this is not possible. Anorexia nervosa strikes at one of the core aspects of being an autonomous individual, the capacity to care for oneself and maintain health and safety. The Department of Health has recognised that a patient with anorexia nervosa who is unable to appreciate his or her failing condition may not be able to comprehend and make use of relevant information and as a result may lack the capacity to make a valid treatment decision (Department of Health, 2001). It is good practice, however, whether treatment is provided on a formal or informal basis to develop a therapeutic alliance, attempt to promote positive motivation and engage in informal treatment as soon as the physical and psychological state of the patient give confidence that informal treatment is likely to be effective.

Similar principles apply to the treatment of children and adolescents. The transition from childhood to adulthood can, however, cause confusion about rights and responsibilities. Potential additional difficulties arise from the need to inform parents and carers about risks, but maintain, as far as possible, the young person's right to confidentiality (see Section 2.11). The government specifically addresses issues relating to consent and confidentiality as it relates to this transitional phase. 'Young people aged 16 and 17 are regarded as adults for the purposes of consent to treatment and are, therefore, entitled to the same duty of confidentiality as adults. Children under the age of 16 who have the capacity and understanding to make decisions about their own treatment are also entitled to make decisions about the use and disclosure of information they have provided in confidence (e.g. receiving treatment and counselling that they do not want their parent to know about). However where a competent child is refusing treatment for a life threatening condition, the duty of care would require confidentiality to be

breached to the extent of informing those with parental responsibility for the child, who might then be able to provide the necessary consent to the treatment (Department of Health, 2001).

2.10 The patient experience of eating disorders

For patients, the experience of an eating disorder can be complex, ambivalent, and contradictory. Complex, because a range of issues must be untangled and understood on the often long road to recovery; ambivalent, because of the tension between wanting to get better while fearing the implications of recovery; and contradictory because the disordered eating is at once the problem and the solution – a destructive lifestyle that nevertheless keeps the person in control, safe and protected, while offering a dependable and consistent presence in their life.

Nobody just wakes up one day with an eating disorder. These are conditions that develop over time, sometimes over years and often at a point when life changes bring fear and insecurity. Both anorexia nervosa and bulimia nervosa often start with a period of food restriction of some kind, which gradually becomes stricter and stricter. Such restrictions often are reported as generating a sense of euphoria at being in control of one's weight, of feeling superior to others who might be struggling to manage theirs, and of increased confidence and enhanced appearance. Patients report that it is not unusual to feel moments of intense clarity, insight and of feeling more alive than ever. It is also not unusual to feel considerable physical energy, which may be experienced as though activity could be sustained for many hours without food or sleep at least until the food restriction starts to trigger physical and mental side effects. All this may serve to reinforce a person's negative behaviours around food.

At the same time, patients often sense that all of this is somehow not quite right. While recognising that their eating patterns are unhealthy in terms of quality or quantity of food, they may dread eating more for fear of gaining weight or being unable to stop eating once started. They may become increasingly secretive and devious around food and eating – skipping meals, lying about eating, hiding food, eating in secret, discovering ways to get rid of food once eaten, while denying or not acknowledging that there is a problem. Food increasingly comes to dominate thoughts, feelings and actions. Debating the options of what to eat becomes a constant daily struggle, an internal battle, a desperate self-involved fight where even sleep offers little escape. Not eating is somehow so much easier than eating, but for so many this often ends in chaos, binge eating and weight gain.

Self-hatred about appearance, feelings of being bloated and fat and frequent physical pain are common consequences of these behaviours. Starting to eat can worsen these feelings. Even those who don't get caught in the starve/binge cycle frequently lose touch with friends and family and become increasingly alone and isolated because of the difficulty of discussing these feelings for fear that no one could possibly understand. The person may start to be caught between extreme control and the overwhelming fear of descending into complete chaos – knowing that at any time 'giving in' to food is only a step away. If the control slips, the chaos takes over and shame and guilt flow in its wake.

Many of these feelings are common, whether the diagnosis is of anorexia nervosa, bulimia nervosa or binge eating disorder. The person may be aware of a deep underlying despair, a sense of being inherently inferior, unworthy and undeserving of the good things in life, guilty for wanting to try to fulfil their needs. Yet despite constant attempts to deny the problem and the difficulties inherent in loving, needing and self-acceptance, there is, somewhere, an intense desire to be loved, needed and accepted as one is.

The person may reach the point of acknowledging the problem, and turning to someone to ask for help. This is a critical first step towards recovery although the way ahead may still be fraught with problems. A range of questions arise: 'Who is trustworthy – doctor, teacher, nurse, parent, friend, relative ...? Who will really listen and take me seriously? Who will see me as a whole person and not just as an illness or a difficult problem? Who will understand that someone really can have these issues with food? What will happen if I 'come clean' and admit to my behaviours? What will a diagnosis mean in terms of the treatment I might be offered? How much control will I retain? And will admitting to a problem blight the landscape of my future career, work prospects, education, relationships?'

For boys and men, there may be added complications since, despite changing attitudes and understanding, eating disorders are still considered primarily a female issue. This can make it even more difficult for men to seek help. For young people, there are often particular questions surrounding confidentiality: 'If I speak to someone at school or my doctor, will they tell my parents?'; with control of treatment: 'Given my age, who will be "in charge"?'; and with the fear of being treated differently to one's peer group: 'You have a problem with food, therefore you cannot be trusted!' All of these issues, together with low confidence and self-esteem may convince someone that keeping the disorder hidden is the safest option, even if, deep down, they want to move forward. They may just not believe that they are strong enough to do so.

Being given a diagnosis can raise a new set of issues. Treatment in mainstream services can be a postcode lottery with long waiting lists. It can be difficult, if not impossible, to learn about the range of treatment options and services if the GP lacks experience of working with eating disorders. There may be a debate about how best to treat the individual, and treatment may be only available at some distance from family and friends. The time-lag between raising the issue, getting a diagnosis and accessing treatment can leave the person with an eating disorder feeling 'let-down' or rejected and compound feelings of unworthiness after having found the courage to speak out. Any delay also provides an opportunity for 'ambivalence' to creep back in again – the person may then ask: 'Do I really want this treatment anyway?'

Eating disorders present complex challenges and treatment tends to be long-term with the possibility of frequent relapses. Whatever the setting, finding the 'right person' to work with – someone with expert knowledge and particular qualities who will accept and understand the person as 'an individual with a unique experience' rather than as 'a case of pathology' – seems critical to treatment 'success'. Trust is also vitally important when deciding to give up the principal means to cope with life. Getting help with food itself, through dietetic intervention to include assessment, modification, education and monitoring, can also be important particularly with bulimia nervosa. It can be very difficult for an individual to focus on psychological and emotional processes when thoughts are crowded with what one will/won't, can/can't eat, or when the body is in a state of starvation, poor blood sugar control, hormone/neurotransmitter imbalance, etc.

Establishing a structured approach to food and being given permission to ‘legalise’ foods that have long been forbidden is often vital for the person with bulimia nervosa. Increasing food intake bit by bit, day by day, may be a better approach for an adult with anorexia nervosa than a narrow focus on restoring weight at a speed that only results in feeling completely out of control. Clear and regular communication between clinicians, patient, carers and family is also a vital and often overlooked part of treatment.

For most people, recovery goes through several stages and is characterised by steps forward and steps back. There may be longer-term complications and a sense of an ongoing vulnerability around food long after the main issues have been resolved. During the treatment process, there is often an exchange of views on what constitutes recovery – the patient’s understanding may differ significantly from that of the professionals. There can be other issues – views on managing treatment may be at odds, understanding and dealing with the expectations of others can be very hard at times, particularly as those with eating disorders tend to want to please and have a deep internal need for external approval and affirmation. An additional dilemma may occur if the individual senses that the treatment approach is not working, whilst at the same time knowing it might be all that is on offer.

Staying positive and maintaining commitment, learning how to deal with lapses and managing the ambivalence that can flare up with a vengeance throughout recovery will be all too familiar for those who have been through this experience. The path is not always easy. But throughout this time, it is important to stay focused and to know and remember that recovery is possible and there are people who want to help overcome the disorder.

And what about those who want to help the person with an eating disorder – partners, spouses, friends, relatives, colleagues, siblings, parents? It seems that their experience is also one of complexity, ambivalence and contradiction. How can they help you face issues and accept that there is a problem? What role should they play? Where can they get information about treatment approaches and how do they communicate this? How do they deal with the medical professionals? And what about issues of patient confidentiality? Many who have been involved with somebody struggling with eating distress, have reported how desperate and isolated they have felt at times, how they have been ‘at their wits end, not knowing where to turn for help’. They will also often speak of their guilt and remorse and feeling of responsibility for the illness; have they caused or contributed to the situation? What could they have done to make things different?

For carers as for sufferers, the expectations of treatment, its duration and impact on those involved, may differ greatly from the actual reality. From the outset, it is important to understand and expect an arduous, challenging and unpredictable journey, with emotions previously controlled and contained, spilling out into the open.

Regardless of their nature, relationships are likely to be permanently changed by the experience of coping with an eating disorder. In the early days when the ‘sufferer’ is either stuck in denial or does not know how to even admit there is an issue, the impact on relationships can be very negative. Once the issue is out in the open things may change as the ‘sufferer’ becomes more accepting of care and support, although the road is still pretty rocky at times. Support groups of various kinds can be an important component of the healing process.

A readiness to change and to accept self-responsibility and a real desire for a life where eating does not dominate every moment, are perhaps the true keys to full recovery. The experience of an eating disorder may leave a lifelong mark, however letting go, developing self-acceptance, forgiving events in the past, and dropping feelings of shame can lead to growth and to an end which in so many ways is, of course, only the beginning.

2.10.1 Clinical practice recommendations

- 2.10.1.1 Health care professionals should acknowledge that many people with eating disorders are ambivalent about treatment. Health care professionals should also recognise the consequent demands and challenges this presents. (C)
- 2.10.1.2 Patients and, where appropriate, carers should be provided with education and information on the nature, course and treatment of eating disorders. (C)

2.11 The involvement of family members/carers

2.11.1 Involving carers

Eating disorders have a social as well as an individual context. Once ‘out in the open’, family members and carers are inevitably drawn into the illness and many will want to offer whatever help they can. The UK government has recognised the important role and contribution that carers provide for people with a range of mental health problems and information and guidance is available through a website (www.carers.gov.uk).

2.11.2 Confidentiality

Some patients will be concerned that the involvement of their relatives may breach their rights of confidentiality. Consultations between those with eating disorders and health care professionals are bound by generic rules regarding confidentiality, i.e. that this should only be breached if the patient or others are at significant risk and that a breach of confidentiality is likely to reduce that risk (Department of Health, 2001; GMC, 2003). Furthermore the patient should be informed of any necessary breach of confidentiality. However issues of good practice with regard to confidentiality should not be accepted as an excuse for not listening to or communicating effectively with carers. Carers should be given sufficient information by medical and mental health services in a way that they can readily understand, to help them provide care effectively (Department of Health, 2003). Information from carers is also subject to the same rules of confidentiality as those applied to the individual with the illness.

2.11.3 Information for carers

Carers should be given the opportunity to ask health care professionals about the illness in general and specific risks. The following information might reasonably be expected to be available to them:

Information about eating disorders

- The general causes of an eating disorder
- The general maintaining factors of an eating disorder
- The best strategies to help someone with an eating disorder
- The evidence base for the treatment and management of people with anorexia nervosa
- The prognosis and expected course and outcome of people with eating disorders.

Information about physical risk

- That a physical and psychological risk assessment of the patient is being regularly undertaken
- That they will be informed if the threat to the health and safety of the patient is severe
- The danger signs that should alert them to physical risk of the patient
- What they should do in the event that they are concerned about the health and safety of the patient and how they can recruit help when necessary.

2.11.4 Carer involvement in treatment

The extent to which the family and/or next of kin need to be involved in treatment relates to age and developmental issues, the severity of the illness and the risk of harm. In general, parents and other family members will be included in the treatment of children and adolescents and in the treatment of adults depending on their wishes and the assessment of risk or severity. In the rare cases where compulsory treatment is necessary, there is a statutory role for the next of kin enshrined in the 1983 Mental Health Act legislation.

Therefore, although services should aim to keep treatment confidential they also have to ensure that they practice safely and consider the needs of carers. They have a statutory obligation to let other people know if there are health and safety issues that need to be considered.

2.11.5 Carers' experiences and wishes

A survey of carers (Haigh & Treasure, 2003) and a focus group convened to inform the GDG, revealed a number of common themes:

- Carers are concerned about a perceived variable range of experience and expertise in the management of eating disorders amongst health service professionals.
- They express a need for quality information and effective communication.
- They often express a wish to be included in their relative's 'treatment team'.
- They are concerned about a perceived lack (in many areas) of adequate service provision and many worry about delays in accessing effective services and smooth transition between tiers of care.

The issues raised can be classified as engaging with primary care, experiences of treatment, and issues in aftercare. The carers focus group also made the following observations.

2.11.5.1 Engaging with primary care

- GPs may think issues and symptoms are trivial, partly because they often have little experience of eating disorders.
- A GP's inexperience and lack of training in eating disorders can lead to a delay in diagnosis.
- Pathways between primary and secondary care are slow and fraught with obstacles, including lack of choice.
- There are often difficulties in receiving information and effective communication particularly in relation to the treatment of older adolescents. These relate both to issues of confidentiality, and to problems in communication in the transition between child and adolescent and adult services.

2.11.5.2 Experiences of treatment

- Concern was expressed about the poor response of adolescents to inpatient treatment for a range of reasons.
- Poor communication is common, partly related to shift working in inpatient units. The treatment plan was sometimes poorly explained.
- Carers need information about the disorders, their own rights, and compulsory treatment.
- Siblings need support as well as parents/adult carers.

- Support, for example from relatives support groups, was welcomed.
- Community-based services are preferred to inpatient treatment where this can be managed.

2.11.5.3 Aftercare

- Aftercare provision is often limited and can undermine the benefit of inpatient treatment.
- Responsibility for aftercare is often unclear.
- Co-existing or residual difficulties are often not addressed.
- Little choice is offered.

2.11.5.4 Carer advice

The focus group suggested that improvements could be made in the following areas:

- More training of health service staff is required, particularly for those in general practice including GPs. This would include training in the detection and the features of eating disorders and an understanding of how motivation and ambivalence can affect engagement in treatment.
- Carers should be actively involved in treatment programmes.
- Treatment plans and other information should be provided to carers, including written reference resources.
- Carers should be offered the opportunity to learn from and benefit from the experience and support of others in the same situation.
- Recovered or recovering patients could be used to provide support to patients at an earlier stage of treatment.
- A greater focus on outreach and community services rather than inpatient services is desirable, in order to avoid dislocation from the patient's family and social support.
- A greater uniformity of treatment protocols and approaches, based on the available evidence rather than service constraints is desirable, in order to reduce idiosyncratic practice.

2.11.5.5

In addition to the provision of information, family and carers may be informed of self-help groups and support groups and offered the opportunity to participate in such groups where they exist. (C)

2.12 Stigma

The above review of the experience of eating disorders from the patients' and carers' perspective reveals the disabling nature of these disorders. Those who suffer from eating disorders often carry the added burden of stigmatising attitudes from the lay public and health services staff. These attitudes not only restrict the opportunities for effective treatment, but also confer additional handicaps. The Royal College of Psychiatrists stigma campaign (Cowan & Hart, 1998), followed a survey of the general public which revealed that stigmatising attitudes were based on four beliefs about those with mental health problems, namely:

- Sufferers are thought to be dangerous to others.
- The disorders are thought to be self-inflicted.
- The outcome is thought to be poor.
- It is difficult to communicate with sufferers.

Crisp *et al.* (2000) have indeed shown that those with eating disorders are believed by the general public to be unpredictable, hard to talk to, are different from them, have only themselves to blame and should 'pull themselves together'. Gowers and Shore (1999) have reviewed the part played by these factors in stigmatising those with eating disorders and have argued for improved training of health service staff and greater public education. Crucially, stigma can be reduced by placing the person with an eating disorder at the centre of their treatment and by engaging them in a positive therapeutic relationship (see Section 2.9). This is a key aim of this guideline.

3 Methods used to develop this guideline

3.1 Overview

The development of this guideline drew upon methods outlined by NICE (NICE, 2002; Eccles & Mason, 2001). A team of experts, professionals, and a patient representative, known as the Guideline Development Group (GDG), undertook the development of a patient centred, evidence-based guideline with support from the NCCMH staff. There are five basic steps in the process of developing a guideline:

- Define clinical questions considered important for practitioners and patients.
- Develop criteria for evidence searching and search for evidence.
- Design validated protocols for systematic review and apply to evidence recovered by search.
- Synthesise and (meta-) analyse data retrieved, guided by the clinical questions.
- Answer clinical questions with evidence-based recommendations for clinical practice.

The clinical practice recommendations made by the GDG are therefore derived from the most up-to-date and robust evidence base for the clinical and cost-effectiveness of the treatments and services used in the management of eating disorders. In addition, to ensure a patient and carer focus, their concerns regarding clinical practice have been highlighted and addressed by recommendations agreed by the whole GDG. The evidence-based recommendations are the core of this guideline.

3.2 The Guideline Development Group

The eating disorders GDG consisted of: professionals in psychiatry, clinical psychology, nursing, social work, and general practice; academic experts in psychiatry and psychology; a patient, and a representative from a patient organisation. The carer perspective was provided through focus group discussion with carers; the group was run by the patient on the GDG. The guideline development process was supported by staff from the NCCMH review team, who undertook the clinical and health economics literature searches, reviewed and presented the evidence to the GDG, managed the process, and contributed to the drafting of the guideline.

3.2.1 Guideline Development Group meetings

Twenty-three eating disorders GDG meetings were held between March 2002 and October 2003. During the series of day-long meetings, clinical questions were written,

clinical evidence was reviewed and assessed, statements developed and recommendations formulated. At each meeting, all GDG members declared any potential conflict of interests, and patient and carer concerns were routinely discussed as part of a standing agenda.

3.2.2 Topic groups

The GDG divided its workload along clinically relevant lines to simplify the guideline development process by forming smaller topic groups to undertake guideline work in specified areas of clinical practice. Topic groups covered physical management, service-level interventions, and psychological interventions. These groups were designed to efficiently manage the large volume of evidence appraisal prior to presenting it to the GDG as a whole. Each topic group was chaired by a GDG member with expert knowledge of the topic area (one of the healthcare professionals). Topic groups refined the clinical definitions of treatment interventions, identified relevant clinical questions, reviewed and prepared the evidence with the systematic reviewer before presenting it to the GDG as a whole, and helped the GDG to identify further expertise in the topic. Topic group leaders reported the status of the group's work as part of the standing agenda. They also introduced and led the GDG discussion of the evidence review for that topic and assisted the GDG Chair in drafting that Section of the guideline relevant to the work of each topic group.

3.2.3 Patients and carers

The GDG included a patient and representatives of a national patient group. Given their direct experience of services, they gave an integral patient focus to the GDG and the guideline. They contributed as full GDG members to writing the clinical questions, helping to ensure that the evidence addressed their views and preferences, highlighting sensitive issues and terminology associated with eating disorders, and bringing service-user research to the attention of the GDG. They wrote the section on the patient perspective, organised, conducted and reported on the carer focus group contribution, and identified recommendations from the patient and carer perspective.

The carer perspective was provided through a focus group held with carers. The main objective of the group discussion was to discuss carers' views about communication with clinicians and other professionals, including guidance on responsibility and expectations of clinicians, carers, and people with eating disorders; the role of carers in identifying eating disorders and subsequent treatment, and accessing appropriate services. Twelve people, currently caring for someone with anorexia nervosa as a parent or spouse, were recruited by the Eating Disorders Association and the Carers Volunteers Database at the Eating Disorders Research Unit of the Institute of Psychiatry. Geographic distribution of members included Cornwall, the Midlands, East Anglia, south east England and London. Participants were told the purpose of the session, and signed a participant consent form. Discussions were tape-recorded with the full knowledge of the participants, transcribed, and key themes identified.

3.2.4 Special advisors

Special advisors who had specific expertise in one or more aspects of the treatment and management of eating disorders were invited to assist the GDG, to comment on specific aspects of the developing guideline and to present evidence and observations on areas of their expertise to the GDG. Appendix 2 lists those who agreed to act as special advisors.

3.2.5 National and international experts

National and international experts in eating disorders research were identified through the literature search and through the experience of the GDG members. These experts were invited to recommend unpublished or soon-to-be published studies in order to ensure that the most recent evidence on the management of eating disorders was included in the development of the guideline. They informed the group about completed trials at the pre-publication stage, systematic reviews in the process of being published, studies relating to the cost-effectiveness of treatment, and trial data if the GDG could be provided with full access to the complete trial report. Appendix 5 lists researchers who were contacted.

3.3 Clinical questions

Clinical questions were used to guide the identification and interrogation of the evidence base relating to the use of psychological interventions, service-level interventions, and physical interventions in the treatment and management of eating disorders. The GDG necessarily had to limit the number of questions to those they regarded as important. Questions were developed for each clinical topic area. Appendix 6 lists the clinical questions.

3.4 Systematic clinical literature review strategies

The aim of the clinical literature review was to systematically identify and synthesise relevant evidence from the literature in order to answer specific clinical questions developed by the GDG. Thus, clinical practice recommendations are evidence-based, where possible, and if evidence is not available, gaps are identified where future research is needed.

3.4.1 Methodology

A stepwise, hierarchical approach was taken to locating and presenting evidence to the GDG. The NCCMH review team had developed this process based on advice from the National Guidelines Support and Research Unit (NICE) and after considering recommendations from a range of other sources. These included:

- Centre for Clinical Policy and Practice of the New South Wales Health Department (Australia)

- Clinical Evidence Online
- Cochrane Collaboration
- New Zealand Guideline Group
- NHS Centre for Reviews and Dissemination
- Oxford Centre for Evidence-Based Medicine
- Scottish Intercollegiate Guidelines Network (SIGN)
- United States Agency for Health Research and Quality
- Oxford Systematic Review Development Programme.

3.4.2 The review process

3.4.2.1 Questions of treatment efficacy

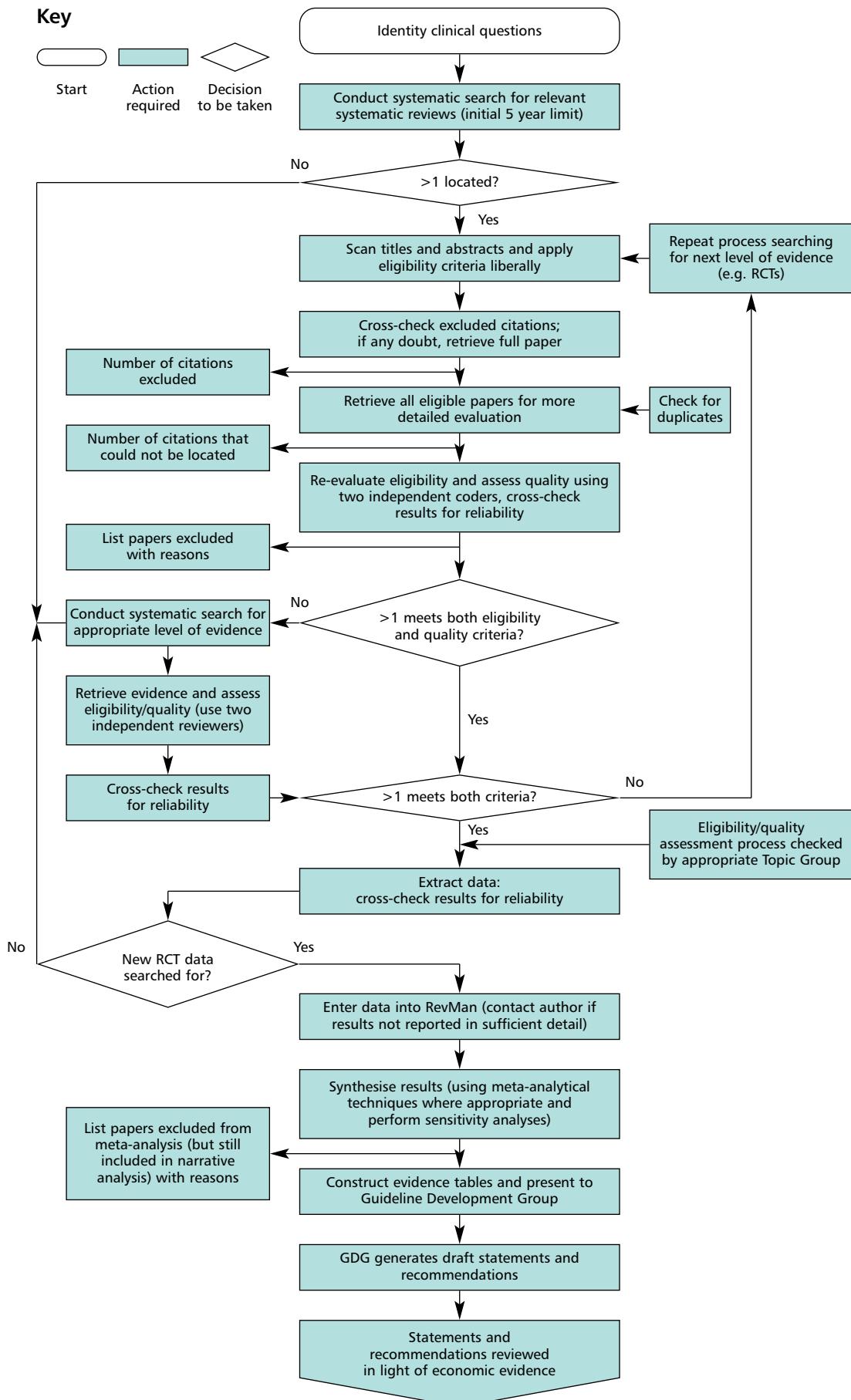
For questions related to the efficacy of treatment, the initial evidence base was formed from high-quality, recently published or updated randomised controlled trials (RCTs) that addressed at least one of the clinical questions developed by the GDG. Systematic reviews were selected on predetermined quality criteria. Further searches for new RCTs were undertaken. New RCTs meeting inclusion criteria set by the GDG were incorporated into existing systematic reviews and fresh analyses performed. If no systematic reviews were available, the review team located all relevant high quality RCTs for review and, where appropriate, meta-analysis. The review process is illustrated in Flowchart 1 overleaf.

Although there are a number of difficulties with the use of RCTs in the evaluation of interventions in mental health, some of which also apply to the use of RCTs in any health research, the RCT remains the most important method for establishing efficacy. However, in some cases it was not possible to identify high-quality systematic reviews or a substantial body of RCTs that directly addressed a clinical question. In this situation, an informal consensus process was adopted (see Section 3.4.7). Future guidelines on the treatment and management of eating disorders will be able to update and extend the usable evidence base starting from the evidence collected, synthesised and analysed for this guideline.

3.4.2.2 Questions of diagnosis and prognosis

For questions related to diagnosis and prognosis, the initial evidence base was formed from studies with the most appropriate and reliable design to answer the particular question (i.e, diagnosis – cross sectional studies; prognosis – cohort studies of representative patients). The review process was similar to that described for questions of efficacy. The main difference concerned the study search filter and the criteria used to assess methodological quality. In situations where it was not possible to identify high-quality systematic reviews or a substantial body of appropriately designed studies that directly addressed a clinical question, an informal consensus process was adopted (see Section 3.4.7).

Flowchart 1: Eating disorders Guideline Review Process



3.4.3 Search strategies

In conducting the review, the team systematically searched the literature for all English-language systematic reviews relevant to the eating disorders scope that were published or updated after 1995.

Search filters developed by the review team consisted of a combination of subject heading and free-text phrases. A general filter was developed for eating disorders along with more specific filters for each clinical question. In addition, filters were developed for RCTs and for other appropriate research designs. (The search filters can be found in Appendix 8.)

Electronic searches were made of the major bibliographic databases (MEDLINE, EMBASE, PsycINFO, CINAHL), in addition to the Cochrane Database of Systematic Reviews, the NHS R&D Health Technology Assessment database, Evidence-Based Mental Health and Clinical Evidence (Issue 5).

Ineligible articles were excluded, and a second independent reviewer crosschecked these for relevance. The remaining references were acquired in full and re-evaluated for eligibility. The most recently published reviews that appropriately addressed a clinical question were selected. For each systematic review used, a search was made for new studies, and the papers for these and for existing studies, were retrieved.

The search for further evidence included research published after each review's search date, in-press papers identified by experts, and reviewing reference lists and recent contents of selected journals. All reports that were retrieved but later excluded are listed with reasons for exclusion in the appropriate evidence table. Where no relevant systematic reviews were located, the review team asked the GDG to decide whether a fresh systematic review should be undertaken. Eligible reviews were critically appraised for methodological quality and the reliability of this procedure was confirmed by parallel independent assessment. The eligibility/quality assessment was tested on a representative sample of papers. (Appendix 10 provides the quality checklist.)

3.4.4 Synthesising the evidence

Where possible, outcome data were extracted directly from all eligible studies that met the quality criteria into Review Manager 4.2 (Cochrane Collaboration, 2003). Meta-analysis was then used to synthesise the evidence where appropriate using Review Manager. If necessary, reanalyses of the data or sensitivity analyses were used to answer clinical questions not addressed in the original studies or reviews. Where meta-analysis was not appropriate and/or possible, the reported results from each primary-level study were entered into the Access database. Evidence tables were used to summarise general information about each study. Consultation was used to overcome difficulties with coding. Data from studies included in existing systematic reviews were extracted independently by one reviewer directly into Review Manager and crosschecked with the existing data set. Two independent reviewers extracted data from new studies, and disagreements were resolved by discussion. Where consensus could not be reached, a third reviewer resolved the disagreement. Masked assessment (i.e. blind to the journal from which the article comes, the authors, the institution, and the magnitude of the effect) was not used since it is unclear that doing so reduces bias (Jadad *et al.*, 1996; Berlin, 1997).

3.4.5 Presenting the data to the GDG

Where possible, the GDG was given a graphical presentation of the results using forest plots generated with the Review Manager software. Each forest plot displayed the effect size and confidence interval (CI) for each study as well as the overall summary statistic. The graphs were organised so that the display of data in the area to the left of the 'line of no effect' indicated a 'favourable' outcome for the treatment in question.

Dichotomous outcomes were presented as relative risks (RR) and the associated 95 per cent CI (see Figure 1). A relative risk (or risk ratio) is the ratio of the treatment event rate to the control event rate. A RR of 1 indicates no difference between treatment and control. In Figure 1, the overall RR of 0.73 indicates that the event rate (i.e. non-remission rate) associated with intervention A is about three-quarters of that with the control intervention, or in other words, intervention A reduces non-remission rates by 27 per cent. In addition, the CI around the RR does not cross the 'line of no effect' indicating that this is a statistically significant effect. The CI shows with 95 per cent certainty the range within which the true treatment effect should lie.

All dichotomous outcomes were calculated on an intention-to-treat basis (i.e. a 'once-randomised-always-analyse' basis). This assumes that those participants who ceased to engage in the study – from whatever group – had an unfavourable outcome (with the exception of the outcome of 'death'). The Number Needed to Treat (NNT) or the Number Needed to Harm (NNH) was reported for each statistically significant outcome where the baseline risk (i.e., control group event rate) was similar across studies. In addition, NNTs calculated at follow-up were only reported where the length of follow-up was similar across studies. When length of follow-up or baseline risk varies (especially with low risk), the NNT is a poor summary of the treatment effect (Deeks, 2002).

Figure 1. Example of a forest plot displaying dichotomous data

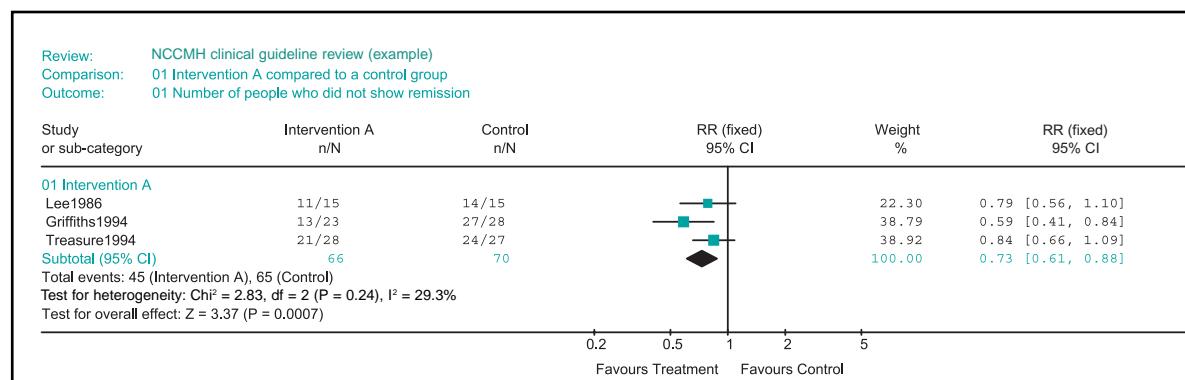
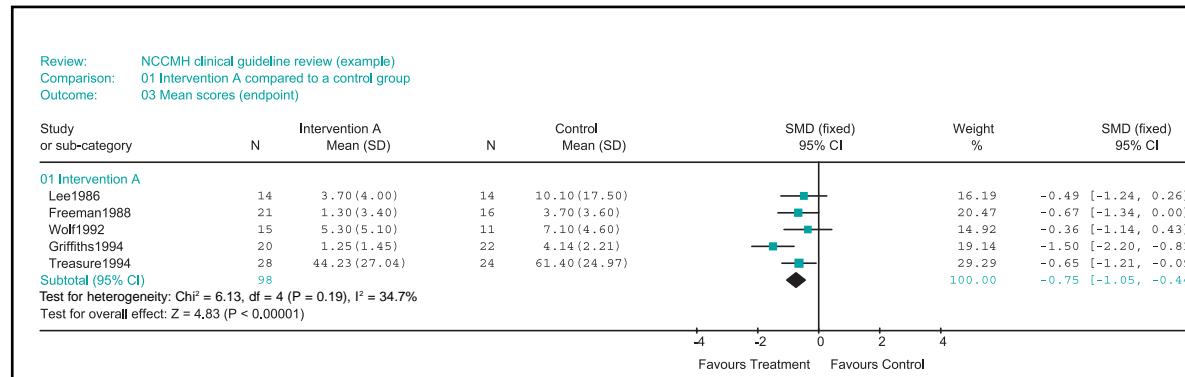


Figure 2. Example of a forest plot displaying continuous data



Both the I^2 test of heterogeneity and the chi-squared test of heterogeneity ($p < 0.10$) were used, as well as visual inspection of the forest plots, to look for the possibility of heterogeneity. I^2 describes the proportion of total variation in study estimates that is due to heterogeneity (Higgins & Thompson, 2002). An I^2 of less than 30 per cent was taken to indicate mild heterogeneity and a fixed effects model was used to synthesise the results. An I^2 of more than 50 per cent was taken as notable heterogeneity. In this case an attempt was made to explain the variation. If studies with heterogeneous results were found to be comparable, a random effects model was used to summarise the results (DerSimonian & Laird, 1986). In the random effects analysis, heterogeneity is accounted for both in the width of CIs and in the estimate of the treatment effect. With decreasing heterogeneity the random effects approach moves asymptotically towards a fixed effects model. An I^2 of 30 to 50 per cent was taken to indicate moderate heterogeneity. In this case, both the chi-squared test of heterogeneity and a visual inspection of the forest plot was used to decide between a fixed and random effects model.

To explore the possibility that the results entered into each meta-analysis suffered from publication bias, data from included studies were entered, where there was sufficient data, into a funnel plot. Asymmetry of the plot was taken to indicate possible publication bias and investigated further.

3.4.6 Forming and grading the statements and recommendations

The evidence tables and forest plots formed the basis for developing clinical statements and recommendations. For intervention studies, the statements were classified according to an accepted hierarchy of evidence. Recommendations were then graded A to C based on the level of associated evidence (see Table 1 overleaf). Key priorities for implementation are denoted by an asterisk following the grade.

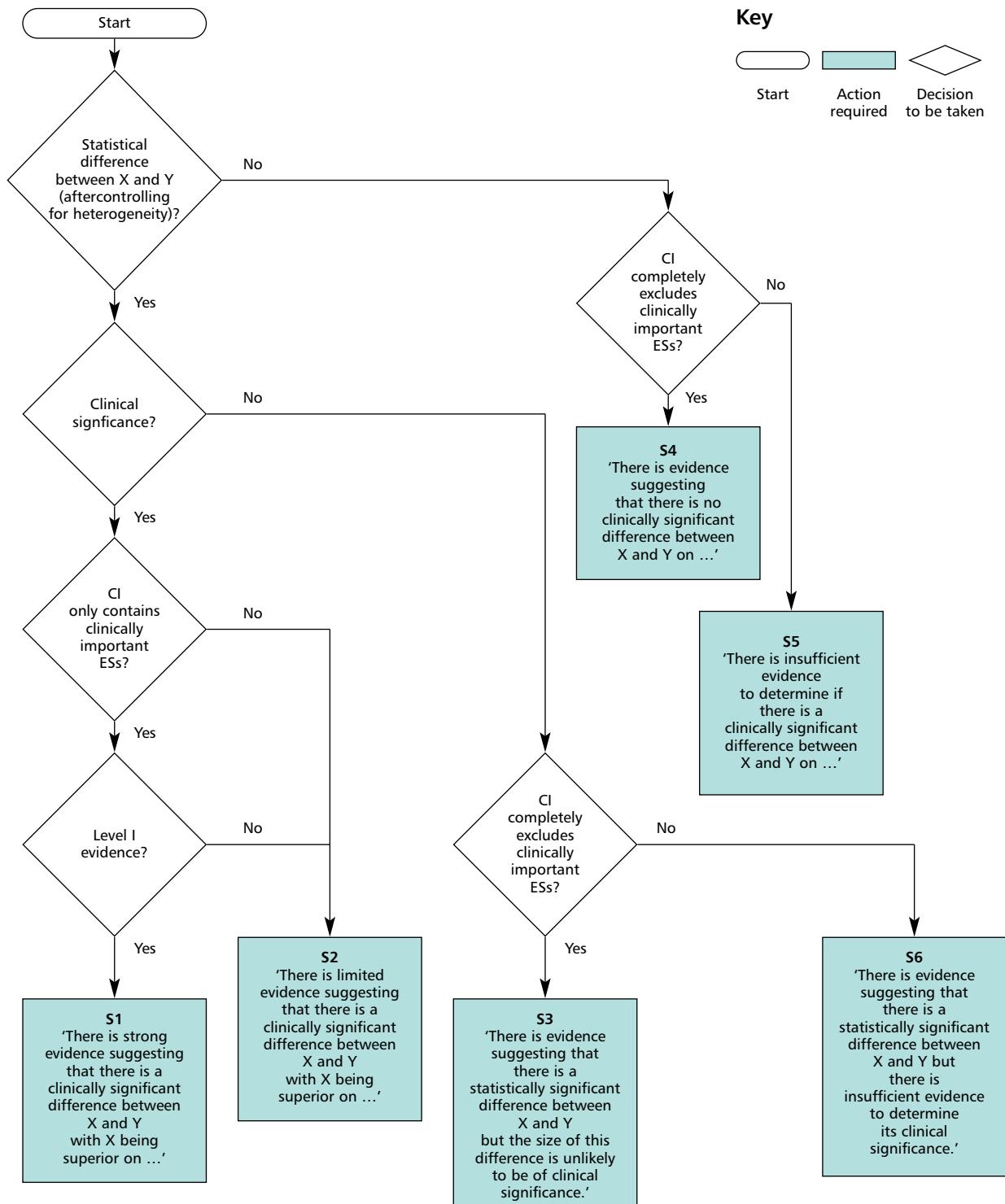
In order to facilitate consistency in generating and drafting the clinical statements the GDG utilised a statement decision tree (see Flowchart 2). The flowchart was designed to assist with, but not replace clinical judgement.

Where a statistically significant summary statistic (effect size; ES) was obtained (after controlling for heterogeneity), the GDG considered whether this finding was of clinical significance (i.e. likely to be of benefit to patients) taking into account the trial population, nature of the outcome and size of the effect. On the basis of this consideration the ES was characterised as 'clinically significant' or not. A further consideration was made about the strength of the evidence by examining the CI surrounding the ES. For level I evidence, where the ES was judged to be clinically significant and had a CI entirely within a clinical relevant range, the result was characterised as 'strong evidence' (S1, Flowchart 2). For non-level I evidence or in situations where the upper/lower bound of the CI was not clinically significant, the result was characterised as 'limited evidence' (S2). Where an ES was statistically significant, but not clinically significant and the CI excluded values judged to be clinically important, the result was characterised as 'unlikely to be clinically significant' (S3). Alternatively, if the CI included clinically important values, the result was characterised as 'insufficient to determine clinical significance' (S6).

Table 1: Hierarchy of evidence and recommendations grading scheme

Level	Type of evidence	Grade	Evidence
I	Evidence obtained from a single randomised controlled trial or a meta-analysis of randomised controlled trials	A	At least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation (evidence level I) without extrapolation
IIa	Evidence obtained from at least one well-designed controlled study without randomisation	B	Well-conducted clinical studies but no randomised clinical trials on the topic of recommendation (evidence levels II or III); or extrapolated from level I evidence
IIb	Evidence obtained from at least one other well-designed quasi-experimental study		
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies		
IV	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities	C	Expert committee reports or opinions and/or clinical experiences of respected authorities (evidence level IV) or extrapolated from level I or II evidence. This grading indicates that directly applicable clinical studies of good quality are absent or not readily available

Flowchart 2: Guideline Statement Decision Tree



Where a non-statistically significant ES was obtained, the GDG reviewed the trial population, nature of the outcome, size of the effect and, in particular, the CI surrounding the result. If the CI was narrow and excluded a clinically significant ES, this was seen as indicating evidence of 'no clinically significant difference' (S4), but where the CI was wide this was seen as indicating 'insufficient evidence' to determine if there was a clinically significant difference or not (S5).

Once all evidence statements relating to a particular clinical question were finalised and agreed by the GDG, the associated recommendations were produced and graded. Grading the recommendations allowed the GDG to distinguish between the level of evidence and the strength of the associated recommendation. It is possible that a statement of evidence would cover only one part of an area in which a recommendation was to be made or would cover it in a way that would conflict with other evidence. In order to produce more comprehensive recommendations suitable for people in England and Wales, the GDG had to extrapolate from the available evidence. This led to a weaker level of recommendation (i.e. B, as data were based upon level I evidence). It is important to note that the grading of the recommendation is not a reflection of its clinical significance or relevance.

A number of issues relating to the study of eating disorders (see Section 3.4.8) meant that the outcomes available for analysis were classified as primary or secondary. When making recommendations, the primary outcomes were given more weight during the decision process.

The process also allowed the GDG to moderate recommendations based on factors other than the strength of evidence. Such considerations include the applicability of the evidence to people with eating disorders, economic considerations, values of the development group and society, or the group's awareness of practical issues (Eccles *et al.*, 1998).

3.4.7 Method used to answer a clinical question in the absence of appropriately designed, high-quality research

Where it was not possible to identify at least one appropriately designed study or high-quality systematic review, or where the GDG was of the opinion (on the basis of previous searches or their knowledge of the literature) that there was unlikely to be appropriately designed primary-level research that directly addressed the clinical question, an informal consensus process was adopted. This process focused on those questions that the GDG considered a priority.

The starting point for this process of informal consensus was that a member of the topic group identified, with help from the systematic reviewer, a narrative review that most directly addressed the clinical question. Where this was not possible a new review of the recent literature was initiated.

This existing narrative review or new review was used as a basis for identifying lower levels of evidence relevant to the clinical question. This was then presented for discussion to the GDG. On the basis of this, additional information was sought and added to the information collected. This may include studies that did not directly address the clinical question but were thought to contain relevant data. This led to the development of an initial draft report that addressed the following issues:

- A description of what is known about the issues concerning the clinical question.
- A brief review of the existing evidence, including RCTs, non-randomised controlled studies, cohort studies and other studies that help answer the question.
- The summary of the evidence so far obtained. This was then presented in narrative form to the GDG and further comments were sought about the evidence and its perceived relevance to the clinical question.
- If, during the course of preparing the report, a significant body of primary-level studies (of appropriate design to answer the question) were identified, a full systematic review was done.
- At this time, subject possibly to further reviews of the evidence, a series of statements that directly addressed the clinical question were developed.
- Following this, on occasions and as deemed appropriate by the development group, the report was then sent to appointed experts outside of the GDG for peer review and comment. The information from this process was then fed back to the GDG for further discussion of the statements.
- Recommendations were then developed and could also be sent for further external peer review.
- After this final stage of comment, the statements and recommendations were again reviewed and agreed upon by the GDG.

3.4.8 Issues concerning research on eating disorders

Studying the treatment of eating disorders presents certain particular challenges. First, since psychological treatments have a major role in their management, the methods needed to evaluate psychotherapeutic treatments have to be adopted. Some of these are mentioned in the national clinical practice guideline on schizophrenia (Kendall *et al.*, 2003) including the need for some degree of standardisation of the psychological treatment provided (usually in the form of a treatment manual) and the importance of quality assessment and control. Additional refinements have been included in some eating disorder studies including the use of 'dismantling' research designs to identify the active components of psychological treatments (e.g. Fairburn *et al.*, 1991, 1993); studies of the mediators of psychological treatments, a stage towards the identification of their mechanism of action (e.g. Wilson *et al.*, 2002); fine-grain comparisons of different ways of implementing specific psychotherapeutic procedures (e.g. Bulik *et al.*, 1998); and 'effectiveness' studies of simplified psychological treatments designed for general dissemination (e.g. Carter & Fairburn, 1998).

The second challenge is the measurement of outcome. Eating disorders affect many aspects of functioning including behaviour (e.g. eating habits), attitudes and values (e.g. the evaluation of shape and weight), psychosocial functioning (e.g. levels of depression and anxiety; interpersonal functioning) and physical health (e.g. body weight, serum electrolytes) (Fairburn & Harrison, 2003). It is also usual for there to be comorbidity with Axis I and II disorders co-existing with the eating disorder (Bulik, 2002). Therefore, most treatment studies employ a range of different outcome measures to determine whether the treatments studied affect all or part of the psychopathology present. Having said this, there are accepted primary outcome variables that treatments must influence if they can be said to have an impact on the core eating disorder. For anorexia nervosa, the primary outcome variable is body weight adjusted for height, usually represented as the BMI or the percentage of expected weight for the person's age, height and sex. For bulimia nervosa the comparable variable is the frequency of binge eating and 'purgung' (self-induced vomiting or the use of laxatives to influence body shape or weight); that is, the frequency of these forms of behaviour over a set period of time (usually one or four weeks). In addition, it is now established practice to report the proportion of participants who no longer practise the behaviour (sometime referred to as the 'abstinence' rates). For binge eating disorder the primary outcome variable is the frequency of binge eating, represented as for bulimia nervosa. An important point to note is that the frequency of binge eating and purging is skewed rather than being normally distributed so these data have to be transformed prior to analysis. However, because most reports give uncorrected means and standard deviations, the GDG gave less weight to frequency data than abstinence rates when making recommendations.

The third challenge is determining whether treatment effects persist over time. Anorexia nervosa and bulimia nervosa tend to run a chronic course so short-lived treatment effects are of limited clinical significance. Thus it has become established research practice to follow-up patients following the end of treatment to see whether any changes last, and with interventions that are known to be associated with a high rate of relapse (e.g. inpatient treatment of anorexia nervosa) there have been attempts to develop and evaluate subsequent 'relapse prevention' strategies (e.g. Kaye *et al.*, 2001; Pike *et al.*, 2003).

The fourth challenge is largely peculiar to research on the treatment of anorexia nervosa. It is exceptionally difficult recruiting cases for treatment studies. This is for a number of reasons. First, anorexia nervosa is uncommon. Second, it can be life-threatening with the result that it is not ethical to recruit certain patients. And third, patients with anorexia nervosa are notoriously reluctant to have treatment and this reluctance can be magnified if the clinician raises the possibility of taking part in a research trial. For these reasons the few studies of the treatment of anorexia nervosa have mostly involved small numbers of patients. As a result it is difficult to draw robust evidence-based conclusions about the treatment of the disorder.

3.5 Health economics review strategies

The aim of the health economics review was to contribute to the guideline development process. Data on the economic burden of eating disorders and evidence of cost-effectiveness of the different treatment options for eating disorders were collected and assessed in order to help the decision-making process. See Chapter 9, Health Economics Evidence, for the detailed review strategies.

3.6 Stakeholder contributions

Professionals, patients, and companies have contributed to and commented on the eating disorders guideline at key stages in its development. Stakeholders for this guideline include:

- Patient/carer stakeholders: the national patient and carer organisations that represent people whose care is described in this guideline
- Professional stakeholders: the national organisations that represent healthcare professionals who are providing services to patients
- Commercial stakeholders: the companies that manufacture medicines used in the treatment of eating disorders
- Primary Care Trusts
- Department of Health and Welsh Assembly Government.

Stakeholders have been involved in the guideline's development at the following points:

- Commenting on the initial scope of the guideline with patient organisation stakeholders attending a briefing meeting held by NICE
- Contributing lists of evidence to the GDG
- Commenting on the first and second drafts of the guideline.

3.7 Validation of this guideline

This guideline has been validated through two consultation exercises. The first consultation draft was submitted to the NICE Guidelines Review Panel, and circulated to stakeholders, special advisors, and other reviewers nominated by GDG members.

After taking into account comments from stakeholders, the NICE Guidelines Review Panel, a number of health authority and trust representatives and a wide range of national and international experts from this round of consultation, the GDG responded to all comments and prepared a final consultation draft which was submitted to NICE, circulated to all stakeholders for final comments and posted on the website for public consultation. The final draft was then submitted to the NICE Guidelines Review Panel for review prior to publication.

4 Summary of recommendations

Key priorities for implementation

The following recommendations have been identified as key priorities for implementation.

Anorexia nervosa

- Most adults with anorexia nervosa should be managed on an outpatient basis with psychological treatment provided by a service that is competent in giving that treatment and assessing the physical risk of people with eating disorders.
- People with anorexia nervosa requiring inpatient treatment should normally be admitted to a setting that can provide the skilled implementation of refeeding with careful physical monitoring (particularly in the first few days of refeeding) and in combination with psychosocial interventions.
- Family interventions that directly address the eating disorder should be offered to children and adolescents with anorexia nervosa.

Bulimia nervosa

- As a possible first step, patients with bulimia nervosa should be encouraged to follow an evidence-based self-help programme.
- As an alternative or additional first step to using an evidence-based self-help programme, adults with bulimia nervosa may be offered a trial of an antidepressant drug.
- Cognitive behaviour therapy for bulimia nervosa (CBT-BN), a specifically adapted form of CBT, should be offered to adults with bulimia nervosa. The course of treatment should be for 16 to 20 sessions over four to five months.
- Adolescents with bulimia nervosa may be treated with CBT-BN, adapted as needed to suit their age, circumstances and level of development, and including the family as appropriate.

Atypical eating disorders

- In the absence of evidence to guide the management of atypical eating disorders (also known as eating disorders not otherwise specified) other than binge eating disorder, it is recommended that the clinician considers following the guidance on the treatment of the eating problem that most closely resembles the individual patient's eating disorder.
- Cognitive behaviour therapy for binge eating disorder (CBT-BED), a specifically adapted form of CBT, should be offered to adults with binge eating disorder.

For all eating disorders

- Family members including siblings should normally be included in the treatment of children and adolescents with eating disorders. Interventions may include sharing of information, advice on behavioural management and facilitating communication.

The following guidance is evidence-based. All evidence was classified according to a accepted hierarchy of evidence that was originally adapted from the US Agency for Healthcare Policy and Research Classification. Recommendations were then graded A to C based on the level of associated evidence. This grading scheme is based on a scheme formulated by the Clinical Outcomes Group of the NHS Executive (1996) and is described in Section 3.4.6; a summary of the evidence on which the guidance is based is provided in Chapters 5 through 8.

4.1 Introduction

This guideline makes recommendations for the identification, treatment and management of anorexia nervosa, bulimia nervosa, and atypical eating disorders (including binge eating disorder) in primary, secondary and tertiary care. The guideline applies to adults, adolescents and children aged 8 years and older.

4.2 Care across all conditions

4.2.1 Assessment and co-ordination of care

- 4.2.1.1 Assessment of people with eating disorders should be comprehensive and include physical, psychological and social needs, and a comprehensive assessment of risk to self. (C)
- 4.2.1.2 The level of risk to the patient's mental and physical health should be monitored as treatment progresses because it may change – for example following weight change or at times of transition between services in cases of anorexia nervosa. (C)
- 4.2.1.3 For people with eating disorders presenting in primary care, GPs should take responsibility for the initial assessment and the initial co-ordination of care. This includes the determination of the need for emergency medical or psychiatric assessment. (C)
- 4.2.1.4 Where management is shared between primary and secondary care, there should be clear agreement amongst individual health care professionals on the responsibility for monitoring patients with eating disorders. This agreement should be in writing (where appropriate using the care programme approach) and should be shared with the patient and, where appropriate, his or her family and carers. (C)

4.2.2 Providing good information and support

- 4.2.2.1 Patients and, where appropriate, carers should be provided with education and information on the nature, course and treatment of eating disorders. (C)
- 4.2.2.2 In addition to the provision of information, family and carers may be informed of self-help groups and support groups and offered the opportunity to participate in such groups where they exist. (C)
- 4.2.2.3 Health care professionals should acknowledge that many people with eating disorders are ambivalent about treatment. Health care professionals should also recognise the consequent demands and challenges this presents. (C)

4.2.3 Getting help early

There can be serious long-term consequences to a delay in obtaining treatment.

- 4.2.3.1 People with eating disorders should be assessed and receive treatment at the earliest opportunity. (C)
- 4.2.3.2 Whenever possible patients should be engaged and treated before reaching severe emaciation. This requires both early identification and intervention. Effective monitoring and engagement of patients at severely low weight or with falling weight should be a priority. (C)

4.2.4 Management of physical aspects

- 4.2.4.1 Where laxative abuse is present, patients should be advised to gradually reduce laxative use and informed that laxative use does not significantly reduce calorie absorption. (C)
- 4.2.4.2 Treatment of both subthreshold and clinical cases of an eating disorder in people with diabetes is essential because of the greatly increased physical risk in this group. (C)
- 4.2.4.3 People with Type 1 diabetes and an eating disorder should have intensive regular physical monitoring because they are at high-risk of retinopathy and other complications. (C)
- 4.2.4.4 Pregnant women with eating disorders require careful monitoring throughout the pregnancy and in the post-partum period. (C)
- 4.2.4.5 Patients who are vomiting should have regular dental reviews. (C)
- 4.2.4.6 Patients who are vomiting should be given appropriate advice on dental hygiene, which should include avoiding brushing after vomiting, rinsing with a non-acid mouthwash after vomiting, and reducing an acid oral environment (for example, limiting acidic foods). (C)

- 4.2.4.7 Health care professionals should advise people with eating disorders and osteoporosis or related bone disorders to refrain from physical activities that significantly increase the likelihood of falls. (C)

4.2.5 Additional considerations for children and adolescents

- 4.2.5.1 Family members including siblings, should normally be included in the treatment of children and adolescents with eating disorders. Interventions may include sharing of information, advice on behavioural management and facilitating communication. (C)
- 4.2.5.2 In children and adolescents with eating disorders, growth and development should be closely monitored. Where development is delayed or growth is stunted despite adequate nutrition, paediatric advice should be sought. (C)
- 4.2.5.3 Health care professionals assessing children and adolescents with eating disorders should be alert to indicators of abuse (emotional, physical and sexual) and should remain so throughout treatment. (C)
- 4.2.5.4 The right to confidentiality of children and adolescents with eating disorders should be respected. (C)
- 4.2.5.5 Health care professionals working with children and adolescents with eating disorders should familiarise themselves with national guidelines and their employers' policies in the area of confidentiality. (C)

4.3 Identification and screening of eating disorders in primary care and non-mental health settings

- 4.3.1.1 Target groups for screening should include young women with low body mass index (BMI) compared with age norms, patients consulting with weight concerns who are not overweight, women with menstrual disturbances or amenorrhoea, patients with gastrointestinal symptoms, patients with physical signs of starvation or repeated vomiting and children with poor growth. (C)
- 4.3.1.2 When screening for eating disorders one or two simple questions should be considered for use with specific target groups (for example, 'Do you think you have an eating problem?' and 'Do you worry excessively about your weight?') (C)
- 4.3.1.3 Young people with Type 1 diabetes and poor treatment adherence should be screened and assessed for the presence of an eating disorder. (C)

4.4 Anorexia nervosa

4.4.1 Management of anorexia nervosa in primary care

- 4.4.1.1 In anorexia nervosa, although weight and body mass index (BMI) are important indicators of physical risk they should not be considered the sole indicators (as on their own they are unreliable in adults and especially in children). (C)
- 4.4.1.2 In assessing whether a person has anorexia nervosa, attention should be paid to the overall clinical assessment (repeated over time), including rate of weight loss, growth rates in children, objective physical signs and appropriate laboratory tests. (C)
- 4.4.1.3 Patients with enduring anorexia nervosa not under the care of a secondary care service should be offered an annual physical and mental health review by their GP. (C)

4.4.2 Psychological interventions for anorexia nervosa

The delivery of psychological interventions should be accompanied by regular monitoring of a patient's physical state including weight and specific indicators of increased physical risk.

Common elements of the psychological treatment of anorexia nervosa

- 4.4.2.1 Therapies to be considered for the psychological treatment of anorexia nervosa include cognitive analytic therapy (CAT), cognitive behaviour therapy (CBT), interpersonal psychotherapy (IPT), focal psychodynamic therapy and family interventions focused explicitly on eating disorders. (C)
- 4.4.2.2 Patient and, where appropriate, carer preference should be taken into account in deciding which psychological treatment is to be offered. (C)
- 4.4.2.3 The aims of psychological treatment should be to reduce risk, encourage weight gain, healthy eating, and reduce other symptoms related to an eating disorder, and to facilitate psychological and physical recovery. (C)

Outpatient psychological treatments in first episode and later episodes

- 4.4.2.4 Most people with anorexia nervosa should be managed on an outpatient basis with psychological treatment (with physical monitoring) provided by a health care professional competent to give it and to assess the physical risk of people with eating disorders. (C)
- 4.4.2.5 Outpatient psychological treatment and physical monitoring for anorexia nervosa should normally be of at least six months' duration. (C)

- 4.4.2.6 For patients with anorexia nervosa, if during outpatient psychological treatment there is significant deterioration, or the completion of an adequate course of outpatient psychological treatment does not lead to any significant improvement, more intensive forms of treatment (for example, a move from individual therapy to combined individual and family work or day care, or inpatient care) should be considered. (C)
- 4.4.2.7 Dietary counselling should not be provided as the sole treatment for anorexia nervosa. (C)

Psychological aspects of inpatient care

- 4.4.2.8 For inpatients with anorexia nervosa, a structured symptom-focused treatment regimen with the expectation of weight gain should be provided in order to achieve weight restoration. It is important to carefully monitor the patient's physical status during refeeding. (C)
- 4.4.2.9 Psychological treatment should be provided which has a focus both on eating behaviour and attitudes to weight and shape, and wider psychosocial issues with the expectation of weight gain. (C)
- 4.4.2.10 Rigid inpatient behaviour modification programmes should not be used in the management of anorexia nervosa. (C)

Post-hospitalisation psychological treatment

- 4.4.2.11 Following inpatient weight restoration people with anorexia nervosa should be offered outpatient psychological treatment that focuses both on eating behaviour and attitudes to weight and shape, and wider psychosocial issues with regular monitoring of both physical and psychological risk. (C)
- 4.4.2.12 The length of outpatient psychological treatment and physical monitoring following inpatient weight restoration should typically be at least 12 months. (C)

Additional considerations for children and adolescents with anorexia nervosa

- 4.4.2.13 Family interventions that directly address the eating disorder should be offered to children and adolescents with anorexia nervosa. (B)
- 4.4.2.14 Children and adolescents with anorexia nervosa should be offered individual appointments with a health care professional separate from those with their family members or carers. (C)
- 4.4.2.15 The therapeutic involvement of siblings and other family members should be considered in all cases because of the effects of anorexia nervosa on other family members. (C)
- 4.4.2.16 In children and adolescents with anorexia nervosa the need for inpatient treatment and the need for urgent weight restoration should be balanced alongside the educational and social needs of the young person. (C)

4.4.3 Pharmacological interventions for anorexia nervosa

There is a very limited evidence base for the pharmacological treatment of anorexia nervosa. A range of drugs may be used in the treatment of comorbid conditions but caution should be exercised in their use given the physical vulnerability of many people with anorexia nervosa.

- 4.4.3.1 Medication should not be used as the sole or primary treatment for anorexia nervosa. (C)
- 4.4.3.2 Caution should be exercised in the use of medication for comorbid conditions such as depressive or obsessive-compulsive features as they may resolve with weight gain alone. (C)
- 4.4.3.3 When medication is used to treat people with anorexia nervosa, the side effects of drug treatment (in particular, cardiac side effects) should be carefully considered because of the compromised cardiovascular function of many people with anorexia nervosa. (C)
- 4.4.3.4 Health care professionals should be aware of the risk of drugs that prolong the QTc interval on the ECG; for example, antipsychotics, tricyclic antidepressants, macrolide antibiotics, and some antihistamines. In patients with anorexia nervosa at risk of cardiac complications, the prescription of drugs with side effects that may compromise cardiac function should be avoided. (C)
- 4.4.3.5 If the prescription of medication that may compromise cardiac functioning is essential, ECG monitoring should be undertaken. (C)
- 4.4.3.6 All patients with a diagnosis of anorexia nervosa should have an alert placed in their prescribing record concerning the risk of side effects. (C)

4.4.4 Physical management of anorexia nervosa

Anorexia nervosa carries considerable risk of serious physical morbidity. Awareness of the risk, careful monitoring and, where appropriate, close liaison with an experienced physician are important in the management of the physical complications of anorexia nervosa.

Managing weight gain

- 4.4.4.1 In most patients with anorexia nervosa an average weekly weight gain of 0.5 to 1 kg in inpatient settings and 0.5 kg in outpatient settings should be an aim of treatment. This requires about 3500 to 7000 extra calories a week. (C)
- 4.4.4.2 Regular physical monitoring, and in some cases treatment with a multi-vitamin/multi-mineral supplement in oral form is recommended for people with anorexia nervosa during both inpatient and outpatient weight restoration. (C)

- 4.4.4.3 Total parenteral nutrition should not be used for people with anorexia nervosa, unless there is significant gastrointestinal dysfunction. (C)

Managing risk

- 4.4.4.4 Health care professionals should monitor physical risk in patients with anorexia nervosa. If this leads to the identification of increased physical risk, the frequency and the monitoring and nature of the investigations should be adjusted accordingly. (C)
- 4.4.4.5 People with anorexia nervosa and their carers should be informed if the risk to their physical health is high. (C)
- 4.4.4.6 The involvement of a physician or paediatrician with expertise in the treatment of physically at-risk patients with anorexia nervosa should be considered for all individuals who are physically at risk. (C)
- 4.4.4.7 Pregnant women with either current or remitted anorexia nervosa may need more intensive prenatal care to ensure adequate prenatal nutrition and fetal development. (C)
- 4.4.4.8 Oestrogen administration should not be used to treat bone density problems in children and adolescents as this may lead to premature fusion of the epiphyses. (C)

Feeding against the will of the patient

- 4.4.4.9 Feeding against the will of the patient should be an intervention of last resort in the care and management of anorexia nervosa. (C)
- 4.4.4.10 Feeding against the will of the patient is a highly specialised procedure requiring expertise in the care and management of those with severe eating disorders and the physical complications associated with it. This should only be done in the context of the Mental Health Act 1983 or Children Act 1989. (C)
- 4.4.4.11 When making the decision to feed against the will of the patient the legal basis for any such action must be clear. (C)

4.4.5 Service interventions for anorexia nervosa

The following section considers those aspects of the service system relevant to the treatment and management of anorexia nervosa.

- 4.4.5.1 Most people with anorexia nervosa should be treated on an outpatient basis. (C)
- 4.4.5.2 Where inpatient management is required, this should be provided within reasonable travelling distance to enable the involvement of relatives and carers in treatment, to maintain social and occupational links and to avoid difficulty in transition between primary and secondary care services. This is particularly important in the treatment of children and adolescents. (C)

- 4.4.5.3 Inpatient treatment should be considered for people with anorexia nervosa whose disorder is associated with high or moderate physical risk. (C)
- 4.4.5.4 People with anorexia nervosa requiring inpatient treatment should be admitted to a setting that can provide the skilled implementation of refeeding with careful physical monitoring (particularly in the first few days of refeeding) and in combination with psychosocial interventions. (C)
- 4.4.5.5 Inpatient treatment or day patient treatment should be considered for people with anorexia nervosa whose disorder has not improved with appropriate outpatient treatment, or for whom there is a significant risk of suicide or severe self-harm. (C)
- 4.4.5.6 Health care professionals without specialist experience of eating disorders, or in situations of uncertainty, should consider seeking advice from an appropriate specialist when contemplating a compulsory admission for a patient with anorexia nervosa regardless of the age of the patient. (C)
- 4.4.5.7 Health care professionals managing patients with anorexia nervosa, especially that of the binge purging sub-type, should be aware of the increased risk of self-harm and suicide, particularly at times of transition between services or service settings. (C)

4.4.6 Additional considerations for children and adolescents

- 4.4.6.1 Health care professionals should ensure that children and adolescents with anorexia nervosa who have reached a healthy weight have the increased energy and necessary nutrients available in the diet to support further growth and development. (C)
- 4.4.6.2 In the nutritional management of children and adolescents with anorexia nervosa, carers should be included in any dietary education or meal planning. (C)
- 4.4.6.3 Admission of children and adolescents with anorexia nervosa should be to age-appropriate facilities (with the potential for separate children and adolescent services), which have the capacity to provide appropriate educational and related activities. (C)
- 4.4.6.4 When a young person with anorexia nervosa refuses treatment that is deemed essential, consideration should be given to the use of the Mental Health Act 1983 or the right of those with parental responsibility to override the young person's refusal. (C)
- 4.4.6.5 Relying indefinitely on parental consent to treatment should be avoided. It is recommended that the legal basis under which treatment is being carried out should be recorded in the patient's case notes, and this is particularly important in the case of children and adolescents. (C)

- 4.4.6.6 For children and adolescents with anorexia nervosa, where issues of consent to treatment are highlighted, health care professionals should consider seeking a second opinion from an eating disorders specialist. (C)
- 4.4.6.7 If the patient with anorexia nervosa and those with parental responsibility refuse treatment, and treatment is deemed to be essential, legal advice should be sought in order to consider proceedings under the Children Act 1989. (C)

4.5 Bulimia nervosa

4.5.1 Psychological interventions for bulimia nervosa

- 4.5.1.1 As a possible first step, patients with bulimia nervosa should be encouraged to follow an evidence-based self-help programme. (B)
- 4.5.1.2 Health care professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help programme as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. (B)
- 4.5.1.3 Cognitive behaviour therapy for bulimia nervosa (CBT-BN), a specifically adapted form of cognitive behaviour therapy, should be offered to adults with bulimia nervosa. The course of CBT-BN should normally be of 16 to 20 sessions over four to five months. (A)
- 4.5.1.4 Adolescents with bulimia nervosa may be treated with CBT-BN adapted as needed to suit their age, circumstances and level of development and including the family as appropriate. (C)
- 4.5.1.5 When people with bulimia nervosa have not responded to or do not want CBT, other psychological treatments should be considered. (B)
- 4.5.1.6 Interpersonal psychotherapy should be considered as an alternative to cognitive behaviour therapy, but patients should be informed it takes eight to 12 months to achieve results comparable with cognitive behaviour therapy. (B)

4.5.2 Pharmacological interventions for bulimia nervosa

- 4.5.2.1 As an alternative or additional first step to using an evidence-based self-help programme, adults with bulimia nervosa may be offered a trial of an antidepressant drug. (B)
- 4.5.2.2 Patients should be informed that antidepressant drugs can reduce the frequency of binge eating and purging, but the long-term effects are unknown. Any beneficial effects will be rapidly apparent. (B)

- 4.5.2.3 Selective serotonin reuptake inhibitors (SSRIs) (specifically fluoxetine) are the drugs of first choice for the treatment of bulimia nervosa in terms of acceptability, tolerability and reduction of symptoms. (C)
- 4.5.2.4 For people with bulimia nervosa, the effective dose of fluoxetine is higher than for depression (60 mg daily). (C)
- 4.5.2.5 No drugs, other than antidepressants, are recommended for the treatment of bulimia nervosa. (B)

4.5.3 Management of physical aspects of bulimia nervosa

Patients with bulimia nervosa can experience considerable physical problems as a result of a range of behaviours associated with the condition. Awareness of the risks and careful monitoring should be a concern of all health care professionals working with people with this disorder.

- 4.5.3.1 Patients with bulimia nervosa who are vomiting frequently or taking large quantities of laxatives (and especially if they are also underweight) should have their fluid and electrolyte balance assessed. (C)
- 4.5.3.2 When electrolyte disturbance is detected, it is usually sufficient to focus on eliminating the behaviour responsible. In the small proportion of cases where supplementation is required to restore the patient's electrolyte balance oral rather than intravenous administration is recommended, unless there are problems with gastro intestinal absorption. (C)

4.5.4 Service interventions for bulimia nervosa

The great majority of patients with bulimia nervosa can be treated as outpatients. There is a very limited role for the inpatient treatment of bulimia nervosa. This is primarily concerned with the management of suicide risk or severe self-harm.

- 4.5.4.1 The great majority of patients with bulimia nervosa should be treated in an outpatient setting. (C)
- 4.5.4.2 For patients with bulimia nervosa who are at risk of suicide or severe self-harm, admission as an inpatient or a day patient or the provision of more intensive outpatient care, should be considered. (C)
- 4.5.4.3 Psychiatric admission for people with bulimia nervosa should normally be undertaken in a setting with experience of managing this disorder. (C)
- 4.5.4.4 Health care professionals should be aware that patients with bulimia nervosa who have poor impulse control, notably substance misuse, may be less likely to respond to a standard programme of treatment. As a consequence treatment should be adapted to the problems presented. (C)

4.5.5 Additional considerations in children and adolescents

- 4.5.5.1 Adolescents with bulimia nervosa may be treated with CBT-BN adapted as needed to suit their age, circumstances and level of development and including the family as appropriate. (C)

4.6 Treatment and management of atypical eating disorders including binge eating disorder

4.6.1 General treatment of atypical eating disorders

- 4.6.1.1 In the absence of evidence to guide the management of atypical eating disorders (eating disorders not otherwise specified) other than binge eating disorder, it is recommended that the clinician considers following the guidance on the treatment of the eating problem that most closely resembles the individual patient's eating disorder. (C)

4.6.2 Psychological treatments for binge eating disorder

- 4.6.2.1 As a possible first step, patients with binge eating disorder should be encouraged to follow an evidence-based self-help programme. (B)
- 4.6.2.2 Health care professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help programme as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. (B)
- 4.6.2.3 Cognitive behaviour therapy for binge eating disorder (CBT-BED), a specifically adapted form of CBT, should be offered to adults with binge eating disorder. (A)
- 4.6.2.4 Other psychological treatments (interpersonal psychotherapy for binge eating disorder, and modified dialectical behaviour therapy) may be offered to adults with persistent binge eating disorder. (B)
- 4.6.2.5 Patients should be informed that all psychological treatments for binge eating disorder have a limited effect on body weight. (A)
- 4.6.2.6 When providing psychological treatments for patients with binge eating disorder, consideration should be given to the provision of concurrent or consecutive interventions focusing on the management of comorbid obesity. (C)
- 4.6.2.7 Suitably adapted psychological treatments should be offered to adolescents with persistent binge eating disorder. (C)

4.6.3 Pharmacological interventions for binge eating disorder

- 4.6.3.1 As an alternative or additional first step to using an evidence-based self-help programme, consideration should be given to offering a trial of a SSRI antidepressant drug to patients with binge eating disorder. (B)
- 4.6.3.2 Patients with binge eating disorders should be informed that SSRIs can reduce binge eating, but the long-term effects are unknown. Antidepressant drugs may be sufficient treatment for a limited subset of patients. (B)

4.7 Research recommendations

The following research recommendations have been identified to address gaps in the evidence base:

- Adequately powered efficacy studies of specific treatments and services for people with anorexia nervosa are required.
- Efficacy studies of the treatment for atypical eating disorders (eating disorders not otherwise specified) are required.
- Efficacy studies of the treatment of adolescents with bulimia nervosa and non-responders to cognitive behaviour therapy are required.
- Effectiveness studies of the treatment of bulimia nervosa in adults are required.
- Patient and carer satisfaction is an important outcome and may influence treatment approaches. It should be considered a routine outcome in research.
- Further research is needed to assess the validity of screening instruments in primary care.

5 Identification of eating disorders in primary care

5.1 Introduction

Although new cases of clinical anorexia nervosa are not a common occurrence in primary care (an average GP list of 1900 will have only one or two sufferers), eating disorders including bulimia nervosa and EDNOS reach a prevalence of five per cent in young women. Community studies show that less than half of clinical cases of eating disorders are identified in primary care. Despite this, patients with eating disorders consult more frequently prior to diagnosis with a variety of symptoms, psychological, gynaecological and gastroenterological (Ogg *et al.*, 1997). The difficulties facing primary care clinicians in diagnosis derive in part from illness-related factors, such as ambivalence, denial, secrecy and shame, which make it difficult for sufferers to be open with their doctors. GPs may have little experience with eating disorders, and feel anxious about their management or unsympathetic towards an illness that may appear in part self-inflicted. Patients may report that the problem is not always taken seriously enough if presented at an early stage. Practitioners risk failing to identify eating disorders if they do not consider the fact that these illnesses also occur in groups not traditionally considered to be at risk, such as children, men and those from ethnic minority groups, and lower social classes.

The effective management of anorexia nervosa depends on a full assessment of physical status, psychological features, risk and capacity to consent to treatment. The details of appropriate physical assessment are detailed in Section 5.2.4, but included in the assessment of high physical risk will be an assessment of degree of emaciation (BMI/BMI centile), the presence of purging and any fluid restriction. The rate of weight loss is also an important indicator. In children and younger adolescents, reference to BMI norms is necessary, but it is also of note that children's relatively small fat stores render them at risk with relatively less weight loss. Psychosocial assessment should take account of motivation and social support.

5.1.1 Current practice

Little is known about how eating disorders are actually assessed or managed in primary care. Referrals to secondary care services (including specialist eating disorder centres) vary widely as does the information contained in them. Current practice is not underpinned by an evidence base derived from primary care settings and guidance has largely been extrapolated from secondary or tertiary care settings with experience with more severely ill clinical populations.

5.2 Screening

Early detection and treatment of eating disorders may improve outcomes in eating disorders. General practitioners and other members of the primary care team are in a good position to identify patients with eating problems early. Screening tools may

facilitate this process. The most effective screening device probably remains the general practitioner thinking about the possibility of an eating disorder.

It would be impractical for general practitioners to try and screen all their patients for eating disorders, as the prevalence of eating disorders in the general population is low. It might be possible to screen new patients when they register. One or two screening questions could be used to raise the index of suspicion, either verbally during the registration health check or in writing as part of the registration questionnaire.

High-risk groups within the general practice population could be targeted opportunistically. Such groups include young women, patients with a low or high BMI, adolescents consulting with weight concerns, menstrual disturbances or amenorrhoea, gastrointestinal disorders and psychological problems. A brief screening questionnaire could be used for such high-risk groups.

5.2.1 Current practice

Eating disorders may be difficult to detect in primary care settings. Patients may be slow to self-present and many remain undetected by general practitioners (King, 1989; Whitehouse *et al.*, 1992). Adults with eating disorders appear to consult their general practitioner more frequently than controls, presenting particularly with psychological, gastrointestinal and gynaecological problems (Ogg *et al.*, 1997). Consultations of this nature present an opportunity to screen for eating disorders. At present, no formal screening tool for eating disorders is widely used in primary care.

5.2.2 Screening for eating disorders

The aim of screening is to facilitate detection so that treatment can be offered early in the course of the eating disorder.

A systematic review of the literature did not identify a significant body of work in this area, nor were any high quality existing systematic reviews identified. The absence of high quality evidence in this area inevitably limits the conclusions that can be drawn from the review. The relevant studies that were identified are described below.

Existing screening instruments

A range of questionnaires exists of which the Eating Attitudes Test, EAT (Garner & Garfinkel, 1979) is probably the most widely used as a screening tool in epidemiological studies. In addition there are a number of other pencil and paper measures to assess eating disorder psychopathology (e.g. the Eating Disorder Inventory, EDI – Garner *et al.*, 1983). However, these take a long time to administer and may need to be interpreted by specialists. Such instruments may be well suited for evaluating treatment progress in patients with eating disorders, but may not perform well in screening for eating disorders in community samples due to symptom denial and low prevalence (Williams *et al.*, 1982; Carter & Moss, 1984).

Questionnaires of this type may have a role for screening in very high-risk groups in special settings, e.g. in ballet schools, fitness and sports facilities.

They may have occasional application in general practice, when a patient with a probable eating disorder has already been identified.

Several brief screening questionnaires, more suitable for use in community samples, have been developed and evaluated. These include the SCOFF (Morgan *et al.*, 1999), Anstine and Grinenko (2000), the BITE and the BES (Ricca *et al.*, 2000), the EDS-5 (Rosenvinge, 2001), Freund *et al.* (1993), the ESP (Cotton *et al.*, 2003), Ri-BED-8 (Waaddegaard *et al.*, 1999), the EDDS (Stice *et al.*, 2000), the EAT-12 and the EDE-S/Q (Beglin & Fairburn, 1992, 1994). The most promising to date is the SCOFF.

The SCOFF questionnaire (Morgan *et al.*, 1999; Luck *et al.*, 2002; Perry *et al.*, 2002) was developed and validated in the UK. It consists of five questions designed to clarify suspicion that an eating disorder might exist rather than to make a diagnosis. The questions can be delivered either verbally or in written form and there is one study validating the use of the SCOFF in adult women in a general practice population (Luck, 2002). Further research is needed to evaluate the SCOFF questions in general practice populations before they can be recommended for use in primary care.

5.2.3 Clinical summary

A number of brief screening methods have been developed that have some utility in detecting eating disorders. The SCOFF has been shown to be capable of determining cases of eating disorders in adult women in primary care. The place of longer questionnaires (e.g. EAT, EDI, BITE, EDE-Q) may be in further assessment, once index of suspicion has been raised. They may also be useful to facilitate decisions regarding referral to secondary care or other specialist services. Certain clinical presentations should also raise the index suspicion, for example, adolescent girls with concerns about weight, and women consulting with menstrual disturbances, gastrointestinal or psychological symptoms.

5.2.4 Identification

The most important factor in the identification of eating disorders in generalist settings is for the practitioner to consider the possibility of an eating disorder and to be prepared to inquire further in an empathic and non-judgmental manner. The history is paramount and special investigations are not normally required to make a diagnosis.

5.2.4.1 Anorexia nervosa

The first contact with health care services is often made by a worried family member, friend or schoolteacher rather than the patient. Concerns expressed may be related to weight loss, food-related behaviours such as skipping meals, hiding food or adopting a restrictive diet. There may be a change in mood, sleep patterns and increased activity. Typical psychopathological features are fear of gaining weight or becoming fat despite being underweight, disturbance in evaluating or experiencing body weight or shape, undue influence of eating or changes in body weight on self-evaluation and preoccupation with shape or weight-related matters. These features may not all be present, easy to elicit or they may be denied. However, denial of the seriousness of the weight loss or consequences, both physical and psychological is usually present.

Established anorexia nervosa with signs of emaciation is usually obvious. However, patients may present initially in primary care with non-specific physical symptoms such as abdominal pain, bloating, constipation, cold intolerance, light headedness, hair, nail or skin changes. Amenorrhoea, combined with unexplained weight loss, in the population at risk should always prompt further enquiry. Apparent food allergy/intolerance and chronic fatigue syndrome sometimes precede the development of an eating disorder and may cause diagnostic confusion. In children, growth failure may be a presenting feature.

In practice, typical cases should cause little difficulty when the time is taken to explore the history including corroborative information and the patient's attitude to the weight loss. Indeed, diagnosis is often delayed when doctors inadvertently collude by over-investigating and referring to other specialties rather than confronting the possibility of an eating disorder.

Diagnostic criteria

These are outlined in the introduction (see Section 2.1.2).

In children and adolescents under 18, the use of BMI centile charts should be encouraged (Cole, Bellizi *et al.*, 2000) with a cut off less than the 2.4th centile of the reference population indicating underweight.

Centile charts for weight and height are also helpful in showing failure to progress over time.

The list of potential differential diagnoses of weight loss or amenorrhoea is large, but in practice, typical cases should cause little difficulty when the time is taken to explore the history including corroborative information and the patient's attitude to the weight loss. The following factors need to be considered:

- Risk factors – family history of eating disorder, Type 1 diabetes, previously overweight, occupation (e.g. athlete, dancer, model). Although adolescent girls and young women constitute the principal population at risk, it should be remembered that eating disorders also occur in ethnic minorities, men and children.
- Differential diagnosis of weight loss – includes malabsorption (e.g. coeliac disease, inflammatory bowel disease), neoplasm, illicit drug use, infection (e.g. TB), autoimmune disease, endocrine disorders (e.g. hyperthyroidism).
- Differential diagnosis of amenorrhoea – includes pregnancy, primary ovarian failure, poly cystic ovary syndrome, pituitary prolactinoma, uterine problems and other hypothalamic causes.
- Psychiatric differential diagnosis – includes depression, obsessive-compulsive disorder, somatisation and, rarely, psychosis.

Initial physical assessment

The rationale for physical assessment is more to determine the presence and severity of emaciation and secondary physical consequences of the anorexia nervosa than to ascertain the primary diagnosis.

It should include as a minimum:

- Height weight and BMI
- Centile charts for age less than 18
- Pulse and blood pressure.

The following may also be helpful to assess the risk of physical instability:

- Core temperature (this is easily done by ear thermometer)
- Examination of peripheries (circulation and oedema)
- Cardiovascular examination including postural hypotension
- Situp/squat test (a test of muscle power) (Robinson, 2003).

Laboratory investigations

Extensive laboratory investigation is not usually required in the diagnosis or assessment of anorexia nervosa in a primary care setting. Many tests remain normal even with extreme weight loss and are a poor guide to physical risk. The diagnosis is always made on the basis of the clinical history.

Investigations

The following would represent a reasonable initial screen in primary care if there are no other indications or diagnostic concerns:

- Full Blood Count, ESR, Urea and Electrolytes, Creatinine, Liver Function Tests, Random Blood Glucose, Urinalysis.
- ECG: This should be considered in all cases and is essential if symptoms/signs of cardiac compromise, bradycardia, electrolyte abnormality or BMI less than 15 kg/m². (Or equivalent on centile chart.)

Further tests may be required in more severe cases or to assess complications: Calcium, Magnesium, Phosphate, Serum Proteins, Creatine Kinase (CK or CPK).

Tests that may be needed in the differential diagnosis of amenorrhoea and weight loss:

- Thyroid Function Tests, Follicle Stimulating Hormone, Lutenising Hormone, Prolactin, Chest X-Ray.

A DXA scan may be considered for identification of osteopenia/osteoporosis, which may occur after six to 12 months of amenorrhoea. Although this is not necessarily a primary care level investigation, it has been suggested that it may be helpful in encouraging motivation for change in those not yet ready to accept referral, by demonstrating the real physical consequences of anorexia nervosa.

5.2.4.2 Bulimia nervosa

Identification

The patient with bulimia nervosa is more likely to be older and to consult alone than a patient with anorexia nervosa. There may be a history of previous anorexia nervosa or of unhappiness with previous weight and attempts to diet. Appropriate questioning (see screening section above) may reveal patterns of restriction, binge eating and purging and psychopathology that make the diagnosis clear. Not infrequently, physical symptoms are presented which may be related to or consequences of purging or laxative use. These symptoms, particularly in a young woman should be a 'red flag' in prompting the practitioner to consider further enquiry.

Where the patient does not disclose bulimia nervosa, a range of symptoms may present which should raise the index of suspicion. These include requests for help with weight loss, menstrual disturbance and the physical consequences of vomiting and laxative and diuretic use. Non-specific symptoms may include fatigue, lethargy. Gastrointestinal disorders may be present including bloating, fullness, abdominal pain, irritable bowel syndrome type symptoms, constipation, diarrhoea and rectal prolapse as well as oesophagitis and gastrointestinal bleeding. Oropharyngeal symptoms may include a sore throat, parotid swelling and dental enamel erosion.

Physical examination and investigation

In bulimia nervosa and related conditions, characteristic physical signs have been described (for example, parotid enlargement, Russell's sign (callus formation on the dorsum of the hand) and dental enamel erosion, which are usually manifestations of purging. In practice these are not seen in the majority of patients presenting in primary care with bulimic disorders, although electrolyte abnormalities are reasonably common, so urea and electrolytes should be routinely obtained. These are covered in Section 7.5.2.

5.2.5 Clinical practice recommendations

- 5.2.5.1 For people with eating disorders presenting in primary care, GPs should take responsibility for the initial assessment and the initial co-ordination of care. This includes the determination of the need for emergency medical or psychiatric assessment. (C)
- 5.2.5.2 Where management is shared between primary and secondary care, there should be clear agreement amongst individual health care professionals on the responsibility for monitoring patients with eating disorders. This agreement should be in writing (where appropriate using the care programme approach) and should be shared with the patient and, where appropriate, his or her family and carers. (C)

- 5.2.5.3 Target groups for screening should include young women with low body mass index (BMI) compared with age norms, patients consulting with weight concerns who are not overweight, women with menstrual disturbances or amenorrhoea, people with gastrointestinal symptoms, patients with physical signs of starvation or repeated vomiting, and children with poor growth. (C)
- 5.2.5.4 When screening for eating disorders one or two simple questions should be considered for use with specific target groups (for example, 'Do you think you have an eating problem?' and 'Do you worry excessively about your weight?'). (C)
- 5.2.5.5 Young people with Type 1 diabetes and poor treatment adherence should be screened and assessed for the presence of an eating disorder. (C)
- 5.2.5.6 In anorexia nervosa, although weight and body mass index (BMI) are important indicators of physical risk they should not be considered the sole indicators (as on their own they are unreliable in adults and especially in children). (C)
- 5.2.5.7 In assessing whether a person has anorexia nervosa, attention should be paid to the overall clinical assessment (repeated over time), including rate of weight loss, growth rates in children, objective physical signs and appropriate laboratory tests. (C)
- 5.2.5.8 Patients with enduring anorexia nervosa not under the care of secondary care services should be offered an annual physical and mental health review by their general practitioner. (C)

6 Treatment and management of anorexia nervosa

6.1 Introduction

The treatment plan for a patient with anorexia nervosa needs to consider the appropriate service setting, and the psychological and physical management, but unfortunately the research evidence base to guide decision making is very limited. The appropriate setting depends on the assessment of risk and the patient's wishes, but in general the person with anorexia nervosa will initially be treated in a secondary care outpatient service, moving into a day or inpatient setting if required. Although convincing evidence is lacking on the most effective form of psychological therapy, psychological therapy is nevertheless crucial in addressing the underlying behaviours and cognitions. In children and adolescents some family-based psychological intervention is essential. Physical treatments comprise nutritional interventions and psychopharmacological agents. The latter are used to support psychological treatments or for the management of comorbid conditions, rather than being first line treatments.

The treatment options should be discussed fully with the patient in order that he or she can make informed choices. Given the ambivalence inherent in this disorder, engagement and efforts at motivational enhancement may be helpful in maximising adherence to treatment. A small number of patients with anorexia nervosa do not have the capacity to make decisions about their own health and safety and in these cases provision for their admission to hospital and treatment is under the remit of the Mental Health Act 1983 and the Children Act 1989.

6.2 Psychological interventions

6.2.1 Introduction

The earliest models of psychological treatment for anorexia nervosa were psychodynamic in nature, albeit with few attempts to study them systematically (for review see Dare & Crowther, 1995; Herzog & Hartmann, 1997; Kaplan, 2002).

From the 1960s onwards, behaviour therapy for anorexia nervosa became increasingly popular, with many articles reporting on the use of operant conditioning techniques (for review see Bemis *et al.*, 1987; Schmidt, 1989). The basic operant paradigm consisted of isolating patients from social and material reinforcers that were subsequently delivered contingent on weight gain or caloric intake. For a time, this technique became part of many inpatient regimes, because of its efficacy in encouraging weight gain in the short term. However, operant conditioning approaches have been criticised as coercive and controlling (for review see Bemis, 1987), and their influence has waned in recent years.

The seminal – though controversial – work of Minuchin and colleagues (1975) stimulated much interest in the use of family interventions in the treatment of anorexia nervosa. Initially, the rationale for this approach was rooted in the notion that families have a key causal role in the development of anorexia nervosa ('the anorexogenic family'). However, it is now widely agreed that family interventions are best viewed as treatments that mobilise family resources rather than treating family dysfunction, for which there is no empirical evidence (Eisler *et al.*, 2003). The first treatment trial of family therapy was published in 1987 (Russell *et al.*, 1987), studying patients who had undergone a period of weight restoration in a specialist eating disorder inpatient unit prior to starting outpatient psychotherapy. This study showed that in 21 adolescents with a short duration of illness, family therapy was superior to individual supportive counselling in maintaining weight gained. The findings of this study stimulated three further RCTs into different types of family interventions for adolescents with anorexia nervosa (Le Grange *et al.*, 1992; Eisler *et al.*, 2000; Geist *et al.*, 2002). In addition there has been one further comparison of family therapy with individual therapy although the findings are difficult to interpret (Robin *et al.*, 1999). The original Maudsley model of family therapy has since been manualised for therapists (Lock *et al.*, 2001).

A handful of controlled trials, mainly in adults with anorexia nervosa, have evaluated the efficacy of specific individual psychotherapies, such as cognitive behaviour therapy (Channon *et al.*, 1989; Serfaty *et al.*, 2002; Pike *et al.*, in press; MacIntosh *et al.*, submitted); cognitive analytic therapy (Treasure *et al.*, 1995; Dare *et al.*, 2001), focal analytical psychotherapy (Dare *et al.*, 2001) and interpersonal psychotherapy (McIntosh *et al.*, submitted).

More recently there has been interest in the use of motivational interventions in the engagement and treatment of people with anorexia nervosa (Treasure & Ward, 1997; Vitousek *et al.*, 1998), however, RCTs in this area are as yet lacking.

Overall, the body of research into the treatment of anorexia nervosa is small and inconsistent in methodological quality. The conclusions that can be drawn are limited because many studies have no follow-up data, lack the statistical power necessary to detect real effects, and use different study entry criteria and outcome measures.

6.2.2 Current practice

There is wide variability in the availability of psychological therapies for patients with anorexia nervosa. There is no uniform or agreed approach to the psychological treatment or management of anorexia nervosa in adults, either in terms of types of treatment offered, their duration, intensity or the setting in which treatment is provided.

In the treatment of anorexia nervosa in children and adolescents, family interventions are usually offered. These may vary in approach and not all of them will resemble the evidence-based family interventions that have a focus on eating behaviours. Specialist eating disorder services may offer a range of individual psychological therapies including cognitive behaviour therapy, psychodynamic psychotherapy, motivational enhancement therapy and family interventions.

Principles of psychological treatment: engagement

Many people with anorexia nervosa find it hard to acknowledge that they have a problem and are ambivalent about change. This contributes to their reluctance to engage with treatment and services. A precondition for any successful psychological treatment is the effective engagement of the patient in the treatment plan. Health care professionals involved in the treatment of anorexia nervosa should take time to build an empathic, supportive and collaborative relationship with patients and, if applicable, their carers. This should be regarded as an essential element of the care offered. Motivation to change may go up and down over the course of treatment and the therapist needs to remain sensitive to this. Special challenges in the treatment of anorexia nervosa include the highly positive value placed by people with anorexia nervosa on some of their symptoms, and their denial of the potentially life-threatening nature of their disorder.

Aims of psychological interventions

In general, the aims of psychological treatment are to promote weight gain and healthy eating, to reduce other eating disorder related symptoms and to promote psychological recovery. In patients who have just had their weight restored in hospital the maintenance of weight gain is a prominent goal, together with continued healthy eating, the reduction of other eating disorder related symptoms and the promotion of psychological recovery. In patients with enduring anorexia nervosa, psychological treatment may have more modest goals and may focus on improving quality of life and maintaining a stable or safe weight rather than aiming for an optimal weight.

6.2.3 Outpatient psychological treatments (first episode and later episodes)

This section focuses on psychological treatments given as the main or only treatment to patients who present during a first or later episode of anorexia nervosa.

6.2.3.1 Psychological treatments reviewed

The following treatments were included:

- Behaviour therapy (BT)
- Cognitive analytic therapy (CAT)
- Cognitive behaviour therapy (CBT)
- Interpersonal psychotherapy (IPT)
- Family therapy and family interventions
- Psychodynamic psychotherapy
- Psychological treatment not otherwise specified (Psychotherapy NOS).

The Psychological Topic Group established definitions for each treatment (see Glossary). Two members of the Topic Group assessed each study for eligibility and classified each psychological treatment. Where disagreements arose, they were resolved by discussion.

6.2.3.2 Studies considered²

The review team conducted a new systematic search for RCTs of outpatient psychological treatments used for the initiation of treatment during the first or later episodes of anorexia nervosa. Eleven small RCTS (Bachar, 1999; Channon, 1989; Crisp, 1991; Dare, 2001; Eisler, 2000; Hall, 1987; McIntosh, submitted; Robin, 1999; Serfaty, 1999; Treasure, 1995; Wallin, 2000) were identified providing data on 459 participants ranging in age from adolescents to young adults.

Full details of studies included in the guideline and reasons for excluding studies are given in Appendix 18.

6.2.3.3 Evidence statements³

Due to major differences in the way the main outcomes were reported in each study and the lack of extractable data in several studies, no meta-analysis of results was conducted. The statements in this section relate to adults, except where explicitly stated. For each evidence statement, where necessary, N represents the number of studies and n the total number of participants. The level of evidence (I, IIa, IIb, III, IV) is given after each statement (see Section 3.4.6 for more information about the classification of evidence).

Effect of outpatient psychological treatments given for the treatment of first episodes or later acute episodes upon symptoms (weight gain and/or proportion recovered)

There is limited evidence that family interventions, psychotherapy NOS and focal psychoanalytic psychotherapy provided at tertiary referral centres are superior to 'treatment as usual' in terms of weight gain by end of treatment and post-treatment follow-up ($n = 174$; Crisp, 1991; Dare, 2001). **I**

There is limited evidence that both family interventions and focal psychoanalytic psychotherapy given at a tertiary referral centre are superior to 'treatment as usual' in terms of the proportion of people recovered by end of treatment ($n = 84$; Dare, 2001). **I**

There is limited evidence that treatment outcome with different psychological therapies (including BT, CAT, CBT, IPT, family therapy, focal psychodynamic psychotherapy, and psychotherapy NOS) by the end of treatment and at follow-up (up to five years) is poor (in terms of weight gain/proportion of people recovered) in patients referred to tertiary referral centres ($n = 258$; Channon, 1989; Crisp, 1991; Dare, 2001; Hall, 1987; Treasure, 1995). **I**

² Here and elsewhere in the guideline, each study considered for review is referred to by a study ID (primary author and date of study publication, except where a study is *in press* or only submitted for publication, then a date is not used).

³ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient evidence to suggest that any particular psychological treatment (including CAT, CBT, IPT, family therapy, focal psychodynamic therapy) is superior to any other in the treatment of adult patients with anorexia nervosa either by the end of treatment or at follow-up ($n = 297$; Bachar, 1999; Channon, 1989; Crisp, 1991; Dare, 2001; McIntosh, submitted; Treasure, 1995). |

There is insufficient evidence to determine the efficacy of dietary counselling on its own as a treatment for anorexia nervosa ($n = 65$; Hall, 1987; Serfaty, 1999). |

There is insufficient evidence to determine any advantage for inpatient care over outpatient psychological treatments (individual therapy+family therapy+dietary counselling or group therapy+parents' group+dietary counselling) for patients who are not so severely ill as to need emergency treatment ($n = 90$; Crisp, 1991). |

In children and adolescents, there is insufficient evidence to determine whether conjoint or separate family therapy is more, or less, effective at the end of treatment or follow-up (Eisler, 2000; Robin, 1999). |

In children and adolescents, there is insufficient evidence to determine whether the addition of body awareness therapy to family therapy is superior to family therapy alone (Wallin, 2000).

Acceptability of outpatient psychological treatment given for the treatment of first episodes or later acute episodes

There is insufficient evidence to determine whether outpatient psychological treatments (including BT, CAT, CBT, family therapy, focal psychodynamic psychotherapy) are more, or less, acceptable to people with anorexia nervosa when compared to 'standard care' ($n = 198$; Channon, 1989; Crisp, 1991; Dare, 2001). |

There is insufficient evidence to suggest that any particular psychotherapy (including BT, CAT, CBT, family therapy, focal psychodynamic psychotherapy, IPT, psychotherapy NOS) is more, or less, acceptable to adults with anorexia nervosa ($n = 297$; Bachar, 1999; Channon, 1989; Crisp, 1991; Dare, 2001; McIntosh, submitted; Treasure, 1995). |

There is limited evidence to suggest that dietary counselling on its own is less acceptable to people with anorexia nervosa when compared to CBT ($n = 35$; Serfaty, 1999). |

There is limited evidence to suggest that inpatient treatment at a national tertiary eating disorder centre is less acceptable than tertiary outpatient psychological treatments provided at the same centre ($n = 90$; Crisp, 1991). |

In children and adolescents, there is insufficient evidence to determine whether conjoint or separate family therapy are more, or less, acceptable ($n = 64$; Eisler, 2000; Robin, 1999). |

In children and adolescents, there is insufficient evidence to determine whether the addition of body awareness therapy to family therapy is more, or less, acceptable compared to family therapy alone ($n = 33$; Wallin, 2000). |

6.2.4 Outpatient psychological treatments after weight restoration in hospital

Inpatient treatments aim to return body weight to a healthy level but even when this occurs patients remain very vulnerable to subsequent weight loss. Outpatient psychological treatments are offered to prevent this.

6.2.4.1 Psychological treatments reviewed

The following treatments were included:

- Cognitive behaviour therapy (CBT)
- Family therapy
- Dietary counselling
- Supportive therapy.

6.2.4.2 Studies considered

The review team conducted a new systematic search for RCTs of outpatient psychological treatments after weight restoration in hospital in people with anorexia nervosa. Three small trials were included (Geist, 2000; Pike, submitted; Russell, 1987), providing data on 138 participants ranging in age from adolescents to adults.

Full details of studies included and excluded from the guideline are given in Appendix 18.

6.2.4.3 Evidence statements⁴

The statements in this section relate to adults, except where explicitly stated.

Effect of treatment on symptoms (weight and/or proportion recovered or relapsed)

There is limited evidence that individual supportive psychotherapy is superior in terms of weight gain when compared to family therapy in a subgroup of adults with anorexia nervosa (with adult onset) at one year post-treatment follow-up ($n = 21$; Russell, 1987). I

There is limited evidence that for patients with an age of onset below 19 and with an illness duration of less than three years, family therapy focused explicitly on eating disorders is superior in terms of weight gain and the proportion classed as recovered when compared to individual supportive psychotherapy at one year post-treatment follow-up ($n = 21$; Russell, 1987). I

⁴ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is limited evidence suggesting that CBT is superior to dietary counselling in terms of proportion recovered and relapse rates, after weight restoration in hospital ($n = 33$; Pike, submitted). |

In children and adolescents, there is insufficient evidence to determine the efficacy of family group education versus conjoint family therapy following partial weight restoration in hospital ($n = 25$; Geist, 2000).

Acceptability of treatment

There is limited evidence suggesting that CBT is more acceptable to people with anorexia nervosa when compared to dietary counselling, after weight restoration in hospital ($n = 33$; Pike, submitted). |

In children and adolescents, there is insufficient evidence to determine the acceptability of family group education versus conjoint family therapy following partial weight restoration in hospital ($n = 25$; Geist, 2000).

6.2.5 Different types of psychological inpatient treatment regime

There has been some interest in the question of whether different types of inpatient regimes are more efficient than others in terms of achieving short-term weight restoration.

6.2.5.1 Inpatient psychological treatments reviewed

All inpatient treatments involving people with anorexia nervosa were considered in this section. These included specific forms of psychotherapy such as operant conditioning, and other behavioural regimes and psychodynamic psychotherapy, as well as (other) programmes focused on eating and weight gain.

6.2.5.2 Studies considered

The review team conducted a new systematic search for different types of psychological inpatient treatment regime in people with anorexia nervosa. Because of the difficulties associated with this type of treatment and the paucity of RCT data, lower levels of evidence were examined. Thus, two RCTs (Eckert, 1979; Weizman, 1985) and two non-randomised controlled studies were included (Herzog, 1996; Solanto, 1994), providing data on 374 participants ranging in age from adolescents to adults.

Full details of studies included and excluded from the guideline are given in Appendix 18.

6.2.5.3 Evidence statements⁵

Effect of treatment on symptoms (weight gain)

There is limited evidence (from one non-randomised study) to suggest that an inpatient programme with an explicit focus on changing eating disorder symptoms and weight is superior to a programme without this focus, in terms of producing short-term weight gain ($n = 34$; Herzog, 1996). **IIa**

There is very limited evidence from one small non-randomised study suggesting that increasing the four-day criterion weight gain from 0.4 to 0.5 kg in a behavioural contract produces more rapid weight gain ($n = 53$; Solanto, 1995). **IIb**

Acceptability of treatment

There is insufficient evidence to determine whether any one form of inpatient treatment is more, or less, acceptable to people with anorexia nervosa when compared with another form of inpatient care. **I-IIb**

6.2.6 Psychological treatments as adjuncts to inpatient treatment

Specialist inpatient treatment programmes for anorexia nervosa typically consist of multiple components, with the aim of providing comprehensive package of inpatient care. The relative importance and efficacy of these different components has so far received little research attention.

6.2.6.1 Psychological treatments reviewed

The following treatments, as adjuncts to inpatient treatment, were included:

- Behaviour therapy (systematic desensitisation)
- Relaxation training
- Social skills training.

6.2.6.2 Studies considered

The review team conducted a new systematic search for RCTs of psychological treatments as adjuncts to inpatient treatment in people with anorexia nervosa. Two small trials (Goldfarb, 1987; Pillay, 1981) were included, providing data on 41 participants ranging in age from adolescents to adults.

Full details of studies included and excluded from the guideline are given in Appendix 18.

⁵ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

6.2.6.3 Evidence statements⁶

Effect of treatment on symptoms and acceptability

There is insufficient evidence to draw any conclusions from these studies as to the efficacy of behaviour therapy (systematic desensitisation), relaxation training or social skills training as an adjunct to inpatient treatment ($n = 41$; Goldfarb, 1987; Pillay, 1981). **I**

6.2.7 Additional considerations in the management of children and adolescents

There is a small but consistent evidence base, which indicates that family-based treatments are important in the treatment of adolescents with anorexia nervosa. Consensus as to what constitutes the best form of family intervention has not been achieved but two factors stand out as potentially important:

- Family interventions should have a focus on the eating disorder and how this impacts on family relationships, emphasising in the early stages of treatment the necessity for parents to take a central role in supporting their child's efforts to eat.
- Both separated (parents and patient meet separately with the therapist) and conjoint forms (parents and patient together with therapist) of family therapy may be beneficial.

Establishing a collaborative working relationship with families with a young person with anorexia nervosa presents a particular challenge that requires time and expertise to balance the competing needs of different family members. However, whilst there is an emphasis on family interventions the young person's individual rights and responsibilities should not be overlooked. Issues such as confidentiality and consent must be considered carefully and not simply overridden by clinicians or parents. For this reason, young people should be offered individual appointments with a therapist separate from those with their family members or carers. For children and adolescents it is also particularly important to ensure adequate physical monitoring and rapid commencement of treatment.

6.2.8 Clinical summary

Various forms of psychological treatment are associated with improvements in terms both of weight gain and recovery by the end of treatment compared to 'standard care' for certain populations. However, the long-term benefits may not be sustained. For patients not requiring emergency admission to hospital, outpatient psychological treatment may be as, or more, effective than admission. For those admitted to hospital, no particular psychological treatment regime, either as a central component of the treatment programme or as an adjunct has been shown to have beneficial effects.

⁶ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is limited evidence that family interventions focused explicitly on eating disorders may be of specific benefit to younger people, but there is insufficient evidence to determine whether conjoint (i.e. patient and parents meet together) or separated forms of family therapy (i.e. therapist meets patient and parents separately) are more effective.

6.2.9 Clinical practice recommendations

Common elements of the psychological treatment of anorexia nervosa

- 6.2.9.1 Therapies to be considered for the psychological treatment of anorexia nervosa include cognitive analytic therapy (CAT), cognitive behaviour therapy (CBT), interpersonal psychotherapy (IPT), focal psychodynamic therapy and family interventions focused explicitly on eating disorders. (C)
- 6.2.9.2 Patient and, where appropriate, carer preference, should be taken into account in deciding which psychological treatment is to be offered. (C)
- 6.2.9.3 The aims of psychological treatment should be to reduce risk, encourage weight gain and healthy eating, to reduce other symptoms related to an eating disorder, and to facilitate psychological and physical recovery. (C)

Outpatient psychological treatments in first episode and later episodes

- 6.2.9.4 Most people with anorexia nervosa should be managed on an outpatient basis with psychological treatment (with physical monitoring) provided by a health care professional competent to give it and to assess the physical risk of people with eating disorders. (C)*
- 6.2.9.5 Outpatient psychological treatment and physical monitoring for anorexia nervosa should normally be of at least six months' duration. (C)
- 6.2.9.6 For patients with anorexia nervosa, if during outpatient psychological treatment there is significant deterioration, or the completion of an adequate course of outpatient psychological treatment does not lead to any significant improvement, more intensive forms of treatment (for example, a move from individual therapy to combined individual and family work, day care or inpatient care) should be considered. (C)
- 6.2.9.7 Dietary counselling should not be provided as the sole treatment for anorexia nervosa. (C)

Psychological aspects of inpatient care

Psychological treatment is often a key element of an inpatient stay but evidence for what kind of treatment or approaches to treatment are effective is limited.

- 6.2.9.8 For inpatients with anorexia nervosa, a structured symptom-focused treatment regimen with the expectation of weight gain should be provided in order to achieve weight restoration. It is important to carefully monitor the patient's physical status during refeeding. (C)

- 6.2.9.9 Psychological treatment should be provided which has a focus both on eating behaviour and attitudes to weight and shape, and on wider psychosocial issues with the expectation of weight gain. (C)
- 6.2.9.10 Rigid inpatient behaviour modification programmes should not be used in the management of anorexia nervosa. (C)

Post-hospitalisation psychological treatment for adults with anorexia nervosa

For patients with anorexia nervosa following discharge from hospital it is usually necessary to extend the duration of psychological treatment over that normally provided to those who have not been hospitalised.

- 6.2.9.11 Following inpatient weight restoration, people with anorexia nervosa should be offered outpatient psychological treatment that focuses both on eating behaviour and attitudes to weight and shape, and on wider psychosocial issues, with regular monitoring of both physical and psychological risk. (C)
- 6.2.9.12 The length of outpatient psychological treatment and physical monitoring following inpatient weight restoration should typically be at least 12 months. (C)

Children and adolescents with anorexia nervosa

Special considerations are needed in the treatment of children and adolescents, of particular importance is the involvement of families and other carers. Support from education and peers may also play a role in recovery and clinicians will often need to liaise with schools over involvement in physical education and sitting examinations.

- 6.2.9.13 Family members including siblings, should normally be included in the treatment of children and adolescents with eating disorders. Interventions may include sharing of information, advice on behavioural management and facilitating communication. (C)*
- 6.2.9.14 Family interventions that directly address the eating disorder should be offered to children and adolescents with anorexia nervosa. (B)*
- 6.2.9.15 Children and adolescents with anorexia nervosa should be offered individual appointments with a health care professional separate from those with their family members or carers. (C)
- 6.2.9.16 The therapeutic involvement of siblings and other family members should be considered in all cases because of the effects of anorexia nervosa on other family members. (C)
- 6.2.9.17 In children and adolescents with anorexia nervosa the need for inpatient treatment and the need for urgent weight restoration should be balanced alongside the educational and social needs of the young person. (C)

6.3 Pharmacological interventions

6.3.1 Introduction

A diverse network of neurotransmitters and neurohormones are involved in the central and peripheral control of appetite and satiety. A variety of drugs that act on various receptors within these pathways have been examined in the treatment of anorexia nervosa.

6.3.2 Current practice

Antidepressant drugs are often used to treat the depressive symptoms in anorexia nervosa and their effects on weight gain have also been studied. Medications are also used to treat comorbid conditions such as major depressive disorder and obsessive-compulsive disorder. Antipsychotic drugs or minor tranquillisers or antihistamines are frequently used symptomatically to reduce the high levels of anxiety present with anorexia nervosa, but are not recommended for the promotion of weight gain.

However, an evidence base for current practice is lacking. There are few studies on which to base clinical decisions and the studies are of low statistical power. There is also doubt about generalising from the patient samples studied. Drugs are not as acceptable or as well tolerated as psychotherapy in this patient group (Treasure, 1998). Only short-term effects have been studied and the outcome measures used are often not comparable to those used in psychotherapy studies. Compromised nutritional status may also affect the mechanism of drug action and this is rarely considered in studies. For example, there is some evidence that antidepressants have lower efficacy in the context of low levels of oestrogen (Halbreich & Kahn, 2000). They may be also less effective if tryptophan levels are altered.

Because of the complications of starvation, vomiting, dehydration and over hydration in this clinical group, there may be problems in terms of pharmacokinetics (i.e. drug absorption and toxicity). Extremely malnourished patients and those with electrolyte abnormalities are at risk of cardiac complications. Drugs with cardiac side effects should be used with caution.

6.3.3 Pharmacological treatment

The aim of pharmacological treatment in people with anorexia nervosa is to produce weight gain and improve their quality of life or to alleviate some of the comorbidity such as depression, anxiety or obsessive-compulsive features. Three main classes of drugs have been considered in the treatment of anorexia nervosa, these are antidepressants, antihistamines and antipsychotics.

6.3.3.1 Drugs reviewed

The following drugs were included:

- Antidepressants
 - Tricyclic antidepressants (amitriptyline, clomipramine)
 - SSRIs (fluoxetine, citalopram)
- Antihistamines (cyproheptadine)
- Antipsychotics (pimozide, sulpiride).

Drugs that have had their licences withdrawn from the UK were not included in the guideline. Although there are studies assessing the use of lithium carbonate, these were not included, as it was felt inadvisable to use this drug given the potential risk of toxicity in these patients.

6.3.3.2 Studies considered

A new search was made for RCTs examining drugs used in the treatment of anorexia nervosa. One trial of both an antidepressant and an antihistamine (Halmi, 1986), five trials of antidepressants (Attia, 1998; Biederman, 1985; Fassino, 2002; Kaye, 2001; Lacey, 1980), one trial of an antihistamine (Goldberg, 1980), and three trials of antipsychotics (Ruggiero, 2001; Vandereycken, 1982 & 1984) met the eligibility criteria set by the GDG. Thus, ten RCTs involving 413 adult participants were included in this section.

Of the 11 trials, four trials involved a comparison of a tricyclic antidepressant (amitriptyline, clomipramine) with placebo (Biederman, 1985; Halmi, 1986; Kaye, 2001; Lacey, 1980), one compared a SSRI antidepressant (fluoxetine) with placebo (Attia, 1998), and one compared a SSRI antidepressant (citalopram) with a wait-list control (Fassino, 2002). Two trials involved a comparison of an antihistamine with placebo (Goldberg, 1980; Halmi, 1986). Two trials compared an antipsychotic with placebo (Vandereycken, 1982 & 1984), and one compared an antipsychotic with both another antipsychotic and with an antidepressant (Ruggiero, 2001).

Full details of studies included in the guideline and reasons for excluding studies are given in Appendix 18.

6.3.3.3 Evidence statements⁷

The data were analysed by combining all studies, irrespective of the class of antidepressant used. However, where the data are from a single drug, the class and name of drug are reported.

⁷ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

Effect of treatment on weight gain

There is evidence suggesting that it is unlikely there is a clinically significant difference between antidepressant drugs and placebo on weight gain by the end of multi-modal inpatient treatment ($n = 146$; Attia, 1998; Biederman, 1985; Halmi, 1986; Lacey, 1980). |

There is insufficient evidence to determine whether antipsychotics or antihistamines have any impact on weight compared with placebo during multi-modal inpatient treatment. |

There is insufficient evidence to determine whether there is any difference between antipsychotics and antidepressants with regard to weight gain. |

Effect of treatment on relapse/clinical deterioration

There is limited evidence suggesting that there is a clinically significant difference between an SSRI (fluoxetine) and placebo with fewer patients deteriorating clinically (which for the majority of patients was defined as a worsening or no improvement in symptoms) following inpatient weight restoration if given fluoxetine for one year ($N = 1$; $n = 35$; RR = 0.45; 95 per cent CI, 0.23 to 0.86). |

Acceptability of treatment

There is insufficient evidence to determine whether antidepressants, antipsychotics, or antihistamines are more, or less, acceptable to people with anorexia nervosa when compared to placebo or wait-list control. |

Tolerability of treatment

There is insufficient evidence to determine whether antidepressants, antipsychotics, or antihistamines produce a great risk of side effects in people with anorexia nervosa when compared to placebo. |

6.3.4 Additional considerations in the management of children and adolescents

It is uncertain whether any of the above findings can be generalised to children and adolescents. In general there are safety data available for sertraline and amisulpride used for other conditions in the under 18 group, but these drugs have not been studied in anorexia nervosa. There is no evidence specifically addressing the use of drugs in the child and adolescent age group.

6.3.5 Clinical summary

There is no evidence that drug treatment (antidepressants [tricyclics and SSRIs]), conventional antipsychotics and antihistamines) has additional benefit on weight gain in people undergoing multi-faceted inpatient treatment. There is limited preliminary evidence from one small trial that fluoxetine may reduce the likelihood of deterioration after inpatient weight restoration. It remains to be established whether or not new compounds

(e.g. atypical antipsychotics) or new settings (e.g. day hospitals as a supplement to outpatient therapy) or new specifications (matching drug to clinical phenotype or endophenotype) will be of benefit. A further complication in interpreting these studies is that a number of the secondary features of anorexia nervosa that may respond to medication may also improve as the patient gains weight (e.g. depressed mood).

6.3.6 Clinical practice recommendations

- 6.3.6.1 Medication should not be used as the sole or primary treatment for anorexia nervosa. (C)
- 6.3.6.2 Caution should be exercised in the use of medication for comorbid features such as depressive or obsessive-compulsive features as they may resolve with weight gain alone. (C)
- 6.3.6.3 When medication is used to treat people with anorexia nervosa, the side effects of drug treatment (in particular, cardiac side effects), should be carefully considered because of the compromised cardiovascular function of many people with anorexia nervosa. (C)
- 6.3.6.4 Health care professionals should be aware of the risk of drugs that prolong the QTc interval on the ECG: for example, antipsychotics, tricyclic antidepressants, macrolide antibiotics, and some antihistamines. In patients with anorexia nervosa at risk of cardiac complications, the prescription of drugs with side effects that may compromise cardiac function should be avoided. (C)
- 6.3.6.5 If the prescription of medication that may compromise cardiac functioning is essential, ECG monitoring should be undertaken. (C)
- 6.3.6.6 All patients with a diagnosis of anorexia nervosa should have an alert placed in their prescribing record concerning the risk of side effects. (C)

6.4 Management of physical aspects

6.4.1 Introduction

Identification of those patients with short-term risk of serious harm or death is clearly important in clinical practice. Recommendations as to how to assess, what to monitor and when to intervene are, therefore, vital.

The vast majority of longer-term follow-up studies indicate that people with anorexia nervosa have an almost 10-fold risk of dying compared to healthy people the same age and sex. Standardised mortality rates range between 4.71 and 12.82 (Nielsen *et al.*, 1998). Mortality in eating disorders is predominately related to malnutrition, methods of weight control and suicide. Among studies in which cause of death is documented, 54 per cent died of eating disorder complications, 27 per cent committed suicide and the remaining 19 per cent died of unknown or other causes (Nielsen, 2001).

6.4.2 Current practice

There is limited evidence as to how and where risk should be managed. Opinion and practice varies between (and within) countries, centres and clinicians. This is the case both in terms of threshold for hospital admission and the goals of the admission. For example, the APA guidelines (American Psychiatric Association, 2000) recommend admission to hospital when a BMI is less than 16 kg/m^2 or weight loss greater than 20 per cent. In both the US and Australia, patients are generally admitted for short-term medical stabilisation on a medical or paediatric ward. In the UK, patients at low weight are frequently managed in an outpatient setting in specialist eating disorder services. In these instances there is a higher threshold for inpatient treatment with admission often not occurring until the patient's BMI falls below 13 kg/m^2 . However, managing these low weight patients in an outpatient setting can be hazardous and should rarely be done without specialist advice. In the majority of inpatient specialist services in the UK, the goal is full weight recovery and so admissions are longer term. Admission to either a medical/paediatric or general psychiatric unit may occur but this varies with availability of services.

6.4.3 Physical risk reduction and monitoring

Applying information about the best evidence to a specific patient's problem is not easy as the clinical picture is diverse physically, psychologically and socially. The patient's problems have to be clearly defined and placed within the context of a clinical risk assessment. This needs to include an assessment both of the acute risk and the longer-term prognosis.

Decisions on short-term risk involve a combined assessment of the physical risk and the person's psychological capacity to consent to treatment, taking into account the possible resources of motivation and psychosocial support. A diagram is provided (see Appendix 7) as a simple guide to medical practitioners and other members of the multidisciplinary team as a decision aid when evaluating this acute risk. Body mass index is a better marker than weight alone as a proxy measure of physical risk but a rigid cut off point is less good for the extremes of height as the relationship is non-linear. Children have smaller fat stores than mature women and so medical complications occur with less weight loss. Bulimic features or refusal to drink also increase the risk. In turn, these medical markers interact with a variety of clinical and psychosocial factors. High physical risk is often associated with an impairment of capacity for the consent to treatment.

Because of the paucity of data and the nature of the issue under review, the GDG chose to use an informal consensus process (see Chapter 3, Section 3.4.7. for details) to address questions related to risk reduction and monitoring. The review team conducted a systematic search for all available evidence relating to the issue. A number of studies met the GDG's eligibility criteria, including two systematic reviews of anorexia nervosa and mortality, and outcome at follow-up (Nielsen, 2001; Steinhassuen, 2002). Long-term follow-up studies on patients suffering from anorexia nervosa were also considered, and where possible predictors and causes of death were noted. This is an area in which there is limited research. Exact causes of death are rarely described. The majority of studies documented cause of death as being as a result of starvation in anorexia nervosa. In those studies where death certificates were examined, again the exact precipitant of death was not always established. There are few post-mortem results documented.

Physical factors associated with higher mortality include severity of weight loss, overactivity and vomiting, bulimia and purging (Nielsen, 2000; Steinhausen, 2002). A BMI less than 13 kg/m² in adults is of prognostic significance as it indicates a greater risk for mortality (Casper, 1996; Hebebrand *et al.*, 1997). In the latter study, only seven out of the 14 patients with a BMI of 11 kg/m² at referral survived (Hebebrand, 1997). Data on malnourished females in famine indicate that with a BMI less than 11 kg/m², risk of mortality increases sharply (Collins, 1995). Prolonged QT intervals may predispose a person to life-threatening arrhythmias, and might be responsible for cases of sudden death. Furthermore, prolonged QT intervals in ECG were recorded seven days before sudden death (Isner, 1985). Abnormally low serum albumin levels and low weight are the best variables to predict a lethal course (Herzog *et al.*, 1997).

In the studies documenting mortality in patients with anorexia nervosa, causes of death vary. Causes include dehydration, electrolyte (particularly hypokalaemia) and metabolic complications, infections (bronchopneumonia and sepsis) and cardiac complications (see Neumarker, 1997, for review). Comorbid alcoholism has also been shown to be associated with increased mortality (Keel *et al.*, 2003). Rupture/perforation of the gastrointestinal tract has been less frequently described (Zipfel, 2000).

Few studies have reported exclusively on the mortality in adolescents. There is a suggestion that the mortality rate is lower. This may reflect the fact that chronicity and mortality increase with increasing age (Steinhausen, 2002). BMI measures in children and younger adolescents are an inadequate reflection of physical reserve. Weight centiles or percentage weight for height give a more accurate guide to the degree of weight loss. Rapid weight loss in children is potentially more dangerous than in adults, and children are known to dehydrate more quickly (Irwin, 1984). Clinical judgement and physical examination may be a better indicator than serum electrolyte levels as to the need for rehydration (Nicholls & Stanhope, 2000).

6.4.4 Clinical summary

Low weight (BMI less than 13 kg/m²), dehydration and electrolyte abnormalities indicate an increased risk of mortality. Cardiac arrhythmias and low serum albumin and glucose are of particular concern.

6.4.5 Clinical practice recommendations

Managing weight gain

- 6.4.5.1 In most patients with anorexia nervosa an average weekly weight gain of 0.5 to 1 kg in inpatient settings and 0.5 kg in outpatient settings should be an aim of treatment. This requires about 3500 to 7000 extra calories a week. (C)
- 6.4.5.2 Regular physical monitoring and in some cases treatment with a multi-vitamin/multi-mineral supplement in oral form is recommended for people with anorexia nervosa during both inpatient and outpatient weight restoration. (C)

- 6.4.5.3 Health care professionals should advise people with eating disorders and osteoporosis or related bone disorders to refrain from physical activities that significantly increase the likelihood of falls. (C)
- 6.4.5.4 In children and adolescents with eating disorders, growth and development should be closely monitored. Where development is delayed or growth is stunted despite adequate nutrition, paediatric advice should be sought. (C)

6.4.6 Long-term risk and its management

Apart from the concern of immediate physical risk in patients with anorexia nervosa, the long-term physical consequences are considerable. For the purposes of this section, the GDG chose to focus on the effects on the skeletal system, on reproduction and the associated hormonal abnormalities, including low oestradiol, low IGF-I, and high serum cortisol that may contribute to the bone loss. Gastrointestinal and dental complications are largely as a result of vomiting and laxative abuse. These are described in the chapter on bulimia nervosa. It should be noted however that many of these complications are exacerbated in patients with low weight and muscle weakness. Other consequences have also been described (e.g. cardiac, dermatological, haematological), but these will not be covered in this guideline.

The development of osteopenia and osteoporosis is a serious and long-term consequence of starvation. Oestrogen deficiency, malnutrition, low body mass and hyperactivity all play a part in this development. This section will consider evidence for the effect of weight gain and medication in the management of this complication. In children and adolescents, weight loss has particularly serious implications. Sixty per cent of bone accretion occurs during puberty (Golden, 1992). Gain in bone mass is most pronounced between 11 and 14 years of age and falls significantly after 16 years of age (Soyka *et al.*, 2002). Therefore, it would be expected that the failure of bone mineral accrual in girls with anorexia nervosa would differ depending on the maturation age.

Failure of this accretion thus compounds bone loss in children and adolescents with anorexia nervosa. Growth retardation is a further complication in children and adolescents (Russell, 1985; Danziger, 1994) and failure to grow may indicate nutritional deficiencies. It is thought that with weight gain 'catch-up growth' can occur up until fusion of the epiphyses (Nicholls & Stanhope, 2000). Regular monitoring of height as well as weight is important in children and adolescents with anorexia nervosa. Recommended weight ranges have to be regularly adjusted to take into account changes in height and age. Hormonal treatments, although used, have not been evaluated in adolescents with anorexia nervosa. There is a risk that oestrogen administration may cause premature epiphyseal fusion and growth stunting (Nicholls & Stanhope, 2000).

With regard to the reproductive system, there are several areas of concern: infertility, persistent amenorrhoea and oligomenorrhoea, and polycystic ovaries. In adolescent anorexia nervosa there is a risk of pubertal delay and ultimately arrested pubertal development (Russell, 1985). The effect on fertility and pregnancy will be described below.

Dental erosion is the most common oral problem in patients with eating disorders who engage in self-induced vomiting. A discussion of the issues concerning dental complications can be found in the chapter on bulimia nervosa (Section 7.5.2).

Osteoporosis

People with anorexia nervosa have reduced bone mineral density (BMD) (Bachrach, Guido, Katzman, Litt & Marcus, 1990) which is associated with an increased fracture rate (Rigotti, Neer, Skates, Herzog & Nussbaum, 1991; Vestergaard et al., 2002; Lucas, Melton, Crowson & O'Fallon, 1999; Soyka, Grinspoon, Levitsky, Herzog & Klibanski, 1999) and long-term disability such as pain, kyphosis and loss of height. Osteoporosis is manifest in some people after a year of illness and the severity gradually increases over time if the illness remains untreated. Fractures may occur after a few years of illness.

The factors that predict bone density in the majority of studies include: duration of amenorrhoea (Biller et al., 1989; Seeman, Szmukler, Formica, Tsalamandris & Mestrovic, 1992), BMI, or some other variable that reflects body composition (Grinspoon et al., 2000). Some studies find that age at menarche is also a predictor (Grinspoon et al., 2000). Oestrogen use does not predict density in larger studies (Grinspoon et al., 2000).

There have been several longitudinal studies that have examined changes in bone density over time. In the majority of cases the people are also engaged with treatment, commonly nutritional and psychological interventions. In some studies additional treatments such as fluoride and hormone replacement have been added. It is difficult to compare between studies as the presentation and type of data differs between studies, as does the case mix.

Adolescents. One of the largest studies in adolescents is that of Castro and colleagues (Castro et al., 2001). They have an early intervention service with a young (mean age 14.4 years) and moderately severe (BMI 15 kg/m²) group. They found that change over time depends on the severity of the osteoporosis at baseline and the degree of recovery made over the period of follow-up. The group with established osteopenia at baseline (i.e. z < -1.0) had an increase in bone density of over nine per cent at spine (5.7 per cent in the femur) over the follow-up interval (1.3 years).

Adults. In adults (mean age 22 years) with a severe illness (mean BMI 13.9 kg/m²) followed over two years, when BMI increased to 17.1 kg/m² there was an overall two per cent increase in bone density which related to weight gain. The subgroup that had full recovery (weight gain and menstruation) had the largest increase in bone density (Ikeda et al., 1995).

An additional study (Zipfel et al., 2001) in adults (21 years) with BMI 14 kg/m² found similar results.

Current Clinical Practice. The most effective treatment/preventative agent for osteoporosis in anorexia nervosa is not yet known. Adequate nutrition and weight are the most relevant factors but in some cases this is difficult to implement in the long term. Therefore, there has been interest in replacing some factors of relevance to bone turnover. These include oestrogen (in the form of hormone replacement therapy or the contraceptive pill) which inhibits bone resorption and Vitamin D, calcium, and insulin-like growth factors (Grinspoon, 1997 & 2002) and DHEA (Gordon, 2002).

Bisphosphonates and fluoride have also been tried (Maugars *et al.*, 1996). It is anticipated that further guidance on the management of osteoporosis will be available on the treatment and management of osteoporosis following the publication in 2005 of the NICE clinical practice guideline.

6.4.6.1 Treatments reviewed

The following treatments were included:

- De hydroepiandrosterone (DHEA)
- Insulin-like growth factor (IGF-I)
- Oestrogen supplementation.

6.4.6.2 Studies considered

The review team conducted a new systematic search for studies examining factors associated with the management of osteoporosis in people with anorexia nervosa. Five RCTs met the eligibility criteria set by the GDG (Gordon, 1999 & 2002; Grinspoon, 1996 & 2002; Klibanski, 1995), involving 207 participants.

Of the five studies included, one compared oestrogen supplementation with assessment only (Klibanski, 1995), one compared different doses of DHEA (Gordon, 1999), one compared DHEA with hormone replacement therapy (Gordon, 2002), one compared two different doses of IGF-I with placebo (Grinspoon, 1996), and one compared IGF-I, oestrogen supplementation, placebo and the combination of IGF-I and oestrogen (Grinspoon, 2002).

6.4.6.3 Evidence statements⁸

There is insufficient evidence to determine whether oestrogen supplementation improves bone density by the end of treatment. |

There is insufficient evidence to determine whether oral DHEA improves bone density compared to hormone replacement therapy by the end of treatment. |

There is limited evidence that both IGF-I alone and the combination of IGF-I and an oral contraceptive may improve bone density:

- There is limited evidence suggesting that there is a clinically significant difference between rhIGF-I and placebo with IGF being superior in terms of bone turnover/density by the end of treatment (Grinspoon, 1996 & 2002). |
- There is limited evidence suggesting that there is a clinically significant difference between rhIGF-I+oral contraceptive and placebo with the combination being superior in terms of bone density by the end of treatment (Grinspoon, 2002). |

There is some evidence that the combination of rhIGF-I and an oral contraceptive is produces a better outcome than rhIGF-I alone.

⁸ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient evidence to determine whether oestrogen supplementation is more or less acceptable to people with anorexia nervosa when compared to no oestrogen supplementation. **I**

There is insufficient evidence to determine whether oral DHEA is more or less acceptable to people with anorexia nervosa when compared to hormone replacement therapy. **I**

Full recovery from anorexia nervosa with weight gain and return of menstruation leads to a marked increase in bone density (the rate depends on the initial level, but can be as much as five per cent or more a year). However in those that remain under weight with amenorrhoea bone loss continues. **III**

In adolescents with a good outcome and low initial bone density the increase in BMD is four-fold that of normal adolescents. **III**

6.4.7 Clinical summary

Bone loss is a serious problem in anorexia nervosa with serious long-term consequences. Weight restoration is associated in adolescents with important gains in bone density. Oral oestrogen and oral DHEA do not appear to have a positive impact on bone density and hormone replacement therapy is not recommended in children and adolescents as it may cause premature fusion of the bones. High impact exercise is associated with an increased risk of fracture in anorexia nervosa. rhIGF-I, alone or in combination with an oral contraceptive, is associated with improvements in bone metabolism and bone mineral density but intensive clinical monitoring is necessary and this treatment should only be given in specialist centres with appropriate skills and knowledge. The long-term effect is uncertain.

6.4.8 Clinical practice recommendations

- 6.4.8.1 Oestrogen administration should not be used to treat bone density problems in children and adolescents as this may lead to premature fusion of the epiphyses. **(C)**

6.4.9 Other physical interventions

Malnutrition is a core feature of anorexia nervosa. Refeeding is a necessary component of treatment but is not sufficient. The approach to refeeding varies between centres and countries. There is debate about the setting, means and rate of weight gain and limited evidence to support different views. In some centres the calorie deficit is made up with food, given as normal, albeit larger, meals or snacks. In other centres liquid foods can be used to supplement or replace some or all of the meals. An alternative, which is not used frequently within the UK, is nasogastric feeding. Rarely percutaneous endoscopic gastrostomy (PEG) or total parenteral nutrition (TPN) has been used. These interventions are only used when patients are not able to co-operate with oral refeeding and there is concern about physical risk. In these circumstances legal and ethical considerations need to be addressed.

A number of complications can occur during refeeding. This is a high-risk period for biochemical abnormalities. People at most risk are those with a BMI less than 12 kg/m², those who vomit, abuse laxatives and binge, and those with concurrent physical conditions. Physical monitoring is necessary during periods of refeeding. A range of electrolyte disturbances can occur during refeeding, which are sometimes referred to collectively as the 'refeeding syndrome'. Hypophosphataemia may develop rapidly during refeeding; if severe, it can cause cardiac and respiratory failure, delirium and fits.

Ingestion of large quantities of carbohydrates, during rapid refeeding, may result in a precipitate drop in serum phosphate levels. Therefore, in the first few days of refeeding patients who have had very low or absent intakes for long periods, no attempt should be made to achieve net weight gain. Instead they should receive energy and protein provision at levels at or less than their estimated basal requirements with generous provision of balanced multi-vitamins and minerals especially thiamine, potassium, magnesium and phosphate.

Certain vitamin or mineral deficits have come under close scrutiny. For example, the similarity between some of the symptoms of zinc deficiency and the symptoms of anorexia nervosa has led to an interest in zinc replacement. A proportion of patients with anorexia nervosa may be deficient in thiamine, riboflavin, Vitamin C and Vitamin D. The clinical significance of many of these deficiencies is unclear but it is usual for there to be a general rather than a specific deficit and therefore a multi-vitamin/multi-mineral supplement in oral form (e.g. suitable preparations include Sanatogen Gold [non-NHS], Forceval 1–2 or Seravit capsules daily). Care should be taken to prevent the risk of vitamin A and D toxicity from excessive use of supplements.

There has been some research into the nutritional management of anorexia nervosa but all of the studies on nutritional approaches are quasi-experimental and small, and the studies on zinc are small.

There is controversy, but little evidence, about the appropriate time course used to achieve the goals of treatment. Some argue that it is important to restore normal weight as soon as possible, others argue for a slower increase in weight. The standard rate of weight gain in the UK is 0.5 to 1 kg per week. The majority of people with anorexia nervosa are treated as outpatients but for the small number who require admission most specialist eating disorder inpatient units aim to discharge people once weight is fully recovered. However, there is an alternative view that full weight recovery can be achieved by outpatient or day patient interventions following brief inpatient refeeding, and that discharge at an intermediate weight may provide an alternative.

There is also the argument that weight gain is only one outcome of interest. Another goal is to ensure that eating behaviour is normalised and maintained after discharge, that abnormal weight and shape cognitions are normalised and that there is improved quality of life in people with anorexia nervosa.

Physical therapies have been used in some European countries (e.g. Belgium and Norway), which have a long tradition of integrating physical therapies into psychotherapy. Physical rehabilitation programmes including riding, climbing, for example, have been used. This has not been the tradition in the UK. Indeed in many programmes in the UK exercise is restricted and bed rest is prescribed.

Feeding in the context of active resistance

This section relates to those occasions where the individual requires restraining to allow the refeeding to take place. Feeding in the context of active resistance raises ethical, legal and clinical issues for all involved. The reporting of it in the general media is often inaccurate and emphasises the emotive 'force feeding' and the suggested abuse of the individual's rights who is fed in this way. In the UK in the treatment of people with anorexia nervosa it is a very rare event and should only be done in a specialised treatment setting with access to the skills and experience required to manage it safely and effectively. It raises complex legal issues. It is interesting to note that all requests to the courts for permission to carry out this intervention in anorexia nervosa have been granted. It is undertaken using the Mental Health Act 1983, the Children Act 1989 and parental authority. Only a small proportion of patients who are admitted and treated compulsorily require this intervention. No studies have reported on the characteristics of those who are fed in this way, or have followed them up.

Methods of delivering this intervention vary across the country, as do the circumstances under which it is used. The risks associated with naso-gastric (NG) tube feeding, PEG, or spoon feeding, will be increased in the context of active physical resistance. Actions such as the pulling out the (NG) tube, interfering with or pulling out the PEG, and the physical condition of the patient increase the risk involved.

Clinical decisions as to when to start the intervention, how long to continue for, how often to repeat the intervention and when to stop are complex and difficult. There are further complications with children and adolescents where the urgency to intervene is increased because the low fat mass means that any weight loss is predominantly of lean tissue with higher medical consequences. As a result, children can become dangerously physically compromised. In addition, children and younger adolescents have a much greater tendency to restrict both fluid and food intake. The combination of these factors leads to a rapid breakdown of muscle tissue and dehydration, especially in pre-pubertal children.

6.4.9.1 Physical interventions reviewed

The following interventions were included:

- Nasogastric feeding
- TPN
- Zinc supplementation
- Massage
- Exercise.

6.4.9.2 Studies considered

The review team conducted a new systematic search for RCTs of physical interventions used in the treatment of anorexia nervosa. As there were few RCTs, the GDG elected to utilise lower levels of evidence where necessary. This included the APA guidelines and a

recent expert review on the nutritional management of anorexia nervosa (EDSIG). Eight studies met the eligibility criteria set by the GDG (Arii, 1996; Birmingham, 1994; Hart, 2001; Katz, 1987; Lask, 1993; Pertschuk, 1981; Robb, 2002; Thien, 2000), involving 267 participants.

Of the eight studies, two involved nasogastric feeding (Arii, 1996; Robb, 2002), one TPN (Pertschuk, 1981), three zinc (Birmingham, 1994; Katz, 1987; Lask, 1993), one exercise (Thien, 2000), and one massage (Hart, 2001).

Full details of studies included in the guideline and reasons for excluding studies are given in Appendix 18.

6.4.9.3 Evidence statements⁹

Effect of treatment on weight gain

There is limited evidence suggesting that there is a clinically significant difference between nasogastric feeding and 'standard care' with nasogastric feeding being superior in terms of weight gain by the end of multi-modal inpatient treatment ($n = 116$; Arii, 1996; Robb, 2002). **II**

There is insufficient evidence to determine whether zinc supplementation has any impact on weight compared with placebo during multi-modal inpatient treatment. **I**

There is insufficient evidence to determine whether TPN has any impact on weight compared with placebo during multi-modal inpatient treatment. **II**

There is insufficient evidence to determine whether massage or exercise given in addition to 'standard care' have any impact on weight compared with 'standard care' alone by the end of treatment. **I**

Effect of treatment on symptoms of anorexia nervosa

There is limited evidence suggesting that there is a clinically significant difference between massage and 'standard care' with massage being superior on EDI scores by the end of treatment ($N = 1$; $n = 16$; SMD = 1.06; 95 per cent CI, 0.02 to 2.09). **I**

Acceptability of treatment

There is insufficient or no evidence to determine whether nasogastric feeding or TPN are more, or less, acceptable to people with anorexia nervosa when compared to placebo or 'standard care'. **II**

There is insufficient evidence to determine whether zinc supplementation is more, or less, acceptable to people with anorexia nervosa when compared to placebo or 'standard care'. **I**

⁹ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient evidence to determine whether massage or exercise are more, or less, acceptable to people with anorexia nervosa when compared with 'standard care'. I

Tolerability of treatment

There is evidence from a retrospective chart review that TPN may produce a greater risk of side effects than 'standard care':

- There is limited evidence suggesting that there is a clinically significant difference between TPN and 'standard care' with placebo being superior in terms of the number of people experiencing adverse events by the end of treatment ($n = 22$; Pertschuk, 1981). II

6.4.10 Clinical summary

Nasogastric feeding can confer some benefit in terms of increased rate of weight gain or actual weight gain, as part of a treatment programme. There was insufficient evidence that either TPN or zinc supplementation confer any benefit in terms of weight gain. TPN appears to be associated with more adverse events in one small study. Some limited benefit, on symptoms but not on weight gain, has also been identified from one small trial investigating massage.

6.4.11 Clinical practice recommendations

- 6.4.11.1 Total parenteral nutrition should not be used for people with anorexia nervosa, unless there is significant gastrointestinal dysfunction. (C)

6.4.12 Concurrent physical conditions

Diabetes

There does not appear to be an increased occurrence of anorexia nervosa in Type 1 diabetes, however the statistical power of the studies may be insufficient to rule this out (Nielsen, 2002). The mortality rate in 10 years of follow-up of population-based samples was found to be 2.2 (per 1000 person years) for Type 1 diabetes, 7.3 for anorexia nervosa and 34.6 for concurrent cases (the standardised mortality rates were 4.1 for Type 1 diabetes, 8.9 for anorexia nervosa, and 14.5 in concurrent cases) (Nielsen, 2002).

Close liaison and a shared knowledge base between the eating disorder and diabetes teams is essential in the management of anorexia nervosa with diabetes and they should have intensive regular physical monitoring as they are at high risk of complications and death.

Pregnancy

It is unusual for people with anorexia nervosa to become pregnant although a small proportion have fertility treatment to conceive or relapse into anorexia nervosa during the pregnancy. In a follow-up study of people with anorexia nervosa ($n = 140$) fertility was reduced to one-third of the expected, the rate of prematurity was twice that

expected and perinatal mortality was increased six-fold (Brinch *et al.*, 1988). In a follow-up series of 66 women there was an increased miscarriage rate and more use of Caesarean sections and the offspring were more likely to be born prematurely and smaller (Bulik *et al.*, 1999). On the other hand Steiner found no difference in weight gain and foetal weight in their sample (Steiner, Smith, Rosenkranz & Litt, 1991). In a study in which pregnant women with anorexia nervosa were followed prospectively the infants grew slowly in utero especially in the last trimester (Treasure & Russell, 1988).

Women with anorexia nervosa are at greater risk for premature offspring and those that are small for gestational age. There are case series that suggest that some women with anorexia nervosa have difficulty feeding their children (Russell, Treasure & Eisler, 1998; Wezel-Meijler & Wit, 1989) and that the child's growth can be abnormal (Hodes *et al.*, 1997).

Management of laxative abuse

The management of laxative abuse is covered in the bulimia nervosa chapter (Section 7.5.2), as the management is essentially the same for both disorders.

6.4.13 Clinical practice recommendations

Managing risk

- 6.4.13.1 Health care professionals should monitor physical risk in patients with anorexia nervosa. If this leads to the identification of increased physical risk, the frequency and the monitoring and nature of the investigations should be adjusted accordingly. (C)
- 6.4.13.2 People with anorexia nervosa and their carers should be informed if the risk to their physical health is high. (C)
- 6.4.13.3 The involvement of a physician or paediatrician with expertise in the treatment of physically at-risk patients with anorexia nervosa should be considered for all individuals who are physically at risk. (C)
- 6.4.13.4 Pregnant women with either current or remitted anorexia nervosa may need more intensive prenatal care to ensure adequate prenatal nutrition and foetal development. (C)

Feeding against the will of the patient

- 6.4.13.5 Feeding against the will of the patient should be an intervention of last resort in the care and management of anorexia nervosa. (C)
- 6.4.13.6 Feeding against the will of a patient is a highly specialised procedure requiring expertise in the care and management of those with severe eating disorders and the physical complications associated with it. This should only be done in the context of the Mental Health Act 1983 or Children Act 1989. (C)
- 6.4.13.7 When making the decision to feed against the will of the patient the legal basis for any such action must be clear. (C)

6.5 Service interventions for anorexia nervosa

6.5.1 Introduction

The majority of people with eating disorders present first in primary care. However, it is probable that most patients presenting with anorexia nervosa are referred on to secondary care usually within mental health services, including both general mental health services and specialist eating disorder services. Specialist eating disorder services for anorexia nervosa are distributed patchily (Royal College of Psychiatrists, 2001). A substantial proportion of such tertiary provision, in particular inpatient care, is in the private sector and many NHS patients are treated in private hospitals.

6.5.2 Current practice

Most patients with anorexia nervosa receive treatment solely on an outpatient basis. However, a substantial minority receive inpatient treatment. The style and content of inpatient programmes for anorexia nervosa varies widely. Hospital admission may be aimed at ameliorating the effects of the illness on the patient's physical state or at achieving progress toward full recovery. The former sometimes involves admission to general medical settings. The latter is usually attempted within psychiatric hospitals. It is generally held that it is preferable for admission to be to settings where the staff are experienced in the treatment of the disorder. Furthermore, the setting needs to be appropriate to the age of the patient. Special day programmes are being developed as an alternative mode of intensive treatment for anorexia nervosa.

6.5.3 Effective service configurations

Although there is considerable variation in the pattern of service delivery there is a limited evidence base on which to develop effective patterns of service delivery. However, the principle that the right treatments should be offered to the right patients in the right setting if services are to be effective and cost-effective, should guide service development.

This review seeks to examine whether any particular level of service provision is associated with better outcomes in anorexia nervosa. In addressing this issue it may be useful to differentiate between two types of hospital admission.

First, inpatient treatment of anorexia nervosa may be aimed at the stabilisation and rectification of the patient's physical state. It is widely believed that such treatment can at times be life-saving. However, such management has not been the subject of systematic comparative research and is unlikely to be.

Second, inpatient treatment aimed at helping the patient to progress toward full recovery is widely practiced and is more amenable to study.

The literature contains many descriptions of special inpatient treatment regimes for anorexia nervosa, and some outcome data are available (e.g. Bowers & Anderson, 1994). However, comparison between centres is difficult because of the likelihood that the case

mix varies widely across studies. There is less data available about outpatient or day patient approaches. (Particular outpatient therapies are described elsewhere.) There is very little on the comparison between outpatient and day or inpatient treatment or on the integration of different forms of care.

The St. George's study (Crisp, Norton, Gowers, Halek, Yeldham, Levett & Bhat, 1991) is alone in attempting a comparison within a randomised controlled trial of hospital admission and two forms of outpatient treatment. (There was also an assessment only condition but many participants went on to receive treatment elsewhere thereby confounding the comparison.)

The study lacked power and had other difficulties. However, it did demonstrate that many patients made progress with fairly modest outpatient treatment over one year (Gowers, Norton, Halek & Crisp 1994). Such outpatient treatment is widely practiced but poorly documented. In one study of a specialised secondary service nearly three-quarters of adults with anorexia nervosa were managed without hospital admission (Palmer, Gatward, Black & Park, 2000).

Specialised day patient treatment for anorexia nervosa has been described in this country and abroad and positive outcomes are documented at least in the short term (Birchall, Palmer, Waine, Gadsby & Gatward, 2002; Gerlinghof, Backmund & Franzen, 1998; Olmsted, McFarlane, Molleken & Kaplan, 2001; Robinson, 2003; Zipfel *et al.*, 2002). However, it is uncertain whether the patients described might otherwise have been admitted as inpatients or managed as outpatients. There are no randomised comparisons. One study suggests that the addition of a day programme may reduce the use of inpatient beds (Birchall, Palmer, Waine, Gadsby & Gatward, 2002). It is unlikely that day care could ever abolish the need for inpatient treatment altogether. Indeed, the relative effectiveness and cost-effectiveness of the two forms of more intensive treatment have yet to be adequately studied.

It is widely believed that there may be benefits in the treatment of severe anorexia nervosa which has not responded to less intensive treatments within a specialised tertiary eating disorders service compared with less specialised secondary services. Both competence and confidence tend to develop in settings where such treatment is a regular and ongoing activity. However, there is a lack of studies that might provide evidence to support these views. One study of mortality in patients treated in two contrasting services suggested that there might be advantages associated with greater specialisation (Crisp, Callender, Halek & Hsu, 1992).

A single systematic review of inpatient versus outpatient treatment of anorexia nervosa was inconclusive because of lack of evidence (Meads, Gold & Burls, 2001).

6.5.4 Clinical summary

In a minority of patients, admission to hospital may at times be necessary to stabilise the physical state or even save the life of severely physically impaired patients. Inpatient treatment aimed at recovery usually leads to weight gain at least where admission has been to a unit where such treatment is a regular activity. Such treatment may have lasting effects although weight loss is common after discharge. There is no unequivocal evidence that inpatient treatment confers long-term advantage except as a short-term

life-saving intervention in patients at high risk. However, inpatient treatment may well be a rational option for patients who have failed to respond to apparently adequate outpatient treatment. The place of day care as an alternative option in these circumstances has yet to be fully evaluated but seems promising.

6.5.5 Satisfaction with service setting/configuration and adherence to treatment

The area of patient and carer perceptions has been the focus of some research in the area of eating disorders. Much of this work has been focused on perceptions of inpatient treatment for anorexia nervosa or on mixed or poorly defined populations of people with eating disorders, therefore it should be treated with caution. This area of research is potentially informative when considering the relative merits of different service configurations although the major focus of such work has been on improving the acceptability of services, which may have benefits in terms of improved attendance rates and increased involvement with and effectiveness of programmes and treatments prescribed (Matoff & Matoff, 2001; Swain-Campbell *et al.*, 2001). Taking account of user and carer perceptions when designing and delivering services may also facilitate help seeking over a prolonged period in people with recurrent mental health problems (Buston, 2002). This in turn may contribute to reduced morbidity.

Individuals with eating disorders, and anorexia nervosa in particular, are often described as being ambivalent about seeking treatment. Unlike most other psychiatric conditions, core features of eating disorders can be highly valued by the patient. In addition, the hospital environment can contribute to a sense of passivity and vulnerability, which can be linked to an increased sense of loss of control, one of the central characteristics of an eating disorder (Eivors *et al.*, 2003). Such factors can contribute to a degree of reluctance to engage fully in interventions, resulting in relatively high levels of treatment refusal and premature drop-out, with related implications for long-term recovery and health care costs (Kahn & Pike, 2001; Swain-Campbell *et al.*, 2001). Some centres report that up to 50 per cent of patients prematurely cease contact after assessment at an eating disorders service (Button *et al.*, 1997; Vandereycken & Pierloot, 1993). Yager *et al.* (1989) draw attention to the fact that studies from many eating disorders centres suggest that drop-out rates for virtually all types of treatment are considerable, suggesting relatively high levels of patient dissatisfaction with services and treatments offered. Noordenbos *et al.* (1988) suggest that in people with a long-standing eating disorder, patients' dissatisfaction may be compounded by clinicians' beliefs about 'chronic' or 'untreatable' presentations.

People receiving inpatient treatment for anorexia nervosa have been found to be twice as likely to drop out of treatment compared to general psychiatric inpatients (Kahn & Pike, 2001). Reasons for drop out are likely to be varied and complex. One study found that drop out from adult inpatient treatment was modestly predicted by anorexia nervosa sub-type (being greater in the binge-purge sub-type) and length of illness (with associated higher number of previous hospitalisations) and not to severity of eating disorders symptomatology or associated psychopathology (Kahn & Pike, 2001). Another study concluded that very little of formal treatment is regarded by patients as essential to recovery in those who have been treated for and recovered from anorexia nervosa (Maine, 1985). Such findings suggested a complicated relationship between service setting, clinical outcome and patient experience that is difficult to tease out.

Models of service provision currently vary considerably. Newton (2001) reports that although various surveys have identified strengths and weaknesses in existing service provision, this information seems to have had little impact on service planning.

Assessment of patient and carer satisfaction specifically in relation to service setting is rarely carried out. Similarly, patient adherence and drop out, specifically in relation to service setting is not usually investigated (Mahon, 2000). Information about patient and carer views tends to come from qualitative studies of service users, based on structured and semi-structured interviews (with data presented descriptively or, for example, using a type of thematic content analysis such as a grounded theory approach) or questionnaires. The latter are often used to measure characteristics of clinical presentation (rather than service setting), which are then correlated with, for example, satisfaction or drop out. In some cases forced choice responses about satisfaction or ratings of perceived helpfulness are used, but again these are rarely related specifically to service configurations. Research in the area of satisfaction surveys is particularly prone to bias.

This issue of satisfaction and adherence to treatment was considered across a number of different types of service setting (e.g. outpatient, inpatient, day patient, generalist, specialist, self-help; local, distant, etc.); and across different age groups (adults, adolescents, children).

The review team conducted a new systematic search for all relevant research. No studies were found that specifically investigated comparisons between types of service.

Nevertheless, a number of studies provided useful data (Brinch, Isager & Tolstrup, 1988; Bustom, 2002; Button *et al.*, 1997; Button & Warren, 2001; Carnell, 1998; Deeble & Bhat, 1991; Eivors *et al.*, 2003; Haigh & Treasure, 2003; Hsu, Crisp & Callender, 1992; Kahn & Pike, 2000; Kopec-Schrader *et al.*, 1993; Le Grange & Gelman, 1998; Mahon, 2000; Maine, 1985; Malson *et al.*, unpublished; Matoff & Matoff, 2001; Newton, 2001; Newton *et al.*, 1993a; Noordenbos *et al.*, 1988; Pettersen & Rosenvinge, 2002; Rosenvinge & Klusmeier, 2000; Sharkey-Orgnero, 1999; Stockwell *et al.*, 1987; Sturmey, 1992; Swain Campbell, Surgenor & Snell, 2001; Tozzi *et al.*, 2003; Vandereycken & Pierloot, 1983; Yager *et al.*, 1989). Seven further studies were consulted, but not used directly (Bowers & Andersen, 1994; Greenwood *et al.*, 1999; Lemberg & May, 1991; Neiderman *et al.*, 2000; Newton, Hartley & Sturmey, 1993b; Wilhelm & Clarke, 1998; Zipfel *et al.*, 2002).

The following findings emerged from the papers considered in this section:

- Greater treatment satisfaction is most commonly reported in relation to outpatient treatment (particularly regarding individual and group therapy) (Rosenvinge & Klusmeier, 2000; Newton *et al.*, 1993a).
- Lengthy waiting times for outpatient treatment have been identified as a major reason for being dissatisfied with health care, and problems and delays in accessing medical or other appropriate help are associated with lower levels of satisfaction (Rosenvinge & Klusmeier, 2000; Bustom, 2002).
- Carers and parents of adolescents have identified a lack of and need for support, involvement and education about eating disorders for themselves (Kopec-Schrader *et al.*, 1993; Haigh & Treasure, 2003).

- Continuity of care with an individual professional has been found to be valued – this could be taken to support the notion of comprehensive services, which can be flexible in terms of intensity (Buston, 2002).
- People who perceive their therapists to be ‘experts on eating disorders’ have been found to be more satisfied with treatment. ‘Expert’ includes concepts of ‘understanding’ and having ‘knowledge of eating disorders’ with the former being rated as the more important therapist attribute (Rosenvinge & Klusmeier, 2000).
- Informal supportive social relationships outside the treatment setting and a supportive relationship with a partner have been identified as important in recovery in people with eating disorders (Maine, 1985; Pettersen & Rosenvinge, 2002; Tozzi *et al.*, 2003).
- Surveys of self-help groups suggest that they are regarded by the majority of attendees as helpful, being positively associated with social involvement and supportive sharing. However, self-help groups can be experienced by some individuals as upsetting or promoting competitiveness in terms of weight loss and eating disorders behaviours (Deeble & Bhat, 1991).
- Some people who have received treatment for anorexia nervosa report a general negative perception of being treated as an illness or diagnosis rather than as a person (Brinch *et al.*, 1988, Malson *et al.*). This may be associated with reduced likelihood of seeking psychiatric help later.
- Perceived negative staff attitudes, and an overemphasis on weight and weight restoration have been identified as unhelpful or harmful aspects of treatment by adults receiving inpatient treatment (Button & Warren, 2001). An overemphasis on weight gain has also been found to be associated with drop out from treatment (Newton *et al.*, 1993a).
- The acceptability of inpatient treatment for anorexia nervosa in adolescence has been rated as low in regards to feeling pressured and watched, with authoritarian and restricting aspects of therapy causing anger and ambivalence (Brinch *et al.*, 1988).
- Adolescents have reported a sense of lack of privacy and intrusiveness in the context of inpatient care (Buston, 2002).
- Parents of adolescents with anorexia nervosa have reported feeling blamed for their child’s eating disorder by clinicians providing treatment (Sharkey-Orgnero, 1999).

6.5.5.1 Clinical summary

A wide range of views, experiences and levels of satisfaction is expressed, with responses ranging from totally satisfied to totally dissatisfied in relation to specific service settings. No consistent pattern emerges in relation to type of service setting, or age, with different people being satisfied or dissatisfied with different aspects of services or service settings. Treatment adherence, problem severity and eventual outcome are not always related to satisfaction and acceptability (Stockwell *et al.*, 1987; Sturmy, 1992) and patients attribute a wide range of factors (independent of service setting) to recovery (Hsu *et al.*, 1992; LeGrange & Gelman, 1998).

It is common that individuals remain ambivalent about treatment received, particularly those with anorexia nervosa (Brinch *et al.*, 1988, Carnell, 1998). Those who have anorexia nervosa in adolescence appear most likely to recall their treatment (whether inpatient or outpatient) in negative terms. This attitude tends to persist and does not appear to be related to treatment duration or intensity (Brinch *et al.*, 1988; Bouston, 2002). The ambivalence characteristic of people with eating disorders in relation to treatment may be an important issue. This ambivalence stems in part from the functional aspects of the disorder itself, and must form part of the backdrop against which views about satisfaction are interpreted. In this respect it might be understandable that some suggest that unlike other psychiatric disorders, patient dissatisfaction will tend to be high in eating disorders (e.g. Swain Campbell *et al.*, 2001).

People (in Norway) asked to list recommendations to increase/improve health care services for people with eating disorders most frequently identified 'improving clinical competence and knowledge about eating disorders amongst GPs' (Rosenvinge & Klusmeier, 2000). The opportunity to talk and be understood seems to be more important than (type of) formalised psychotherapy or service setting in terms of user satisfaction (Button & Warren, 2001).

Finally, given that self-help groups do quite well on very or fairly helpful ratings, the fact that self-help group users tend to use other professional services, and the finding that supportive social relationships outside formal treatment settings are associated with recovery, it seems more could be possible in terms of integrated working between statutory and voluntary services/agencies.

6.5.6 Relationship between service setting and risk of death, suicide and self-harm

Anorexia nervosa is associated with an increased mortality (Nielsen, 2001). People at risk of death because of their extreme physical state are likely to be considered – appropriately – for admission to hospital. However, there is unlikely to be systematic evidence to support such practice. Furthermore, people suffering from anorexia nervosa may be at increased risk of self-harm and suicide (Favaro & Santonastaso, 2000). This is especially so with respect of the binge-purging sub-type of anorexia nervosa.

6.5.7 Compulsory admission and treatment

A decision to compulsorily treat people with eating disorders occurs infrequently but does raise debate amongst professionals working in the field, the individuals they treat and their families. People with anorexia nervosa often differ from others with mental health problems in that the central characteristics of the illness are perceived as functional and valued by the individual. The individual can be perceived as ambivalent about recovery and resistant to intervention. In (eating disorders) treatment an emphasis is placed on developing a collaborative therapeutic relationship with the individual. Under conditions of compulsion this may be more difficult. However individuals who have undergone such treatment report contrasting positive and negative views when asked to comment later.

Treatment in this context refers to inpatient treatment of anorexia nervosa in adults, children and adolescents. However in the case of children and adolescents compulsory treatment can take place on an outpatient basis under parental authority, under the Mental Health Act 1983 and more rarely, with specific Court Orders.

There are no reports of compulsory admission for the specific treatment of bulimia nervosa or binge eating disorder (BED) in the UK.

Compulsory admissions and treatment for adults are carried out using the Mental Health Act (MHA) 1983. The Mental Health Act Commission (Guidance note number 3) provides guidance on the use of the Act in anorexia nervosa. Practice with children and adolescents, varies throughout the country. The issues of the 'assessment of competence (in children/adolescents) and capacity (in adults)' are complex. Legislation used with this population includes the Mental Health Act 1983 and the Children Act 1989.

Individuals with anorexia nervosa may be ambivalent about their treatment and can experience treatment as compulsory whatever their legal status. Often there are no differences between treatment programmes for those admitted and treated compulsorily and those who are not. Patients with eating disorders are sometimes admitted compulsorily for treatment of comorbid conditions.

For the purpose of this guideline, compulsory admission and treatment will be defined as that carried out using the legal powers available under the Mental Health Act 1983 or the Children Act 1989 or the authority of the court.

A further aim of employing compulsion under the MHA 1983 is to offer the individual the protection that is provided for them in the Act. It is important to remember that compulsory treatment does not equate with 'feeding against the will of the person' or 'force feeding'. It is helpful to hold in mind the distinction between treatment carried out under the legislation with which the individual complies (for whatever reason) and that which the individual resists.

6.5.7.1 Studies considered

The review team conducted a new systematic search for all research relevant to the issue of compulsory admission and treatment. No RCTs or meta-analyses were found. However, a few case control and three cohort studies were included.

6.5.7.2 Evidence

There is a lack of research into the outcomes of compulsory admission for anorexia nervosa (Russell, 2001; Watson, 2000). The literature in this area relates mainly to those adults treated within specialist eating disorder settings or, individual case studies characterised by refusal of treatment in children and adolescents. There is a suggestion in the literature that those compulsorily treated have a poorer outcome but there is insufficient evidence to derive any conclusion from this (Ramsay *et al.*, 1999).

The potential benefits of compulsory admission have been identified as weight gain (Ramsay *et al.*, 1999), saving life (Honig & Bentovim, 1996), opportunities for further treatment and avoiding significant harm (Honig & Bentovim, 1996), improvement in

mood and concentration and reduction in symptoms (Maloney & Farrell, 1980), and less starvation induced cognitive impairment (MacDonald, 2002).

The potential risks include: obstacles to the development of a therapeutic relationship (Orbach & Rathner, 1998; Lancelly & Travers, 1993), negative physical and psychological effects (Dresser & Boisaubin, 1986), negative countertransference, stigma associated with the MHA 1983 affecting the persons future (Hebert *et al.*, 1991), damage to self-esteem, escalation of resistance (Rathner, 1998; Fichter, 1995).

The literature provides some guidance on when to employ compulsory treatment (Ramsay *et al.*, 1999). There is considerable guidance available to health care professionals and others involved in compulsory admissions which offers advice on the protection to all those involved and guidance on the use of ethical decision making (Manley *et al.*, 2002; Goldner, 1997, Honig & Jaffa, 2000) and the obtaining of consent particularly in the child and adolescent field. Practitioners should also be aware of the outcome of reported legal challenges to compulsory treatment in anorexia nervosa, including the use of forcible feeding if necessary which have tended to favour those applying for or defending the right to treat (Dolan, 1999). Proposed new legislation (the reform of the Mental Health Act 1983) may have a major impact on the issue of consent to treatment.

6.5.7.3 Clinical summary

Formal admission for the specific treatment of anorexia nervosa or for immediate life-saving is necessary in very rare circumstances, where substantial risk cannot be managed in any other way. Little is known about the outcomes of those who are compulsorily treated; they have a poorer outcome than those who are not compulsorily treated, but this may be due to the initial severity of illness on admission. Treatment under conditions of compulsion very rarely involves feeding in the context of active physical resistance. The successful management of anorexia nervosa in these circumstances requires special skill and expertise in the area of compulsory treatment of people with eating disorders.

Special considerations are required when using compulsory treatment with children and adolescents (in particular the assessment of competence to consent). The issues of consent and treatment refusal are complex in children and adolescents (see Department of Health guidelines – Reference Guide to Consent for Examination for Treatment, 2002) because of the need to assess competence and involve a third party (parents) in the discussion. When refusal of treatment repeatedly occurs expert legal advice should be sought to establish whether the use of mental health legislation (irrespective of the patient's age) or an application to the Court under the provision of the Children Act 1989 is the best way to proceed. As both physical and psychological development is compromised in patients with early onset anorexia nervosa, treatment should aim to balance the need for urgent weight restoration alongside the educational and social needs of the young person. It is not recommended to continue treatment relying indefinitely on parental consent. The legal basis under which treatment is being carried out should be clearly recorded for this patient group.

6.5.8 Clinical practice recommendations

- 6.5.8.1 Most people with anorexia nervosa should be treated on an outpatient basis. (C)
- 6.5.8.2 Inpatient treatment or day patient treatment should be considered for people with anorexia nervosa whose disorder has not improved with appropriate outpatient treatment, or for whom there is a significant risk of suicide or severe self-harm. (C)
- 6.5.8.3 Inpatient treatment should be considered for people with anorexia nervosa whose disorder is associated with high or moderate physical risk. (C)
- 6.5.8.4 Where inpatient management is required, this should be provided within a reasonable travelling distance to enable the involvement of relatives and carers in treatment, to maintain social and occupational links and to avoid difficulty in transition between primary and secondary care services. This is particularly important in the treatment of children and adolescents. (C)
- 6.5.8.5 People with anorexia nervosa requiring inpatient treatment should normally be admitted to a setting that can provide the skilled implementation of refeeding with careful physical monitoring (particularly in the first few days of refeeding) and in combination with psychosocial interventions. (C)*
- 6.5.8.6 Health care professionals without specialist experience in eating disorders, or in situations of uncertainty, should consider seeking advice from an appropriate specialist when contemplating a compulsory admission for a patient with anorexia nervosa regardless of the age of the patient. (C)
- 6.5.8.7 Health care professionals managing patients with anorexia nervosa, especially those with the binge-purging sub-type, should be aware of the increased risk of self-harm and suicide, particularly at times of transition between services or service settings. (C)

Additional considerations for children and adolescents

- 6.5.8.8 Health care professionals should ensure that children and adolescents with anorexia nervosa who have reached a healthy weight have the increased energy and necessary nutrients available in the diet to support growth and development. (C)
- 6.5.8.9 In the nutritional management of children and adolescents with anorexia nervosa, carers should be included in any dietary education or meal planning. (C)
- 6.5.8.10 Admission of children and adolescents with anorexia nervosa should be to age-appropriate facilities (with the potential for separate children and adolescent services), which have the capacity to provide appropriate educational and related activities. (C)

- 6.5.8.11 When a young person with anorexia nervosa refuses treatment that is deemed essential, consideration should be given to the use of the Mental Health Act 1983 or the right of those with parental responsibility to override the young person's refusal. (C)
- 6.5.8.12 Relying indefinitely on parental consent to treatment should be avoided. It is recommended that the legal basis under which treatment is being carried out should be recorded in the patient's case notes, and this is particularly important in the case of children and adolescents. (C)
- 6.5.8.13 For children and adolescents with anorexia nervosa, where issues of consent to treatment are highlighted, health care professionals should consider seeking a second opinion from an eating disorders specialist. (C)
- 6.5.8.14 If the patient with anorexia nervosa and those with parental responsibility refuse treatment, and treatment is deemed to be essential, legal advice should be sought in order to consider proceedings under the Children Act 1989. (C)

6.6 Predicting the outcome of treatment and recovery from anorexia nervosa

It is important to be able to predict how people with anorexia nervosa will respond to treatment. For example, those with a good prognosis may respond to less intensive treatment (i.e. outpatient treatment). Knowledge of the factors associated with outcome may also suggest modifications or alternative approaches for patients who do not respond to first line treatments.

Nielsen *et al.* (1998) reviewed the mortality rate from published outcome studies of anorexia nervosa and bulimia nervosa. In anorexia nervosa, the association of lower weight at presentation and elevated Standardised Mortality Rate (SMR) was highly significant. Age at presentation was also significant with the highest SMR for those presenting between 20 and 29 years of age. A recent review by Steinhausen (2002) considered 119 studies but did not consider issues relating to study or data quality. A number of other papers reviewed various comorbid conditions and their relationship to outcome in eating disorders (Holderness *et al.*, 1994; Herzog *et al.*, 1996; Rosenvinge *et al.*, 2000). A wide range of potential predictors of outcome have been studied, often those that are routinely or most easily collected at pre-treatment. Some predictors, such as readiness for change, which may be important, are rarely measured.

For the purposes of the guideline, a literature review was carried out using PsycLIT and MEDLINE to identify relevant studies published on or before January 2003. This augmented the search of clinical trials already performed as part of the review of the effectiveness of treatment interventions. A wide range of studies (cohort and treatment studies) of varying quality were identified. Studies of mixed eating disorder populations were excluded unless separate data for anorexia nervosa and bulimia nervosa were reported. Studies of all ages were included and all variables reported

in the studies were included in the analysis. Most of the included studies are of inpatients, which limit the generalisability of the findings to less severe populations. Sample size ($N \geq 50$) was selected as the key inclusion criterion as it was not possible to derive robust measures of study quality. One exception was made to the key inclusion criteria; studies with a sample size of less than 50 were included where the follow-up period was four years or over. A total of 54 studies contributed to the final analysis with sample sizes ranging from 26 to 422. Many studies had repeated assessments at follow-up, the longest being 21 years (Lowe et al., 2001).

The wide variability in method (e.g. different measures of a potential predictor, such as family dysfunction) did not permit a meta-analysis. There was insufficient data to justify analysing data separately for treatments, outcome measures or follow-up length.

A detailed analysis of the number of participants leaving a study early, as an outcome measure, was beyond the scope of this review.

Outcome varied considerably across studies (e.g. weight, diagnostic status or Morgan-Russell categories). Some studies also focused on comorbid disorders as predictors of outcome. For consistency, all findings are expressed in relation to poor outcome.

Based on the number of studies showing a positive result relative to the number showing a negative result for each variable examined, a number of possible predictors emerged (for full details see Appendix 11). That is, in people with anorexia nervosa, a low BMI and a number of indices of physical deterioration prior to treatment are associated with a poorer outcome, as is the bulimic sub-type of anorexia nervosa (in particular vomiting). Previous treatment for anorexia nervosa is also associated with poorer outcome, but findings may be confounded by duration or severity of the disorder. Other pre-treatment predictors identified were personality or interpersonal problems, family disturbance, body image disturbance or dissatisfaction and low desired weight. These findings may indicate areas that need to be addressed within treatment. Age over 20 years at presentation is also associated with poorer outcome.

Post-treatment predictors of poor outcome include other psychiatric disorders, such as mood and personality disorders. This highlights the importance of comprehensive psychiatric and psychological interventions. Inadequate weight gain in treatment, low desired weight, and drive for thinness or continued dieting at post-treatment are also associated with poorer long-term outcome. This highlights the importance of addressing attitudes to food and weight within treatment. Poor social adjustment post-treatment is also associated with poorer long-term outcome indicating the potential needs of patients who do not recover.

6.6.1 Clinical practice recommendations

- 6.6.1.1 People with eating disorders should be assessed and receive treatment at the earliest opportunity. (C)
- 6.6.1.2 Early treatment is particularly important for those with or at risk of severe emaciation and such patients should be prioritised for treatment. (C)

7 Treatment and management of bulimia nervosa

7.1 Introduction

Bulimia nervosa was first described in 1979 in a paper titled 'Bulimia nervosa: an ominous variant of anorexia nervosa' (Russell, 1979). In this paper Russell described bulimia nervosa as 'intractable'. This view is no longer held. Within two years of Russell's paper a report was published describing a promising psychological treatment for the disorder, a specific form of CBT (Fairburn, 1981), and the following year there were two reports that antidepressant drugs also had a beneficial effect (Pope & Hudson, 1982; Walsh *et al.*, 1982). Since then, bulimia nervosa has been the subject of much research interest. There have been over 60 randomised controlled trials evaluating a range of treatments for bulimia nervosa and their findings are remarkably consistent. Evidence-based treatment is certainly possible.

In this chapter the research on psychological treatments is first reviewed. Then the drug studies are considered, followed by the trials evaluating psychological versus antidepressant drug treatment, and their combination. In addition, there are separate sections on the management of the physical aspects of bulimia nervosa and service level interventions. Finally, there is a section on predicting outcome to treatment and recovery from bulimia nervosa.

7.2 Psychological interventions

7.2.1 Introduction

The psychological treatment of bulimia nervosa has been the subject of much research interest. Within two years of the publication of Russell's seminal paper on bulimia nervosa (Russell, 1979), Fairburn (1981) described promising results with a specific form of cognitive behaviour therapy (CBT-BN) (Fairburn, 1981). The following year another promising psychological treatment was described, a form of exposure with response prevention (ERP) (Rosen & Leitenberg, 1982). By the mid-1980s randomised controlled trials evaluating these and other psychological treatments were beginning to be published (Lacey, 1983; Yates & Sambrailo, 1984; Ordman & Kirchenbaum, 1985; Fairburn *et al.*, 1986; Lee & Rush, 1986; Wilson *et al.*, 1986).

Since then research on the treatment of bulimia nervosa has continued apace. Certain trends are apparent. The studies have become larger, and therefore more statistically powerful (e.g. Agras *et al.*, 2000a), and more sophisticated in the questions that they have addressed (e.g. Fairburn *et al.*, 1993; Mitchell *et al.*, 2002). They have included studies of mediators of treatment effects (Wilson *et al.*, 2002) and moderators of treatment outcome (Agras *et al.*, 2000b). Generic research methods have improved too with the use of detailed treatment manuals (e.g. Fairburn, 1993, 1997) and procedures to ensure the treatments are well delivered (e.g. Agras *et al.*, 2000a). Standardised

measures of outcome have been employed, the Eating Disorder Examination (EDE) (Cooper & Fairburn, 1987; Fairburn & Cooper, 1993) being widely viewed as the 'gold standard'. There has also been interest in not simply identifying effective treatments for bulimia nervosa but also in evaluating ways of disseminating them (e.g. Cooper *et al.*, 1996; Treasure *et al.*, 1996; Palmer *et al.*, 2003).

7.2.2 Current practice

There have been no UK-based studies of the treatments that are actually provided for patients with bulimia nervosa. Three studies in the US suggest that evidence-based treatments are not widely used (Crow *et al.*, 1999; Mussell *et al.*, 2000; Haas & Clopton, 2003). There is no reason to think that the situation is any different in the UK. There are likely to be wide variations in the nature of treatment provided, reflecting the resources available and the training and proclivity of the clinician involved. The findings of two UK-based studies suggest that most people with bulimia nervosa are not in treatment (Fairburn & Cooper, 1982; Fairburn *et al.*, 1996).

7.2.3 Psychological treatments versus wait-list or placebo control

7.2.3.1 Treatments reviewed

The following treatments were included:

- Cognitive behaviour therapy for bulimia nervosa (CBT–BN)
- CBT+exposure with response prevention (CBT+ERP)
- Focal supportive psychotherapy
- Guided self-help (GSH)
- Pure self-help (PSH)
- Simplified dialectical behaviour therapy (simplified DBT).

The Psychological Topic Group established definitions for each treatment (see Glossary). Two members of the Topic Group assessed each study for eligibility and classified each psychological treatment. Where disagreements arose, they were resolved by discussion.

7.2.3.2 Studies considered¹⁰

The review team used the existing Cochrane review 'Psychotherapy for bulimia nervosa and binging' (Hay & Bacaltchuk, 2003) as the starting point for this section.

¹⁰ Here and elsewhere in the guideline, each study considered for use in the guideline is referred to by a study ID (primary author and date of study publication, except where a study is in press or only submitted for publication, then a date is not used).

Fourteen trials used in the existing Cochrane review were excluded because they did not meet the inclusion criteria set by the GDG (Bachar, 1999; Bossert, 1989; Bulik, 1998; Carter, 1998; Esplen, 1998; Laessle, 1987 & 1991; Loeb, 2000; Ordman, 1985; Peterson, 1998; Thackray, 1993; Treasure, 1999; Wilfley, 1993; Wilson, 1986). A further six trials were excluded from this section, but included in the next section regarding different psychological treatments (Agras, 2000; Cooper, 1995; Fairburn, 1986 & 1991; Walsh, 1997; Wilson, 1991). The six remaining trials were included here (Agras, 1989; Freeman, 1988; Griffiths, 1994; Lee, 1986; Treasure, 1994; Wolf, 1992). In addition, one trial excluded from the Cochrane review (Mitchell, 1990) and six trials (Leitenberg, 1988; Mitchell, 2001a; Carter, 2003; Walsh, submitted; Sundgotborgen, 2002; Safer, 2001) found during the search for new evidence, were included. Thus, 13 RCTs comparing a psychological treatment with a wait-list control or placebo group, involving 1029 participants, were included.

Out of the included trials, 10 involved CBT-BN (Agras, 1989; Freeman, 1988; Griffiths, 1994; Lee, 1986; Leitenberg, 1988; Mitchell, 1990; Sundgotborgen, 2002; Treasure, 1994; Walsh, submitted; Wolf, 1992), three involved CBT+ERP (Agras, 1989; Leitenberg, 1988; Sundgotborgen, 2002), two involved focal supportive psychotherapy (Agras, 1989; Freeman, 1988), one used GSH (Walsh, submitted), three used PSH (Carter, 2003; Mitchell, 2001a; Treasure, 1994), and one involved simplified DBT (Safer, 2001).

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.2.3.3 Evidence statements¹¹

The level of evidence (I, IIb, IIb, III, IV) is given after each statement (see Section 3.4.6 for more information about the classification of evidence).

Effect of treatment on remission from binge eating/purgung

There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and wait-list control with CBT-BN being superior in terms of remission from binge eating (defined as cessation of binge eating) by the end of treatment ($N = 3$; $n = 136$; RR = 0.73; 95 per cent CI, 0.61 to 0.88; NNT = 4; 95 per cent CI, 3 to 9). **I**

There is limited evidence suggesting that there is a clinically significant difference between simplified DBT and wait-list control with simplified DBT being superior in terms of remission from binge eating/purgung (defined as cessation of binge eating/purgung) by the end of treatment ($N = 1$; $n = 31$; RR = 0.75; 95 per cent CI, 0.57 to 1.00; NNT = 4; 95 per cent CI, 3 to 100). **I**

¹¹ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is limited evidence suggesting that it is unlikely that PSH improves remission from binge eating/purgung by the end of treatment:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between PSH and wait-list control in terms of remission from binge eating (defined as cessation of binge eating) by the end of treatment (N = 2; n = 139; RR = 0.96; 95 per cent CI, 0.85 to 1.09). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between PSH and wait-list control in terms of remission from purging (defined as cessation of purging) by the end of treatment (N = 2; n = 139; RR = 0.97; 95 per cent CI, 0.87 to 1.07). |

There is insufficient or no evidence to determine whether CBT+ERP, focal supportive psychotherapy, or GSH have any impact on remission rates.

Effect of treatment on frequency of binge eating and purging symptoms

There is strong evidence that CBT-BN reduces the frequency of binge eating and purging symptoms by the end of treatment:

- There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and wait-list control with CBT-BN being superior on mean frequency of binge eating by the end of treatment (N = 5; n = 185; SMD = -0.75; 95 per cent CI, -1.05 to -0.44). |
- There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and wait-list control with CBT-BN being superior on mean frequency of purging by the end of treatment (N = 6; n = 192; Random Effects SMD = -1.00; 95 per cent CI, -1.63 to -0.36). |

There is strong evidence suggesting that there is a clinically significant difference between CBT+ERP and wait-list control with CBT+ERP being superior on mean frequency of purging by the end of treatment (N = 2; n = 57; SMD = -0.83; 95 per cent CI, -1.37 to -0.28). |

There is strong evidence that focal supportive psychotherapy reduces the frequency of binge eating and purging symptoms by the end of treatment:

- There is strong evidence suggesting that there is a clinically significant difference between focal supportive psychotherapy and wait-list control with focal supportive psychotherapy being superior on mean frequency of binge eating by the end of treatment (N = 1; n = 50; SMD = -1.12; 95 per cent CI, -1.73 to -0.51). |
- There is strong evidence suggesting that there is a clinically significant difference between focal supportive psychotherapy and wait-list control with supportive psychotherapy being superior on mean frequency of purging by the end of treatment (N = 2; n = 84; SMD = -1.43; 95 per cent CI, -1.93 to -0.94). |

There is insufficient or no evidence to determine whether GSH, PSH, or simplified DBT have any impact on frequency of binge eating and purging symptoms.

Other effects of treatment

There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and wait-list control with CBT-BN being superior with regard to the mean depression score by the end of treatment (N = 3; n = 87; Random Effects SMD = -1.19; 95 per cent CI, -1.99 to -0.39). [1](#)

There is strong evidence suggesting that there is a clinically significant difference between CBT+ERP and wait-list control with CBT+ERP being superior with regard to the mean depression score by the end of treatment (N = 1; n = 34 SMD = -1.20; 95 per cent CI, -1.94 to -0.46). [1](#)

There is insufficient or no evidence to determine whether focal supportive psychotherapy, GSH, PSH, or simplified DBT have any impact on depression. [1](#)

There is insufficient or no evidence to determine whether CBT-BN, CBT+ERP, focal supportive psychotherapy, GSH, PSH, or simplified DBT have any impact on interpersonal/psychosocial functioning. [1](#)

Attrition from the study

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and wait-list control in terms of the number of people leaving the study early due to any reason by end of treatment (N = 9; n = 384; RR = 1.14; 95 per cent CI, 0.74 to 1.74). [1](#)

There is insufficient or no evidence to determine whether there is any difference between CBT+ERP, focal supportive psychotherapy, GSH, PSH, or simplified DBT and a wait-list control in terms of the number of people leaving the study early due to any reason by end of treatment.

7.2.4 Psychological treatments versus other psychological treatments

7.2.4.1 Treatments reviewed¹²

The following treatments were included:

- Behaviour therapy (BT)
- Cognitive behaviour therapy for bulimia nervosa (CBT-BN)
- CBT+exposure with response prevention (CBT+ERP).

¹² The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

- Focal supportive psychotherapy
- Group CBT
- Guided self-help (GSH)
- Individual CBT
- Interpersonal psychotherapy for bulimia nervosa (IPT-BN)
- Dietary counselling
- Psychodynamic psychotherapy.

7.2.4.2 Studies considered

The review team used the existing Cochrane review 'Psychotherapy for bulimia nervosa and binging' (Hay & Bacaltchuk, 2003) as the starting point for this section.

Fourteen trials used in the existing Cochrane review were excluded because they did not meet the inclusion criteria set by the GDG (Bachar, 1999; Bossert, 1989; Bulik, 1998; Carter, 1998; Esplen, 1998; Laessle, 1987 & 1991; Loeb, 2000; Ordman, 1985; Peterson, 1998; Thackwray, 1993; Treasure, 1999; Wilfley, 1993; Wilson, 1986). A further two trials were excluded from this section, but included in the earlier section of psychological treatments versus wait-list control or placebo (Griffiths, 1994; Lee, 1986). The 10 remaining trials were included in the present section (Agras, 1989 & 2000; Cooper, 1995; Fairburn, 1986 & 1991; Freeman, 1988; Treasure, 1994; Walsh, 1997; Wilson, 1991; Wolf, 1992). In addition, eight trials (Bailer, *in press*; Chen, 2003; Garner, 1993; Hsu, 2001; Jansen, 2002; Kirkley, 1985; Leitenberg, 1988; Sungotborgen, 2002) found during the search for new evidence, were included. Thus, 18 RCTs comparing two different psychological treatments, involving 1343 participants, were included in this section.

Out of the included trials, three involved a comparison of CBT-BN with BT (Fairburn, 1991; Freeman, 1988; Wolf, 1992), with follow-up periods ranging from three to 12 months. Four trials involved a comparison of CBT with CBT+ERP (Bulik, 1998; Cooper, 1995; Leitenberg, 1988; Wilson, 1991) with all using 12 months' follow-up, except Leitenberg, 1988 (six-months' follow-up). Two trials involved a comparison of CBT-BN with IPT-BN (Agras, 2000; Fairburn, 1991) using a follow-up period of eight and 12 months, respectively. One trial involved a comparison of CBT-BN with psychodynamic psychotherapy (Garner, 1993), but presented no follow-up data. Four trials had a comparison of CBT-BN with focal supportive psychotherapy (Agras, 1989; Fairburn, 1986; Freeman, 1988; Kirkley, 1985) using follow-up periods ranging between three and 12 months. One trial compared CBT-BN with dietary counselling (Sungotborgen, 2002) using a follow-up of 18 months, and one trial compared CBT-BN with GSH (Bailer, *in press*) using a follow-up of 12 months. Another trial compared CBT-BN with PSH (Treasure, 1994) with no follow-up.

In addition, one trial compared CBT+ERP with focal supportive psychotherapy (Agras, 1989) and two compared CBT+ERP with dietary counselling (Hsu, 2001; Jansen, 2002), all without follow-up data. One trial compared BT with IPT-BN (Fairburn, 1991) using a

follow-up period of 12 months, and one compared BT with focal supportive psychotherapy (Freeman, 1988). Finally, one compared individual CBT with group CBT (Chen, 2003) with six-months' follow-up.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.2.4.3 Evidence statements¹³

Effect of treatment on remission from binge eating and purging

There is evidence from two trials that CBT-BN when compared to IPT-BN improves remission from binge eating and purging by the end of treatment, but is no longer superior at post-treatment follow-up:

- There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and IPT-BN with CBT-BN being superior in terms of remission from binge eating (defined as cessation of binge eating) by the end of treatment ($N = 2$; $n = 270$; RR = 0.77; 95 per cent CI, 0.67 to 0.87; NNT = 5; 95 per cent CI, 4 to 20). |
- There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and IPT-BN with CBT-BN being superior in terms of remission from purging (defined as cessation of purging) by the end of treatment ($N = 1$; $n = 220$; RR = 0.76; 95 per cent CI, 0.67 to 0.86; NNT = 5; 95 per cent CI, 4 to 8). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and IPT-BN in terms of remission from binge eating (defined as cessation of binge eating/purging) at follow-up ($N = 2$; $n = 270$; RR = 0.93; 95 per cent CI, 0.82 to 1.06). |

There is insufficient or no evidence to determine whether there is any difference between CBT-BN and BT on remission rates. |

Effect of treatment on frequency of binge eating and purging

There is limited evidence suggesting that there is a clinically significant difference between CBT-BN and CBT+ERP with CBT-BN being superior in terms of mean frequency of binge eating at follow-up ($N = 1$; $n = 25$; SMD = -0.90; 95% CI, -1.73 to -0.07). |

There is limited/strong evidence that CBT-BN when compared with dietary counselling is superior at reducing the frequency of purging by both the end of treatment and post-treatment follow-up:

¹³ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

- There is limited evidence suggesting that there is a clinically significant difference between CBT-BN and dietary counselling with CBT-BN being superior on mean frequency of purging by the end of treatment (N = 1; n = 31; SMD = -0.95; 95 per cent CI, -1.70 to -0.20). |
- There is strong evidence suggesting that there is a clinically significant difference between CBT-BN and dietary counselling with CBT-BN being superior on mean frequency of purging at follow-up (N = 1; n = 31; SMD = -1.34; 95 per cent CI, -2.13 to -0.55). |

It is unlikely that CBT-BN is superior to BT at reducing the frequency of binge eating and purging by the end of treatment:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and BT on mean frequency of binge eating by the end of treatment (N = 3; n = 131; SMD = -0.11; 95 per cent CI, -0.45 to 0.24). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and BT on mean frequency of purging by the end of treatment (N = 3; n = 131; SMD = 0.08; 95 per cent CI, -0.27 to 0.42). |

It is unlikely that CBT-BN is superior to IPT-BN at reducing the frequency of binge eating by both the end of treatment or post-treatment follow-up:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and IPT-BN on mean frequency of binge eating by the end of treatment (N = 2; n = 262; SMD = -0.24; 95 per cent CI, -0.48 to 0.01). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and IPT-BN in terms of mean frequency of binge eating at follow-up (N = 2; n = 257; SMD = -0.04; 95 per cent CI, -0.29 to 0.20). |

It is unlikely that CBT-BN is superior to focal supportive psychotherapy at reducing the frequency of binge eating and purging by the end of treatment:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and focal supportive psychotherapy on mean frequency of binge eating by the end of treatment (N = 3; n = 111; SMD = 0.00; 95 per cent CI, -0.37 to 0.38). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and focal supportive psychotherapy on mean frequency of purging by the end of treatment (N = 4; n = 144; SMD = -0.13; 95 per cent CI, -0.46 to 0.20). |

It is unlikely that CBT-BN is superior to PSH at reducing the frequency of binge eating by the end of treatment:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BN and PSH on mean frequency of binge eating by the end of treatment (N = 1; n = 80; SMD = 0.03; 95 per cent CI, -0.43 to 0.49). |

There is limited evidence from one trial that GSH when compared to CBT-BN is superior at reducing the frequency of binge eating and purging by the end of treatment:

- There is limited evidence suggesting that there is a clinically significant difference between CBT-BN and GSH with GSH being superior on mean frequency of binge eating by the end of treatment (N = 1; n = 56; SMD = 1.20; 95 per cent CI, 0.63 to 1.78). |
- There is limited evidence suggesting that there is a clinically significant difference between CBT-BN and GSH with GSH being superior on mean frequency of purging by the end of treatment (N = 1; n = 56; SMD = 0.55; 95 per cent CI, 0.01 to 1.08). |

Other effects of treatment

There is insufficient or no evidence to determine whether CBT-BN differs from BT in its effects on depression, general psychiatric symptoms, or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether CBT-BN differs from CBT+ERP in its effects on depression, general psychiatric symptoms, or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether CBT-BN differs from IPT-BN in its effects on depression or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether CBT-BN differs from psychodynamic psychotherapy in its effects on psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up, or on general psychiatric symptoms at follow-up. |

There is insufficient evidence to determine whether CBT-BN differs from focal supportive psychotherapy in its effects on general psychiatric symptoms or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is no evidence to determine whether CBT-BN differs from dietary counselling in its effects on depression, general psychiatric symptoms or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether CBT-BN differs from GSH or PSH in its effects on depression, general psychiatric symptoms or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether CBT+ERP differs from focal supportive psychotherapy or dietary counselling in its effects on depression, general psychiatric symptoms or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether BT differs from IPT-BN or focal supportive psychotherapy in its effects on depression, general psychiatric symptoms or psychosocial/interpersonal functioning by the end of treatment or post-treatment follow-up. **I**

Acceptability of treatment

There is insufficient evidence to determine whether CBT-BN is more, or less, acceptable to people with bulimia nervosa when compared with BT, CBT+ERP, IPT-BN, psychodynamic psychotherapy, focal supportive psychotherapy, dietary counselling, GSH or PSH. **I**

There is insufficient evidence to determine whether CBT+ERP is more, or less, acceptable to people with bulimia nervosa when compared with focal supportive psychotherapy or dietary counselling. **I**

There is insufficient evidence to determine whether BT is more, or less, acceptable to people with bulimia nervosa when compared with IPT-BN or focal supportive psychotherapy. **I**

7.2.5 Additional considerations in the management of children and adolescents

Bulimia nervosa is rarely, if ever, seen in children. It does occur in adolescents although in clinical practice most patients are young adults. There has been no research on the treatment of adolescents with bulimia nervosa. This omission needs to be rectified. In line with much current clinical practice, the GDG took the view that, subject to adaptation to their age, circumstances and level of development, adolescent patients with bulimia nervosa should receive the same type of treatment as adults with the disorder. In the treatment of adolescents with CBT-BN consideration should also be given to the appropriate involvement of the family.

7.2.6 Clinical summary

Four main conclusions may be drawn from these analyses and the studies upon which they are based. First, until recently, most of the studies of the psychological treatment of bulimia nervosa have been small in size and, therefore, lacking in statistical power. They have therefore been vulnerable to Type II error. Thus, the great majority of the many statistically non-significant findings cannot be interpreted. Second, the weight of evidence as measured in terms of the strength and consistency of the findings and the number of relevant studies indicates that CBT-BN (delivered on a one-to-one basis) is the most effective treatment for bulimia nervosa. Third, CBT+ERP is also effective in the short term. However, its use has fallen from favour because it is difficult to implement and disliked by patients (Bulik *et al.*, 1998) and time-consuming. Lastly, IPT-BN appears to be as effective as CBT-BN at eight to 12-month post-treatment follow-up (i.e. one year after starting treatment). Prior to this, CBT-BN is more effective than IPT-BN.

7.2.7 Clinical practice recommendations

- 7.2.7.1 As a possible first step, patients with bulimia nervosa should be encouraged to follow an evidence-based self-help programme. (B)
- 7.2.7.2 Health care professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help programme as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. (B)
- 7.2.7.3 Cognitive behaviour therapy for bulimia nervosa (CBT–BN), a specifically adapted form of CBT, should be offered to most adults with bulimia nervosa. The course of CBT–BN should normally be of 16 to 20 sessions over four to five months. (A)*
- 7.2.7.4 Adolescents with bulimia nervosa may be treated with CBT–BN adapted as needed to suit their age, circumstances and level of development and including the family as appropriate. (C)*
- 7.2.7.5 When people with bulimia nervosa have not responded to or do not want CBT, other psychological treatments should be considered. (B)
- 7.2.7.6 Interpersonal psychotherapy should be considered as an alternative to CBT, but patients should be informed it takes eight to 12 months to achieve results comparable with CBT. (B)

7.3 Pharmacological interventions

7.3.1 Introduction

A diverse network of neurotransmitters/neurohormones are involved in the central and peripheral control of appetite and satiety. A wide array of drugs that act on various receptors within these pathways have been examined in the treatment of bulimia nervosa.

7.3.2 Current practice

Antidepressants are often employed as a first line treatment as they are easily used in primary care.

Drugs are not as acceptable or as well tolerated as psychological treatments in this patient group. Only short-term effects have been studied and the outcome measures used are often not comparable to those used in studies of psychological treatments.

People with bulimia nervosa have an increased risk of self-harm and so risks of overdose need to be considered. Drugs that require dietary restrictions, such as monoamine-oxidase inhibitors (MAOIs) may be less appropriate in this group. They may also be using

a wide variety of non-prescription medication the effects of which are unknown and may interact adversely with prescription medication. Particular consideration needs to be given to the possibility of pregnancy and breast-feeding. Very few drugs are recommended for children and adolescents aged less than 18. There are safety data available for other conditions for sertraline and amisulpride in the under 18 group but the use of these medications has not been studied in adults with bulimia nervosa.

7.3.3 Antidepressant drug treatment

In clinical practice, it has often been found that any drug effect is poorly sustained and it is often necessary to switch medication in an effort to sustain a remission of symptoms. The effective dose of fluoxetine is 60 mg, and as such is higher than the standard dose for depression. No other drug studies have compared different doses.

7.3.3.1 Drugs reviewed

The following drugs were included:

- Antidepressants
 - MAOIs (moclobemide, phenelzine)
 - SSRIs (fluoxetine)
 - Tricyclic antidepressants (desipramine, imipramine)
 - Other antidepressants (bupropion, trazodone, mianserin)
- Opioid antagonist (naltrexone)
- Antiemetics.

Drugs that have had their licences withdrawn from the UK were not included in the guideline. Although there are studies assessing the use of lithium carbonate, these were not included, as it was felt inadvisable to use this drug given the potential risk of toxicity in people with bulimia nervosa.

7.3.3.2 Studies considered

The review team used the existing Cochrane review 'Antidepressants versus placebo for people with bulimia nervosa' (Bacaltchuk & Hay, 2003) as the starting point for the present analysis.

Five trials used in the existing Cochrane review were excluded because they did not meet the inclusion criteria set by the GDG (Agras, 1987; Kennedy, 1988 & 1993; Mitchell, 1984; Rothschild, 1994). The 11 remaining trials were included in this section (Fluoxetinebulim, 1992; Goldstein, 1995; Horne, 1988; Kanerva, 1994; McCann, 1990; Mitchell, 1990; Popo, 1983 & 1989; Sabine, 1983; Walsh, 1987 & 1991). In addition, four trials of antidepressants (Carruba, 2001; Mitchell, 2001a; Ramano, 2002; Walsh, submitted), two trials of naltrexone (Huseman, 1990; Mitchell, 1989a) and two of

ondansetron (Faris, 1989 & 2000) were found during the search for new evidence. Thus, 19 RCTs involving 1851 participants were included.

Of the 19 trials, 15 compared antidepressants with placebo. Of these, four compared tricyclic antidepressants with placebo (McCann, 1990; Mitchell, 1990; Pope, 1983; Walsh, 1991), five compared SSRIs with placebo (Fluoxetinebulim, 1992; Goldstein, 1995; Kanerva, 1994; Mitchell, 2001a; Walsh, submitted), two compared MAOIs with placebo (Walsh, 1987; Carruba, 2001), and three compared other antidepressants with placebo (Horne, 1988; Pope, 1989, Sabine, 1983). The trials ranged in duration from 26 to 365 days, with a median of 56 days.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.3.3.3 Evidence statements¹⁴

The data were analysed in two ways. First, by combining the results across all classes of antidepressants (referred to below as 'antidepressants'). Secondly, by combining the results across each class separately (i.e. MAOIs, SSRIs, and tricyclics).

Effect of treatment on remission from binge eating/purgung

There is limited evidence suggesting that there is a clinically significant difference between antidepressants and placebo, with antidepressants being superior in terms of remission from binge eating/purgung (defined as cessation of binge eating/purgung) by the end of treatment ($N = 6$; $n = 697$; RR = 0.88; 95 per cent CI, 0.83 to 0.94; NNT = 9; 95 per cent CI, 6 to 15). |

There is limited evidence suggesting that there is a clinically significant difference between the MAOIs and placebo with MAOIs being superior in terms of remission from binge eating (defined as cessation of binge eating) by the end of treatment ($N = 1$; $n = 62$; RR = 0.77; 95 per cent CI, 0.62 to 0.95; NNT = 5; 95 per cent CI, 3 to 17). |

There is insufficient evidence to determine whether SSRIs or tricyclics are preferable in improving remission rates by the end of treatment. |

Effect of treatment on frequency of binge eating and purging

There is strong evidence suggesting that there is a clinically significant difference between antidepressants and placebo with antidepressants being superior in terms of clinical improvement (defined as at least a 50 per cent reduction in the frequency of binge eating) by the end of treatment ($N = 6$; $n = 855$; RR = 0.68; 95 per cent CI, 0.60 to 0.78; NNT = 5; 95 per cent CI, 4 to 8). |

¹⁴ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

However, using a continuous measure of binge eating or purging, there is insufficient evidence to determine whether antidepressants reduce the frequency of binge eating and purging by the end of treatment. |

There is strong evidence from three trials that SSRIs when compared to placebo produce clinical improvement in binge eating and purging by the end of treatment:

- There is strong evidence suggesting that there is a clinically significant difference between the SSRIs and placebo with SSRIs being superior in terms of clinical improvement (defined as at least a 50 per cent reduction in frequency of binge eating) by the end of treatment (N = 3; n = 706; RR = 0.73; 95 per cent CI, 0.62 to 0.84; NNT = 6; 95 per cent CI, 5 to 12). |
- There is strong evidence suggesting that there is a clinically significant difference between SSRIs and placebo with SSRIs being superior in terms of clinical improvement (defined as at least a 50 per cent reduction in the frequency of purging) by the end of treatment (N = 2; n = 656; RR = 0.66; 95 per cent CI, 0.57 to 0.76; NNT = 5; 95 per cent CI, 4 to 7). |

There is strong evidence suggesting that there is a clinically significant difference between tricyclics and placebo with tricyclics being superior in terms of clinical improvement (defined as at least a 50 per cent reduction in the frequency of binge eating) by the end of treatment (N = 1; n = 22; RR = 0.30; 95 per cent CI, 0.11 to 0.80; NNT = 2; 95 per cent CI, 2 to 4). |

There is strong evidence suggesting that there is a clinically significant difference between tricyclics and placebo with tricyclics being superior on mean frequency of binge eating by the end of treatment (N = 3; n = 120; SMD = -0.82; 95 per cent CI, -1.20 to -0.45). |

There is insufficient evidence to determine whether appetite suppressants or antiemetics reduce the frequency of binge eating or purging when compared to placebo by the end of treatment. |

Other effects of treatment

There is limited evidence suggesting that there is a clinically significant difference between antidepressants and placebo, with antidepressants being superior in terms of mean depression scores by the end of treatment (N = 6; n = 293; SMD = -0.28; 95 per cent CI, -0.51 to -0.05). |

There is limited evidence suggesting that there is a clinically significant difference between tricyclics and placebo with tricyclics being superior in terms of mean depression scores by the end of treatment (N = 3; n = 120; SMD = -0.47; 95 per cent CI, -0.83 to -0.10). |

There is insufficient evidence to determine whether MAOIs or SSRIs reduce the symptoms of depression by the end of treatment. |

Acceptability of treatment

There is limited evidence from five trials favouring SSRIs over placebo in terms of treatment acceptability:

- There is limited evidence suggesting that there is a clinically significant difference between the SSRIs and placebo with SSRIs being superior in terms of the number of people leaving the study early due to any reason by end of treatment (N = 5; n = 803; RR = 0.79; 95 per cent CI, 0.67 to 0.95). |

There is strong evidence from four trials that tricyclics are less acceptable to people with bulimia nervosa than placebo by the end of treatment:

- There is strong evidence suggesting that there is a clinically significant difference between tricyclics and placebo with placebo being superior in terms of the number of people leaving the study early due to any reason by end of treatment (N = 4; n = 217; RR = 2.03; 95 per cent CI, 1.18 to 3.49; NNH = 7; 95 per cent CI, 4 to 20). |

There is insufficient evidence to determine whether appetite suppressants or antiemetics are more, or less, acceptable to people with bulimia nervosa than placebo. |

Tolerability of treatment

There is limited evidence suggesting that there is a clinically significant difference between antidepressants and placebo, with placebo being superior in terms of the number of people leaving the study early due to adverse events by end of treatment (N = 9; n = 1078; RR = 1.90; 95 per cent CI, 1.20 to 2.99; NNH = 20; 95 per cent CI, 13 to 50). |

There is insufficient evidence to determine whether a specific class of antidepressant is more, or less, tolerated in people with bulimia nervosa. |

7.3.4 Additional considerations in the management of children

and adolescents

Antidepressant drugs may be used for the treatment of bulimia nervosa in adolescents but they are not licensed for this age group and there is no evidence base for this practice. They should not be considered as a first line treatment in adolescent bulimia nervosa.

7.3.5 Clinical summary

There are a limited number of studies and inevitably this must lead to rather tentative conclusions. Antidepressants, in particular fluoxetine, can produce benefits in overall symptomatology but the evidence is not as strong for specific behaviours such as binge eating and purging. Antidepressants, specifically SSRIs, appear to be reasonably tolerated. The major problem in interpreting the outcome of these trials is their short duration and lack of follow-up data for most trials and the consequent absence of any evidence for long-term effectiveness.

7.3.6 Clinical practice recommendations

- 7.3.6.1 As an alternative or additional first step to using an evidence-based self-help programme, adults with bulimia nervosa may be offered a trial of an antidepressant drug. (B)*
- 7.3.6.2 Patients should be informed that antidepressant drugs can reduce the frequency of binge eating and purging, but the long-term effects are unknown. Any beneficial effects will be rapidly apparent. (B)
- 7.3.6.3 Selective serotonin reuptake inhibitors (SSRIs) (specifically fluoxetine) are the drugs of first choice for the treatment of bulimia nervosa in terms of acceptability, tolerability and reduction of symptoms. (C)
- 7.3.6.4 For people with bulimia nervosa, the effective dose of fluoxetine is higher than for depression (60 mg daily). (C)
- 7.3.6.5 No drugs, other than antidepressants, are recommended for the treatment of bulimia nervosa. (B)

7.4 Antidepressant drugs compared to psychological interventions and their combination

7.4.1 Introduction

Psychological and pharmacological treatments for bulimia nervosa have not only been evaluated on their own but they have also been compared. In addition, they have been studied in combination to see whether any advantages come from using them together. The only drugs to be studied in this way have been antidepressant drugs. These studies are now reviewed starting with the direct comparative studies and then the evaluations of the two treatments combined.

7.4.2 Current practice

There are no data available on the combined use of antidepressant drugs and psychological treatment in the management of bulimia nervosa in routine clinical practice.

7.4.3 Psychological treatments versus antidepressant drugs

7.4.3.1. Treatments reviewed

The following psychological treatments were included:

- CBT
- Focal supportive psychotherapy
- PSH.

The following antidepressant drugs were included:

- SSRIs (fluoxetine)
- Tricyclic antidepressants (desipramine, imipramine).

7.4.3.2. Studies considered

The review team used the existing Cochrane review 'Antidepressants versus psychological treatments and their combination for bulimia nervosa' (Bacaltchuk, Hay & Trefiglio, 2003) as the starting point for the present analysis.

All five trials comparing a psychological treatment with an antidepressant, used in the existing Cochrane review, were included in the present section (Agras, 1992; Goldbloom, 1997; Mitchell, 1990; Leitenberg, 1994; Walsh, 1997). In addition, three trials (Mitchell, 2001a; Jacobi 2002; Walsh, submitted) found during the search for new evidence, were included. Thus, eight RCTs involving 694 participants were included.

Out of the included trials, five compared CBT with an antidepressant (Agras, 1992; Goldbloom, 1997; Jacobi, 2002; Leitenberg, 1994; Walsh, 1997), and two compared PSH with an antidepressant (Mitchell, 2001a; Walsh, submitted). In addition, Walsh, 1997, compared focal supportive psychotherapy with an antidepressant.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.4.3.3. Evidence statements¹⁵

The data were analysed by comparing each psychological treatment to any antidepressant, irrespective of drug class.

Effect of treatment on remission from binge eating/purgung

There is limited evidence from five trials favouring CBT over antidepressants with regard to remission from binge eating and purging (defined as cessation of binge eating/purgung) by the end of treatment:

¹⁵ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

- There is limited evidence suggesting that there is a clinically significant difference between CBT and antidepressants with CBT being superior in terms of remission from binge eating by the end of treatment ($N = 5$; $n = 270$; RR = 0.78; 95 per cent CI, 0.67 to 0.92; NNT = 6; 95 per cent CI, 4 to 15). |
- There is limited evidence suggesting that there is a clinically significant difference between CBT and antidepressants with CBT being superior in terms of remission from purging by the end of treatment ($N = 5$; $n = 196$; RR = 0.78; 95 per cent CI, 0.66 to 0.92; NNT = 6; 95 per cent CI, 4 to 15). |

There is insufficient evidence to determine whether CBT differs from antidepressants with respect to remission from binge eating or purging at post-treatment follow-up. |

There is insufficient or no evidence to determine whether PSH or focal supportive psychotherapy differ from antidepressants with respect to remission from binge eating or purging by the end of treatment or post-treatment follow-up. |

Effect of treatment on frequency of binge eating and purging

Overall, it is unlikely that there is any difference between CBT and antidepressants with respect to the frequency of binge eating or purging by the end of treatment:

- There is insufficient evidence to determine if there is a clinically significant difference between CBT and antidepressants on mean frequency of binge eating by the end of treatment ($N = 4$; $n = 149$; SMD = -0.19; 95 per cent CI, -0.52 to 0.14). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT and antidepressants on mean frequency of purging by the end of treatment ($N = 5$; $n = 158$; SMD = -0.14; 95 per cent CI, -0.46 to 0.19). |

There is insufficient evidence to determine whether CBT differs from antidepressants with respect to the frequency of binge eating or purging at post-treatment follow-up. |

There is insufficient or no evidence to determine whether PSH or focal supportive psychotherapy differ from antidepressants with respect to the frequency of binge eating or purging by the end of treatment or post-treatment follow-up. |

Other effects of treatment

There is insufficient or no evidence to determine whether CBT, PSH or focal supportive psychotherapy differ from antidepressants on depression or general psychiatric symptoms by the end of treatment or post-treatment follow-up. |

Acceptability of treatment

There is insufficient evidence to determine whether CBT is more, or less, acceptable to people with bulimia nervosa when compared with antidepressants. |

However, closer inspection of the data indicated significant heterogeneity in the data set. A sensitivity analysis was conducted by removing one study (Jacobi, 2002) from the analysis as this study appeared to be an outlier. The authors of this study speculated that their findings might differ from previous studies due to cultural differences in the health care systems (i.e. the study was conducted in Germany, whereas the other studies were North American). The sensitivity analysis indicated that:

- There is strong evidence suggesting that there is a clinically significant difference favouring CBT–BN over antidepressants in terms of the number of people leaving the study early due to any reason by end of treatment ($N = 3$; $n = 149$; RR = 0.48; 95 per cent CI, 0.28 to 0.83). |

There is insufficient or no evidence to determine whether PSH or focal supportive psychotherapy are more, or less, acceptable to people with bulimia nervosa when compared with antidepressants. |

Tolerability of treatment

There is insufficient or no evidence to determine whether antidepressants have more, or less, side effects in people with bulimia nervosa when compared with CBT, PSH or focal supportive psychotherapy. |

7.4.4 Psychological treatments versus the combination of psychological treatment and antidepressants

7.4.4.1 Treatments reviewed

The following psychological treatments were included:

- CBT
- Focal supportive psychotherapy
- Dietary counselling
- PSH.

The following antidepressant drugs were included:

- SSRIs (fluoxetine)
- Tricyclic antidepressants (desipramine, imipramine).

7.4.4.2 Studies considered

The review team used the existing Cochrane review ‘Antidepressants versus psychological treatments and their combination for bulimia nervosa’ (Bacaltchuk, Hay & Trefiglio, 2003) as the starting point for the present analysis.

All seven trials comparing a psychological treatment to the combination of a psychological treatment and an antidepressant, used in the existing Cochrane review, were included in this section (Agras, 1992; Beumont, 1997; Fichter, 1991; Goldbloom, 1997; Leitenberg, 1994; Mitchell, 1990; Walsh, 1997). In addition, three trials (Mitchell, 2001a; Jacobi, 2002; Walsh, submitted) found during the search for new evidence, were included here. Thus, 10 RCTs involving 801 participants were included.

Out of the included trials, seven used CBT as the psychological treatment (Agras, 1992; Fichter, 1991; Goldbloom, 1997; Jacobi, 2002; Leitenberg, 1994; Mitchell, 1990; Walsh, 1997), two used PSH (Mitchell, 2001a; Walsh, submitted) and one used dietary counselling (Beumont, 1997). In addition, Walsh (1997) included a focal supportive psychotherapy group.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.4.4.3 Evidence statements¹⁶

The data were analysed by comparing each psychological treatment to the combination of the psychological treatment and any antidepressant, irrespective of drug class.

Effect of treatment on remission from binge eating/purging

There is insufficient evidence to determine whether CBT differs from the combination of CBT and antidepressants with respect to remission from binge eating or purging by either the end of treatment or post-treatment follow-up. |

There is insufficient evidence to determine whether PSH or focal supportive psychotherapy differs from the combination of PSH or focal supportive psychotherapy and antidepressants with respect to remission from binge eating or purging by either the end of treatment or post-treatment follow-up. |

There is insufficient evidence to determine whether dietary counselling differs from the combination of dietary counselling and antidepressants with respect to remission from binge eating or purging by the end of treatment. However, at follow-up there is evidence from one study favouring the combination:

- There is limited evidence to suggest that there is a clinically significant difference between dietary counselling and a combination of dietary counselling and an antidepressant with dietary counselling being superior in terms of remission from binge eating/purging at follow up (N = 1; n = 67; RR = 0.70; 95 per cent CI, 0.50 to 0.97; NNT = 4; 95 per cent CI, 3 to 25). |

¹⁶ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

Effect of treatment on the frequency of binge eating and purging

There is evidence from five trials that the combination of CBT and antidepressants is equivalent to CBT alone with respect to the reduction of binge eating or purging by the end of treatment:

- There is limited evidence suggesting that there is a statistically significant difference between CBT and a combination of CBT and an antidepressant but the difference is unlikely to be clinically significant in terms of the mean frequency of binge eating by the end of treatment (N = 5; n = 185; SMD = 0.38; 95 per cent CI, 0.09 to 0.68). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT and a combination of CBT and an antidepressant on mean frequency of purging by the end of treatment (N = 5; n = 157; SMD = 0.16; 95 per cent CI, -0.16 to 0.48). |

There is insufficient evidence to determine whether CBT differs from the combination of CBT and antidepressants with respect to the frequency of binge eating or purging at post-treatment follow-up. |

There is insufficient or no evidence to determine whether PSH or focal supportive psychotherapy differ from the combination of these psychological treatments and antidepressants with respect to the frequency of binge eating or purging by either the end of treatment or post-treatment follow-up. |

There is insufficient evidence to determine whether dietary counselling differs from the combination of dietary counselling and antidepressants with respect to the frequency of binge eating or purging by either the end of treatment or post-treatment follow-up. |

Other effects of treatment

There is insufficient or no evidence to determine whether CBT differs from the combination of CBT and antidepressants on depression or general psychiatric symptoms by either the end of treatment or post-treatment follow-up. |

There is insufficient or no evidence to determine whether PSH, focal supportive psychotherapy or dietary counselling differ from the combination of these psychological treatments and antidepressants with respect to depression or general psychiatric symptoms by either the end of treatment or post-treatment follow-up. |

Acceptability of treatment

There is insufficient evidence to determine whether CBT is more, or less, acceptable to people with bulimia nervosa when compared with the combination of CBT and antidepressants. |

There is insufficient evidence to determine whether PSH or focal supportive psychotherapy are more, or less, acceptable to people with bulimia nervosa when compared with the combination of these psychological treatments and antidepressants. |

There is insufficient evidence to determine whether dietary counselling is more, or less, acceptable to people with bulimia nervosa when compared with the combination of dietary counselling and antidepressants. |

7.4.5 Antidepressant drugs versus the combination of antidepressant drugs and psychological treatment

7.4.5.1 Treatments reviewed

The following antidepressant drugs were included:

- SSRIs (fluoxetine)
- Tricyclic antidepressants (desipramine, imipramine).

The following psychological treatments were included:

- CBT
- Focal supportive psychotherapy
- Dietary counselling
- PSH.

7.4.5.2 Studies considered

The review team used the existing Cochrane review 'Antidepressants versus psychological treatments and their combination for bulimia nervosa' (Bacaltchuk, Hay & Trefiglio, 2003) as the starting point for the present analysis.

All five trials comparing an antidepressant to a combination of an antidepressant and a psychological treatment, used in the existing Cochrane review, were included in this section (Agras, 1992; Goldbloom, 1997; Leitenberg, 1994; Mitchell, 1990; Walsh, 1997). In addition, three trials (Mitchell, 2001a; Jacobi 2002; Walsh, submitted) found during the search for new evidence, were included here. Thus, eight RCTs involving 694 participants were included.

Of the included trials, six used CBT as the psychological treatment (Agras, 1992; Goldbloom, 1997; Jacobi, 2002; Leitenberg, 1994; Mitchell, 1990; Walsh, 1997) and two used self-help (Mitchell, 2001a; Walsh, submitted). In addition, Walsh (1997) used a focal supportive psychotherapy group.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.4.5.3 Evidence statements¹⁷

The data were analysed by comparing any antidepressant to any antidepressant combined with a specific psychological treatment.

Effect of treatment on remission from binge eating/purgung

There is insufficient evidence to determine whether antidepressants differ from the combination of CBT and antidepressants with respect to remission from binge eating or purging by either the end of treatment or post-treatment follow-up. |

There is insufficient evidence to determine whether antidepressants differ from the combination of PSH or focal supportive psychotherapy and antidepressants with respect to remission from binge eating or purging by either the end of treatment or post-treatment follow-up. |

Effect of treatment on the frequency of binge eating and purging

There is evidence from five trials favouring the combination of CBT and antidepressants over antidepressants alone in terms of the frequency of binge eating and purging by the end of treatment:

- There is strong evidence suggesting that there is a clinically significant difference between antidepressants and a combination of CBT and an antidepressant with the combination being superior on mean frequency of binge eating by the end of treatment ($N = 4$; $n = 133$; SMD = 0.55; 95 per cent CI, 0.21 to 0.90). |
- There is limited evidence suggesting that there is a clinically significant difference between antidepressants and a combination of CBT and an antidepressant with the combination being superior on mean frequency of purging by the end of treatment ($N = 5$; $n = 141$; SMD = 0.49; 95 per cent CI, 0.15 to 0.83). |

There is insufficient evidence to determine whether antidepressants differ from the combination of CBT and antidepressants with respect to the frequency of binge eating or purging at post-treatment follow-up. |

There is insufficient or no evidence to determine whether antidepressants differ from the combination of PSH or focal supportive psychotherapy and antidepressants with respect to the frequency of binge eating or purging by either the end of treatment or post-treatment follow-up. |

Other effects of treatment

There is insufficient or no evidence to determine whether antidepressants differ from the combination of CBT and antidepressants on depression or general psychiatric symptoms by either the end of treatment or post-treatment follow-up. |

¹⁷ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient or no evidence to determine whether antidepressants differ from the combination of PSH or focal supportive psychotherapy and antidepressants on depression or general psychiatric symptoms by either the end of treatment or post-treatment follow-up. |

Acceptability of treatment

There is insufficient evidence to determine whether antidepressants are more, or less, acceptable to people with bulimia nervosa when compared with the combination of CBT and antidepressants. |

There is insufficient or no evidence to determine whether antidepressants are more, or less, acceptable to people with bulimia nervosa when compared with the combination of PSH or focal supportive psychotherapy and antidepressants. |

Tolerability of treatment

There is insufficient evidence to determine whether antidepressants have more, or less, side effects in people with bulimia nervosa when compared with the combination of CBT and antidepressants. |

There is insufficient or no evidence to determine whether antidepressants have more, or less, side effects in people with bulimia nervosa when compared with the combination of PSH or focal supportive psychotherapy and antidepressants. |

7.4.6 Clinical summary

Four points emerge from these analyses and the studies upon which they are based. First, there have been few comparisons of psychological and pharmacological treatments, and their combination, with the result that any practice recommendations must be tentative. Second, few studies have included post-treatment follow-up periods, a problem with almost all the studies that have used drugs. Third, the comparisons of CBT-BN with antidepressant drugs indicate that CBT-BN is the more potent treatment. Finally, the combination of CBT with antidepressant drugs is superior to antidepressant drugs on their own.

7.5 Management of the physical aspects of bulimia nervosa

7.5.1 Introduction

For the majority of people with bulimia nervosa, serious medical complications are rare. Severe problems can arise when there is comorbidity with diabetes. In addition, some of the compensatory behaviours can be toxic (herbal preparations, high dose analgesics, diuretics and Ipecac). The longer-term physical risks include damage to teeth from vomiting and overuse of carbonated drinks, damage to the gut from laxative abuse and potentially fatal electrolyte (K+) imbalance.

The crude mortality rate (CMR) of bulimia nervosa was 0.4 per cent (11 deaths in 2692 patients), when two meta-analyses were combined (Keel & Mitchell, 1997; Nielsen, 2001). No information is available as to the distribution of causes of death.

In one meta-analysis (Nielsen, 2001), the overall aggregate SMR of bulimia nervosa in studies with five to 11 years of follow-up was 7.4 (95 per cent CI, 2.9 to 14.9).

In addition to the general nutritional deficiency that may be present in bulimia nervosa, there may be specific nutritional problems related to meal content and patterning and purging.

The physical management of bulimia nervosa, therefore, falls (with the exceptions described below) into normal medical practice with the provisos set out in the introduction and primary care section concerned with detection and appropriate investigations. Good history taking and skilled empathic interviewing are necessary to elicit the full range of compensatory behaviours as these are often secretive, shameful and can be illegal.

The physical risk assessment screen used for anorexia nervosa may also be considered for bulimia nervosa.

7.5.2 Physical complications of binge eating/purging

The physical consequences of bulimia nervosa result largely from the compensatory behaviours of vomiting, laxative and diuretic abuse. For the purposes of this section the following complications were considered: fluid and electrolyte disturbances, damage to the gastrointestinal tract and dental complications. Evidence for the management of these difficulties is limited to descriptive reviews, other guidelines and knowledge of common medical practice.

Fluid and electrolyte disturbances

Fluid and electrolyte disturbances occur in bulimia nervosa and relate to the severity of symptoms and the general nutritional status. Common abnormalities include:

- Dehydration
- Hypokalaemia
- Hypochloraemia
- Alkalosis.

Dehydration can cause volume depletion and consequently low blood pressure and a rapid pulse. Patients can complain of dizziness because of orthostatic hypotension and weakness. In extreme cases renal function can be compromised. Secondary hypoaldosteronism can lead to rebound, fluid retention and peripheral oedema when laxatives and diuretics are withdrawn (Mitchell, 1988).

Low potassium causes weakness in all muscle and most worryingly cardiac arrhythmias, which may lead to death in severe cases. Renal function can also be affected. Metabolic alkalosis may augment potassium depletion. Diuretic abuse, particularly thiazide and loop diuretics, can produce marked potassium and sodium depletion.

Low sodium and magnesium levels occur less commonly but both have potentially serious consequences. If severe the former may cause central nervous system disturbances, whilst the latter results in muscle weakness, cardiac arrhythmias and mood changes. Low magnesium is also associated with other abnormalities such as hypocalcaemia and hypokalaemia. Clinicians should consider the presence of low magnesium levels in the face of refractory hypokalaemia.

In general, these abnormalities settle with cessation of purging behaviours. If needed, oral rather than IV supplementation (with substances such as rehydrate in severe cases) is advised. Advice from a physician and/or paediatrician may be necessary if there is severe metabolic disturbance (Connan, Lightman & Treasure, 2000). Very rarely patients may require hospital admission to manage severe purging behaviour.

Gastrointestinal damage

Loss of the gag reflex and gastro-oesophageal reflux has been found in patients with bulimia nervosa. Frequent and severe vomiting can cause more serious complications of oesophageal tears, perforation, and oesophagitis. These may require surgical intervention.

Laxative abuse

The prevalence of daily laxative abuse in patients with bulimia nervosa has been reported as up to 20 per cent (Mitchell *et al.*, 1985) and 75 per cent of patients report using laxatives at some point (Fairburn & Cooper, 1984). Patients usually take laxatives with the mistaken assumption that there is a consequent reduction in calorie absorption. The fluid loss that results from laxative action on the colon can provide a feeling of emptiness and weight loss. However laxatives have been shown to be an ineffective method of reducing calorie absorption (Bo-Linn *et al.*, 1983). The majority of patients use stimulant rather than bulk laxatives. The former have been shown to cause degeneration of the colonic nerve supply (Oster, 1980).

Laxative abuse carries the acute complication of electrolyte and fluid disturbances and can be particularly dangerous in low weight individuals. Abrupt cessation of laxatives in those who are taking them regularly can result in reflex fluid and sodium retention, and consequent weight gain, and oedema. This can increase patient anxiety and reluctance to curtail the use of laxatives. To avoid this effect a gradual reduction in laxative use is advised.

Long-term excessive laxative use can decrease the motility of the colon. This results in constipation and more worryingly an atonic cathartic colon. Recommended treatment of

the constipation is regular food intake, bulk laxatives, adequate fluids and exercise (Robinson, 2000). Some patients may find these measures uncomfortable. Rarely surgical intervention may be required.

Dental complications

Dental erosion is the most common oral problem in patients with eating disorders who engage in self-induced vomiting. Erosion of the enamel of the tooth surface is caused by exposure to gastric acid. Teeth may become discoloured and change shape. Tooth sensitivity (pain on eating hot or cold meals) has also been reported. The chaotic eating pattern may also lead to high levels of dental caries (decay).

Detailed clinical guidelines on the diagnosis and prevention of dental erosion are available (http://www.rcseng.ac.uk/dental/fds/clinical_guidelines). These guidelines stress that recognition and management of the underlying aetiology (i.e. the eating disorder) is essential. It is noted that referral by dental practitioners to the general practitioner for treatment may be required and that 'initiation of medical help is a sensitive undertaking'. Dental practitioners are advised to monitor the erosion, to offer advice and provide treatment to prevent further erosion and improve appearance. Restorative treatment may prove difficult in the face of ongoing vomiting.

For clinicians involved with the management of the eating disorder, it is important to advise patients on the dental consequences and refer to a dental practitioner. Although any treatment of the eating disorder will aim to limit vomiting, patients should be given the following advice:

- Brushing teeth after vomiting should be avoided as it may increase tooth damage
- Mouth rinsing after vomiting with water and sodium bicarbonate (or other non-acid mouth wash) will neutralise the acid environment
- Visit the dentist regularly
- Fluoride mouth rinses and toothpastes may be helpful for desensitisation.

A high intake of acidic foods may increase dental erosion. These foods include fruit, fruit juice, carbonated drinks, pickled products, yoghurt and some alcoholic drinks. Dental practitioners guidelines recommend detailed dietary advice, which these patients may find difficult to follow. This advice includes:

- Limiting acidic foods and drinks to mealtimes
- Finishing meals with alkaline foods (e.g. milk or cheese)
- Avoiding acid foods and drinks last thing at night
- Avoiding habits such as prolonged sipping, holding acidic beverages in the mouth and 'frothing' prior to swallowing
- Avoiding toothbrushing after acidic substances

- Chewing sugar-free gum after meals to stimulate salivary flow (although this may cause increased gastric secretions).

Whilst this guidance will contribute to a reduction in dental erosion, it may not always be possible to follow it, particularly in the early stages of the treatment plan. For example, the consumption of some acidic foods (yoghurt and fruit) may be a necessary stage in stabilising a chaotic eating pattern, while encouraging other strategies to limit acid in the mouth.

Other physical consequences

Fasting and binge eating foods high in refined carbohydrates, especially if this is followed by vomiting, can lead to high levels of insulin release with large fluctuations in blood sugar levels (Johnson, Jarrell, Chupurdia & Williamson, 1994). This may disrupt the appetite control mechanisms and the utilisation and deposition of energy

Serotonin is implicated in appetite regulation (there may be a particular role in carbohydrate balance) (Leibowitz & Alexander, 1998)), disruptions in serotonin levels may be affected by the impact of insulin on its precursor, tryptophan, the levels of which can be adversely affected by dieting, particularly in women. In turn acute tryptophan depletion may lead to an increase in calorie intake and irritability in bulimia nervosa (Weltzin, Fernstrom, Fernstrom, Neuberger & Kaye, 1995) and may be related to decreased mood, increased rating in body image concern and subjective loss of control of eating in people who have recovered from bulimia nervosa (Smith, Fairburn & Cowen, 1999). People with bulimia nervosa appear to have dysregulation in the release of factors involved in the peripheral response to food such as cholecystokinin (Geraciotti & Liddle, 1988) and ghrelin (Tanaka *et al.*, 2002). There is some suggestion of dysregulation in the systems that are involved in longer-term energy balance such as leptin (Brewerton, Lesem, Kennedy & Garvey, 2000; Monteleone *et al.*, 2000; Jimerson, 2002), which may persist after recovery (Jimerson, 2002).

In summary, people with bulimia nervosa may have abnormal levels of tryptophan and central serotonin along with a potential disruption in both the acute and the longer-term mechanisms controlling hunger and satiety.

7.5.3 Clinical practice recommendations

- 7.5.3.1 Patients with bulimia nervosa who are vomiting frequently or taking large quantities of laxatives (and especially if they are also underweight) should have their fluid and electrolyte balance assessed. (C)
- 7.5.3.2 When electrolyte disturbance is detected, it is usually sufficient to focus on eliminating the behaviour responsible. In the small proportion of cases where supplementation is required to restore the patient's electrolyte balance, oral rather than intravenous administration is recommended, unless there are problems with gastrointestinal absorption. (C)
- 7.5.3.3 Where laxative abuse is present, patients should be advised to gradually reduce laxative use and informed that laxative use does not significantly reduce calorie absorption. (C)

- 7.5.3.4 Patients who are vomiting should have regular dental reviews. (C)
- 7.5.3.5 Patients who are vomiting should be given appropriate advice on dental hygiene, which should include avoiding brushing after vomiting, rinsing with a non-acid mouthwash after vomiting, and reducing an acid oral environment (for example, limiting acidic foods). (C)

7.5.4 Somatic interventions

One of the risk domains for bulimia nervosa relates to dieting and weight control. People with bulimia nervosa frequently have a personal or family history of obesity. One of the important maintaining factors is the perceived need (or wish) to control weight. There has been recent interest in the use of somatic interventions including exercise and massage. In the case of some exercise, this relates to the evidence that it may be of benefit in improving mood (Babyak *et al.*, 2000). It is also frequently used in the treatment of obesity. However, current practice is not underpinned by a strong evidence base. For this section two interventions were considered:

- Exercise
- Massage.

7.5.4.1 Studies considered

The review team conducted a new systematic search for RCTs that assessed the efficacy of exercise or massage for people with bulimia nervosa.

Two trials met the eligibility criteria set out by the GDG. One compared exercise with a non bulimia nervosa focused form of CBT (Sundgotborgen, 2002), and one trial compared massage in addition to 'standard care' with 'standard care' alone (Field, 1998a). Thus, two trials involving 88 participants were included in this section.

Full details of the studies included in the guideline and the reasons for excluding studies are given in Appendix 18.

7.5.4.2 Evidence statements¹⁸

Exercise

Effect of treatment on the frequency of binge eating and purging

There is limited evidence suggesting that there is a clinically significant difference between exercise and a non bulimia nervosa focused form of CBT with exercise being superior in terms of mean frequency of binge eating by 18 months' post-treatment follow-up ($N = 1$; $n = 26$; $SMD = -0.83$; 95 per cent CI, -1.64 to -0.02). |

¹⁸ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient evidence to determine whether exercise differs from CBT with respect to the frequency of purging by follow-up. |

Acceptability of treatment

There is insufficient evidence to determine whether exercise is more, or less, acceptable to people with bulimia nervosa than CBT. |

Massage

Other effects of treatment

There is limited evidence to suggest that the addition of massage to 'standard care' is superior to 'standard care' alone in terms of mean scores on the Eating Disorders Inventory by the end of treatment ($n = 24$; Field, 1998a). |

Acceptability of treatment

There is insufficient evidence to determine whether massage is more, or less, acceptable to people with bulimia nervosa than 'standard care'. |

7.5.5 Clinical summary

The use of somatic treatments (exercise and massage) is not frequent in the UK. There is limited evidence from one small RCT suggesting that moderate exercise may reduce the frequency of binge eating when compared to a non bulimia nervosa focused form of CBT. In addition, massage may produce some benefit over and above 'standard care'. However, there are currently no RCTs comparing exercise or massage with psychological interventions shown to be effective for the treatment of people with bulimia nervosa. Until a more substantial evidence base is established it is unlikely that either will form part of the routine practice of eating disorder services in the UK.

7.5.6 Concurrent physical conditions

A number of physical conditions present particular problems when they present comorbidly with bulimia nervosa. The problems presented by these conditions are set out below, followed by a summary on approaches to the management of the problems as they present.

Diabetes

Diabetes is over-represented in people with bulimia nervosa. There is a three-fold increase in the odds ratio for bulimia nervosa (OR = 2.9; 95 per cent CI, 1.0 to 8.4) and a significant two-fold increase in odds ratio for both EDNOS and sub-threshold eating disorders in people with Type 1 diabetes (Nielsen, 2002). It has been suggested that Type 1 diabetes may precede the eating disorder (Neilson *et al.*, 2002). Omission or intentional under-dosing of insulin so called 'insulin-purging' is increased (OR = 12.6; 95 per cent CI, 7.8 to 21.1). This leads to poor control of blood sugar and an increased risk of physical complications. Increased retinopathy is also found where eating disorders co-exist with Type 1 Diabetes (OR = 4.8; 95 per cent CI, 3.0 to 7.8).

In the largest ($N = 91$) longitudinal study (four years) of a cohort of people with eating disorders and Type 1 diabetes, disturbed eating persisted in 60 per cent of cases and was associated with a three-fold increase in retinopathy (Rydall, Rodin, Olmsted, Devenyi & Daneman, 1997). In a cohort of young diabetics ($N = 43$ males, $N = 33$ females) followed over 10 years, those with behavioural problems in adolescence had a worse outcome (Bryden, Peveler, Stein, Neil, Mayou & Dunger, 2001).

The presence of Type 1 diabetes presents challenges not only for physical management but also for psychological treatment. One of the goals of CBT for bulimia nervosa is to relax control over eating and this can conflict with the nutritional advice given to diabetics (Peveler, Davies, Mayou, Fairburn & Mann, 1993). On the other hand it is most important that these patients are helped to overcome their eating disorder given the associated physical complications. There are guidelines for adapting CBT–BN for these patients (Peveler & Fairburn, 1992).

One empirical study, an RCT, compared psycho-education with 'standard care' for people with bulimia nervosa and Type 1 diabetes (Olmsted, 2002). In this study, 212 women attending a paediatric diabetes clinic were screened for signs of eating disturbance. One-hundred-and-thirty passed the screening and were invited to participate in the intervention phase of the study. Eighty-five participants were randomised to psychoeducation or 'standard care'. Assessments were conducted before and after treatment and at six-month follow-up.

An intention-to-treat group by time multivariate analyses of variance (MANOVA) indicated significant reductions following psychoeducation on the Restraint and Eating Concern subscales of the Eating Disorder Examination (EDE) and on the Drive for Thinness and Body Dissatisfaction subscales of the Eating Disorder Inventory (EDI), but no improvement in frequency of purging by insulin omission (mean 1.4 insulin omission days at baseline and 1.3 at six-months' follow-up) or haemoglobin A1c levels (mean at baseline 9.2 and at six-months' follow-up 9.3). Psychoeducation was associated with reductions in eating disturbance, but not with improved metabolic control.

7.5.7 Clinical summary

The conclusions to be drawn from the review are that females with Type 1 diabetes have an increased risk of bulimia nervosa and EDNOS and that poor adherence to insulin treatment is frequent in eating disordered Type 1 diabetes individuals. This comorbidity complicates psychological interventions. Psychoeducation may have some limited benefit on eating disorder symptoms but not on diabetic control. In the management of people with bulimia nervosa and Type 1 diabetes, close liaison and a shared knowledge base between the eating disorder and diabetes teams is essential.

7.5.8 Clinical practice recommendations

- 7.5.8.1 Treatment of both subthreshold and clinical cases of an eating disorder in people with diabetes is essential because of the greatly increased physical risk in this group. (C)

- 7.5.8.2 Patients with Type 1 diabetes and an eating disorder should have intensive regular physical monitoring as they are at high risk of retinopathy and other complications. (C)

Pregnancy and the postnatal period

The peak age of prevalence of eating disorders is in the childbearing years. Women with bulimia nervosa are at risk of unplanned pregnancies due to mistaken beliefs about fertility in the presence of oligomenorrhoea (Morgan, Lacey & Sedgwick, 1999), and also because many women take an oral contraceptive pill which they inadvertently vomit. In the majority of cases bulimic symptoms will improve during pregnancy and for a period of time after the birth. Lemberg and Phillips (1989) found that the fear of losing control over weight gain was one of the most common worries during pregnancy. Most women had not mentioned their eating disorder to their obstetricians.

In a small case series a higher than expected number of complications were reported (Lacey & Smith, 1987). It is not certain whether such complications can be ascribed to the core symptoms/behaviours of bulimia nervosa or whether they are caused by comorbidity such as alcohol and drug abuse found among these patients (Key, Mason & Bolton, 2001; Abraham, 1998). Women with bulimia nervosa are at risk of delivering low birth weight infants, and have higher rates of Caesarean sections and perinatal problems (Franko *et al.*, 2001). A two-fold increase in miscarriage rate was reported for a bulimic population (Abraham, 1998; Willis & Rand, 1988). In Waugh and Bulik's study (1999) the children of mothers with eating disorders had a significantly lower birth weight and length.

Eating disorder symptomatology has been found to increase in the post-partum in the majority of studies on small clinical samples of women with eating disorders (Lacey & Smith, 1987; Lemberg & Phillips, 1989; Morgan, Lacey & Sedgwick, 1999; Stein & Fairburn, 1996). Mothers had difficulties in maintaining breast-feeding and in making positive comments about food and eating at mealtimes, they were less likely to cook or eat with their children (Waugh & Bulik, 1999). The infants of mothers with eating disorders have a lower mean weight than controls. The infants' weight was associated with conflict during mealtimes and mothers' concerns about their own weight (Stein, Woolley, Cooper & Fairburn, 1994). Moreover, in a small prospective study on women with eating disorders, mothers used a less regular feeding schedule for their infants and used food more for non-nutritive purposes (Agras, Hammer & McNicholas, 1999). They also had higher concerns about their daughters' weight from the age of two onwards. Lacey & Smith (1987) reported that 15 per cent of mothers in their series reported attempting to 'slim down' their babies.

Also mothers report increase problematic interactions, for example, increased irritability and inability to cope with the child's demands while binge eating. Children of mothers with eating disorders showed more negative affect, mainly sadness and crying (Agras *et al.*, 1999). In addition to emotional problems, language and speech problems have been reported shown (Franzen & Gerlinghoff, 1997). Also there have been reports of inappropriate involvement of children in their parent's illness, with 'parenting' on the part of the child and role-reversal (Brandes & Lackstrom, 1993; Woodside, Shekter-Wolfson, Garfinkel & Olmsted, 1995).

7.5.9 Clinical summary

Although for many women with bulimia nervosa pregnancy can pass uneventfully, for some pregnancy and the post-partum period can present considerable challenges. For this at-risk group four points should be considered. First, women with bulimia nervosa may have more complications during pregnancy and the children who are smaller at birth. Secondly, they may also have problematic interactions feeding their infants and children and use food for instrumental rather nutritive reasons. Thirdly, they tend to be more concerned about their child's weight and shape. Finally, they may have more problematic interactions with their children.

7.5.10 Clinical practice recommendations

- 7.5.10.1 Pregnant women with eating disorders require careful monitoring throughout the pregnancy and in the post-partum period. (C)

7.6 Service level interventions

7.6.1 Introduction

In the UK, most people presenting with bulimia nervosa do so in primary care and over the last 20 years the numbers doing so have increased markedly (Turnbull, Ward, Treasure, Jick & Derby, 1996). Some patients may receive adequate help there. For many people interventions may consist of the prescription of antidepressant drugs or the reading of books or using similar self-help materials with or without professional guidance. The number referred onto secondary care services, whether general mental health services or specialist eating disorder services is not known. However, the filters on the pathway to more specialised secondary and tertiary care are complex. As indicated in the introduction, the availability of appropriate expertise is variable and may be the greatest single determinant of the kind of help an individual with bulimia nervosa receives. Whether an individual receives appropriate and effective services depends upon many factors including the existence and availability of such services. Within secondary services, bulimia nervosa is almost always treated on an outpatient basis. Inpatient treatment is usually reserved for the management of severe psychiatric comorbidity and physical complications. Special inpatient programmes for the treatment of bulimia nervosa are unusual in the UK, although they are more common in the rest of Europe.

7.6.2 Effective service configurations

The treatment of bulimia nervosa may involve a range of interventions from self-help in primary care through to, in occasional cases, inpatient treatment. Treatments vary in type and in the service level – outpatient, day patient or inpatient – at which they are delivered. The idea of 'stepped care' has been widely advocated (Fairburn & Peveler, 1990; Dalle Grave, Ricca & Todesco, 2001). This idea proposes that patients should be offered simpler and less expensive interventions first and that more complex and expensive interventions should be reserved for those who have not benefited.

The related ideas of sequencing and integration of different types of treatment has also been advocated (Garner & Needleman, 1997).

Unfortunately there have been no systematic comparisons of outcome in different service levels. The few comparisons are not randomised and are difficult to interpret. (Williamson, Prather, Bennett, Davis, Watkins & Grenier, 1989). The great majority of reports are of outpatient treatments. All of the current evidence-based therapies for bulimia nervosa are designed to be delivered in an outpatient setting.

The place of inpatient treatment for bulimia nervosa is not supported by research evidence. Special inpatient and day patient treatment regimes have been described (Zipfel *et al.*, 2002). However, in these cases the role of admission would seem to be advocated mainly in relation to extreme severity, comorbidity or suicidal risk. There are some reports on special treatment programmes for severe bulimia nervosa complicated by self-harm, substance abuse and similar behaviours in patients who often also fulfil criteria for borderline personality disorder (Lacey, 1997). Such programmes have not been adequately evaluated and most such patients can be managed on an outpatient basis.

7.6.3 Satisfaction with services

The area of patient and carer perceptions has been the focus of some research in the area of eating disorders. Much of this work has been focused on perceptions of inpatient treatment for anorexia nervosa or on mixed or poorly defined populations of people with eating disorders, therefore it should be treated with caution in the specific context of bulimia nervosa. The reader is referred to the chapter on anorexia nervosa for a fuller review of the evidence base for satisfaction with services.

7.6.4 Death, suicide and self-harm, and the relationship to service setting

Bulimia nervosa is associated with a significant risk of deliberate self-harm behaviour (Anderson, McIntosh, Joyce & Bulik, 2002; Favaro & Santonastaso, 1997). The results of studies of overall mortality suggest a possible increase in bulimia nervosa although the extent is not clear (Nielsen, 2001). However, it is certainly the case that patients may die prematurely as a result of the disorder or its complications. People with bulimia nervosa may be offered treatment in outpatient, day patient or inpatient settings with the aim of ameliorating the risk of death through complication or suicide, or to contain self-harm.

7.6.5 Clinical practice recommendations

- 7.6.5.1 The great majority of patients with bulimia nervosa should be treated in an outpatient setting. (C)
- 7.6.5.2 For patients with bulimia nervosa who are at risk of suicide or severe self-harm, admission as an inpatient or a day patient or the provision of more intensive outpatient care, should be considered. (C)

- 7.6.5.3 Psychiatric admission for people with bulimia nervosa should normally be undertaken in a setting with experience of managing this disorder. (C)

7.7 Predicting the outcome of treatment and recovery from bulimia nervosa

Predicting response to treatment in bulimia nervosa is difficult and currently poorly understood. A particular complication is that comorbidity in bulimia nervosa is common and it is often unclear whether patients presenting with such problems should have a standard treatment or how such treatment should be modified, enhanced or complemented. Even with the best treatments currently available, up to 50 per cent of all bulimia nervosa patients may not respond adequately. In principle, it is desirable not to allocate patients to initial interventions that are unlikely to be of benefit as this may demoralise patients and be wasteful of resources. It is, therefore, important to identify which factors may influence outcome.

Two papers provide narrative reviews of predictors of outcome for bulimia nervosa. Keel and Mitchell (1997) reviewed data on 60 studies, which assessed outcome at least six months after presentation. They concluded that there were few consistent factors although 'personality traits such as impulsivity may contribute to poor outcome'.

Vaz (1998) reviewed data on 'individual, environmental and therapeutic' factors. In the reviews so far conducted, a distinction has not always been made between studies employing a mixed eating disorder population and those of a single diagnosis.

A number of papers review various concurrent psychopathology and its relationship to outcome in eating disorder populations (Holderness *et al.*, 1994; Herzog *et al.*, 1996; Rosenvinge *et al.*, 2000). Bell (2002) reviewed the evidence specifically for bulimia nervosa and concluded that there is no consistent relationship between psychiatric comorbidity and outcome for bulimia nervosa, but the presence of co-existing impulse control problems or cluster B personality disorder is probably associated with poorer outcome.

A wide range of potential predictors of outcome have been studied, often those which are routinely or most easily collected at pre-treatment. Some predictors, such as readiness for change, which may be important, are rarely measured. The impact of a potential predictor will vary at different points in the course of a disorder and few studies address this (Garner *et al.*, 1990; Fahy & Russell, 1993; and those of the Oxford group are exceptions). A number of different factors may influence speed of response to treatment, outcome at end of treatment, outcome at follow-up, relapse and chronicity. Most studies assess relationships between pre-treatment measures and outcome at end of treatment; some report on outcome at follow-up. Factors which predict end-of-treatment outcome may not predict outcome at follow-up.

For the purposes of the guideline, a literature review was carried out using PsycLIT and MEDLINE, which augmented the search of clinical trials already performed as part of the review of the effectiveness of treatments. A wide range of studies (cohort and treatment studies) of varying quality were considered. Studies of mixed eating disorder populations were excluded unless separate data for anorexia nervosa and bulimia nervosa were reported. Sample size ($n \geq 50$) was selected as the key inclusion criterion as it was not

possible to derive robust measures of study quality, and both positive and negative findings were included. All variables reported in the studies were included in the analysis. One exception was made to the key inclusion criteria; studies with positive findings and a sample size of less than 50 were included if the follow-up was one year or over. A total of 60 studies contributed to the final analysis with sample sizes ranging from 17 to 647. All but two studies (Fairburn et al., 2003; Stice & Agras, 1998) were of outcome in response to specific treatments.

The wide variability in method did not permit a meta-analysis. A detailed analysis by intervention was also beyond the scope of this review, though the data suggest a difference between interventions with respect to the frequency of pre-treatment binge eating and purging. A detailed analysis of the number of participants leaving a study early, as an outcome measure, or an analysis by follow-up was also beyond the scope of the review.

Outcome measures varied considerably across studies (abstinence, diagnostic status, changes or percentage reduction in the frequency of binge eating/purging). Some studies also examined comorbid disorders as measures of outcome. For consistency all findings are expressed in relation to poor outcome. A wide range of statistical techniques was used in the studies under review but an assessment of their quality and appropriateness was not undertaken.

Based on the number of studies showing a positive result relative to the number showing a negative result for each variable examined, a number of possible predictors emerged (for full details see Appendix 11). There is less robust evidence for predictors of outcome in bulimia nervosa than anorexia nervosa, but those with lower motivation for change prior to treatment had poorer outcomes. This was also the case for concurrent substance misuse and a history of obesity. Higher levels of binge eating and purging prior to treatment were associated with poorer outcome in abbreviated treatments. Continuing bulimic behaviours at the end of treatment is also associated with poorer long-term outcome. It is possible that treatment that is terminated before abstinence is achieved may compromise long-term recovery, but in the absence of firm evidence this remains speculative. There is some evidence to suggest that patients with concurrent borderline features do less well but this needs further research.

Those who respond poorly to treatment have a wide range of problems at the end of treatment including poor social adjustment, lack of a stable relationship, and depressive features. Disordered eating attitudes, body dissatisfaction and drive for thinness at the end of treatment and their associated behaviours (i.e., dietary restriction and vomiting) were associated with poorer outcome in the longer term. Outcome for these patients may be improved by addressing these issues within treatment.

7.7.1 Clinical practice recommendation

- 7.7.1.1 Health care professionals should be aware that patients with bulimia nervosa who have poor impulse control, notably substance misuse, may be less likely to respond to a standard programme of treatment. As a consequence treatment should be adapted to the problems presented. (C)

8 Treatment and management of atypical eating disorders (eating disorders not otherwise specified) including binge eating disorder

8.1 Introduction

In the absence of research evidence to guide the management of atypical eating disorders (Fairburn & Harrison, 2003) (also termed Eating Disorders Not Otherwise Specified, EDNOS; APA, 1994), other than binge eating disorder (BED), it is recommended that clinicians treat these patients following the principles advocated for treating the eating disorder that their eating problem most closely resembles.

In addition to the evidence base for anorexia nervosa and bulimia nervosa covered in other chapters of this guideline, BED has a growing evidence base relating to CBT, IPT and self-help approaches. There is also emerging research on antidepressants and appetite suppressants. To date, the research has focused primarily on the treatment of cases with comorbid obesity. It is not known whether equivalent findings would be obtained with patients who do not have obesity. Similar treatment approaches may well be helpful in adolescent cases though this has not been researched. There is no evidence about service setting for the treatment of BED.

8.2 Psychological interventions

8.2.1 Introduction

Psychological treatments for atypical eating disorders have been little studied, although patients with these disorders comprise a very significant proportion of those who present for treatment in the NHS (Fairburn & Harrison, 2003). The past 10 years has seen a growing interest in the treatment of BED with the development of specialised forms of CBT and IPT along with simplified forms of DBT. Behavioural weight management programmes have also been evaluated as a form of treatment for BED when it co-occurs with obesity.

8.2.2 Current practice

As indicated above, although patients with atypical eating disorders comprise a significant percentage of patients with eating disorders in specialist service settings, little is known about their current management. It is clearly a priority that treatment of these patients receives research attention.

8.2.3 Psychological treatments compared with wait-list controls

8.2.3.1 Treatments reviewed

The treatments included in this section are for BED only, usually in the presence of obesity.

The following treatments were included:

- Behavioural weight control (BWC)
- Cognitive behaviour therapy for binge eating disorder (CBT-BED)
- Interpersonal psychotherapy for binge eating disorder (IPT-BED)
- Simplified dialectical behaviour therapy (simplified DBT).

The Psychological Topic Group established definitions for each treatment (see Glossary). Two members of the Topic Group assessed each study for eligibility and classified each psychological treatment. Where disagreements arose, they were resolved by discussion.

8.2.3.2 Studies considered¹⁹

The review team conducted a new review of psychological treatments compared to wait-list control for BED. Seven trials met the eligibility criteria set by the Psychological Topic Group (Agras, 1995; Eldredge, 1997; Gorin, 2001; Reeves, 2001; Telch, 1990 & 2001; Wilfley, 1993). Of these, four used CBT-BED as the active treatment (Agras, 1995; Eldredge, 1997; Gorin, 2001; Telch, 1990), one used BWC (Reeves, 2001), one used simplified DBT (Telch, 2001), and one used IPT-BED (Wilfley, 1993). Thus, seven RCTs comparing a psychological treatment with a wait-list control group, involving 432 participants, were included in this section.

Full details of studies included in this review and reasons for excluding studies are given in Appendix 18.

8.2.3.3 Evidence statements²⁰

The level of evidence (I, IIa, IIb, III, IV) is given after each statement (see Section 3.4.6 for more information about the classification of evidence).

¹⁹ Here and elsewhere in the guideline, each study considered for review is referred to by a study ID (primary author and date of study publication, except where a study is in press or only submitted for publication, then a date is not used).

²⁰ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

Effect of treatment on remission from binge eating

There is strong evidence suggesting that there is a clinically significant difference between CBT–BED and wait-list control with CBT–BED being superior in terms of remission (defined as cessation of binge eating) by the end of treatment (N = 4; n = 226; Random Effects RR = 0.64; 95 per cent CI, 0.49 to 0.84; NNT = 3; 95 per cent CI, 2 to 7). [I](#)

There is strong evidence suggesting that there is a clinically significant difference between simplified DBT and wait-list control with simplified DBT being superior in terms of remission (defined as cessation of binge eating) by the end of treatment (N = 1; n = 44; RR = 0.30; 95 per cent CI, 0.15 to 0.60; NNT = 2; 95 per cent CI, 1 to 3). [I](#)

There is strong evidence suggesting that there is a clinically significant difference between IPT–BED and wait-list control with IPT–BED being superior in terms of remission (defined as cessation of binge eating) by the end of treatment (N = 1; n = 38; RR = 0.56; 95 per cent CI, 0.37 to 0.84; NNT = 3; 95 per cent CI, 2 to 5). [I](#)

Effect of treatment on frequency of binge eating

There is strong evidence suggesting that there is a clinically significant difference between CBT–BED and wait-list control with CBT–BED being superior on mean frequency of binge eating by the end of treatment (N = 4; n = 214; Random Effects SMD = -1.30; 95 per cent CI, -2.13 to -0.48). [I](#)

There is insufficient evidence to determine whether simplified DBT has any impact on the frequency of binge eating by the end of treatment. [I](#)

There is strong evidence suggesting that there is a clinically significant difference between IPT–BED and wait-list control with IPT–BED being superior on mean frequency of binge eating by the end of treatment (N = 1; n = 38; SMD = -1.44; 95 per cent CI, -2.16 to -0.72). [I](#)

There is limited evidence suggesting that there is a clinically significant difference between BWC and wait-list control with BWC being superior on mean frequency of binge eating by the end of treatment (N = 1; n = 82; SMD = -0.45; 95 per cent CI, -0.89 to -0.01). [I](#)

Effect of treatment on weight

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT–BED and wait-list control in terms of mean body weight (BMI where possible) by the end of treatment (N = 3; n = 176; SMD = -0.02; 95 per cent CI, -0.33 to 0.30). [I](#)

There is insufficient evidence to determine whether BWC has any impact on body weight by the end of treatment. [I](#)

Other effects of treatment

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and wait-list control in terms of mean depression scores by the end of treatment (N = 4; n = 214; SMD = -0.18; 95 per cent CI, -0.46 to 0.10). |

There is limited evidence suggesting that there is a clinically significant difference between IPT-BED and wait-list control with IPT-BED being superior on mean depression scores by the end of treatment (N = 1; n = 38; SMD = -0.80; 95 per cent CI, -1.46 to -0.13). |

There is insufficient or no evidence to determine whether CBT-BED, simplified DBT or IPT-BED have any impact on general psychiatric state or interpersonal/social functioning by the end of treatment. |

Attrition from the study

There is limited evidence suggesting that there is a clinically significant difference favouring the wait-list control group over CBT-BED in terms of the number of people leaving the study early due to any reason by end of treatment (N = 4; n = 222; RR = 1.86; 95 per cent CI, 1.10 to 3.15; NNH = 7; 95 per cent CI, 4 to 34). |

There is insufficient evidence to determine whether there is any difference between simplified DBT, IPT-BED or BWC and wait-list control in terms of the number of people leaving the study early due to any reason by the end of treatment. |

8.2.4 Psychological treatments compared with other psychological treatments

The treatments included in this section are for BED only, usually in the presence of obesity.

8.2.4.1 Psychological treatments reviewed

The following treatments were included:

- Behavioural weight control (BWC)
- Cognitive behaviour therapy for binge eating disorder (CBT-BED)
- Guided self-help (GSH)
- Interpersonal psychotherapy for binge eating disorder (IPT-BED)
- Pure self-help (PSH).

8.2.4.2 Studies considered

The review team conducted a new review of psychological treatments compared to other psychological treatments for BED. Four RCTs met the eligibility criteria set by the Psychological Topic Group (Carter, 1998; Loeb, 2000; Nauta, 2000; Wilfley, 1993 & 2002). Of these, one compared CBT-BED with BWC (Nauta, 2000) using a follow-up period of six months, and two compared CBT-BED with IPT-BED (Wilfley, 1993 & 2002), with only the latter study using a follow-up of 12 months. A further two trials compared GSH with PSH (Carter, 1998; Loeb, 2000), with the former study using a six-month follow-up. Both studies used the book *Overcoming Binge Eating* (Fairburn, 1995).

Thus, four trials, involving a total of 404 participants, were included in this review.

Full details of studies included in this review and reasons for excluding studies are given in Appendix 18.

8.2.4.3 Evidence statements²¹

Effect of treatment on remission from binge eating

There is insufficient evidence to determine whether or not there is any difference between CBT-BED and IPT-BED or BWC in terms of remission (defined as cessation of binge eating) by either the end of treatment or post-treatment follow-up. |

There is strong evidence suggesting that there is a clinically significant difference between CBT-BED and BWC with CBT-BED being superior in terms of remission (defined as cessation of binge eating) at follow-up ($N = 1$; $n = 37$; RR = 0.25; 95 per cent CI, 0.08 to 0.79; NNT = 3; 95 per cent CI, 2 to 8). |

There is insufficient evidence to determine whether GSH differs from PSH on remission of binge eating by end of treatment. |

Effect of treatment on frequency of binge eating

It is unlikely that CBT-BED and IPT-BED differ with regard to their effect on mean frequency of binge eating by either the end of treatment or follow-up:

- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean frequency of binge eating by the end of treatment ($N = 2$; $n = 194$; SMD = -0.07; 95 per cent CI, -0.35 to 0.22). |
- There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean frequency of binge eating at follow-up ($N = 1$; $n = 138$; SMD = 0.14; 95 per cent CI, -0.19 to 0.48). |

²¹ The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

There is insufficient evidence to determine whether CBT-BED differs from BWC on mean frequency of binge eating by post-treatment follow-up. |

There is limited evidence suggesting that there is a clinically significant difference between GSH and PSH with GSH being superior on mean frequency of binge eating by the end of treatment (N = 2; n = 109; SMD = -0.48; 95 per cent CI, -0.86 to -0.09). |

There is insufficient evidence to determine whether GSH differs from PSH on mean frequency of binge eating by post-treatment follow-up. |

Effect of treatment on weight

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean weight (BMI where possible) by the end of treatment (N = 1; n = 158; SMD = 0.06; 95 per cent CI, -0.26 to 0.37). |

There is insufficient evidence to determine whether CBT-BED differs from IPT-BED or BWC on mean weight by post-treatment follow-up. |

There is evidence suggesting that it is unlikely there is a clinically significant difference between GSH and PSH on mean weight (BMI where possible) by the end of treatment (N = 2; n = 109; SMD = 0.08; 95 per cent CI, -0.30 to 0.46). |

There is insufficient evidence to determine whether GSH differs from PSH on mean weight by post-treatment follow-up. |

Other effects of treatment

There is insufficient evidence to determine whether CBT-BED differs from IPT-BED or BWC in terms of depression by the end of treatment. |

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean depression scores at follow-up (N = 1; n = 138; SMD = 0.10; 95 per cent CI, -0.24 to 0.43). |

There is insufficient evidence to determine whether CBT-BED differs from BWC in terms of depression by post-treatment follow-up. |

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean general psychiatric symptom scores by the end of treatment (N = 1; n = 158; SMD = 0.06; 95 per cent CI, -0.25 to 0.37). |

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean psychosocial/interpersonal functioning scores by the end of treatment (N = 2; n = 194; SMD = 0.06; 95 per cent CI, -0.22 to 0.35). |

There is insufficient evidence to determine whether CBT-BED differs from IPT-BED in terms of mean psychosocial/interpersonal functioning scores by post-treatment follow-up. |

There is evidence suggesting that it is unlikely there is a clinically significant difference between CBT-BED and IPT-BED on mean general psychiatric scores at follow-up (N = 1; n = 138; SMD = 0.13; 95 per cent CI, -0.20 to 0.47). [1](#)

There is insufficient evidence to determine whether GSH differs from PSH in terms of mean general psychiatric scores by either the end of treatment or post-treatment follow-up. [1](#)

Acceptability of treatment

There is insufficient evidence to determine whether CBT-BED is more, or less, acceptable to people with BED than IPT-BED or BWC. [1](#)

There is insufficient evidence to determine whether GSH is more, or less, acceptable to people with BED than PSH. [1](#)

8.2.5 Additional considerations in the management of children and adolescents

Nothing is known about the treatment of atypical eating disorders in adolescents. Binge eating disorder does occur in some children and adolescents, especially among those with obesity (e.g. Decaluwe *et al.*, 2003). The prevalence of BED in this age group is not known. There have been no studies of their treatment. This omission needs to be rectified. In the meantime, it is the view of the GDG that child and adolescent patients with BED should receive the same type of treatment as adults but adapted to suit their age, circumstances and level of development and with appropriate family involvement.

8.2.6 Clinical summary

There has been no research specifically directed at the treatment of atypical eating disorders other than BED. The view of the GDG is that clinicians should manage the large number of these cases according to the guidelines for anorexia nervosa or bulimia nervosa depending on the clinical presentation and age of the patient.

With regard to BED, given the apparently good response, at least in the short term, to a range of different psychological interventions including self-help and given the lower level of acute physical and psychiatric risk compared to anorexia and bulimia nervosa, treatment for BED may often be deliverable in primary care through the use of evidence-based self-help manuals. Children and adolescents with binge eating problems should receive the same type of treatment as adults but adapted to suit their age, circumstances and level of development, with appropriate family involvement.

8.2.7 Clinical practice recommendations

- 8.2.7.1 In the absence of evidence to guide the management of atypical eating disorders (also known as eating disorders not otherwise specified) other than binge eating disorder, it is recommended that the clinician considers following the guidance on the treatment of the eating problem that most closely resembles the individual patient's eating disorder. (C)*
- 8.2.7.2 As a possible first step, patients with binge eating disorder should be encouraged to follow an evidence-based self-help programme. (B)
- 8.2.7.3 Healthcare professionals should consider providing direct encouragement and support to patients undertaking an evidence-based self-help programme as this may improve outcomes. This may be sufficient treatment for a limited subset of patients. (B)
- 8.2.7.4 Cognitive behaviour therapy for binge eating disorder (CBT-BED), a specifically adapted form of CBT, should be offered to adults with binge eating disorder. (A)*
- 8.2.7.5 Other psychological treatments (interpersonal psychotherapy for binge eating disorder and modified dialectical behaviour therapy) may be offered to adults with persistent binge eating disorder. (B)
- 8.2.7.6 Patients should be informed that all psychological treatments for binge eating disorder have a limited effect on body weight. (A)
- 8.2.7.7 When providing psychological treatments for patients with binge eating disorder, consideration should be given to the provision of concurrent or consecutive interventions focusing on the management of any comorbid obesity. (C)
- 8.2.7.8 Suitably adapted psychological treatments should be offered to adolescents with persistent binge eating disorder. (C)

8.3 Pharmacological interventions

8.3.1 Introduction

Antidepressants, antiepileptics and appetite suppressants have been suggested as possible treatments for BED. The evidence base for such practice is very limited.

8.3.2 Current practice

Little is known about the use of medication in the treatment of BED or other atypical eating disorders in the NHS.

8.3.3 Pharmacological treatment

All the studies reviewed below are on BED.

8.3.3.1 Drugs reviewed

The following drugs were included:

- Antidepressants
- Antiepileptics.

Drugs that have had their licences withdrawn from the UK were not included in the guideline.

8.3.3.2 Studies considered for review

The review team conducted a new review of RCTs involving pharmacological treatment in people with BED. Five trials met the eligibility criteria (Arnold, 2002; Hudson, 1998; Laederachhofman, 1999; McElroy, 2000; McElroy, in press). Three trials compared a SSRI antidepressant (fluoxetine, fluvoxamine, sertraline) with placebo (Arnold, 2002; Hudson, 1998; McElroy, 2000), one trial compared a tricyclic antidepressant (imipramine) with placebo (Laederachhofman, 1999), and one trial (McElroy, in press) compared an antiepileptic (topiramate) with placebo. Thus, five RCTs comparing a pharmacological treatment with placebo, involving 271 participants, were included for review.

Full details of studies included in this review and reasons for excluding studies are given in Appendix 18.

8.3.3.3 Evidence statements²²

Effect of treatment on remission

There is limited evidence suggesting that there is a clinically significant difference between antidepressants (SSRIs) and placebo with antidepressants being superior in terms of remission (defined as cessation of binge eating) by the end of treatment ($N = 3$; $n = 179$; RR = 0.77; 95 per cent CI, 0.63 to 0.93; NNT = 6; 95 per cent CI, 4 to 17). [I](#)

There is limited evidence suggesting that there is a clinically significant difference between topiramate and placebo with topiramate being superior in terms of remission (defined as cessation of binge eating) by the end of treatment ($N = 1$; $n = 61$; RR = 0.56; 95 per cent CI, 0.34 to 0.92; NNT = 4; 95 per cent CI, 2 to 15). [I](#)

²² The full list of all evidence statements generated from meta-analyses (and the associated forest plots) will be available on the CD-ROM that accompanies the guideline.

Effect of treatment on symptoms

There is limited evidence suggesting that there is a clinically significant difference between antidepressants and placebo with antidepressants being superior on mean frequency of binge eating by the end of treatment (N = 3; n = 91; SMD = -0.61; 95 per cent CI, -1.04 to -0.18). [1](#)

Effect of treatment on weight

There is insufficient evidence to determine whether antidepressants have any impact on weight when compared with placebo at the end of treatment. [1](#)

Other effects of treatment

There is strong evidence suggesting that there is a clinically significant difference between antidepressants and placebo with antidepressants being superior on mean depression scores by the end of treatment (N = 2; n = 65; SMD = -0.78; 95 per cent CI, -1.30 to -0.27). [1](#)

Acceptability of treatment

There is insufficient evidence to determine whether antidepressants or antiepileptics are more, or less, acceptable to people with BED. [1](#)

Tolerability of treatment

There is insufficient evidence to determine whether antidepressants or antiepileptics produce side effects in people with BED. [1](#)

8.3.4 Clinical summary

There have been no studies of the use of drugs to treat atypical eating disorders other than BED. In BED there is limited evidence that by the end of treatment antidepressants can bring about improved remission from binge eating, reduced frequency of binge eating and improved mood. One small trial has demonstrated a positive impact of an antiepileptic (topiramate) on remission. No long-term follow-up data exists for any drug.

8.3.5 Clinical practice recommendations

- 8.3.5.1 As an alternative or additional first step to using an evidence-based self-help programme, consideration should be given to offering a trial of a SSRI antidepressant drug to patients with binge eating disorder. **(B)**
- 8.3.5.2 Patients with binge eating disorders should be informed that SSRIs can reduce binge eating, but the long-term effects are unknown. Antidepressant drugs may be sufficient treatment for a limited subset of patients. **(B)**

8.4 Management of physical aspects

The predominant long-term risks for patients with BED are with the physical consequences of any comorbid obesity. As current treatment programmes for BED appear to have minimal or no impact on weight, appropriate physical monitoring, advice and management strategies for obesity should be adopted. The physical consequences and management of obesity is beyond the scope of this guideline.

Binge eating disorder is the predominant eating disorder to occur in Type 2 diabetes and this usually occurs in the context of obesity. In nearly 90 per cent of cases the eating disorder preceded the onset of the diabetes (Herpertz *et al.*, 1998).

The management of physical complications accompanying atypical eating disorders other than BED (e.g. severe underweight, electrolyte disturbance) should follow the guidance specified for anorexia nervosa and bulimia nervosa.

8.5 Service level interventions

Little is known about the optimal management of people with atypical eating disorders (including BED) in the NHS. Sometimes the strict use of referral criteria specifying full syndrome eating disorders may mean that they are excluded from specialised services. Most patients with atypical eating disorders referred to secondary care are treated as outpatients unless the management of comorbid states required admission to hospital. The GDG considered any evidence that certain levels of service provision – outpatient, day patient or inpatient – were associated with better outcomes in atypical eating disorders. No additional data relating specifically to atypical eating disorders (including BED) were identified. Therefore, it was agreed that the recommendations concerning the general approach for bulimia nervosa and anorexia nervosa be also applied to the atypical eating disorders. This should be borne in mind when considering the recommendations for this group of patients.

9 Health economics evidence

Data on the economic burden of eating disorders and cost-effectiveness evidence of the different treatment options for eating disorders were collected and assessed as part of the development of the guideline in order to help decision making.

9.1 Systematic literature review

A systematic review of the health economic evidence in the field of eating disorders was conducted. The aim of the review was three-fold:

1. To identify all publications with information about the economic burden of eating disorders;
2. To identify previously conducted economic evaluations of any psychological, pharmacological or service level interventions for the treatment of eating disorders, or any interventions for the management of the physical aspects of eating disorders; and
3. To find studies with relevant resource use and cost data, or quality-of-life evidence generalisable to the UK context to facilitate possible cost-effectiveness modelling.

9.1.1 Search strategy

Bibliographic electronic databases and health economic databases were searched for studies using the combination of a specially developed health economics search filter and a general filter for eating disorders. A combination of subject headings and free text searches were used where possible. The search strategies and the databases searched are presented in Appendix 12.

The search for further evidence included papers from reference lists of eligible studies and relevant reviews. Experts in the field of eating disorders and mental health economics were also contacted to identify additional relevant published and unpublished studies. Studies included in the clinical evidence review and stakeholders' submissions were also screened for economic evidence.

9.1.2 Review process

The database searches identified 770 possibly eligible references. A further five studies were identified by hand searching and recommendations from experts. Titles/abstracts of all references were checked to identify papers of potential relevance. The full texts of all potentially eligible studies (or where relevance/eligibility was not clear from the abstract)

(62 papers) were obtained and tested against a set of standard inclusion criteria by the health economist.

Papers eligible for inclusion were subsequently assessed for internal validity. The quality assessment of economic evaluations was based on the 32-point checklist used by the British Medical Journal to assist referees in appraisal of economic analyses (Drummond & Jefferson, 1996), or on a shortened 18-point version in the case of costing studies (Appendix 13).

9.1.3 Selection criteria

Cost-of-illness/economic burden studies

- There was no restriction placed on language or publication status of the papers.
- Studies published from 1980 until September 2002 were included. This date restriction was imposed in order to obtain data relevant to current health care settings and costs.
- Only studies from OECD countries were included as the aim of the review was to identify economic burden information relevant to the current UK context.
- Selection criteria based on types of clinical conditions and patients were identical to the clinical literature review section.
- The study provided sufficient details regarding methods and results to enable judgement of the quality of the study and the use of the study's data and results.

Economic evaluations

- The studies used an analytical method of cost-minimisation analysis, cost-effectiveness analysis, cost-utility analysis or cost-benefit analysis.
- Clinical evidence was sourced from meta-analyses, randomised controlled trials, quasi-experimental trials or a cohort studies.
- There was no restriction placed on language or publication status of the papers.
- Studies published from 1980 until September 2002 were included. This date restriction was imposed in order to obtain data relevant to current health care settings and costs.
- Only studies from OECD countries were included as the aim of the review was to identify cost-effectiveness information relevant to the current UK context.
- Selection criteria based on types of clinical conditions, patients, treatments and settings were identical to the clinical literature review section.
- The studies provided sufficient details regarding methods and results to enable judgement of the quality of the study and the use of the study's data and results.

Costing studies

- All types of costing studies were considered for inclusion, regardless of study design. However, this was subject to the study providing sufficient details on methods and results to enable judgement of the quality of the study.
- There was no restriction placed on language or publication status of the papers.
- Studies published from 1980 until September 2002 were included. This date restriction was imposed in order to obtain data relevant to current health care settings and costs.
- Only studies from the UK were included as the aim of the review was to identify cost information relevant to the current UK context.
- Selection criteria based on types of clinical conditions, patients, treatments and settings were identical to the clinical literature review section.

Health related quality-of-life studies

- All formal quality-of-life studies reporting utilities and involving people with eating disorders were considered for inclusion.
- There was no restriction placed on language or publication status of the papers.
- Studies published from 1980 until September 2002 were included.
- Selection criteria based on types of clinical conditions, patients, treatments and settings were identical to the clinical literature review section.

9.1.4 Data extraction

Data were abstracted by a single abstractor using the economic data extraction form (Appendix 14). Masked assessment, whereby data extractors are blind to the details of journal, authors, etc., was not undertaken because there is no evidence to support the claim that this minimises bias (Cochrane, 2001).

9.1.5 Evidence synthesis

Cost-of-illness/economic burden studies

Altogether 12 publications were deemed eligible for the economic burden review (Brown, 1997; Crow, 2003; Garvin, 2002; Hoek, 1991; Hoek, 2003; Howlett, 1995; Krauth, 2002; Lemouchoux, 2001; Office of Health Economics, 1994; Striegel-Moore, 2000; Turnbull, 1996; Vos, 2001). Results of these studies were summarised in the form of a narrative review about the socioeconomic burden of eating disorders in Section 2.6.

The GDG also had the initial attempt to establish the usual care pathway and health service use of people with eating disorders in the UK. However, the group later agreed that such task would require significant further primary research and so it is outside the scope of the guideline development process.

Economic evaluations

One economic evaluation was selected for data abstraction.

Koran *et al.* (1995) conducted an exploratory post hoc study that compared the cost-effectiveness of five different treatment strategies for 71 women with bulimia nervosa based on the randomised controlled trial by Agras *et al.* (1992, 1994). The five strategies were: 18 sessions of CBT (CB), 16 weeks and 24 weeks of desipramine (Med16, Med24) and CBT combined with desipramine for those durations (Combo16, Combo24). They calculated the average median treatment costs per successfully treated patient on an intention-to-treat basis. At 32 weeks these cost estimates were \$3948, \$2338, \$2972, \$6613 and \$4141, respectively. The same estimates at one year were: \$3230, \$3117, \$1982, \$6613 and \$4832. The authors did not carry out sensitivity analysis. Overall, these estimates are average cost-effectiveness ratios, and so cannot be used for the assessment of incremental efficiency.

Costing studies

Two costing studies relevant to the UK setting were included in the economic evidence review, although the quality of both studies was poor and they did not provide sufficient methodological details to be able to judge the robustness of their estimates.

A review by Meads *et al.* (2001) investigated the costs of outpatient and inpatient care for the treatment of anorexia nervosa in 1998 prices. They collected unpublished data and carried out a telephone survey of District Health Authorities in the West Midlands. The review showed that the mean cost per inpatient episode varied between £18,924 and £32,636. The mean number of outpatient sessions per patient per year varied between five and 13 with a cost range of £60 to £90 per outpatient episode. Based on these data the authors estimated that the cost of outpatient treatment is approximately one-tenth of the cost of inpatient treatment in the UK.

Birchall *et al.* (2002) costed an intensive day programme for the treatment of severe anorexia nervosa in Leicestershire. They compared the number of hospital days for their cohort of anorexia nervosa patients in the three years prior to the opening of the day programme (1994–1997) with another cohort in the three years following (1997–2000). They estimated the average cost of an inpatient day for eating disorder treatment at £216.73 and a day programme day at £111.07. The average number of inpatient days per patient greatly reduced after the introduction of the day programme from 217 to 90, but the number of day programme days significantly increased from 0 to 153. The average total cost of hospital use per patient was £3919 and £2434.20 before and after the day care programme was available, respectively.

Three further costing studies not relevant for the UK setting were also identified by the review (Kachele, 1999; Mitchell, 1998; Williamson, 2001).

Health related quality-of-life studies

One study was identified that measured the quality-of-life of patients with eating disorders using the Nottingham Health Profile (NHP). Both patients with anorexia nervosa and bulimia nervosa showed significantly more impairment than average female student controls in the health domains of the NHP. In addition to health difficulties, the patient groups also reported functional difficulties in daily living. However, the study did not provide the necessary data to inform a cost-utility analysis (Keilen et al., 1994).

9.2 Cost-effectiveness modelling

9.2.1 Background

The GDG in collaboration with the health economist discussed a few possible areas within the scope of the guideline with major cost impacts in an attempt to conduct primary economic evaluations alongside the guideline development process. Based on the preliminary analysis of the clinical evidence these areas were the following:

- Comparative cost-effectiveness of CBT versus IPT for the treatment of bulimia nervosa
- Comparative cost-effectiveness of individual CBT versus group CBT
- Comparative cost-effectiveness of psychotherapy versus antidepressant therapy for the treatment of bulimia nervosa
- Comparative cost-effectiveness of psychotherapy versus combination of psychotherapy and antidepressant therapy for the treatment of bulimia nervosa
- Comparative cost-effectiveness of antidepressant therapy versus combination of psychotherapy and antidepressant therapy for the treatment of bulimia nervosa
- Comparative cost-effectiveness of inpatient versus day patient management of anorexia nervosa
- Comparative cost-effectiveness of stepped care model versus conventional model for the management of eating disorders.

However, where there is little clinical evidence of comparative clinical efficacy/effectiveness of different treatment options, it is difficult to model the difference in cost-effectiveness between the alternatives.

The GDG identified one area where enough clinical data were available to develop a decision analytic model and provide robust cost-effectiveness information for the decision making process. This was the comparative cost-effectiveness of antidepressant therapy, cognitive behaviour therapy (CBT) and the combination of the two for the treatment of bulimia nervosa.

9.2.2 Treatment strategies and model structure

As part of the health economic evidence presented for the guideline, a formal decision analytic model was constructed in order to explore the incremental cost-effectiveness of antidepressant therapy, individual cognitive behaviour therapy (CBT) and the combination of the two for the treatment of bulimia nervosa in the UK. Originally three strategies for the management of bulimia nervosa were modelled:

- Strategy A: antidepressant treatment given for 16 weeks
- Strategy B: 20 sessions of CBT
- Strategy C: combination of 16 weeks antidepressant treatment and 20 sessions of CBT.

However, the clinical evidence reviewed in the guideline development process showed no overall superiority of combination therapy on treatment outcomes over CBT, and there was insufficient evidence to determine whether antidepressants differ from combination therapy with respect to the primary outcome by the end of treatment or post-treatment follow-up (see Section 7.4). The clinical evidence together with the higher treatment cost of the combination therapy compared to the costs of either antidepressant therapy alone or CBT alone resulted in the dominance of the two single therapies over the combination therapy. Hence, strategy C was excluded from the final cost-effectiveness analysis.

Costs and outcomes of the alternative strategies were compared post-treatment. Although the original attempt was to compare the cost-effectiveness at 12-month follow-up, it was later amended according to the clinical evidence to four months, since there was insufficient evidence regarding the effects of antidepressant medication by post-treatment follow-up to draw firm conclusions about the relative outcome by the different treatment options (see Section 7.4).

The structure of the decision tree is presented in Appendix 15.

9.2.3 Treatment outcomes

Since no health related quality-of-life data of people with bulimia nervosa were available, economic evaluation in the form of a cost-utility analysis was not possible. In the clinical evidence review, more than one outcome measure was used; of these, remission/no remission from binge eating was chosen as the most appropriate primary outcome measure for the cost-effectiveness analysis.

Clinical parameter estimates were collected as part of the clinical evidence review. Mean values from the guideline meta-analyses were used as baseline estimates in the model, and 95 per cent confidence intervals or minimum/maximum values from the clinical evidence reviews were used as the minimum/maximum estimates in the sensitivity analyses. Estimates of the absolute effectiveness of CBT were calculated from the relative risk data and the absolute effectiveness of antidepressant therapy to be as consequent as possible with the clinical evidence. No discounting of benefits was applied since the time horizon of the analysis did not exceed one year. Full details of the clinical outcome parameters used in this analysis are given in Appendix 16 and the corresponding clinical evidence review section of this guideline (Section 7.4).

9.2.4 Resource use and unit costs

Costing of the different treatment strategies was carried out as part of the guideline development process since no formal UK costing study of the different bulimia nervosa treatment strategies could be identified in the literature review.

The costs were identified from the UK National Health Service's perspective using UK specific costs. All cost data are for year 2002–2003. No discounting was applied since the time horizon of the analysis did not exceed one year.

Input data for the base case and the sensitivity analysis of the model were obtained from a broad range of sources. Resource utilisation and unit cost data were collected as part of the literature review, from other published sources, or from the GDG acting as an expert panel. All baseline estimates, the ranges used in the sensitivity analyses and the sources of the information are listed in Appendix 16.

For calculating drug costs, the generic price of the drug from the British National Formulary 45 was used. However, the scenario of prescribing Prozac, the proprietary version of fluoxetine, instead of the generic equivalent, was also explored in the sensitivity analysis.

Unit cost estimates for staff fees were taken from Netten *et al.* (2002). The staff unit cost estimates used in this analysis are without qualification costs, but include salary costs, salary oncosts, overheads, capital overheads and ongoing training costs.

Estimated resource utilisation was then combined with the unit cost information to give the average cost associated with each treatment strategy. Treatment costs were also adjusted by the cost savings incurred by people leaving the treatment early.

No estimates were available for the total health service costs or for the health service use of an average patient with bulimia nervosa from the literature. This calculation was also outside of the scope of the guideline, hence no such formal estimate was available for the cost-effectiveness analysis.

9.2.5 Assumptions of the model

- A cohort of 1000 patients in each arm
- Each patient in the model has a well-established diagnosis of bulimia nervosa
- The treatment outcomes used are based on intention-to-treat analyses
- CBT is provided by a suitably qualified and trained psychologist. (Clinical psychologists were chosen as a representative example of therapists providing bulimia nervosa specific CBT for the model)
- The protocol of CBT used in the analysis is based on the clinical manual of bulimia nervosa specific CBT (Fairburn *et al.*, 1993) and personal communication with Professor Christopher Fairburn.

- The typical antidepressant treatment of bulimia nervosa is fluoxetine in 60 mg/day dose (BNF, 2003)
- Since there was insufficient evidence that antidepressant therapy given for longer than 16 weeks is more effective than given only for 16 weeks, 16 weeks was chosen as the base case for the length of antidepressant therapy. However, the scenario of 24 weeks was also explored
- Antidepressant therapy can be prescribed in primary care by a general practitioner or in secondary care on an outpatient basis by a psychiatrist, and the clinical effectiveness of antidepressant does not depend on the qualification of the prescribing doctor
- The minimum amount of fluoxetine prescribed at one time is its monthly dose
- Those patients who leave the treatment early do not incur full treatment cost, only a proportion of it corresponding to the mean drop out time.

9.2.6 Result of the cost-effectiveness analysis

The patient groups to which the results apply are identical to those described in the clinical evidence section.

9.2.6.1 Treatment outcomes

The systematically reviewed clinical evidence shows that the number of patients remitting is significantly higher for CBT than for antidepressant treatment. The end of treatment absolute risk of no remission by antidepressants was found to be 0.807 and the relative risk of no remission by antidepressant treatment versus CBT was 1.28 (see Paragraph 7.4). Although there was insufficient evidence to draw firm conclusions about the comparable longer-term treatment outcomes of CBT and antidepressant therapy, it is anticipated that the relapse rate with CBT is lower than that with antidepressants (Agras, 2001).

9.2.6.2 CBT costs

On average, one course of bulimia nervosa specific CBT costs £967.00 when provided by a suitably qualified and trained clinical psychologist.

The unit cost and resource utilization data used for this calculation are listed in Appendix 16.

9.2.6.3 Antidepressant treatment costs

Due to the different service-level possibilities for prescribing antidepressant treatment for people with bulimia nervosa, multiple scenarios were considered to calculate the cost of fluoxetine therapy:

- The estimated average cost of generic fluoxetine treatment prescribed by a general practitioner is £118.48.
- Fluoxetine prescribed by a psychiatrist in secondary care on an outpatient basis is estimated to be a less costly alternative of antidepressant therapy for people with bulimia nervosa, average total treatment cost of £94.66, than primary care provision when prescribed by a specialist registrar level physician. However, it is estimated to be more costly option, average total treatment cost of £238.66, when consultant level physician fees are used for the calculation.

No estimates exist for the health care costs due to the complications of antidepressant therapy in bulimia nervosa, and so they could not be included in the calculation.

9.2.6.4 Cost of no remission from bulimia nervosa

Bulimia nervosa is a chronic psychiatric disorder, a high percentage of the people do not achieve remission at all or relapse in a few months post-treatment. Although no formal estimate exists about the magnitude of the additional health service use of people with bulimia nervosa, it is well known that people unsuccessfully treated continue to impose considerable extra costs for the health care sector (due to the need for extra eating disorder treatments, and additional medical and dental expenses due to symptomatic behaviour and comorbidities). Patients with bulimia nervosa also incur substantial extra costs for the broader society due to lost productivity and have greatly decreased quality-of-life as shown by Keilen *et al.* (1994). Hence it is anticipated that CBT, which has a significantly higher remission rate compared to antidepressant treatment for people with bulimia nervosa, also averts important additional health care costs.

9.2.6.5 Incremental cost-effectiveness of CBT versus antidepressant therapy

Since CBT was estimated to be both more effective and more costly, the difference in costs and effects were compared between CBT and antidepressant therapy. However, it needs to be emphasised that these estimates do not include the potential cost savings of CBT by averting additional and longer term health service use in the NHS. As a consequence, the net health service cost of CBT and the incremental cost-effectiveness ratio of CBT versus antidepressants are likely to be significantly overestimated in the analysis.

The incremental cost of CBT per successfully treated bulimia nervosa case is estimated to be the following:

- £4807.24 when generic fluoxetine is prescribed by a general practitioner.
- £4942.23/£4126.41 when generic fluoxetine is prescribed by a psychiatrist in secondary care on an outpatient basis.

Comparison of the costs and effects of CBT and antidepressant therapy (AD) for two cohorts of 1000 people with bulimia nervosa are summarised in Table 1 (overleaf).

Table 1: Costs and effects of CBT versus antidepressant therapy for people with bulimia nervosa

	CBT	AD	Incremental effectiveness	Incremental cost (£)	Incremental cost per successfully treated bulimia nervosa case (CBT vs. AD)
Number of people with bulimia nervosa starting treatment	1000	1000			
Number of patients achieving remission	370	193	177		
Total treatment cost (GP prescription)	£967,000	£118,483		£848,517	£4807.24
Total treatment cost (specialist registrar prescription)	£967,000	£94,656		£872,344	£4942.23
Total treatment cost (consultant psychiatrist prescription)	£967,000	£238,656		£728,344	£4126.41

9.2.7 Sensitivity analyses

9.2.7.1 One-way sensitivity analysis

There is considerable uncertainty about the parameter estimates used in the model and the policy implications of point estimates are uncertain. To explore the effect of this uncertainty a one-way sensitivity analysis was carried out, whereby individual parameters were varied while maintaining all remaining parameters at their base value. The ranges of parameters used in the sensitivity analyses together with the ranges of the calculated incremental cost-effectiveness ratios are listed in Table 2 (overleaf). The one-way sensitivity analysis shows that the most significant component of the uncertainty around the comparative cost-effectiveness of the two treatment strategies is the relative risk of no remission between antidepressant therapy and CBT. All other factors such as number of prescribing visits, length of prescribing visits, qualification of the prescribing physician, length of CBT sessions or the absolute risk of no remission by antidepressant therapy play only minor roles in the variation of the estimate.

9.2.7.2 Worst-case/best-case scenario sensitivity analysis

Worst-case/best-case scenarios were also investigated using the least favourable/most favourable parameter values for CBT and the most favourable/least favourable parameter values for antidepressant therapy, respectively. These showed that the extreme values of the incremental cost per successfully treated bulimia nervosa case are £19,209.12 and –£249.47.

9.2.7.3 Probabilistic sensitivity analysis

To demonstrate the joint uncertainty around the parameters used in the cost-effectiveness model, a probabilistic sensitivity analysis was conducted. The theoretical basis of probabilistic sensitivity analysis is described in detail by Briggs and Gray (1999). The methodology applied in this analysis is based on the study by Briggs *et al.* (2002). Using the baseline estimates and the minimum/maximum values of the different variables, special distributions were assigned to all parameters included in the sensitivity analysis and then the incremental cost-effectiveness ratio was simulated 1000 times.

The result of the probabilistic analysis is illustrated in the form of a cost-effectiveness acceptability curve in Figure 1. This gives an estimate of the proportion of the simulated incremental cost-effectiveness ratios that lie below a given threshold. (The threshold value is the maximum value a decision maker is willing to pay for a unit of effect, in this case for an additional successfully treated bulimia nervosa case.) Equally, it shows the probability that CBT is cost-effective when compared to antidepressant treatment for bulimia nervosa in the UK.

Table 2: One-way sensitivity analysis

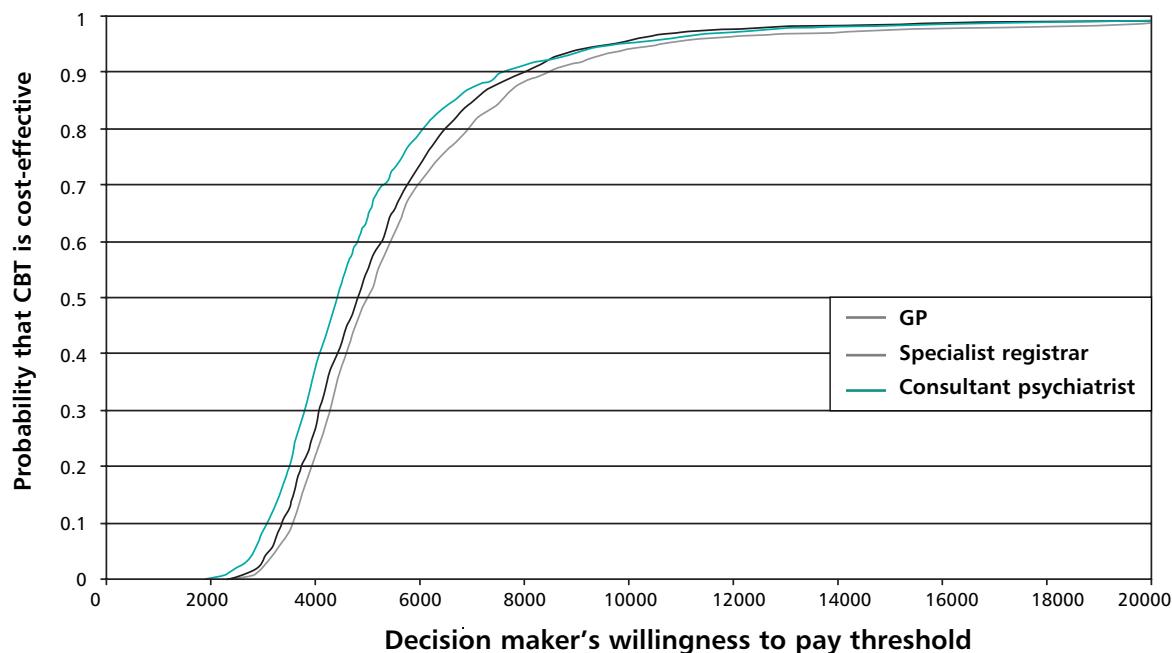
Qualification of prescribing physician	Parameter	Base value	Alternative value/range used	Alternative value/range of cost per successfully treated bulimia nervosa case
General practitioner	Antidepressant cost/month	£22.83 (generic fluoxetine)	£47.61 (Prozac)	£4357.99
	Length of antidepressant therapy	16 weeks	24 weeks	£4471.61
	Number of antidepressant therapy visits	4	3–8	£4752.02 – £4517.70
	Length of antidepressant therapy visits	9.36 minutes	4–15 minutes	£4954.62 – £4652.16
	Length of CBT sessions	50 minutes	40–60 minutes	£3711.54 – £5902.94
	Relative risk of no remission by antidepressants vs. CBT	1.28	1.09–1.5	£12,735.84 – £3154.75
	Absolute risk of no remission by antidepressants	0.807	0.667–0.913	£5818.42 – £4248.37

Continued alongside

Table 2: One-way sensitivity analysis (continued)

Qualification of prescribing physician	Parameter	Base value	Alternative value/range used	Alternative value/range of cost per successfully treated bulimia nervosa case
Specialist	Antidepressant cost	£22.83 (generic fluoxetine)	£47.61 (Prozac)	£4492.98
	Length of antidepressant therapy	16 weeks	24 weeks	£4674.10
	Cost of specialist per hour contact	£27 (specialist registrar)	£207 (consultant psychiatrist)	£4126.41
	Number of antidepressant therapy visits	4	3–8	£4861.70 – £4804.56
	Length of antidepressant therapy visits	15 minutes	10–20 minutes	£4983.02 – £4901.44
	Length of CBT sessions	50 minutes	40–60 minutes	£3846.53 – £6037.93
	Relative risk of no remission by antidepressants vs. CBT	1.28	1.09–1.5	£13,093.48 – £3243.34
	Absolute risk of no remission by antidepressants	0.807	0.667–0.913	£5981.80 – £4367.67

Figure 1. Cost-effectiveness acceptability curves of CBT versus antidepressant therapy for the treatment of bulimia nervosa depending on the qualification of the prescribing physician.



9.2.8 Discussion of the health economic evidence

The systematic literature review identified only one economic evaluation within the scope of the guideline and two costing studies relevant to the UK setting, but no health related quality-of-life study with the necessary data for a cost-utility analysis. Based on the available literature, no firm conclusions could be made about the comparative cost-effectiveness of the different competing therapeutic options either for the treatment of anorexia nervosa, bulimia nervosa or EDNOS.

The question of the comparative cost-effectiveness of antidepressants and CBT for people with bulimia nervosa was identified within the scope of the guideline as having a major economic consequence and enough clinical evidence to conduct a primary cost-effectiveness analysis. Present analysis shows that CBT is both more effective and more costly than antidepressant therapy. The point estimate of its incremental cost per successfully treated bulimia nervosa case varies between £4807.24, £4942.23 and £4126.41 depending on whether the antidepressant is prescribed in primary care or in secondary care by a more junior doctor or by a consultant psychiatrist, respectively. However, it is anticipated that these values are overestimations of the real incremental cost-effectiveness of CBT since its potential savings in additional health care costs were not included in the analysis due to the lack of available resource use data.

Uncertainty around these estimates was explored by sensitivity analyses, including probabilistic analysis. Under present circumstances this shows that if decision makers are not willing to pay more for additional benefit, CBT is unlikely to be cost-effective. On the other hand, if decision makers are willing to pay £4000–£5000 more for an additional successfully treated bulimia nervosa case, the probability of CBT being cost-effective is 50 per cent. The likelihood of CBT being cost-effective would increase to approximately

95 per cent if the decision maker's willingness to pay threshold for the same benefit is £10,000. However, it is assumed that if broader health service costs could be included in the analysis, the cost-effectiveness curve would shift to the left and the probability of CBT being cost-effective would increase at each threshold values. Depending on the size of the additional averted health care costs by CBT, CBT could be even cost saving for the health service sector and clearly superior to antidepressant therapy.

Based on the reviewed evidence, combination therapy of CBT and antidepressants for the treatment of bulimia nervosa is highly unlikely to be cost-effective for the NHS.

Significant uncertainty around these results still exists (e.g. the true cost of side effects of antidepressant therapy are unknown, nor have attempts been made to quantify possible costs averted due to successful treatment). When further research is carried out, it will be necessary to re-estimate the cost-effectiveness of each alternative incorporating such influences. However, all these influences are likely to favour bulimia nervosa specific CBT and so current estimates may be considered conservative.

No other cost-effectiveness analyses could be carried out as part of the guideline development process due to the lack of sufficient clinical evidence or available resource use data.

When such data will become available, other areas within the scope of this guideline identified as having possible major cost implications for the NHS should be explored (see Paragraph 9.2.1). In particular, the efficiency of a stepped care model for eating disorders is an important area considering the usual waiting time for and the great training requirements of psychotherapies. It is also recommended to investigate the comparative cost-effectiveness of IPT versus bulimia nervosa specific CBT for the treatment of bulimia nervosa in the UK with regard to the non-disease specific nature of IPT.

9.2.9 Implementation costs of the guideline

There are insufficient data about the health service utilization patterns of patients with eating disorders and about the currently available health care resources for the treatment and management of eating disorders; hence at present it is impossible to calculate the estimated cost impact of the implementation of this guideline for the NHS.

However, it is anticipated that the recommended shift towards CBT in the management of bulimia nervosa would impose a great need for health care professionals trained in bulimia nervosa specific CBT. The NHS cost of bulimia nervosa specific CBT training per person was calculated using the resource use information provided by the GDG. The estimate is based on the teaching programme of the Department of Psychiatry, University of Oxford, UK including a two-day workshop, 20 four-hour long meetings and the additional time required by the trainer for a group of five trainees. Clinical psychologists were chosen as a representative example of trainees for bulimia nervosa specific CBT for the calculation. The total training cost per trainee was estimated to be £4326 in year 2002–2003 assuming that currently enough resources are available in the NHS to train health care professionals in bulimia nervosa specific CBT. Consequently, this estimate does not include any qualification costs. Further, possible travel costs and the cost of time spent on travelling related to the training could not be included in the analysis due to the lack of such data.

10 Criteria for auditing the management of eating disorders

10.1 Objectives for the audit

One or more audits can be carried out in different care settings to ensure that:

- Individuals with an eating disorder are involved in their care
- Treatment options, including psychological interventions, are appropriately offered for individuals with an eating disorder.

10.2 Individuals to be included in an audit

A single audit could include all individuals with an eating disorder. Alternatively, individual audits could be undertaken on specific groups of individuals such as:

- People with a specific eating disorder, e.g. bulimia nervosa
- Sample of patients from particular populations in primary care.

10.3 Measures that could be used as a basis for an audit

See table alongside.

Criterion	Standard	Exception	Definition of terms
1. Psychological treatment in anorexia nervosa	<p>Most people with anorexia nervosa should be managed on an outpatient basis with psychological treatment provided by a health care professional competent in the psychological treatment of eating disorders. The course of treatment should normally last for at least six months.</p>	<p>Psychological treatment should be offered to all individuals with anorexia nervosa assessed as needing outpatient treatment in secondary care services.</p>	<p>Individuals who decline such an offer of treatment and those with severe comorbidity of a type that will interfere with the patient benefiting from psychological treatment (for example, severe depression, marked substance abuse).</p> <p>The course of treatment should normally be for at least six months.</p> <p>The notes should indicate that the health care professional responsible has discussed the process and potential benefits of the intervention.</p> <p>The notes should record if the patient completes a full course of treatment.</p> <p>The course of the treatment should also be described in the notes and it should have followed the specific strategies set out for the chosen intervention.</p>
2. Inpatient care of anorexia nervosa	<p>Patients with anorexia nervosa who require admission to a psychiatric unit should be admitted to a unit experienced in the treatment of eating disorders.</p>	<p>All patients requiring inpatient care should be admitted to a psychiatric unit experienced in the treatment of eating disorders.</p>	<p>Individuals who are admitted as psychiatric emergencies to general psychiatric wards.</p> <p>An annual review of all admissions for anorexia in each PCT should be conducted for all services that have provided inpatient services for anorexia nervosa.</p>

Criterion	Standard	Exception	Definition of terms
3. Family interventions in anorexia nervosa <p>Family interventions that directly address the eating disorder should be offered to children and adolescents with anorexia nervosa.</p>	<p>Family interventions that directly address the eating disorder should be offered to all families with a child or adolescent with anorexia nervosa.</p>	<p>Families who decline such an offer of treatment, and possibly where the child or adolescent is engaged in individual psychological treatment.</p>	<p>The notes should indicate that the health care professional responsible has discussed the process and potential benefits of the intervention. If the offer of intervention was not taken up, the notes should record whether the parent, child or both declined the offer and the number already in individual psychological treatment.</p> <p>The notes should record the form of family intervention (separate or conjoint) and if the family completed a full course of treatment.</p> <p>The course of the treatment should also be described in the notes and it should have followed the specific strategies and procedures employed in family interventions for anorexia nervosa.</p>

Criterion	Standard	Exception	Definition of terms
4. Physical health review in anorexia nervosa	All patients with enduring anorexia nervosa not under the care of secondary care services should be offered an annual health review by their GP.	Physical and mental health review offered by GP to 100 per cent of patients with enduring anorexia nervosa who are not in contact with secondary care services.	The notes should indicate that the offer of a review was made to the patient and whether or not the patient attended for review.

Criterion	Standard	Exception	Definition of terms
5. Cognitive behaviour therapy (CBT) in bulimia nervosa in adults <p>In patients with bulimia nervosa, CBT specially adapted for the disorder should be offered to adult patients assessed as needing treatment in secondary care services.</p> <p>The course of treatment should normally be 16 to 20 individual sessions over four to five months.</p>	<p>CBT should be offered to all individuals with bulimia nervosa assessed as needing treatment in secondary care services.</p> <p>The course of treatment should normally be 16 to 20 individual sessions over four to five months.</p>	<p>Individuals who decline such an offer of treatment, who choose an alternative psychological intervention (such as interpersonal psychotherapy) and those with severe comorbidity of a type that will interfere with the patient benefiting from CBT (for example, severe depression, marked substance abuse).</p>	<p>The notes should indicate that the health care professional responsible has discussed the process and potential benefits of the intervention.</p> <p>The notes should record if the patient completes a full course of treatment.</p> <p>The course of the treatment should also be described in the notes and it should have followed the specific strategies and procedures employed in CBT-BN for bulimia nervosa (Fairburn et al., 1993).</p>

Criterion	Standard	Exception	Definition of terms
6. Cognitive behaviour therapy (CBT) in bulimia nervosa in adolescents <p>Adolescents with bulimia nervosa may be treated with CBT-BN adapted as needed to suit their age, circumstances and level of development, including the family as appropriate.</p>	<p>CBT should be offered to the majority of adolescents with bulimia nervosa assessed as needing treatment in secondary care services.</p>	<p>Individuals with severe comorbidity or developmental problems of a type that will interfere with the patient benefiting from CBT.</p> <p>The course of treatment should normally be 16 to 20 individual sessions over four to five months.</p>	<p>The notes should indicate that the health care professional responsible has discussed the process and potential benefits of the intervention.</p> <p>The notes should record if the patient completes a full course of treatment.</p> <p>The course of the treatment should also be described in the notes and it should have followed the specific strategies and procedures employed in CBT-BN for bulimia nervosa.</p>

Criterion	Standard	Exception	Definition of terms
7. Atypical eating disorders <p>In the absence of evidence to guide the management of atypical eating disorders (eating disorders not otherwise specified) other than as binge eating disorder, it is recommended that the clinician considers following the guidance on treatment of the eating problem that most closely resembles the individual's eating disorder.</p>	<p>Patients with atypical eating disorders are expected to comprise at least 40 per cent of patients assessed and taken on for treatment for eating disorders.</p> <p>None.</p>	<p>The record system should record the diagnosis of all patients assessed and taken on for treatment in a service.</p>	
8. Patient satisfaction <p>All patients treated in secondary care for an eating disorder should be asked to complete a satisfaction questionnaire at the end of treatment.</p>	<p>All patients should be asked to complete a satisfaction questionnaire at the end of treatment.</p> <p>The expected completion rate for the questionnaire is 50 per cent.</p>	<p>Individuals who decline to complete the questionnaire.</p>	

11 Appendices

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Appendix 1: Scope for the development of a clinical guideline on the management of anorexia nervosa, bulimia nervosa and binge eating disorders

1. Objective

- 1.1. The National Institute for Clinical Excellence has commissioned a clinical guideline for patients and clinicians on the management of anorexia nervosa, bulimia nervosa and binge eating disorders. The guideline will provide advice on effective care using the best possible research evidence.
- 1.2. The commission received from the Department of Health and the National Assembly for Wales is in Figure 1.
- 1.3. The Institute's clinical guidelines will support the implementation of National Service Frameworks (NSF) in those aspects of care where a framework has been published. The statements in each NSF reflect the evidence, which was used at the time the framework was prepared. The clinical guidelines and technology appraisals published by the Institute after a NSF has been issued will have the effect of updating the framework.

Figure 1: Remit from the Department of Health and the National Assembly for Wales

- We would wish the guideline to cover both primary and secondary care and to consider children as well as adults.
- We would like the guideline to give clear guidance to primary care on the situations under which someone should be referred urgently on to specialist services.
- We would like NICE to guide both primary care and general (non-specialised) psychiatric services in their treatment and referral choices (e.g whether drug treatments may be tried, whether to refer to clinical psychology, whether/when to refer to tertiary care).

2. Clinical need and practice

- 2.1. Information on the incidence and prevalence of eating disorders is scarce. The prevalence of anorexia is estimated to be between 0.5 per cent and 1.0 per cent. Ninety per cent of people diagnosed as anorexic are women. The prevalence of bulimia is estimated to be between 1.0 per cent and 3.0 per cent. Ninety per cent of people diagnosed as bulimic are women. Because eating disorders are less common in males, they can go undetected.
- 2.2. Severe eating disorders can result in long-term ill health or death.
- 2.3. The World Health Organisation, The American Psychiatric Association, and the Eating Disorders Association have developed guidance in this area. The Faculty of Dental Surgery have developed guidance on the Management and Prevention of Dental Erosion.

3. Population

- 3.1. The guideline will cover all people aged eight years and over with anorexia nervosa, bulimia nervosa or other binge eating disorders.
- 3.2. Although the guideline will be of relevance to all patients with anorexia or bulimia, the guideline will not explicitly address the diagnosis or treatment of people with eating disorders in the context of a separate physical or other primary mental disorder of which a disorder of eating is a symptom.
- 3.3. The guideline will provide advice on the involvement of family members and carers in the treatment and care of people with eating disorders.
- 3.4. The guidance will be presented to ensure that patients and carers have the information they need and the opportunities to discuss with their clinicians the advantages, disadvantages and potential side effects of treatment so that they can make informed choices about their treatment options.
- 3.5. The guideline will need to recognise best practice on confidentiality and consent of people under 18.

4. Health care setting

- 4.1. The guideline will cover the care received from primary, secondary and tertiary health care professionals who have direct contact with and make decisions concerning the care of patients with these conditions.
- 4.2. The guideline will also be relevant to the work but will not specifically cover the practice of other professionals such as A&E staff and those who work in education sectors.

- 4.3. The guideline will offer guidance for the management of these conditions in:
 - 4.3.1. Primary care
 - 4.3.2. Desecondary care including general (non-psychiatric) and non-specialised psychiatric services
 - 4.3.3. Outpatient and day treatment services
 - 4.3.4. Tertiary care and specialist services.
- 4.4. The guideline will offer guidance on referral from primary care or non-specialist services to specialist care including urgent referrals.
- 4.5. The guideline will address the interface between services and care shared between primary and secondary settings.

5. Interventions and treatment

The guideline will include:

- 5.1. Best practice advice on recognition, assessment and diagnosis
- 5.2. Appropriate use of psychological interventions
 - 5.2.1. Family interventions
 - 5.2.2. Cognitive behavioural treatments
 - 5.2.3. Other psychological therapies
- 5.3. Appropriate management of dietary regimes
 - 5.3.1. Type
 - 5.3.2. Frequency
 - 5.3.3. Duration
 - 5.3.4. Nutritional replacement and parenteral feeding
- 5.4. Management of people with acute physical health problems arising from their eating disorder
 - 5.4.1. Assessment
 - 5.4.2. Types of intervention
 - 5.4.3. Interface with physical health services

5.5. Appropriate use of pharmacological treatments

5.5.1. Type

5.5.1.1. Antidepressants

5.5.1.2. Antipsychotic

5.5.1.3. Anxiolytics

5.5.1.4. Appetite stimulants

5.5.2. Dose

5.5.3. Duration

5.5.4. Discontinuation

5.5.5. Changing drug regimes and sequencing in non-response

5.5.6. The guideline assumes that prescribers will use the Summary of Product Characteristics to inform their prescribing decisions for individual patients.

- 5.6. Where appropriate, the guideline will provide advice on the recognition and management of strategies, which those suffering from an eating disorder may adopt including, for example, excessive exercise, use of benzodiazepines, laxative abuse.
- 5.7. Where the evidence is available to enable robust advice to be formulated, the guideline will address self-help approaches.
- 5.8. Advice on treatment options will be based on the best evidence available to the development group. When referring to pharmacological treatments, the guideline will normally recommend within the licence indications. Exceptionally, and only where the evidence clearly supports it, the guideline may recommend use outside the licence indications.

6. Presentation

The guideline will be available in three forms:

- 6.1. The full guideline containing the evidence base used by the developers.
- 6.2. A short form version, using a standard template, which will form the Institute's guidance to the NHS including a clinical practice algorithm.
- 6.3. The guideline will be accompanied by a version prepared specifically for patients and their carers. This patient/carer version will interpret the recommendations made in the Institute's short form version and will be designed to help patients to make informed choices about their care.

7. Status

- 7.1. This scoping statement is the subject of a four-week period of consultation with stakeholders. The scope was then re-drafted, submitted to the Guidelines Advisory Committee and subsequently the Institute's Guidance Executive, for approval. Once approved, it will be posted on the Institute's website, together with details of the Commissioning Brief and the name of the Collaborating Centre through which the guideline is being commissioned. The development of the guideline will begin in the autumn of 2001.
- 7.2. Information on the guidelines development process, stakeholder involvement and the progress of this guideline is available on the website <http://www.nice.org.uk/>.

Appendix 2: Special advisors to the Guideline Development Group

Professor Marinos Elia

Professor of Clinical Nutrition and Metabolism, Fetal Origins of Adult Nutrition Division
University of Southampton, Southampton.

Dr Ian Forgacs

Department of Gastroenterology, King's College Hospital, London.

Dr Eric Johnson-Sabine

Eating Disorders Service, The Phoenix Wing, St Ann's Hospital, London.

Professor J Hubert Lacey

Department of Psychiatry, St George's Hospital Medical School, London.

Professor Tak Lee

Department of Respiratory Medicine & Allergy, King's College London, London.

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Dr Godama Prelevic

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Royal Free Eating Disorders Service, London.

Mr Sam Clark-Stone

Clinical Coordinator, Gloucestershire Eating Disorders Project.

Ms Kate Trotter

Chief Dietician, The South London and Maudsley NHS Trust.

Dr Jeremy Shaw

Consultant in Restorative Dentistry, Birmingham Dental Hospital, Birmingham.

Dr Russell Viner

Consultant and Director of Adolescent Medicine, University College London Hospitals and Great Ormond Street Hospital, London.

Appendix 3: **Stakeholders who responded to** **early requests for evidence**

All Wales Senior Nurses Advisory Group (Mental Health)

British Association for Counselling and Psychotherapy

British Medical Association

Eli Lilly and Company Limited

Health Technology Board of Scotland

National Collaborating Centre for Primary Care

Pain Society

Prodigy

Rethink Severe Mental Illness

Roche Products Limited

Royal College of General Practitioners

Royal College of Psychiatrists

Royal College of Speech and Language Therapists

Royal College of Surgery, Faculty of Dental Surgery

University of Leeds Innovations Limited

Appendix 4: Stakeholders and experts who responded to the first consultation draft of the Guideline

Stakeholders

Action for Sick Children

Association of the British Pharmaceuticals Industry (ABPI)

British Association for Counselling and Psychotherapy

British Association for Parenteral & Enteral Nutrition (BAPEN)

British Association of Behavioural & Cognitive Psychotherapy (BABCP)

British Dietetic Association

Chartered Society of Physiotherapy

College of Occupational Therapists

The Inner Cities Mental Health Group

National Centre for Eating Disorders

National Public Health Service for Wales

NHS Quality Improvement Scotland

Roche Products Limited

Royal College of Nursing (RCN)

Royal College of Paediatrics and Child Health

Royal College of Psychiatrists

The Survivors Trust

UK Council for Psychotherapy

Experts

Mr Sam Clark-Stone

Professor Marinos Elia

Professor Hubert Lacey

Professor Tak Lee

Roger Paxton

Dr Jeremy Shaw

Ms Kate Trotter

Professor Glenn Waller

Professor Timothy Walsh

Professor G.T. Wilson

Appendix 5:

Researchers contacted to request information about unpublished or soon-to-be published studies

Dr Stewart Agras	Dr Rosalyn Griffiths	Dr Marsha D. Marcus
Dr Leslie Arnold	Professor Katherine A. Halmi	Dr James E. Mitchell
Professor P.J.V. Beumont	Dr Phillipa Hay	Dr Susan Paxton
Dr Cynthia M. Bulik	Dr James Hudson	Dr Kathleen Pike
Dr Jacqueline C. Carter	Professor Anita Jansen	Dr Howard Steiger
Dr Scott J. Crow	Dr David Jimerson	Dr Eric Stice
Dr Martina de Zwaan	Dr William Johnson	Dr Stephen Touyz
Dr Michael J. Devlin	Dr Allan Kaplan	Professor Glenn C. Waller
Dr Ivan Eisler	Dr Walter Kaye	Dr Timothy B. Walsh
Professor Manfred M. Fichter	Dr Jean L. Kristeller	Dr Denise Wilfley
Dr Chris Freeman	Dr Daniel le Grange	Dr Terrence G. Wilson
Dr Josie Geller	Dr James Lock	Dr Blake Woodside
Dr Riccardo Dalle Grave	Professor Susan McElroy	

Appendix 6:

Clinical questions

For all questions (unless otherwise stated) it is assumed that analysis of the questions should be by diagnostic grouping (AN, BN and BED) and age groups.

A. Psychological TG

1. **Does any psychological intervention produce benefits/harms on the specified outcomes in people with BN/BED compared to wait-list control?**
 - Cognitive behavioural therapy for bulimia nervosa (CBT-BN) vs. wait-list control
 - Exposure with response prevention (ERP) vs. wait-list control
 - Supportive psychotherapy vs. wait-list control
 - Dialectical behaviour therapy (DBT) vs. wait-list control
 - Simple non-specialist treatments vs. wait-list control
 - Interpersonal psychotherapy for bulimia nervosa vs. wait-list control
 - Psychodynamic psychotherapy vs. wait-list control
 - Behavioural self-management vs. wait-list control
 - Psychological treatments vs. wait-list control
2. **Does CBT produce benefits/harms on the specified outcomes in people with BN compared to another psychological intervention?**
 - CBT vs. treatments not focused on specific ED psychopathology
 - CBT vs. behaviour therapy (BT)
 - CBT vs. exposure with response prevention (ERP)
 - CBT vs. interpersonal psychotherapy (IPT)
 - CBT vs. psychodynamic psychotherapy
 - CBT vs. supportive psychotherapy
 - CBT vs. nutritional counselling (NC)
 - CBT vs. simple non-specialist treatments
3. **Does another psychological intervention (other than CBT) produce benefits/harms on the specified outcomes in people with BN compared to another psychological intervention?**
 - Exposure with response prevention (ERP) vs. supportive psychotherapy
 - Exposure with response prevention (ERP) vs. nutritional counselling (NC)
 - Behaviour therapy (BT) vs. interpersonal psychotherapy (IPT)
 - Behaviour therapy (BT) vs. supportive psychotherapy
 - Family therapy vs. any other psychological intervention
4. **Psychological interventions compared to drug treatment:**
Do psychological interventions alone produce benefits/harms on the specified outcomes in people with BN compared to antidepressants alone?

5. **Combination therapy:**
 - a. Does a combination of a psychological intervention and an antidepressant drug produce benefits/harms on the specified outcomes in people with BN compared to an antidepressant alone?
 - b. Does a combination of a psychological intervention and an antidepressant produce benefits/harms on the specified outcomes in people with BN compared to a psychological intervention alone?
6. **Predictors of response**
7. **Follow-up**

B. Service TG

1. Are screening tools effective in primary care (general medical settings) in identifying people with eating disorders?
2. Is there any evidence to support the specific sequencing or stepped provision of treatment? Can this be developed into referral guidance?
3. Type of Service:
 - a. Does specialist care produce benefits/harms in terms of the specified outcomes in people with BN/BED/AN compared to generalist care?
 - b. Does in-patient care produce benefits/harms in terms of the specified outcomes in people with BN/BED/AN compared to out-patient care?
 - c. Does in-patient care produce benefits/harms in terms of the specified outcomes in people with BN/BED/AN compared to day care?
 - d. Does out-patient care produce benefits/harms in terms of the specified outcomes in people with BN/BED/AN compared to day care?
4. Is the specified service setting/configuration associated with different levels of satisfaction/adherence to treatment in people with BN/BED/AN or their carers compared to the comparator service setting?
5. Does the identified service setting/configuration lead to lower risk of self-harm, suicide or death in people with BN/BED/AN compared to the comparator service setting?
6. Is treatment in the context of compulsory admission in people with BN/BED/AN associated with any benefits/harms or risks?
7. Does feeding in the context of active resistance in people with AN have any benefits/harms or risk?

C. Physical TG

- 1. How we identify eating disorders:**
 - a. What are the physical signs?
 - b. What is the differential diagnosis?
 - c. What assessments should be done?
 - d. What are the diagnostic issues?
- 2. Risk Assessment/Management:**
 - a. What service users are at risk of dying/or having poor outcome?
 - b. What factors indicate an increased need for monitoring?
 - c. What are the issues about sharing medical risk with carers/issues of confidentiality and capacity/refusal of treatment?
- 3. What is the best practice in the management of:**
 - a. Osteoporosis
 - b. Osteopenia
 - c. Pubertal delay
 - d. Oestrogen deficiency
 - e. Growth stunting
 - f. Infertility
 - g. Polycystic ovarian syndrome (PCOS)
 - h. Brain loss/brain damage/neuropsychology/ventricular dilation
 - i. Bone marrow suppression/anaemia/leucopenia/thrombocytopenia
 - j. Renal/renal failure
 - k. Dental problems.
- 4. Drug treatment:**
 - a. Do antipsychotics produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - b. Do antidepressants produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - c. Do appetite suppressants produce benefits/harms in the specified outcomes in people with BN/BED compared to placebo?
 - d. Do appetite stimulants produce benefits/harms in the specified outcomes in people with AN compared to placebo?
 - e. Do anticonvulsants produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - f. Do antiemetics produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - g. Do cannabinoids produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - h. Do anxiolytics produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - i. Does St. Johns Wort produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - j. Do antihistamines produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?
 - k. Do antiepileptics produce benefits/harms in the specified outcomes in people with BN/BED/AN compared to placebo?

5. Other physical interventions:

- a. Does nutritional/vitamin supplementation produce benefits/harms in the specified outcomes in people with BN/BED?
- b. Does exercise/massage produce benefits/harms in the specified outcomes in people with BN/BED/AN?
- c. Do alternative therapies (reflexology)/herbal medicine/mandometry/complementary medicine produce benefits/harms in the specified outcomes in people with BN/BED/AN?
- d. Does nutritional or dietary management produce benefits/harms in the specified outcomes in people with BN/BED/AN?
- e. Does nutritional or vitamin supplementation/nasogastric feeding/gastrotomy (PEG)/total parenteral nutrition (TPN)/enteral feeding improve weight gain/target weight in people with AN?
- f. Does heat improve weight gain/target weight in people with AN?
- g. Does forced feeding improve weight gain/target weight in people with AN?
- h. Does jejunostomy improve weight gain/target weight in people with AN?
- i. Does physiotherapy improve weight gain/target weight in people with AN?

6. What are the effective methods for managing:

- a. Laxative abuse
- b. Vomiting
- c. Over-activity
- d. Amphetamines
- e. Stimulant abuse.

Appendix 7:

Physical Risk Assessment

Physical risk guidance

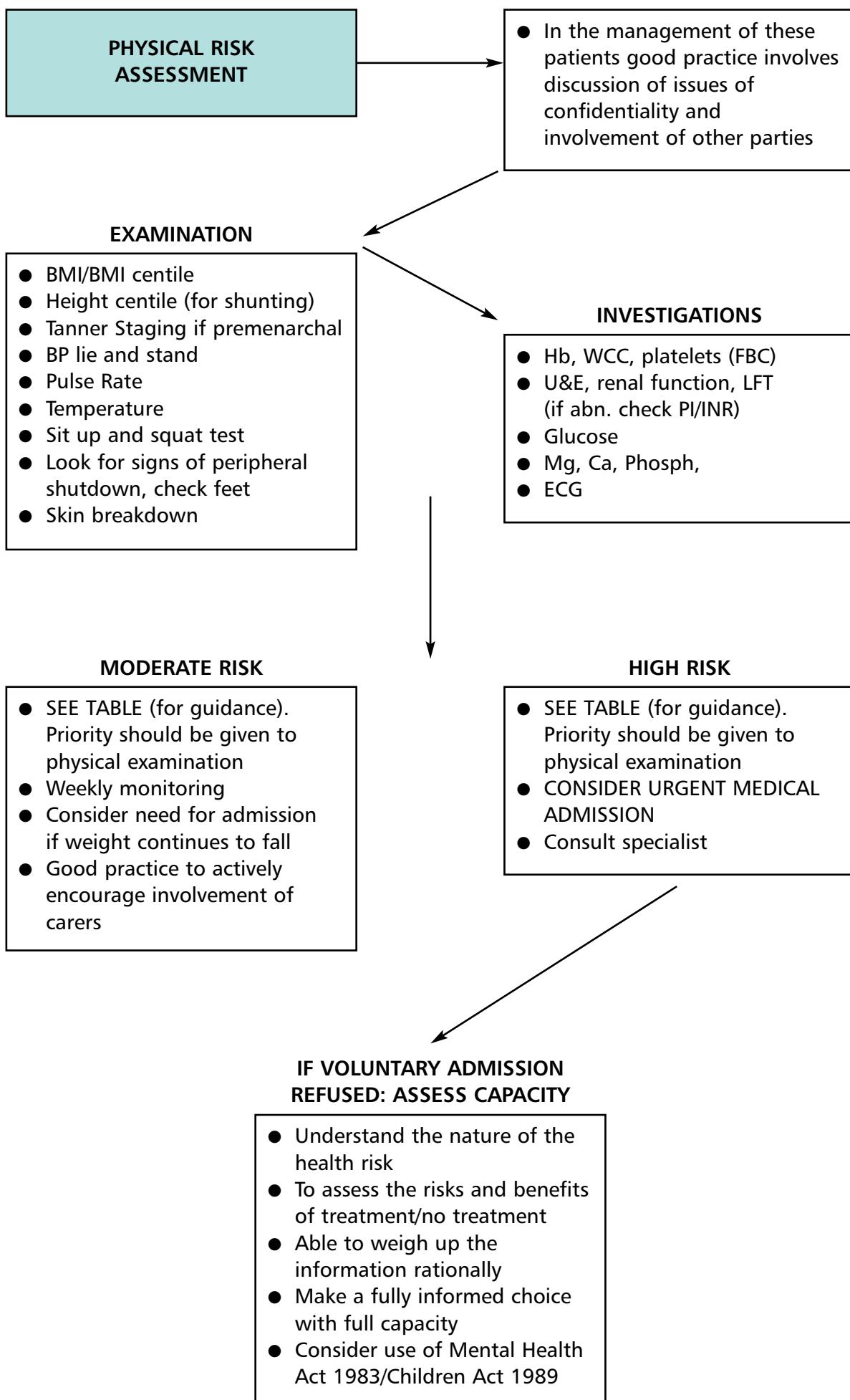
(Priority should be given to the overall physical examination of the patient)

System	Examination	Moderate risk	High risk
Nutrition	BMI	<15	<13
	BMI centiles	<3	<2
	Weight loss/wk	>0.5 kg	>1.0 kg
	Purpuric rash		+
Circulation	Systolic BP	<90 mm Hg	<80 mm Hg
	Diastolic BP	<60 mm Hg	<50 mm Hg
	Postural drop	>10 mm Hg	>20 mm Hg
	Pulse rate	<50 BPM	<40 BPM
	Extremities		Dark blue/cold
Musculo – skeletal (Squat Test*)	Unable to get up without using arms for balance	+	
	Unable to get up without using arms as leverage		+
	Unable to sit up without using arms as leverage	+	
	Unable to sit up at all		+
Temperature		<35°C	<34.5°C
Investigations	FBC, urea, electrolytes (including PO4), LFT, Albumin, Creatinine kinase, Glucose	Concern if outside normal limits	K <2.5 Na <130 Po4<0.5
	ECG	Rate <50	Rate <40 Prolonged QT interval

*The squat test gives a clinical indication of muscle power and may be used to monitor progress. The patient lies flat on a firm surface such as the floor and has to sit up without, if possible, using her hands. This is more sensitive to myopathic weakness.

Scoring:

- Grade 0: Completely unable to rise
- Grade 1: Able to rise only with use of hands
- Grade 2: Able to rise with noticeable difficulty
- Grade 3: Able to rise without difficulty.



THE MANAGEMENT OF PHYSICAL RISK

MANAGING RISK DURING REFEEDING

- Start multivitamin and mineral supplements before feeding begins
- Feeding – small and often
- Rest
- Warm
- Fluids
- Avoid medication
- Monitor cardiac status
- Monitor bowel sounds
- Monitor electrolytes – U&E & PO4

DEHYDRATION

- Push fluids
- Monitor U&E
- Monitor intake/output
- Monitor cardiac function

HIGH CVS/RHYTHM RISK

- Avoid drugs
- CK – cardiac
- Check electrolytes
- Monitor ECG

LOW POTASSIUM

- Check magnesium
- Oral replacement
- Consider protein pump inhibitor

HYPOGLYCAEMIA RISK

- If glucose <2.0
- Meals 2–3 hours
- Check glucose 2am if abnormal during the day

LOW PHOSPHATE

- Refeed with milk products
- Oral replacement

**ALWAYS CONSULT PHYSICIAN/PAEDIATRICIAN COLLEAGUES IF CONCERNED.
CONSIDER WHETHER PATIENT IS BEST MANAGED ON MEDICAL WARD OR
EATING DISORDERS UNIT**

Appendix 8:

Search strategies for the identification of clinical studies

1. General search filters

a. MEDLINE, EMBASE, PsycINFO, CINAHL – OVID interface

1. eating disorder/ or eating disorders/
2. (eating adj2 disorder\$).mp. [mp=ti, sh, ab, it, tn, ot, dm, mf, dv, rw, hw, ty, id]
3. appetite disorder/
4. anorexia nervosa/
5. (anorexia adj1 nervosa).mp. [mp=ti, sh, ab, it, tn, ot, dm, mf, dv, rw, hw, ty, id]
6. bulimia/or bulimi\$.mp.
7. binge eating disorder/
8. (bing\$ or overeat\$ or (compulsive adj2 (eat\$ or vomit\$)) or (food\$ adj2 bing\$) or (self?induc\$ adj2 vomit\$) or (restrict\$ adj2 eat\$)).mp.
9. or/1–8
10. 'Appetite Disorder'/si [Side Effect]
11. 'Eating Disorders'/si [Side Effect]
12. 'Eating Disorders'/ci [Chemically Induced]
13. or/10–12
14. 9 not 13

b. Cochrane Database of Systematic Reviews – Cochrane library

((EATING-DISORDERS*:ME or ANOREXIA-NERVOUSA*:ME or BULIMIA*:ME or eating disorder or appetite disorder or anorexia nervosa or bulimia or binge* or overeat*) or (compulsive and (eat* or vomit*)) or (food* and bing*) or (self-induc* and vomit*))

c. Cochrane Controlled Trials Register – Cochrane Library

((EATING-DISORDERS*:ME or ANOREXIA-NERVOUSA*:ME or BULIMIA*:ME or eating disorder or appetite disorder or anorexia nervosa or bulimia or binge* or overeat*) or (compulsive and (eat* or vomit*)) or (food* and bing*) or (self-induc* and vomit*))

d. Database of Reviews of Effectiveness – Cochrane Library

((EATING-DISORDERS*:ME or ANOREXIA-NERVOUSA*:ME or BULIMIA*:ME or eating disorder or appetite disorder or anorexia nervosa or bulimia or binge* or overeat*) or (compulsive and (eat* or vomit*)) or (food* and bing*) or (self-induc* and vomit*))

e. Evidence-Based Mental Health – Website

1. 'eating disorder' or 'appetite disorder' or 'anorexia nervosa' or bulimia
2. binge or overeat* or (compulsive and (eat* or vomit*)) or (food* and bing*)
3. (self-induc* and vomit*) or (restrict* and eat*)
4. or/1–3

f. NHS R&D Health Technology Assessment Programme – Website

('eating disorder' or 'appetite disorder' or 'anorexia nervosa' or bulimia or binge or overeat* or (compulsive and (eat* or vomit*)) or (food* and bing*) or (self-induc* and vomit*) or (restrict* and eat*))

g. National Research Register – Website

((EATING-DISORDERS*:ME or ANOREXIA-NERVOZA*:ME or BULIMIA*:ME or eating disorder or appetite disorder or anorexia nervosa or bulimia or binge* or overeat*) or (compulsive and (eat* or vomit*)) or (food* and bing*) or (self-induc* and vomit*))

2. Systematic review search filters

a. MEDLINE, EMBASE, PsycINFO, CINAHL – OVID interface

(((meta analysis or literature review or research review).fc. and ((medline or medlars or embase or scisearch or psychinfo or psycinfo or psychlit or psyclit or cinahl or cochrane).ti,ab,sh. or (hand search\$ or manual search\$ or electronic database\$ or bibliographic database\$ or POOLING or POOLED ANALYSIS or PETO or DER SIMONIAN or DERSIMONIAN or FIXED EFFECT or RANDOM EFFECT or (MANTEL adj2 HAENZEL).tw.)) or (exp meta analysis/ or (meta-analy\$ or metaanaly\$ or meta analy\$ or (systematic\$ adj25 review\$) or (systematic\$ adj25 overview) or (QUANTITATIVE\$ adj25 REVIEW) or (QUANTITATIVE\$ adj25 OVERVIEW) or (METHODOLOGIC\$ adj25 REVIEW) or (METHODOLOGIC\$ adj25 OVERVIEW) or INTEGRATIVE RESEARCH REVIEW\$ or RESEARCH INTEGRATION or QUANTITATIVE\$ SYNTHESIS).mp. or DATA SYNTHESIS.tw.) or ((review or review, tutorial or review, academic).pt. and ((medline or medlars or embase or scisearch or psychinfo or psycinfo or psychlit or psyclit or cinahl or cochrane).ti,ab,sh. or (hand search\$ or manual search\$ or electronic database\$ or bibliographic database\$ or pooling or pooled analys\$ or fixed effect or random effect or (mantel adj2 haenzel) or peto or der?simonian).tw.)) or (meta-analysis.pt,sh. or (meta-analy\$ or metaanaly\$ or meta analy\$ or (systematic\$ adj25 review\$) or (systematic\$ adj25 overview) or (quantitative\$ adj25 review) or (quantitative\$ adj25 overview) or (methodologic\$ adj25 review) or (methodologic\$ adj25 overview) or integrative research review\$ or research integration or quantitative\$ synthesis or data synthesis).tw.))

not (letter/ or comment/)

Animal\$/ not (animal\$/ and human\$/)

3. Randomised Controlled Trials search filter

b. MEDLINE, EMBASE, PsycINFO, CINAHL – OVID interface

1. exp clinical trials/ or (clinical adj2 trial\$).mp.
2. Double-Blind Method/ or Double-Blind Procedure/ or Double-Blind Studies/
3. Single-Blind Method/ or Single-Blind Procedure/
4. exp Crossover Design/ or Cross-Over Studies/ or Crossover Procedure/
5. cross?over.mp.
6. random\$.mp. or (random\$.pt. or exp random assignment/)
7. (single?blind\$ or single blind\$).mp.
8. (double?blind\$ or double blind\$).mp.
9. (treble?blind\$ or treble blind\$).mp.
10. (triple?blind\$ or triple blind\$).mp.
11. or/1–10
12. (animal not (human and animal)).sh.
13. Animal\$/ not (animal\$/ and human\$/)
14. meta-analysis/ or meta-analysis.pt. or systematic review/
15. 11 not (12 or 13 or 14)

4. Antidepressant drug search filter

(Antidepressant\$ or tricyclic\$ or imipramine or amitriptyline or clomipramine or nortriptyline or *desipramine* or fluoxetine or sertraline or paroxetine or citalopram or fluvoxamine or bupropion or trazodone or nefazodone or phenelzine or isocarboxazid\$ or moclobemide or *brofaromine* or *tranylcypromine* or mianserin or mirtazapine)

(Drugs in italics are not currently used in the UK)

5. Cognitive behavioural therapy search filter

((COGNITIV\$ and BEHAVIO\$ and THERAP\$) or (COGNITI\$ and (TECHNIQUE\$ or THERAP\$ or RESTRUCTUR\$ or CHALLENG\$)) or (ATTRIBUTION\$ or (SELF and (INSTRUCT\$ or MANAGEMENT\$ or ATTRIBUTION\$)) or (RET or (RATIONAL and EMOTIV\$))))

Appendix 9:

Clinical study data extraction form

Information about each study was entered into an Access database using specially designed forms (see below for an example).

<p>ReferenceID AGRAS1989</p> <p>Secondary Reference <input type="checkbox"/></p> <p>Topic Group Psychological For papers relevant to more than one group, scroll between records below</p> <p>Status for this Topic Group <input checked="" type="radio"/> Included <input type="radio"/> Excluded <input type="radio"/> Awaiting Assessment</p> <p>Reason for Exclusion/Awaiting Assessment</p>	<p>Reference Agras, W. S., Schneider, J. A., Arnow, B., Raeburn, S. D., and Telch, C. F. Cognitive-behavioral and response -prevention treatments for bulimia nervosa. <i>Journal of Consulting & Clinical Psychology</i> 1989;57:215-221.</p>																											
<p>Methods</p> <p>Reprint Status <input type="checkbox"/> In File <input type="checkbox"/> Source Existing Review <input type="checkbox"/> Published or Unpublished Data? Published Data Only <input checked="" type="checkbox"/> References Checked for Additional Papers? <input checked="" type="checkbox"/> Includes Cost Data? <input type="checkbox"/> Yes <input checked="" type="radio"/> No <input type="checkbox"/> Unchecked</p> <p>Participants</p> <p>No. patients selected for study 77 Diagnoses</p> <table border="1" style="margin-left: 10px;"> <tr><td>Male</td><td>Female</td><td>No info</td></tr> <tr><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/> 77</td><td><input type="checkbox"/></td></tr> </table> <p>Sex Lower Mean Upper</p> <table border="1" style="margin-left: 10px;"> <tr><td>Age</td><td>18</td><td>29</td><td>61</td></tr> </table> <p>Exclusions not between 18-65yrs, concurrent AN, schizophrenia, affective disorder, drug/alcohol abuse, significant medical disease, pregnancy</p> <p>Interventions</p> <p>Interventions for This Group Number of Participants in this Group 19</p> <p>Intervention Wall-list Control</p> <p>Intervention Details assessed at baseline, 6 weeks and 4 months.</p> <p>For this group's other interventions, move to the next record below</p> <p>For the next group's interventions move to the next record below</p>		Male	Female	No info	<input type="checkbox"/>	<input checked="" type="checkbox"/> 77	<input type="checkbox"/>	Age	18	29	61																	
Male	Female	No info																										
<input type="checkbox"/>	<input checked="" type="checkbox"/> 77	<input type="checkbox"/>																										
Age	18	29	61																									
<p>Outcomes</p> <table border="1" style="width: 100%;"> <tr><td>OutcomeID</td><td>Usable</td><td>Reason</td></tr> <tr><td colspan="3">Other Continuous Measures of Symptomatology</td></tr> <tr><td colspan="3"><input type="checkbox"/> not relevant outcomes</td></tr> <tr><td>OutcomeID</td><td>Usable</td><td>Reason</td></tr> <tr><td colspan="3">Leaving the study early - any reason <input checked="" type="checkbox"/></td></tr> <tr><td>OutcomeID</td><td>Usable</td><td>Reason</td></tr> <tr><td colspan="3">Remission <input checked="" type="checkbox"/></td></tr> <tr><td>OutcomeID</td><td>Usable</td><td>Reason</td></tr> <tr><td colspan="3">Purging frequency <input checked="" type="checkbox"/></td></tr> </table>		OutcomeID	Usable	Reason	Other Continuous Measures of Symptomatology			<input type="checkbox"/> not relevant outcomes			OutcomeID	Usable	Reason	Leaving the study early - any reason <input checked="" type="checkbox"/>			OutcomeID	Usable	Reason	Remission <input checked="" type="checkbox"/>			OutcomeID	Usable	Reason	Purging frequency <input checked="" type="checkbox"/>		
OutcomeID	Usable	Reason																										
Other Continuous Measures of Symptomatology																												
<input type="checkbox"/> not relevant outcomes																												
OutcomeID	Usable	Reason																										
Leaving the study early - any reason <input checked="" type="checkbox"/>																												
OutcomeID	Usable	Reason																										
Remission <input checked="" type="checkbox"/>																												
OutcomeID	Usable	Reason																										
Purging frequency <input checked="" type="checkbox"/>																												

Appendix 10:

Clinical study quality checklists

**Table 1. Quality checklist for a systematic review
(notes for reviewer are presented in italics)**

Checklist completed by:		Report reference ID:
SECTION 1: VALIDITY		
Evaluation criteria		Comments
1.1	Does the review address an appropriate and clearly focused question?	<i>Unless a clear and well-defined question is specified, it will be difficult to assess how well the study has met its objectives or how relevant it is to the question you are trying to answer on the basis of its conclusions.</i>
1.2	Does the review include a description of the methodology used?	<i>A systematic review should include a detailed description of the methods used to identify and evaluate individual studies. If this description is not present, it is not possible to make a thorough evaluation of the quality of the review, and it should be rejected as a source of Level 1 evidence. (Though it may be useable as Level 4 evidence, if no better evidence can be found.)</i>
1.3	Was the literature search sufficiently rigorous to identify all relevant studies?	<i>Consider whether the review used an electronic search of at least one bibliographic database (searching for studies dating at least 10 years before publication of the review). Any indication that hand searching of key journals, or follow up of reference lists of included studies were carried out in addition to electronic database searches can normally be taken as evidence of a well conducted review.</i>
1.4	Was study quality assessed and taken into account?	<i>A well conducted systematic review should have used clear criteria to assess whether individual studies had been well conducted before deciding whether to include or exclude them. At a minimum, the authors should have checked that there was adequate concealment of allocation, that the rate of drop out was minimised, and that the results were analysed on an 'intention to treat' basis¹. If there is no indication of such an assessment, the review should be rejected as a source of Level 1 evidence. If details of the assessment are poor, or the methods considered to be inadequate, the quality of the review should be downgraded.</i>

SECTION 2: OVERALL ASSESSMENT			
		Comments	Code
2.1	Low risk of bias Moderate risk of bias High risk of bias	All or most criteria met. Most criteria partly met Few or no criteria met.	A B C

**Table 2. Quality checklist for a randomised controlled trial
(notes for reviewer are presented in italics)**

Checklist completed by:		Report reference ID:
SECTION 1: INTERNAL VALIDITY		
Evaluation criteria	Comments	
1.1 Was the assignment of subjects to treatment groups randomised?	<i>If there is no indication of randomisation, the study should be rejected. If the description of randomisation is poor, or the process used is not truly random (e.g. allocation by date, alternating between one group and another) or can otherwise be seen as flawed, the study should be given a lower quality rating.</i>	
1.2 Was an adequate concealment method used?	<i>Centralised allocation, computerised allocation systems, or the use of coded identical containers would all be regarded as adequate methods of concealment, and may be taken as indicators of a well conducted study. If the method of concealment used is regarded as poor, or relatively easy to subvert, the study must be given a lower quality rating, and can be rejected if the concealment method is seen as inadequate.</i>	
SECTION 2: OVERALL ASSESSMENT		
	Comments	Code
2.1 Low risk of bias Moderate risk of bias High risk of bias	All or most criteria met. Most criteria partly met Few or no criteria met.	A B C

Appendix 11:

Predicting the outcome of treatment and recovery review

Anorexia Nervosa

Pre-treatment predictors of outcome

Predictor	Studies finding a positive result	Studies finding a negative result
Low BMI at presentation or admission or minimum BMI*	Kachele et al., 2001 Lowe et al., 2001 (low during course) Tanaka et al., 2001 Zipfel et al., 2000 Howard et al., 1999 (day tx) Nielsen et al., 1998 (on SMR) Herzog et al., 1997b Hebebrand et al., 1996, 1997 (<13) Casper & Jabine, 1996 Gowers et al., 1994 Steinhausen & Siedel, 1993 (trend) Santonastaso et al., 1987 Burns & Crisp, 1984 Steinhausen & Glanville, 1983 Goldberg et al., 1980 Hsu et al., 1979	Ben-Tovim et al., 2001 Herzog et al., 1997a Strober et al., 1997 Bryant Waugh et al., 1988 Remschmidt et al., 1988 Morgan et al., 1983 Lee et al., 2003
Medical emergency pre-admission/ lab findings/ somatic complaints	Saccomani et al., 1998 Herzog et al., 1997a & b Deter & Herzog 1994 Goldberg et al., 1980 Suematsu et al., 1985 (trend)	
Bulimic sub-type*	Bulik et al., 2000 (BN EDI scale) Fichter & Quadflieg, 1999 (B) Ostuzzi et al., 1999 (ANB) Saccomani et al., 1998 (B) Herzog et al., 1997a (P) Gowers et al., 1994 (V) Deter & Herzog, 1994 (P) Santonastaso et al., 1991 (trend) Santonastaso et al., 1987 (VorL) Nussbaum et al., 1985 (V) Hsu et al., 1979 (ANB or V) Stonehill & Crisp, 1977 (V) Willi & Hagemann, 1976 (L)	Eddy et al., 2002 Strober et al., 1997 Steinhausen & Seidel, 1993 Toner et al., 1986 Morgan et al., 1983 Casper & Jabine, 1996

Continued

Predictor	Studies finding a positive result	Studies finding a negative result
Bulimic subtype* <i>Continued</i>	Theander, 1970 (V) Ward <i>et al.</i> , 2003 Suematsu <i>et al.</i> , 1985	
Premorbid associability/personality difficulties/interpersonal problems or distrust	Bizeul <i>et al.</i> , 2001 (distrust) Herzog <i>et al.</i> , 1997a (in comb with purging) Strober <i>et al.</i> , 1997 (poor social relating) Morgan <i>et al.</i> , 1983 Hsu <i>et al.</i> , 1979 Morgan & Russell, 1975 Suematsu <i>et al.</i> , 1985	
Previous treatment*	Bryant Waugh <i>et al.</i> , 1988 Burns & Crisp, 1984 Steinhausen & Glanville, 1983 Eckert, 1979 Halmi <i>et al.</i> , 1979 Morgan & Russell 1975 Santanastaso <i>et al.</i> , 1997	Strober <i>et al.</i> , 1997
Family disturbance	Strober <i>et al.</i> , 1997 (hostility towards family lengthens time to recovery) Ratnasuriya <i>et al.</i> , 1991 Burns & Crisp, 1984 Morgan <i>et al.</i> , 1983 Hsu <i>et al.</i> , 1979 Morgan & Russell, 1975 Suematsu <i>et al.</i> , 1985 Lee <i>et al.</i> , 2003	Theander, 1970
Body image disturbance/dissatisfaction, low desired weight during treatment or at follow-up	Ben-Tovim <i>et al.</i> , 2001 Strober <i>et al.</i> , 1999 (atypical do better) Goldberg <i>et al.</i> , 1980 Crisp <i>et al.</i> , 1979 (size estimation) Suematsu <i>et al.</i> , 1985	
Older age at presentation (those above 20 have worse outcome)	Lee <i>et al.</i> , 2003 Kachele, 2001 (older poorer outcome) (with treatment length) Nielsen <i>et al.</i> , 1998 (20–29 highest risk of death) Deter & Herzog, 1994 Deter <i>et al.</i> , 1989 (older age poorer) Hsu <i>et al.</i> , 1979	Ben-Tovim <i>et al.</i> , 2001 Gowers <i>et al.</i> , 1994

Post-treatment predictors of outcome

Predictor	Studies finding a positive result	Studies finding a negative result
Inadequate weight gain*	Lowe <i>et al.</i> , 2001 (low BMI during course of disorder) Zipfel <i>et al.</i> , 2000 Fichter & Quadflieg, 1999 Russell & Gross, 2000 (<BMI 19) Howard <i>et al.</i> , 1999 (<BMI 19)	Richards <i>et al.</i> , 2003
General psychopathology	Ivarsson <i>et al.</i> , 2000 (mood disorder) Eckert <i>et al.</i> , 1995 (affective or anxiety disorder) Rastam <i>et al.</i> , 1995 (PD)/2003 (GAF) Herpetz-Dahlmann <i>et al.</i> , 2001 (psychiatric disorders inc PD) Lowe <i>et al.</i> , 2001 (mood & substance disorder) Saccomani <i>et al.</i> , 1998 (PD or mood disorder) Schork <i>et al.</i> , 1994	Bulik <i>et al.</i> , 2000 (depression) Saccomani <i>et al.</i> , 1998 (anxiety disorder)
Low desired weight/drive for thinness/dieting	Richards <i>et al.</i> , 2003 Kachele <i>et al.</i> , 2001 Bulik <i>et al.</i> , 2000 Eckert <i>et al.</i> , 1995	
Poor social adjustment	Herpetz-Dahlmann <i>et al.</i> , 2001 (social contacts & sexuality) Lowe <i>et al.</i> , 2001 (living alone, no children) Stonehill & Crisp, 1977 Willi & Hagemann, 1976 (those who marry do better)	Eckert <i>et al.</i> , 1995 (less sensitive measure)

*Findings may be confounded by severity, duration of disorder or chronicity.

Bulimia Nervosa

Pre-treatment predictors of outcome

Predictor	Studies finding a positive result	Studies finding a negative result
BPD features	Steiger <i>et al.</i> , 1994b (those with stably high BSI scores had high DFT) Garner <i>et al.</i> , 1990 (BSI trend) Johnson <i>et al.</i> , 1990	
Concurrent substance misuse	Flament <i>et al.</i> , 1996 Fichter <i>et al.</i> , 1994a Garner <i>et al.</i> , 1990 (higher MCMI scores though non-clinical)	
Motivation for/stage of change	Richards <i>et al.</i> , 2003 Wolk & Devlin, 2001 (IPT only) Treasure <i>et al.</i> , 1999	
History of obesity	Fairburn <i>et al.</i> , 2003 Bulik <i>et al.</i> , 1998 Fairburn <i>et al.</i> , 1995 Maddocks & Kaplan, 1991	Garner, 1990
Higher levels of binge eating and/or purging	Thiels <i>et al.</i> , 2000 (B) (in abbreviated tx) Mussell <i>et al.</i> , 2000(V) Bulik <i>et al.</i> , (1999) (B) Wilson <i>et al.</i> , 1999 (B&V) Bulik <i>et al.</i> , 1998 (EDI BN) Esplen <i>et al.</i> , 1998 (P) Turnbull <i>et al.</i> , 1997 (B) (in abbreviated tx) Olmsted <i>et al.</i> , 1994 Fahy & Russell, 1993 Keller <i>et al.</i> , 1992 Olmsted <i>et al.</i> , 1991 (V) (in abbreviated tx) Garner <i>et al.</i> , 1990 (B) Mitchell <i>et al.</i> , 1989 (B&V)	Agras <i>et al.</i> , 2000 Keel <i>et al.</i> , 1999 Esplen <i>et al.</i> , 1998 (B) Cooper <i>et al.</i> , 1996 (P) Fairburn <i>et al.</i> , 1995 (by 3–11 years follow-up) Fairburn, Peveler <i>et al.</i> , 1993 Rossiter <i>et al.</i> , 1993 (P) Maddocks & Kaplan, 1991 Walsh <i>et al.</i> , 1991 (B&L) Garner <i>et al.</i> , 1990 (V) Mitchell <i>et al.</i> , 1986

Post-treatment predictors of outcome

Predictor	Studies finding a positive result	Studies finding a negative result
Social maladjustment/ lack of a satisfactory stable relationship/ interpersonal distrust	Fairburn <i>et al.</i> , 2003 Agras <i>et al.</i> , 2000 Reas <i>et al.</i> , 2000 (marital status) Reiss & Johnson-Sabine, 1995 Collings & King, 1994 Olmsted <i>et al.</i> , 1994 (interpersonal distrust) Johnson-Sabine <i>et al.</i> , 1992 Maddock <i>et al.</i> , 1992 (ID) Fallon <i>et al.</i> , 1991 Garner <i>et al.</i> , 1990 (composite)	
Post-treatment depressive features	Agras <i>et al.</i> , 2000 Bulik <i>et al.</i> , 1998 (univariate anal only) Collings & King 1994 Maddock <i>et al.</i> , 1992 Fallon <i>et al.</i> , 1991 (major dep) Garner <i>et al.</i> , 1990 (dysthymia) (composite) Hsu & Sobkiewicz 1989 Wilson <i>et al.</i> , 1986 Swift <i>et al.</i> , 1985	
Higher ED cognitions/body dissatisfaction or body image disturbance/drive for thinness	Fairburn <i>et al.</i> , 2003 (DR mediator) Keel <i>et al.</i> , 1999 (BSQ) Bulik <i>et al.</i> , 1998 (univariate anal only) Fairburn <i>et al.</i> , 1993 Maddock <i>et al.</i> , 1992 Johnson-Sabine <i>et al.</i> , 1992 Garner <i>et al.</i> , 1990 (DFT) Mitchell <i>et al.</i> , 1989 (BD) Swift <i>et al.</i> , 1985	
Abstinence during/by end of treatment binge eating/binge eating frequency (good outcome)	Fairburn <i>et al.</i> , 2003 (pred comp behaviours) Richards <i>et al.</i> , 2003 Mussell <i>et al.</i> , 2000 Bulik <i>et al.</i> , 1998 Maddock <i>et al.</i> , 1992 Swift <i>et al.</i> , 1985	<i>Continued</i>

Post-treatment predictors of outcome (continued)

Predictor	Studies finding a positive result	Studies finding a negative result
Lower social class/income	Reas <i>et al.</i> , 2000 (income) Reiss & Johnson-Sabine, 1995 Johnson-Sabine <i>et al.</i> , 1992 Collings & King, 1994	
Post-treatment purging frequency	Olmsted <i>et al.</i> , 1994 Garner <i>et al.</i> , 1990 Mitchell <i>et al.</i> , 1989 Swift <i>et al.</i> , 1985	
Comorbidity/general psychiatric symptoms	Bulik <i>et al.</i> , 1998 Collings & King, 1994 Rossiter <i>et al.</i> , 1993 (trend cluster B features) Fallon <i>et al.</i> , 1991 (GAF)	Fairburn <i>et al.</i> , 2003

Appendix 12:

Search strategies for the identification of health economic evidence

12.1

Databases searched: MEDLINE, PreMEDLINE, EMBASE (Excerpta Medica Database, CINAHL (Cumulative Index to Nursing and Allied Health Literature), PsycINFO, Cochrane Database of Systematic Reviews (CDSR), Cochrane Controlled Trials Register (CCTR), Database of Abstracts of Reviews of Effectiveness (DARE).

Interface used: OVID.

Date of search: August 2002.

Combined search strategy used:

1. (burden adj2 illness).mp.
 2. (burden adj2 disease).mp.
 3. (cost\$ adj2 evaluat\$).mp.
 4. (cost\$ adj2 benefit\$).mp.
 5. (cost\$ adj2 utilit\$).mp.
 6. (cost\$ adj2 minimi\$).mp.
 7. (cost\$ adj2 illness).mp.
 8. (cost\$ adj2 disease).mp.
 9. (cost\$ adj2 analys\$).mp.
 10. (cost\$ adj2 assess\$).mp.
 11. (cost\$ adj2 study).mp.
 12. (cost\$ adj2 studies).mp.
 13. (cost\$ adj2 allocation).mp.
 14. (cost\$ adj2 outcome\$).mp.
 15. (cost\$ adj2 consequence\$).mp.
 16. (cost\$ adj2 effect\$).mp.
 17. (cost\$ adj2 treatment\$).mp.
 18. (economic adj2 evaluat\$).mp.
 19. (economic adj2 analysis\$).mp.
 20. (economic adj2 study).mp.
 21. (economic adj2 studies).mp.
 22. (economic adj2 assess\$).mp.
 23. (economic adj2 consequence\$).mp.
 24. (economic adj2 outcome\$).mp.
 25. (resource\$ adj2 allocation\$).mp.
 26. (resource\$ adj2 utili\$).mp.
 27. expenditure\$.mp.
 28. exp economics/
 29. exp 'costs and cost analysis' /
 30. exp 'health economics' /
 31. or/1-30
- AND

1. eating disorder/ or eating disorders/
2. (eating adj2 disorder\$).mp. [mp=ti, sh, ab, it, tn, ot, dm, mf, dv, rw, hw, ty, id]
3. appetite disorder/
4. anorexia nervosa/
5. (anorexia adj1 nervosa).mp. [mp=ti, sh, ab, it, tn, ot, dm, mf, dv, rw, hw, ty, id]
6. bulimia/ or bulimi\$.mp.
7. binge eating disorder/
8. (bing\$ or overeat\$ or (compulsive adj2 (eat\$ or vomit\$)) or (food\$ adj2 bing\$) or (self?induc\$ adj2 vomit\$) or (restrict\$ adj2 eat\$)).mp.
9. or/1-8.

12.2

Databases searched: HTA (Health Technology Assessment), NHS EED (NHS Economic Evaluation Database), OHE HEED (Office of Health Economics Health Economic Evaluations Database).

Interfaces used: NHS Centre for Reviews and Dissemination website and OHE HEED CD-ROM.

Date of search: August 2002.

Abbreviated search strategy used:

EATING-DISORDERS*:ME or (eating NEXT disorder*) OR (appetite NEXT disorder*) OR (anorexia NEXT nervosa) OR (bulimia) OR (bing* OR overeat*) OR (compulsive NEXT eat*) OR (vomit*).

Appendix 13:

Quality checklists for economic studies

13.1 Full economic evaluations

Author: _____ **Date:** _____

Title: _____

	Yes	No	NA
Study design			
1. The research question is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The viewpoint(s) of the analysis are clearly stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The alternatives being compared are relevant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The rationale for choosing the alternative programmes or interventions compared is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The alternatives being compared are clearly described	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The form of economic evaluation used is justified in relation to the question addressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data collection			
1. The source of effectiveness data used is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Details of the design and results of effectiveness study are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The primary outcome measure(s) for the economic evaluation are clearly stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Methods to value health states and other benefits are stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Details of the subjects from whom valuations were obtained are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Indirect costs (if included) are reported separately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Quantities of resources are reported separately from their unit costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Methods for the estimation of quantities and unit costs are described	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Currency and price data are recorded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Details of currency or price adjustments for inflation or currency conversion are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Details of any model used are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The choice of model used and the key parameters on which it is based are justified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis and interpretation of results			
1. Time horizon of costs and benefits is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The discount rate(s) is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The choice of rate(s) is justified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. An explanation is given if costs or benefits are not discounted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Details of statistical tests and confidence intervals are given for stochastic data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The approach to sensitivity analysis is given	<input type="checkbox"/>	<input type="checkbox"/>	
7. The choice of variables for sensitivity analysis is given	<input type="checkbox"/>	<input type="checkbox"/>	
8. The ranges over which the variables are varied are stated	<input type="checkbox"/>	<input type="checkbox"/>	
9. Relevant alternatives are compared	<input type="checkbox"/>	<input type="checkbox"/>	
10. Incremental analysis is reported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Major outcomes are presented in a disaggregated as well as aggregated form	<input type="checkbox"/>	<input type="checkbox"/>	
12. The answer to the study question is given	<input type="checkbox"/>	<input type="checkbox"/>	
13. Conclusions follow from the data reported	<input type="checkbox"/>	<input type="checkbox"/>	
14. Conclusions are accompanied by the appropriate caveats	<input type="checkbox"/>	<input type="checkbox"/>	

13.2 Partial economic evaluations

Author: Date:

Title:

	Yes	No	NA
Study design			
1. The research question is stated	<input type="checkbox"/>	<input type="checkbox"/>	
2. The viewpoint(s) of the analysis are clearly stated and justified	<input type="checkbox"/>	<input type="checkbox"/>	
Data collection			
1. Details of the subjects from whom valuations were obtained are given	<input type="checkbox"/>	<input type="checkbox"/>	
2. Indirect costs (if included) are reported separately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Quantities of resources are reported separately from their unit costs	<input type="checkbox"/>	<input type="checkbox"/>	
4. Methods for the estimation of quantities and unit costs are described	<input type="checkbox"/>	<input type="checkbox"/>	
5. Currency and price data are recorded	<input type="checkbox"/>	<input type="checkbox"/>	
6. Details of currency or price adjustments for inflation or currency conversion are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Details of any model used are given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The choice of model used and the key parameters on which it is based are justified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis and interpretation of results			
1. Time horizon of costs is stated	<input type="checkbox"/>	<input type="checkbox"/>	
2. The discount rate(s) is stated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Details of statistical tests and confidence intervals are given for stochastic data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The choice of variables for sensitivity analysis is given	<input type="checkbox"/>	<input type="checkbox"/>	
5. Appropriate sensitivity analysis is performed	<input type="checkbox"/>	<input type="checkbox"/>	
6. The answer to the study question is given	<input type="checkbox"/>	<input type="checkbox"/>	
7. Conclusions follow from the data reported	<input type="checkbox"/>	<input type="checkbox"/>	
8. Conclusions are accompanied by the appropriate caveats	<input type="checkbox"/>	<input type="checkbox"/>	

Appendix 14:

Data extraction form for economic studies

Reviewer:

Date of Review:

Authors:

Publication Date:

Title:

Country:

Language:

Economic study design:

- | | |
|------------------------------|------------------------------|
| <input type="checkbox"/> CEA | <input type="checkbox"/> CCA |
| <input type="checkbox"/> CBA | <input type="checkbox"/> CA |
| <input type="checkbox"/> CUA | |
| <input type="checkbox"/> CMA | |

Modelling:

- | | |
|-----------------------------|------------------------------|
| <input type="checkbox"/> No | <input type="checkbox"/> Yes |
|-----------------------------|------------------------------|

Source of data for effect size measure(s):

- | | |
|--|--|
| <input type="checkbox"/> RCT | <input type="checkbox"/> Meta-analysis |
| <input type="checkbox"/> Quasi experimental study | <input type="checkbox"/> RCT |
| <input type="checkbox"/> Cohort study | <input type="checkbox"/> Quasi experimental study |
| <input type="checkbox"/> Mirror image (before-after) study | <input type="checkbox"/> Cohort study |
| | <input type="checkbox"/> Mirror image (before-after) study |
| | <input type="checkbox"/> Expert opinion |

Comments:.....

Primary outcome measure(s) (please list):

.....

Interventions compared (please describe):

Treatment:.....

Comparator:.....

Setting (please describe):

.....
.....

Patient population characteristics (please describe):

.....
.....

Perspective of analysis:

- Societal Other:
- Patient and family
 Health care system
 Health care provider
 Third party payer

Time frame of analysis:.....

Cost data:

- Primary Secondary

If secondary please specify:.....

Costs included:

- | | | |
|--|--|--|
| <i>Direct medical</i> | <i>Direct non-medical</i> | <i>Lost productivity</i> |
| <input type="checkbox"/> direct treatment | <input type="checkbox"/> social care | <input type="checkbox"/> income forgone due to illness |
| <input type="checkbox"/> inpatient | <input type="checkbox"/> social benefits | <input type="checkbox"/> income forgone due to death |
| <input type="checkbox"/> outpatient | <input type="checkbox"/> travel costs | <input type="checkbox"/> income forgone by caregiver |
| <input type="checkbox"/> day care | <input type="checkbox"/> caregiver out-of-pocket | |
| <input type="checkbox"/> community health care | <input type="checkbox"/> criminal justice | |
| <input type="checkbox"/> medication | <input type="checkbox"/> training of staff | |

or

- | | |
|--|--|
| <input type="checkbox"/> staff | |
| <input type="checkbox"/> medication | |
| <input type="checkbox"/> consumables | |
| <input type="checkbox"/> overhead | |
| <input type="checkbox"/> capital equipment | |
| <input type="checkbox"/> real estate | |

Others:

Currency: **Year of costing:**

Was discounting used? Yes, for benefits and costs Yes, but only for costs No

Discount rate used for costs:

Discount rate used for benefits:

Result(s):

.....

.....

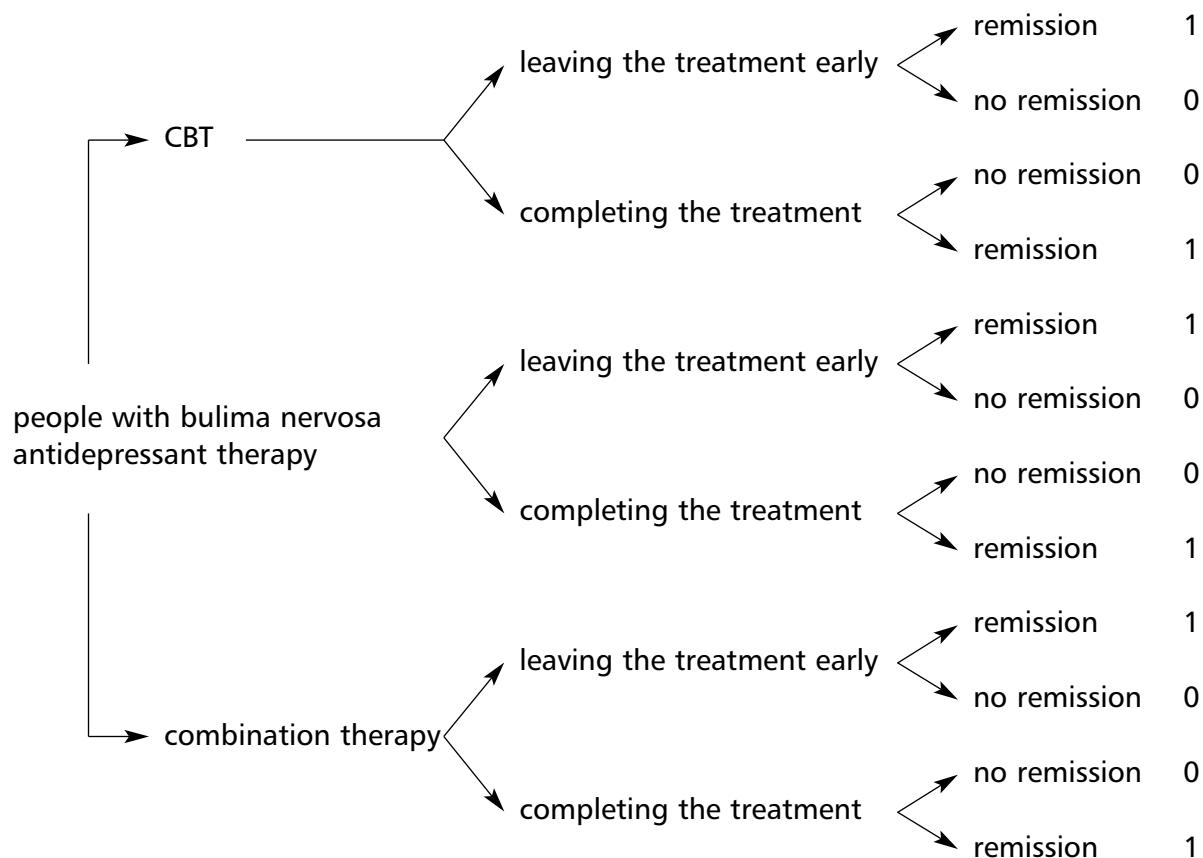
Comments, limitations of the study:

.....

.....

Quality checklist score (Yes/NA/All):/...../.....

Appendix 15: Model structure



Appendix 16: Model parameters

Parameter	Base case	Minimum value	Maximum value	Source
Staff unit costs				
Clinical psychologist per hour of client contact	£65.00	–	–	Netten <i>et al.</i> (2002)
General practitioner per hour of patient contact	£91.00	–	–	Netten <i>et al.</i> (2002)
Specialist per hour of patient contact	£27.00	–	£207.00	Netten <i>et al.</i> (2002)
Length of CBT sessions	50 minutes	40 minutes	60 minutes	Fairburn (1991), personal communication
Length of GP visits	9.36 minutes	4 minutes	15 minutes	Netten <i>et al.</i> (2002), personal communication
Length of specialist outpatient visits	15 minutes	10 minutes	20 minutes	Agras (1992), personal communication
Number of CBT sessions	20	–	–	Treatment manual, personal communication
Average drop out time CBT	11.5 weeks	–	–	Agras (1992, 1994)
Number of AD visits	4	3	8	Agras (1992), personal communication
Length of AD	16 weeks	–	24 weeks	Personal communication, clinical evidence review
Average drop out time AD	7.42 weeks	–	9.5 weeks	Agras (1992, 1994)

Parameter	Base case	Minimum value	Maximum value	Source
Drug unit costs				
Fluoxetine (20mg, 30cap/pack)	£7.61	–	–	BNF 45
Prozac (60mg, 30cap/pack)	£47.61	–	–	BNF 45
Total treatment costs				
Cost per patient leaving CBT early	£650.00	Dependent on the component parameter values	Dependent on the component parameter values	Calculated
Cost per patient completing CBT	£1083.3	Dependent on the component parameter values	Dependent on the component parameter values	Calculated
Cost per patient leaving AD early	£74.05	Dependent on the component parameter values	Dependent on the component parameter values	Calculated
Cost per patient completing AD	£148.10	Dependent on the component parameter values	Dependent on the component parameter values	Calculated

Parameter	Base case	Minimum value	Maximum value	Source
Clinical efficacy				
Relative risk of no remission AD vs. CBT	1.28	1.09	1.50	Clinical evidence review (Paragraph 7.4)
Absolute risk of no remission AD	0.807	0.667	0.913	Clinical evidence review (Paragraph 7.4)
Absolute risk of no remission CBT	0.630	Dependent on the component parameter values	Dependent on the component parameter values	Calculated
Probability of no remission when leaving the treatment early	1.00	–	–	Clinical evidence review (intention-to-treat analysis)
Drop out				
Relative risk of leaving the treatment early AD vs. CBT	1.49	–	–	Clinical evidence review (Paragraph 7.4)
Absolute risk of leaving the treatment early AD	0.40	–	–	Clinical evidence review (Paragraph 7.4)
Absolute risk of leaving the treatment early CBT	0.268	–	–	Calculated

AD: antidepressant therapy
 CBT: cognitive behaviour therapy

Appendix 17: Diagnostic criteria for eating disorders

Eating disorder	DSM-IV-TR	ICD-10
Anorexia nervosa	307.1	F50.0
Criteria	<p>a. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g. weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).</p> <p>b. Intense fear of gaining weight or becoming fat, even though underweight.</p> <p>c. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.</p> <p>d. In postmenarcheal females, amenorrhoea, i.e. the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhoea if her periods occur only following hormone, e.g. oestrogen, administration.)</p>	<p>a. Body weight is maintained at least 15% below that expected (either lost or never achieved), or Quetelet's body-mass index is 17.5 or less. Prepubertal patients may show failure to make the expected weight gain during the period of growth.</p> <p>b. The weight loss is self-induced by avoidance of 'fattening foods'. One or more of the following may also be present: self-induced vomiting; self-induced purging; excessive exercise; use of appetite suppressants and/or diuretics.</p> <p>c. There is body-image distortion in the form of a specific psychopathology whereby a dread of fatness persists as an intrusive, overvalued idea and the patient imposes a low weight threshold on himself or herself.</p> <p>d. A widespread endocrine disorder involving the hypothalamic – pituitary – gonadal axis is manifest in women as amenorrhoea and in men as a loss of sexual interest and potency. (An apparent exception is the persistence of vaginal bleeds in anorexic women who are receiving replacement hormonal therapy, most commonly taken as a contraceptive pill.) There may also be elevated levels of growth hormone, raised levels of cortisol, changes in the peripheral metabolism of the thyroid hormone, and abnormalities of insulin secretion.</p> <p>e. If onset is prepubertal, the sequence of pubertal events is delayed or even arrested (growth ceases; in girls the breasts do not develop and there is a primary amenorrhoea; in boys the genitals remain juvenile). With recovery, puberty is often completed normally, but the menarche is late.</p>
Subtypes	<p>Restricting type: During current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behaviour.</p> <p>Binge-eating/purging type: During the current episode of Anorexia Nervosa the person has regularly engaged in binge-eating or purging behaviour.</p>	

Eating disorder	DSM-IV-TR	ICD-10
Bulimia nervosa	307.51	F50.2
Criteria	<p>a. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following: (1) eating, in a discrete period of time (e.g. within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances; (2) a sense of lack of control over eating during the episode (e.g. a feeling that one cannot stop eating or control what or how much one is eating).</p>	<p>a. There is a persistent preoccupation with eating, and an irresistible craving for food; the patient succumbs to episodes of overeating in which large amounts of food are consumed in short periods of time.</p>
	<p>b. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting or excessive exercise.</p>	<p>b. The patient attempts to counteract the 'fattening' effects of food by one or more of the following: self-induced vomiting; purgative abuse, alternating periods of starvation; use of drugs such as appetite suppressants, thyroid preparations or diuretics. When bulimia occurs in diabetic patients they may choose to neglect their insulin treatment.</p>
	<p>c. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.</p>	<p>c. The psychopathology consists of a morbid dread of fatness and the patient sets herself or himself a sharply defined weight threshold, well below the premorbid weight that constitutes the optimum or healthy weight in the opinion of the physician. There is often, but not always, a history of an earlier episode of anorexia nervosa, the interval between the two disorders ranging from a few months to several years. This earlier episode may have been fully expressed, or may have assumed a minor cryptic form with a moderate loss of weight and/or a transient phase of amenorrhoea.</p>
	<p>d. Self-evaluation is unduly influenced by body shape and weight.</p>	
	<p>e. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.</p>	
Subtypes	<p>Purging type: During the current episode, the person has regularly engaged in self-induced vomiting or the misuse of laxatives.</p> <p>Non-purging type: During the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.</p>	

Appendix 18: Studies included/ excluded in the comparisons covered by the Clinical Evidence Table

Please refer to the data CD attached to the inside back cover.

(The CD should start automatically when inserted; if it fails to do so, double-click on eating_disorders.html, and then click on 'Clinical evidence tables' when the page opens. Macintosh users: double-click on eating_disordersMAC.html.)

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13 Abbreviations

A&E	Accident and emergency
AGREE	Appraisal of Guidelines Research and Evaluation
APA	American Psychiatric Association
BED	Binge eating disorder
BMI	Body mass index
BPS	British Psychological Society
CAMHS	Child and adolescent mental health services
CAT	Cognitive analytic therapy
CBT	Cognitive behaviour therapy
CEBMH	Centre for Evidence Based Mental Health
CEFAHP	Clinical Effectiveness Forum for the Allied Health Professions
CEMH	Centre for Economics in Mental Health
CHAI	Commission for Health Care, Audit and Improvement
CI	Confidence interval
CMR	Crude mortality rate
CORE	British Psychological Society Centre for Outcomes Research and Effectiveness
COT	College of Occupational Therapists
CRU	Royal College of Psychiatrists College Research Unit
DHEA	Dehydroepiandrosterone
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth edition
EAT	Eating attitudes test
EDE	Eating disorders examination
EDI	Eating disorders inventory
EDNOS	Eating disorders not otherwise specified
EDSIG	Eating disorders special interest group
EEG	Electroencephalography
ERP	Exposure with response prevention
GDG	Guideline development group
GSH	Guided self-help
ICD10	International Classification of Diseases, 10th Edition
IoP	Institute of Psychiatry
IPT	Interpersonal Psychotherapy
MANOVA	Multivariate analysis of variance
MAOI	Monoamine-oxidase inhibitors

N	Number of studies
n	Number of participants
NCCMH	National Collaborating Centre for Mental Health
NG	Nasogastric
NICAPS	National Inpatient Child and Adolescent Psychiatry Study
NHS	National Health Service
NICE	National Institute for Clinical Excellence
NNT	Number needed to treat
OCD	Obsessive-compulsive disorder
OR	Odds ratio
PEG	Percutaneous endoscopic gastrostomy
PSH	Pure self-help
RCGP	Royal College of General Practitioners
RCN	Royal College of Nursing
RCT	Randomised controlled trials
RCPsych	Royal College of Psychiatrists
RPS	Royal Pharmaceutical Society
RR	Relative risk, risk ratio
SCIE	Social Care Institute of Excellence
SMR	Standardised Mortality Rate
SSRI	Selective serotonin reuptake inhibitors
TPN	Total parenteral nutrition
WHO	World Health Organisation

14 Glossary

Adherence: The behaviour of taking medicine according to treatment dosage and schedule as intended by the prescriber. In this guideline, the term 'adherence' is used in preference to 'compliance', but is not synonymous with 'concordance', which has a number of meanings.

Affective disorder: A syndrome in which an individual experiences a significant alteration in affect or mood. Whether depressed or elated, this change of mood is accompanied by alteration in the individual's activity levels.

Anorexia nervosa: A syndrome in which the individual maintains a low weight as a result of a preoccupation with body weight, construed either as a fear of fatness or pursuit of thinness. Weight is maintained at least 15 per cent below that expected or body mass index (calculated as weight in kilograms divided by height in metres squared) is below 17.5. Weight loss is self-induced by exercise, vomiting or purgation, and avoidance of fattening foods. A widespread endocrine disorder involving the hypothalamo-pituitary-gonadal axis is present. In females this is manifest as amenorrhoea and in males by loss of sexual interest and impotence. Other psychosocial features such as mood disorder, obsessive-compulsive symptoms and social withdrawal are common.

Atypical eating disorder: This term is used to denote eating disorders of clinical severity that do not meet the diagnostic criteria for anorexia nervosa or bulimia nervosa. The equivalent American term is 'eating disorder not otherwise specified'.

Behavioural weight control (BWC): Behavioural treatments that have weight loss as their goal.

Behaviour therapy (BT): Behavioural treatments that include many features of cognitive behaviour therapy for bulimia nervosa (CBT-BN) but have little or no emphasis on the direct modification of ways of thinking.

Binge eating disorder (BED): A syndrome in which an individual experiences repeated uncontrolled episodes of overeating but does not use extreme compensatory weight-control behaviours. It is a provisional new eating disorder diagnosis in DSM-IV.

Bulimia nervosa: A syndrome characterised by recurrent episodes of binge eating and by compensatory behaviour (vomiting, purging, fasting or exercising) in order to prevent weight gain. Binge eating is accompanied by a subjective feeling of loss of control over eating. This is a normal weight syndrome in which the body mass index (BMI) is maintained above 17.5 kg/m².

Cognitive analytic therapy (CAT): A specific time-limited, problem-focused psychotherapy developed by Ryle (Ryle & Kerr, 2002). It integrates cognitive, behavioural and psychodynamic principles.

Cognitive behaviour therapy (CBT): A psychological intervention that is designed to enable people to establish links between their thoughts, feelings or actions and their current or past symptoms and to re-evaluate their perceptions, beliefs or reasoning about the target symptoms. The intervention should involve at least one of the following: (1) monitoring thoughts, feelings or behaviour with respect to the symptom; (2) being helped to use alternative ways of coping with the target symptom; (3) reducing stress.

Cognitive behaviour therapy for binge eating disorder (CBT-BED): A specific form of CBT derived from CBT-BN, and adapted to suit patients with BED.

Cognitive behaviour therapy for bulimia nervosa (CBT-BN): A specific form of CBT devised for patients with bulimia nervosa. It typically involves 16 to 20 hour-long one-to-one treatment sessions over four to five months. Its focus is not only on helping patients change their eating habits but also on addressing the ways of thinking (most especially the over-evaluation of shape and weight) that maintain them. It has been described in several treatment manuals, the one used in most of the more recent treatment trials being that by Fairburn and colleagues (Fairburn *et al.*, 1993).

Cognitive behaviour therapy plus exposure with response prevention (CBT+ERP): A treatment that combines elements of CBT-BN with repeated sessions of exposure to situations that would normally trigger either binge eating or purging.

Confidence interval: The range within which the 'true' values (e.g. size of effect of an intervention) are expected to lie with a given degree of certainty (e.g. 95 per cent or 99 per cent). Confidence intervals represent the probability of random errors, but not systematic errors – or bias.

Controlled trial: An experiment in which investigators allocate eligible people into groups to receive or not to receive one or more interventions that are being compared.

Costing study: This is the simplest economic study, measuring only the costs of given interventions. It does not provide answers to efficiency questions.

Cost-benefit analysis: A type of full economic evaluation that compares alternatives in which the costs and consequences vary. Both costs and benefits are measured in monetary units. If benefits exceed costs, the evaluation would be a basis for recommending the treatment. It can address the question of whether a treatment or policy is socially worthwhile in the broadest sense.

Cost-consequence analysis: An analysis in which both outcomes and costs of alternative treatments or policy options are described. However, multiple outcomes are measured and there is no attempt to reduce everything to a single ratio.

Cost-effectiveness analysis: A type of full economic evaluation that compares competing alternatives of which the costs and consequences vary. The outcomes are measured in the same non-monetary (natural) unit. It expresses the result in the form of an incremental (or average or marginal) cost-effectiveness ratio.

Cost-minimisation analysis: A type of full economic evaluation where the costs of equally effective alternative treatments are compared. The aim is to find the least costly alternative.

Cost-of-illness/economic burden studies: An economic analysis of the total costs incurred by a society due to a specific disease.

Costs (direct): The costs of all the goods, services and other resources that are consumed in the provision of a health intervention. They can be medical or non-medical.

Costs (indirect): The lost productivity suffered by the national economy as a result of an employee's absence from the workplace through illness, decreased efficiency or premature death.

Cost-utility analysis: A type of full economic evaluation that compares competing alternatives of which the costs and consequences vary. It measures and values the impact of a treatment or policy alternative in utility units (see QALY). The result is expressed in the form of a cost-utility ratio.

Decision analysis: An explicit, quantitative, systematic approach to decision making under conditions of uncertainty, in which the probability of each possible event, along with the consequences of those events, is explicitly stated.

Dialectical behaviour therapy (DBT): A multifaceted and intensive psychological treatment designed for patients with borderline personality disorder (Linehan, 1993a, 1993b). A simplified and abbreviated form of the treatment has been developed for patients with bulimia nervosa or binge eating disorder (Telch *et al.*, 2000, 2001). It primarily focuses on enhancing patients' emotion regulation skills. It involves 20 two-hour group sessions once a week. Details are provided by Wiser and Telch (1999).

Dietary counselling: Also termed 'nutritional counselling'. A form of treatment in which the primary goal is the modification of what the patient eats as well as relevant eating habits and attitudes. It is not a well-defined intervention and is practised in a variety of ways. It is usually implemented by dietitians.

Drop out: A term no longer used to indicate leaving a study before its completion (the term 'leaving the study early' is now preferred).

Economic evaluation: Technique developed to assess both costs and consequences of alternative health strategies and to provide a decision making framework.

Eating disorder focused family therapy: A specific form of family therapy that focuses on directly addressing the eating disorder in addition to addressing family and individual issues. The best-tested version (sometimes called the 'Maudsley method') has been manualised by Lock *et al.* (2001).

Eating disorders not otherwise specified (EDNOS): Eating disorders that closely resemble anorexia nervosa and bulimia nervosa, but are considered atypical as they do not meet the precise diagnostic criteria for these conditions.

Effectiveness: The extent to which a specific intervention, when used under ordinary circumstances, does what it is intended to do. Clinical trials that assess effectiveness are sometimes called management trials.

Efficacy: The extent to which an intervention produces a beneficial result under ideal conditions. Clinical trials that assess efficacy are sometimes called explanatory trials and are restricted to participants who fully co-operate. The randomised controlled trial is the accepted 'gold standard' for evaluating the efficacy of an intervention.

Exposure with response prevention (ERP): This form of treatment was originally based on an 'anxiety reduction' model of bulimia nervosa according to which self-induced vomiting negatively reinforces binge eating by removing fears of secondary weight gain (Rosen & Leitenberg, 1982). The model on which it is based has evolved over the years (Carter & Bulik, 1994) and various versions of the treatment have been tested (e.g. Rosen & Leitenberg, 1982; Jansen *et al.*, 1989; Schmidt & Marks, 1989). Each involves repeated exposure to cues that precede binge eating or purging with the response (binge eating or purging) being prevented. The treatment is typically combined with elements of cognitive behaviour therapy. Treatment sessions that involve in vivo exposure may last up to three hours. ERP has been described as 'time-intensive, expensive and logically complicated' (Bulik *et al.*, 1998, p.620).

Family interventions: Family sessions with a treatment function based on systemic, cognitive behavioural or psychoanalytic principles, which may include psychoeducational, problem-solving and crisis management work and specific interventions with the identified patient. With eating disorders, the focus is on the eating disorder and how this impacts family relationships, emphasising in the early stages of treatment the necessity for parents to take a central role in supporting their child's efforts to eat.

Family therapy: See Family interventions.

Feeding against the will of the patient: Using any method of feeding that requires that the individual be restrained to allow the feeding to take place.

Focal supportive psychotherapy: A collective term used in this Guideline for the various types of supportive psychological treatment that have been evaluated in the treatment of patients with eating disorders. These are varied in nature but they have in common their focus on supporting patients in their attempts to address difficulties in their life. Some have included limited emphasis on changing eating habits. These treatments should not be confused with more general forms of supportive psychotherapy or with counselling.

Forest plot: A graphical display of results from individual studies on a common scale, allowing visual comparison of trial results and examination of the degree of heterogeneity between studies.

Guided self-help (GSH): A self-help programme for bulimia nervosa in which a clinical professional provides support and encouragement.

Guideline recommendation: A systematically developed statement that is derived from the best available research evidence, using predetermined and systematic methods to identify and evaluate evidence relating to the specific condition in question.

Insulin purging: The omission or intentional under-dosing with insulin, sometimes done by patients with bulimia nervosa and diabetes.

Interpersonal psychotherapy (IPT): A specific form of focal psychotherapy that is designed to help patients identify and address current interpersonal problems. It was originally developed for the treatment of depression (Klerman *et al.*, 1984) but has been adapted for the treatment of bulimia nervosa (IPT-BN; Fairburn, 1997).

Interpersonal psychotherapy for binge eating disorder (IPT-BED): A specific form of IPT derived from IPT-BN and adapted to suit patients with BED.

Interpersonal psychotherapy for bulimia nervosa (IPT-BN): A specific form of IPT adapted for the treatment of bulimia nervosa (IPT-BN; Fairburn, 1997). In IPT-BN there is no emphasis on directly modifying eating habits; rather, it is expected that they will change as interpersonal functioning improves. IPT-BN involves the same number and pattern of treatment sessions as CBT-BN.

Meta-analysis: The use of statistical techniques in a systematic review to integrate the results of the included studies. Also used to refer to systematic reviews that use meta-analysis.

Number of people leaving the study early: For the purposes of the guideline, the number of people leaving the study early due to any reason is taken as a proxy for treatment acceptability, whereas the number of people leaving the study early due to adverse events is taken as a proxy for treatment tolerability. An exception to this is when the comparison group is a wait-list control, in which case this assumption is not made.

Number needed to harm: The number of people (calculated statistically) who need to be treated to cause one bad outcome. The lower the number needed to harm, the higher the likelihood of harm.

Number needed to treat: The number of people who need to be treated to prevent one bad outcome (i.e. a good outcome). It is the inverse of the risk difference.

Nutritional counselling: See Dietary counselling.

Odds ratio: A measure of the relative benefit of the experimental treatment that can be obtained by dividing the experimental odds by the control odds.

Patient: The terms 'patient' or 'person with eating disorder, anorexia nervosa, bulimia nervosa or binge eating disorder, etc.', are used in this guideline to identify the person presently or formerly with the condition and/or receiving services in the present or past.

Psychodynamic psychotherapy: Regular individual therapy sessions with a trained psychotherapist, or a therapist under supervision, based on a psychodynamic or psychoanalytic model, which use a variety of strategies, including exploratory insight-oriented, supportive or directive activity, applied flexibly, working with transference, but with the therapists using a less strict technique than that used in psychoanalysis.

Psychological treatment not otherwise specified: A residual category that is used for psychological treatments other than those individually specified.

Pure self-help (PSH): A self-help programme for bulimia nervosa which patients follow on their own without the support of a professional.

Quality-adjusted life years (QALY): A form of utility measure, calculated by estimating the total life-years gained from a treatment and weighting each year with a quality-of-life score in that year.

Randomisation: A method used to generate a random allocation sequence, such as using tables of random numbers or computer-generated random sequences. The method of randomisation should be distinguished from concealment of allocation, because if the latter is inadequate selection bias may occur despite the use of randomisation. For instance, a list of random numbers may be used to randomise participants, but if the list were open to the individuals responsible for recruiting and allocating participants, those individuals could influence the allocation process, either knowingly or unknowingly.

Randomised controlled trial (RCT): Also termed 'randomised clinical trial'. An RCT is an experiment in which investigators randomly allocate eligible people into groups to receive or not to receive one or more interventions that are being compared. The results are assessed by comparing outcomes in the different groups. Through randomisation, the groups should be similar in all aspects apart from the treatment they receive during the study.

Refeeding: Increasing nutritional intake and restoring weight to within a normal range in the treatment of anorexia nervosa

Relative risk: Also known as risk ratio; the ratio of risk in the intervention group to the risk in the control group. The risk (proportion, probability or rate) is the ratio of people with an event in a group to the total in the group. A relative risk (RR) of 1 indicates no difference between comparison groups. For undesirable outcomes, an RR that is less than 1 indicates that the intervention was effective in reducing the risk of that outcome.

Relaxation therapy: A psychological treatment that focuses on enhancing patients' ability to relax physically and psychologically.

Selective serotonin reuptake inhibitors (SSRIs): Medicines that inhibit the reuptake of serotonin into the presynaptic neurone thus increasing neurotransmission. Although they 'selectively' inhibit serotonin reuptake, they are not serotonin specific. Some of the drugs in this class also inhibit the reuptake of noradrenaline and/or dopamine. As a class, these drugs are associated with less anticholinergic side effects and are less likely to cause postural hypotension or sedation.

Self-help: This involves following a self-help programme for bulimia nervosa, either with support and encouragement from a clinical professional (guided self-help) or on one's own (pure self-help). The self-help programmes studied to date have taken the form of self-help books (Cooper, 1995; Fairburn, 1995; Schmidt & Treasure, 1995).

Sensitivity analysis: Sensitivity analysis is a technique used in economic analysis or decision making to allow for uncertainty by testing whether plausible changes in the values of the main variables affect the results of the analysis.

Simplified dialectical behaviour therapy (simplified DBT): A simplified and abbreviated version of DBT.

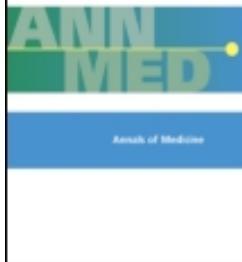
Social skills training: A psychological treatment that focuses on enhancing patients' social skills.

Standard dosage: The recommended dosage range listed in the *British National Formulary*; this normally reflects the information contained in the manufacturers' Summary of Product Characteristics as well as advice from an external panel of experts.

Stepped-care model: A sequence of treatment options to offer simpler and less expensive interventions first and more complex and expensive interventions if the patient has not benefited, based on locally agreed protocols.

Supportive therapy: A non-specific form of supportive psychotherapy.

Weighted mean difference: A method of meta-analysis used to combine measures on continuous scales (such as weight), where the mean, standard deviation and sample size in each group are known. The weight given to each study (e.g. how much influence each study has on the overall results of the meta-analysis) is determined by the precision of its estimate of effect and, in the statistical software used by the NCCMH, is equal to the inverse of the variance. This method assumes that all of the trials have measured the outcome on the same scale.



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A practice guideline for treatment of eating disorders in children and adolescents

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Eating disorders are diseases of both the body and the psyche. Early treatment focuses on restoration of nutritional status and somatic health, including psycho-educational counselling and support offered to the patient and his/her family. Diagnosis and treatment require a multidisciplinary approach. Psychological factors related to the condition should be assessed. The most severe weight loss should be reversed before psychotherapeutic treatment. Nutritional counselling is recommended, and the benefits of individual and/or family therapy are considered in accordance with the patient's age, development, symptomatology and comorbid psychiatric disorders. Medication is useful in the treatment of bulimia nervosa and certain comorbid symptoms of anorexia nervosa. Early admission to treatment and active therapy are associated with a more favourable prognosis.

Keywords: adolescents; anorexia nervosa; bulimia; children; eating disorders; guidelines; treatment

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Introduction

The overall objective of this practice guideline is to provide caregivers with an evidence base for informed

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decision-making in the treatment of children and adolescents with eating disorders. In the ICD-10 (International Classification of Diseases, tenth revision) eating disorders are classified as follows: anorexia nervosa (Table 1), bulimia nervosa (Table 2), atypical forms of these, and other forms of eating disorders (2).

This guideline focuses on the treatment of anorexia nervosa and bulimia nervosa, but it can also be applied to atypical eating disorders. Obesity or eating disorders in young children are not covered by the guideline.

The guideline was drawn up by an independent multidisciplinary working group of the Finnish Medical Society Duodecim. Before publication the document was reviewed externally by some 100 organisations, including university departments, hospitals, primary care centres and advocacy groups. The guideline will be continuously updated as new evidence emerges.

Genetic and neurobiological aspects of eating disorders

Anorexia and bulimia nervosa are disorders of unknown aetiology that cluster in families (3). Twin studies show a heritability of 33%–97% for these disorders (4). Anorexia and bulimia are cross-transmitted in families, and the family members of eating-disorder patients often display anxiety disorders, depression and perfectionism in excess of the levels shown by the general population (5, 6). The genetic liability to anorexia may thus be shared to some extent with bulimia and other psychiatric disorders.

The first genome-wide linkage study of anorexia found a susceptibility locus on chromosome 1 (7). A linkage study of bulimia is currently underway. Several studies of candidate genes have detected polymorphisms associated with anorexia. These

include appetite regulators, such as agouti-related protein (8) and uncoupling protein (UCP-2/UCP-3) (9), and genes associated with other psychiatric disorders, such as serotonin receptor 2A (10) and catechol-O-methyltransferase (COMT) (11). Case-control studies have also suggested that polymorphisms of oestrogen receptor 2 (12) and hSKCa3 potassium channel genes (13) may be associated with anorexia. Serotonin 1B and 2A receptors and serotonin transporter genes may play a role in bulimia (14–16). Due to lack of replication and to sample size and stratification issues, these results should be interpreted with caution. Some replication attempts, such as a meta-analysis of serotonin 2A receptor samples, have ultimately failed to show a significant association (17).

Although genetic studies suggest that diverse pathways play a role in eating disorders, the molecular-level mechanisms are still unclear. Most existing studies focus on disturbances in serotonergic transmission. Starvation reduces the levels of serotonin and its metabolite 5-hydroxyindoleacetic acid (5-HIAA) (18); these levels are permanently elevated upon recovery from anorexia and bulimia. Changes in 5-

Key messages

- Care should be based on a mutually agreed defined treatment target.
- Optimal treatment of eating disorders requires a multidisciplinary eating disorders team.
- Refeeding should be initiated slowly in severe malnutrition.
- The most severe weight loss should be reversed before psychotherapy is started.
- Family therapy is more effective than individual psychotherapy in non-chronic adolescents.
- Data on effectiveness of pharmacological treatments in children and adolescents are missing.
- The evidence base for treatment of children and adolescents with eating disorders is limited.

HIAA levels are associated with behavioural traits such as perfectionism, harm avoidance, and obsessive behaviour (19, 20). Serotonin-selective reuptake inhibi-

BOX 1

This practice guideline is based on available scientific evidence retrieved by extensive searches in Medline and the Cochrane Library for original publications. To inform readers about the level of the pooled underlying evidence, treatment recommendations have been coded as follows (1):

Code Level	Definition
A Strong research-based evidence	Several relevant, high-quality scientific studies with consistent results
B Moderate research-based evidence	At least one relevant, high-quality study or several adequate studies
C Limited research-based evidence	At least one adequate scientific study
D No scientific evidence	Expert panel evaluation of other information

Table 1. Criteria for Anorexia nervosa (F50.0) according to the ICD-10 classification.

1. There is weight loss or, in children, a lack of weight gain, leading to a body weight at least 15% below the normal or expected weight for age and height.
2. The weight loss is self-induced by avoidance of 'fattening foods'.
3. There is self-perception of being too fat, with an intrusive dread of fatness, which leads to self-imposed low weight threshold.
4. A widespread endocrine disorder involving the hypothalamic-pituitary-gonadal axis is manifest in women as amenorrhoea and in men as a loss of sexual interest and potency. (An apparent exception is the persistence of vaginal bleeds in anorexic women who are on replacement hormonal therapy, most commonly taken as a contraceptive pill).
5. The disorder does not meet criteria 1 and 2 for bulimia nervosa (F50.2).

Table 2. Criteria for Bulimia nervosa (F50.2) according to the ICD-10-classification.

1. There are recurrent episodes of overeating (at least twice a week over a period of 3 months) in which large amounts of food are consumed in short periods of time.
2. There is persistent preoccupation with eating, and a strong desire or sense of compulsion to eat (craving).
3. The patient attempts to counteract the 'fattening' effects of food by one or more of the following:
 - self-induced vomiting;
 - self-induced purging;
 - alternating periods of starvation;
 - use of drugs such as appetite suppressants, thyroid preparations, or diuretics: when bulimia occurs in diabetic patients they may choose to neglect their insulin treatment.
4. There is self-perception of being too fat, with an intrusive dread of fatness (usually leading to underweight).

Table 3. Common laboratory tests in the diagnostic workup of eating disorders.

Blood count
Sedimentation rate
Sodium, potassium, calcium, phosphorus, chloride
Liver function tests
Blood glucose
Amylase
Thyroid function tests
Celiac antibodies
Acid-base homeostasis
ECG

bitors (SSRIs) suppress anxiety in normal weight individuals, whereas starvation-related tryptophan depletion blunts SSRI response in low-weight anorexics (21). Based on these findings it has been hypothesized that dieting in anorexia suppresses inherently overactive serotonin metabolism and reduces anxiety.

In bulimic patients, tryptophan depletion increases depressive symptoms, mood lability, body image concerns and desire to binge (22, 23). A disturbance in serotonin activity may be associated with these symptoms common in bulimia. The role of neurotransmitters in appetite regulation has recently been reviewed in this journal (24) and elsewhere (25).

Psychological aspects

A number of personality attributes and family factors have been suggested to contribute to the pathogenesis of eating disorders. Both anorexia nervosa and bulimia nervosa are often connected with features of obsessive-compulsive disorder or obsessive-compulsive personality that show a tendency to persist even after recovery from the eating disorder (5, 26, 27).

Family factors that may have relevance include conflict avoidance, abnormal patterns of communication, inadequate boundaries between individuals and ineffective parenting. While such features are commonly present, it is unclear whether they pre- or postdate the onset of the eating disorder (28).

Epidemiology

Studies performed in the Western countries suggest that the prevalence of anorexia nervosa in adolescent girls is approximately 0.2%–0.8% and in boys only about one-tenth of this (29, 30). The prevalence of bulimia nervosa in adolescents is similar and the lifetime prevalence in women is suggested to be about 1% (29).

Table 4. Indications for outpatient treatment.

Body mass index >13 kg/m ² or >70% of relative weight corresponding to height
High motivation for treatment
No severe medical disturbances
Supportive family and social network
No previous hospitalizations for anorexia nervosa

Comorbidity

Some studies present as high as 70%–80% lifetime comorbidity of other psychiatric disorders in school-age patients with eating disorders (31–33). In a recent study about one third of the children and adolescents with anorexia nervosa had a comorbid depressive disorder, and in most of the cases the eating disorder preceded the mood disorder (34). However, food avoidance was also part of the symptoms of emotional disorders. Substance abuse problems and, in later adolescence, personality disorders are especially common in bulimia nervosa (35). Patients with purging behaviour (vomiting, use of laxatives or diuretics) display other psychiatric problems more often than other patients with eating disorders. Suicide attempts and other self-destructive behaviours are also more common in this patient group (26).

Female patients with anorexia nervosa develop oestrogen deficiency and become amenorrhoeic (36). Women with active bulimia nervosa may have reversible occurrence of polycystic ovaries (37, 38). Patients with anorexia have a decreased bone mineral density and an increased risk of fractures (39, 40). The duration of amenorrhoea as well as the degree and duration of thinness correlate with the degree of osteoporosis (41–43). Bone loss in anorexia nervosa is multifactorial, including such causative factors as oestrogen deficiency, vitamin and micronutrient deficiencies, and hypercortisolism (44). Especially, low levels of insulin-like growth factor I, a nutritionally dependent bone trophic factor with known effects on osteoblast function, and low levels of dehydroepiandrosterone sulphate, may also contribute to reduced bone density in anorexia patients (42, 45). Absorption of calcium is reduced and bone resorption is increased (46). In bulimia nervosa, menstrual disturbances are common (47, 48), but bulimia has no major effect on bone mineral density (47, 49).

Prevention

Contradictory data do not allow for any firm recommendations on prevention programmes for eating disorders in children and adolescents. No type of preventive intervention has demonstrated clear effec-

Table 5. Indications for inpatient treatment.**Somatic indications**

- Body mass index <13 kg/m² or <70% of relative weight corresponding to height or a rapid loss of weight (25% in 3 months)
- Severe disturbances of electrolyte or metabolic homeostasis
- Systolic blood pressure <70 mmHg or heart rate <40/min or aberrant ECG

Psychiatric indications

- Psychotic symptoms
- Severe self-harm or tendency towards suicide
- Severe depression
- Severe problems within family

Failure of outpatient treatment

tiveness (50) (B). School health services play an important role in early detection of problems.

Somatic examination*History*

Assessing eating and physical exercise habits and reviewing growth patterns is essential in determining the severity of the disturbance. Age at menarche and menstruation history, especially weight during the last normal menstruation cycle, are helpful in determining the expected weight (51, 52). Vomiting and use of drugs (laxatives, diuretics, ipecac, antiobesity drugs) should also be noted (53).

Assessment of nutritional status

Relative weight (the percentage deviation from the average weight for a given height, which can be read directly in growth charts) is the most useful indicator of nutritional condition in children and adolescents (54). Usefulness of the body mass index (BMI, kg/m²) in children is limited (55, 56). Deceleration or cessation of growth also reflects the severity of the nutritional disturbance. It is not enough merely to monitor the weight, but the growth should be viewed as a whole in young patients. The degree of starvation can also be observed by mere inspection. A tendency to wear loose clothing in order to hide thinness should be taken into consideration.

In clinical examination, apart from the current nutritional condition and growth, attention should also be focused on the phase of puberty, blood pressure, pulse frequency and findings on cardiac auscultation, signs of vasoconstriction and of severe malnutrition, such as oedema and skin signs (dryness, lanugo hair, splitting nails) and teeth (enamel defects) (57).

Laboratory findings

Common laboratory findings (31) in patients with eating disorders include leukopenia, mild anaemia

and thrombocytopenia. Low serum T4 levels, representing a sick euthyroid syndrome, are common. Occasionally, slightly increased serum creatinine and hepatic enzyme levels are found. Rarely a low albumin concentration is observed (58, 59). Electrolyte disturbances (hypokalaemia or hyponatraemia) suggest a severe condition (60), as do electrocardiogram abnormalities (61, 62). Calcium and phosphate concentrations may also be low (63). Serum amylase and chloride as well as the acid-base balance should be tested if vomiting is suspected. It is important to keep in mind that the laboratory findings can be normal even in severe malnutrition.

Other examinations

Brain imaging (computerized tomography, magnetic resonance imaging) and electroencephalogram are relevant only if the presentation of anorexia nervosa is atypical or if neurological findings exist (64, 65). Pelvic ultrasound can be used to assess maturity of the ovarian function. Basal gonadotropin and oestradiol may be determined if amenorrhoea persists after the weight has normalized. Bone mineral density measurement is recommended in patients with a disorder of more than 12 months in length, BMI <15 kg/m² or low calcium intake (43).

Psychiatric examination

A basic evaluation of patients with eating disorders is usually performed in the primary healthcare system, but in-depth investigations of patients with anorexia nervosa should be performed in specialized healthcare facilities. The objective in child or adolescent psychiatric examination is to determine whether the patient is suffering from an eating disorder and whether other concurrent psychiatric symptoms or disorders are present, and to evaluate if the patient's psychological development is appropriate to his/her age and if the disturbance has had an effect on this development.

Child or adolescent psychiatric evaluation includes

an initial interview as well as individual examinations and parental appointments. If necessary, psychological tests are performed. A family examination is also necessary, especially with children or early adolescent patients. During the examination process, a cooperative relationship is established and effort is taken to relieve the anxiety and increase the motivation of the patient and his/her family. The objective is to establish a therapeutic alliance in which the patient's problems and phases of life are discussed, thus sharing the patient's experiences. The patient should be asked about all symptoms described in the ICD-10 (66) separately during the interview, since he/she does not necessarily offer to discuss them. Structured interview methods such as Eating Disorder Examination (EDE) (67), the adapted child version of EDE (68), as well as scoring forms (Eating Disorder Inventory, EDI) (69) can be used for assessment. Eating habits can be monitored using a food diary to be completed at home.

The family is viewed as a system from a number of different perspectives, and support is given to the family members. Treatment should mainly be based on the degree of severity and on the assessment of any associated symptoms, considering the surrounding factors. An eating disorder may reflect a crisis in adolescent development, but it may also be a sign of a severe psychiatric disorder in childhood or adolescence (70). Based on examinations, a treatment plan and a care contract are established in cooperation with the patient and the parents.

Management principles

The treatment mode of choice is outpatient treatment (71) consisting of psychiatric treatment and correction of nutritional status. Weight expectations are gradually moved up closer to the average weight for a given height, but as the general situation improves, attention should increasingly be paid to psychiatric well-being. Optimal treatment of eating disorders requires cooperation between a multi-professional eating disorder team, the patient and the family.

Nutritional treatment

Nutritional treatment is planned individually in cooperation between the patient, family, dietitian and treating team. The patient's eating habits and use of nutrients are reviewed and the energy requirement determined. The objectives of nutritional treatment are weight restoration, a normal and balanced diet, and ability to eat naturally in various social situations (72, 73). Family meals may help in enabling the parents to assist their child to eat at home (D).

It is imperative that *a target weight* be defined. The target weight should enable a normal menstruation cycle, preferably with a few additional kilograms. Menstruation usually resumes when the weight reaches 90% of relative weight, which is a good initial objective (74). The target weight is moved up along with growth, and in a later phase of treatment the objective should be set to normal BMI or 100% relative weight, which is a good objective for premenarcheal patients with anorexia nervosa (54). Achievable intermediary weight targets may be beneficial and should be set in collaboration with the patient.

An individually tailored diet with some degree of flexibility may increase the patient's perception of self-control and enable acceptance of the weight gain (75). Patients are encouraged to eat a versatile diet including food that they earlier avoided. The amount of dietary fat, for instance, should be consistent with nutritional recommendations. The number of daily meals should be adjusted individually, according to the patient's ability to tolerate the anxiety caused by frequent eating or feeling full after more substantial meals (76, 77) (C). Exchange lists grouping together foodstuffs similar in nutritional content can be used to increase flexibility in composition of meals (78). This may help reduce the obsessive calculation of energy contents and promote development of normal eating behaviours particularly for more mature adolescents (78) (D).

When necessary, the diet is complemented with vitamin and mineral supplements and versatile nutritional supplements. For those on a vegetarian diet, special attention is focused on sufficient intake of iron and zinc (79). Diet-related questions are discussed and changes agreed upon together in the treatment team, and all parties involved in the patient's care are informed.

During hospital treatment, patients are mainly served basic hospital meals, thus providing an example of a normal balanced diet. Those following a strict vegetarian diet can be served lactovegetarian meals containing milk and eggs. The dietitian can monitor the patient's meals and give feedback on his/her eating behaviour. Videotaping has been used as a supportive measure for feedback (80) (C). A treatment programme including computer aided support in experiencing satiety combined with resting after meals in warm surroundings was more effective than no treatment (81) (C), but has not been compared with standard treatment.

The main principles of nutritional treatment are the same for bulimia and anorexia nervosa. In bulimia nervosa, however, a further objective is the breaking of the vicious circle between dieting and binge-eating. The patient is given instructions on sufficient and regular eating. Preplanned model, sample meals, or a food diary can be useful (72, 78).

Reversing severe malnutrition

If the weight is very low (less than 70% of relative weight), reversing the nutritional condition should be initiated slowly enough to avoid cardiovascular problems and the refeeding syndrome (hypophosphataemia, arrhythmia, delirium). Monitoring the phosphorus concentration in serum is recommended (82, 83) (C), especially during first week of treatment, which is the most critical period. In the beginning phase of treatment, the minimum energy need may be as low as 800–1000 kcal/day due to hypometabolism, but the most common energy requirement is 1000–1200 kcal/day (84). As the nutritional condition improves, the need for energy increases, and can be assessed by monitoring the patient's intake of food and development of his/her nutritional condition or mathematically with the corrected Harris-Benedict formula (85). The recommended energy intake is approximately 130% of the mathematically estimated need for energy.

In restricting-type anorectics, slow weight gain may be explained by postmeal thermogenesis in the beginning phase of nutritional treatment, (76, 77). These patients may require up to 30%–50% more energy in order to gain weight and keep the weight steady than those with binge-eating (86) (C).

Nutritional rehabilitation may be facilitated by setting well-defined goals in a *care contract*, and by using rewards when the goals are reached. Daily weighing is not necessary; a sufficient interval is three times per week (87) (C).

There are only limited data available on the use of *enteral feeding* in the treatment of young patients with anorexia nervosa (88, 89). This can be resorted to when natural nutrition fails, especially in critical situations during the early treatment phases, and even in these situations this has to be discussed in advance with the patient and his/her family. Supplemental nocturnal nasogastric feeding may improve weight restoration during hospitalisation (88) (C).

Physical exercise

During re-establishment of the nutritional condition the weight restoration can be accelerated by limiting physical exercise. At a later stage, instructed physical exercise may be beneficial, since it is assumed to reduce excessive physical exercise and unrealistic thoughts of obesity and to improve compliance with treatment (90) (D). In bulimia, physical exercise has been observed to be positively associated with bone mineral density (47) (C).

Some patients with anorexia nervosa have an unrealistic perception of their body. In most cases, however, the disturbance of body image is more likely

to reflect a negative attitude to one's own body than a disturbed perception of its size (91–93) (C).

Dental treatment

Bulimia, and especially vomiting associated with it, often causes severe dental erosion, and the teeth of patients with anorexia nervosa may be damaged (94). Rinsing the mouth with water or a neutralizing solution after vomiting can be used to prevent this erosion. Regular tooth brushing twice a day with toothpaste rich in fluoride, individually considered fluoridation treatments and the use of remineralizing solutions are recommended. Patients should not brush their teeth immediately after purging as the acid can damage the enamel (95) (D). The patient should be referred to semiannual dental examinations (94, 96, 97) (C).

Psychotherapy

Full-scale psychotherapy should not be initiated during the acute reversing phase of the nutritional condition, but the treatment relationship should focus more on the day-to-day handling of the situation (98). More weight gain has been observed in patients who have started the actual psychotherapy only after the most severe malnutrition has been reversed (99) (C).

Studies on the efficacy of *individual psychotherapy* have been conducted mainly with adult patients. Cognitive Behavioural Therapy (CBT) is effective for binge-eating symptoms in patients over 16 years of age (100–103) (A). However, CBT has not unambiguously proved to be more efficient than other forms of psychotherapy or CBT performed by using a self-care guide. In a single study, CBT and interpersonal psychotherapy (IPT), which focus on current interpersonal relationships, contributed to remission of bulimic periods and improved self-esteem and social coping in adult patients more effectively than behavioural therapy (101–103). In another study, CBT was more effective than IPT in reducing binge-eating and purging in adult patients (104).

If used, sufficiently long therapy is necessary in anorexia nervosa. It takes time for a therapeutic alliance to form and it is essential that the patient be made to feel that the therapist understands him/her emphatically and will thus support his/her inner growth (105) (D). Recovery from severe anorexia nervosa demands a change in the way of thinking and mode of action (106). Very limited evidence is available on the outcome of psychodynamically oriented treatment (107).

In the treatment of adolescent patients with anorexia nervosa the efficacy of short-term individual

therapy, as measured by weight restoration and normalization of eating behaviour, does not differ significantly from the efficacy of intensified nutritional counselling. Social and sexual adaptation appears to be more favourable for those who have received psychotherapy, whereas weight gain is slightly, but not significantly, better for those who have received nutritional counselling (108) (C).

Group psychotherapy combining cognitive behavioural and psychodynamic elements may be useful in the treatment of patients with bulimia nervosa (109, 110) (D). Initial results are better if prompt relief of symptoms is a clearly defined objective. The results are more permanent if there are additional group psychotherapy sessions at shorter intervals (111) (C). Group psychotherapy has also been used as an additional treatment for anorexia nervosa, but there are only limited data available on its efficacy.

Group psycho-education is used especially for the treatment of bulimia. After a psycho-educational period, individual CBT may be useful (112, 113) (C). Parents of patients with eating disorders have found therapist-led parental groups to be useful (114, 115) (D).

Family therapy is often used as one form of treatment for anorexia nervosa (59). There are several studies concerning the effectiveness of family therapy in anorexia nervosa. Despite some weaknesses in the studies, it can be concluded that family therapy of systemic nature is more effective than individual therapy in adolescent patients with anorexia nervosa whose disorder has not become chronic (116–123) (B). Psycho-education directed to family groups may be as efficient as family therapy. Family therapy has been used with other forms of treatment, e.g., combined with individual psychotherapy (123). Even if the treatment does not include any family therapy, attention should be paid on the family in different phases of the treatment.

Psychopharmacological treatment

Anorexia nervosa

Antidepressants do not improve weight restoration in adult patients with anorexia nervosa during the early phases of treatment (124, 125) (C). It may be of benefit to use fluoxetine as supportive medication in the continued treatment of those who have attained normal weight (21, 126, 127) (C).

Use of anxiolytic medication has been justified by the fact that anxiety is common in patients with anorexia nervosa. Administration of short-acting benzodiazepine 30 minutes before meals may relieve eating-related anxiety (128, 129) (D).

Patients with anorexia nervosa who suffer from

malnutrition have a significant risk of severe medication-related adverse effects (130). The medication should be initiated at the lowest dose possible. Decisions on initiating psychopharmacologic treatment are normally justified only after the weight has attained the normal range. The choice of medication should be based on persistent psychiatric symptoms, such as depression, obsessive-compulsive symptoms or psychosis.

Bulimia nervosa

Antidepressants have been shown to reduce binge-eating and vomiting (131) (A). However, there are no controlled published studies on drug treatment of patients under 18 years of age. Compliance with treatment has been better for adult patients on fluoxetine compared with patients on tricyclic antidepressives (131). Various antidepressives reduced bingeing and vomiting by 50%–70% in studies where patients over 18 years of age were treated for 2–4 months (131). As for long-term results, the efficacy is not equally positive. Even if the symptoms are relieved during medication, only a minority (less than one-third) of those receiving the medication are symptom-free despite continued medication, and symptoms recur in approximately one-third of the cases (132, 133). Patients with bulimia nervosa who do not benefit from one antidepressive agent may benefit from switching to another (134). The anti-epileptic drug topiramate has shown efficacy in reducing bingeing and associated purging in adult bulimics (135) (C). The opiate antagonist naltrexone has not been observed to affect the frequency of bingeing or vomiting (136) (C). Medication is useful as an additional treatment in psychotherapeutic (cognitive behavioural) treatment for patients over 18 years of age (137) (A). There is no evidence justifying the use of medication as the only or primary treatment for bulimia in children or adolescents.

Supplement drug treatment

Evidence for the efficacy of *hormone replacement therapy* in the treatment of patients with anorexia nervosa is weak (138–141) (C), and therefore its use should always be considered individually. In the only randomized study available, hormone replacement therapy improved bone mineral mass only in patients with anorexia nervosa whose baseline weight was less than 70% of ideal body weight (141).

Calcium (1000–1500 mg/day) and vitamin D (400 IU/day) (44, 142) have been recommended for patients with anorexia nervosa (D), although the benefits have not been established. Supplemental zinc has not been shown to be of benefit in the treatment of

patients with anorexia nervosa (143, 144) (C). Osteoporotic women with anorexia nervosa may increase their bone density by treatment with recombinant insulin-like growth factor I (145, 146) (B), and dehydroepiandrosterone appears to normalize bone turnover in young women with anorexia nervosa (147) (C), but these new treatment modalities are rarely used as treatment of osteoporosis in anorectic patients. There are no randomized studies available on other medications (alendronate, etidronate, calcitonin, or raloxifene). Their use for anorexia nervosa is not currently recommended.

Scaling of the treatment

The decision on the immediate hospitalization of a patient with anorexia nervosa should be based on an evaluation of the patient's physical and psychiatric situation and behaviour (148). Whether treatment in a somatic or a psychiatric ward is to be preferred should be determined by what the patient's most severe problems are, the local treatment resources and the skills and capabilities of the care personnel with regard to the patient's problems.

A majority of patients with uncomplicated bulimia do not require hospitalization. Grounds for hospitalization include severe somatic complications, self-destructiveness, other psychiatric disorders requiring hospitalization, concomitant severe alcohol or drug abuse problems, or severe or debilitating symptoms that have not been relieved in outpatient care.

Psychiatric inpatient treatment

Inpatient treatment of patients with eating disorders requires close cooperation and clearly established responsibilities among the members of the multidisciplinary team (58, 149) (D). The staff should have knowledge of the biopsychosocial pathophysiology of eating disorders and the countertransferrential emotional reactions that patients with eating disorders may provoke in caregivers (150) (D). In situations where the patient refuses inpatient treatment although his/her psychiatric or somatic status is life-threatening, involuntary treatment should be initiated (151, 152) (D). Involuntary treatment of adolescents should be performed separately from adults. Study results support intensive early treatment of adolescent patients with anorexia nervosa (58).

The treatment should be focused on both somatic and psychiatric problems. Initially the main focus is on reversing the nutritional condition and normalizing the eating habits. Behavioural therapeutic techniques can be used as an aid. A more lenient, individually composed treatment programme is as efficient as a strict controlling programme and

supports young people's ability to take care of themselves (153, 154) (C).

The hospital environment should offer clearly established rules as well as support and understanding. It is crucial to provide the patient and the parents with information on eating disorders, their motivation being essential for the treatment to be successful. In counselling and psychotherapy, it is recommended to combine different methods (nutritional counselling, psycho-education, cognitive behavioural therapy, psychodynamic psychotherapy, family therapy, self-care and supportive groups) and plan the treatment individually (anorexia nervosa is a heterogeneous disorder) (155). Supporting the family is important in all phases of the treatment.

There is no established information available on the optimal length of hospitalization. The risk of relapse is the smaller the closer the weight attained at discharge is to the ideal weight (156) (D).

Prognosis

Mortality among patients with anorexia nervosa is approximately 5%–10%, which is higher than mortality in populations within the same age range or mortality caused by most other psychiatric disorders (157–160). The prognosis is impaired by the severity of the disorder, a low BMI ($<13\text{--}15\text{ kg/m}^2$) and a prolonged period of illness prior to initiation of treatment (161–164). Approximately half of patients with anorexia nervosa recover, in 30% the symptoms persist and in 10%–20% the disorder becomes chronic (106, 159, 165, 166). Intensive care is considered to improve the prognosis (167) (C). Obsessive-compulsive disorders (168), depression and personality disorders (165) occur in patients later on.

In anorexia nervosa, menstruation resumes within 6 months in 80%–90% of patients achieving approximately 90% of the ideal weight (169). After recovery, the bone mineral density may persist at a lower level compared with the controls, which can predispose to fractures (41, 170, 171).

During pregnancy and the prenatal period, closer monitoring than usual is recommended (172, 173) (C). In the treatment of underweight-related infertility, increasing the weight is the primary concern. The risk of giving birth to small-for-date babies is increased in anorexia nervosa, especially after ovulation treatments, as is the risk of premature delivery and perinatal mortality (174–176).

Bulimia nervosa is a periodic disorder. The number of symptom-free patients increases with a prolonged follow-up, and approximately half of the patients become completely free of eating disorder symptoms (177–179). A long illness history prior to initiation of treatment as well as drug dependence and vomiting

Table 6. Quality criteria for treatment of eating disorders in children and adolescents.

1. Is there a documented local treatment programme for eating disorders?
2. Which percentage of identified eating disorder patients receive treatment as deemed necessary (have not dropped out of care)?
3. Which percentage of eating disorder patients referred to secondary care is seen for a primary workup within two weeks?
4. Which percentage of referred eating disorder patients receives a multidisciplinary secondary care workup, including child or adolescent psychiatric examination, medical examination and family interview?
5. Which percentage of eating disorder patients has a written treatment plan that has been communicated to the patient and his/her family?
6. Which percentage of eating disorder patients and their families has received psycho-education, including written material?
7. Which percentage of eating disorder patients has received dietitian consultation?
8. Which percentage of eating disorder patients receives weighing and documentation of weight at regular intervals?
9. Which percentage of eating disorder patients receives regular psychotherapy or other specific psychosocial treatment?
10. Which percentage of hospitalized eating disorder patients has been released from hospital by a common decision made in cooperation with the patient and his/her family?
11. Which percentage of eating disorder patients has a non-scheduled rehospitalization within a year after release from hospital?
12. What is the mortality of treated eating disorder patients in the area?

related to the final phase of the treatment period impair the long-term prognosis (178, 180).

Quality criteria

The working group recommends that the quality of treatment for eating disorders in children and

adolescents be monitored using the criteria presented in Table 6.

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GUIDELINE

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Management of eating disorders for people with higher weight: clinical practice guideline

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Abstract

Introduction: The prevalence of eating disorders is high in people with higher weight. However, despite this, eating disorders experienced by people with higher weight have been consistently under-recognised and under-treated, and there is little to guide clinicians in the management of eating disorders in this population.

Aim: The aim of this guideline is to synthesise the current best practice approaches to the management of eating disorders in people with higher weight and make evidence-based clinical practice recommendations.

Methods: The National Eating Disorders Collaboration Steering Committee auspiced a Development Group for a Clinical Practice Guideline for the treatment of eating disorders for people with higher weight. The Development Group followed the 'Guidelines for Guidelines' process outlined by the National Health and Medical Research Council and aim to meet their Standards to be: 1. relevant and useful for decision making; 2. transparent; 3. overseen by a guideline development group; 4. identifying and managing conflicts of interest; 5. focused on health and related outcomes; 6. evidence informed; 7. making actionable recommendations; 8. up-to-date; and, 9. accessible. The development group included people with clinical and/or academic expertise and/or lived experience. The guideline has undergone extensive peer review and consultation over an 18-month period involving reviews by key stakeholders, including experts and organisations with clinical academic and/or lived experience.

Recommendations: Twenty-one clinical recommendations are made and graded according to the National Health and Medical Research Council evidence levels. Strong recommendations were supported for psychological treatment as a first-line treatment approach adults (with bulimia nervosa or binge-eating disorder), adolescents and children. Clinical considerations such as weight stigma, interprofessional collaborative practice and cultural considerations are also discussed.

Conclusions: This guideline will fill an important gap in the need to better understand and care for people experiencing eating disorders who also have higher weight. This guideline acknowledges deficits in knowledge and consequently the reliance on consensus and lower levels of evidence for many recommendations, and the need for research particularly evaluating weight-neutral and other more recent approaches in this field.

Keywords: Guideline, Atypical anorexia nervosa, Bulimia nervosa, Binge-eating disorder, Other specified feeding or eating disorder, Obesity

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Plain English summary

The objective of this project was to develop recommendations and clinical considerations to guide clinicians in the management of people experiencing eating disorders who also have higher weight. A Guideline Development Group was formed containing members with academic and/or clinical expertise and people with a lived experience of eating disorder. The guideline was not only informed by reviews of the scientific literature but also clinical expertise and lived expertise. This guideline has undergone extensive review and consultation over an 18-month period involving reviews by key stakeholders, including experts and organisations with clinical, academic and/or lived expertise. The guideline outlines a set of recommendations for clinical practice including the strong recommendation for psychological treatment to be offered as the first treatment for an eating disorder in people who are of higher weight. Considerations in clinical practice including weight stigma, care by professionals from disparate disciplines, and cultural considerations are also discussed. The Guideline Development Group acknowledges a lack of available research evidence specific to people experiencing an eating disorder who are also of higher weight and consequently some recommendations relied on consensus of group members taking into account the expert reviews. The Group also identified areas where additional research is necessary such as research evaluating weigh-neutral and other more recent approaches in the field.

Introduction

Executive summary

Eating disorders are serious, complex and potentially life-threatening mental illnesses. While historically, eating disorders have been conceptualised as disorders of people of low body weight¹ there is now substantive evidence that this is inaccurate. The most common eating disorders are binge-eating disorder, other specified feeding or eating disorder (OSFED) and bulimia nervosa, and these occur in people across a broad range of body types [1]. Eating disorders are common and increasing in prevalence. This is particularly true for people with eating disorders who are of higher weight. This population comprises more than half of all people with an eating disorder in Australia with rates of eating disorders increasing most in people with higher weight [2].

A key rationale for this guideline (see Box 1) is that despite the high prevalence, eating disorders in people with higher weight have been consistently under-recognised and under-treated. People with a lived experience of an eating disorder who are of higher weight report being misdiagnosed, dismissed by health professionals and sidelined or excluded from eating disorder treatment services. This population is also often absent from eating disorders research, with the exception of binge-eating disorder. Weight stigma is a major factor contributing to these shortfalls and is addressed in this guideline. This guideline aims to promote weight-inclusive practice and provide advice on how to avoid weight stigmatising practices for people with an eating disorder who are of higher weight.

The aim of this guideline is to synthesise the current best practice approaches to the management of eating disorders for people who are of higher weight, based on the premise that every person with an eating disorder is deserving of equitable, safe, accessible, and evidence-based care regardless of their body size. It accords with the role and function of the National Eating Disorders Collaboration (NEDC) to synthesise research evidence, clinical expertise and lived experience in national standards to improve systems of care for all Australians. While it is important to recognise eating disorders in people with 'severe obesity' or those presenting for bariatric surgery, it is important to note that the aim of this guideline is not to address weight loss or treatment of 'obesity'.

In 2019, the NEDC Steering Committee auspiced this guideline and a Guideline Development Group was formed containing academic and/or clinical expertise, and/or lived experience from diverse disciplines. Modelled on the 'Guidelines for Guidelines' process outline by the National Health and Medical Research Council (NHMRC), the guideline was not only informed by recent systematic reviews, meta-analyses and primary trials, but also clinical expertise and lived expertise. It should also be noted that the voice of lived experience is largely absent in the literature. This guideline has undergone extensive peer review and consultation over an 18-month period involving reviews by key stakeholders, including experts and organisations with clinical and/or academic expertise and/or lived experience.

This guideline is intended for all health care professionals and does not present specialist information for any specific discipline. It does not aim to provide recommendations on prevention or detection but does provide advice on assessment. The guideline addresses treatment and/or management recommendations,

¹ Up to the inclusion of bulimia nervosa in DSM-III in 1980 [1], the only eating disorder that was recognised was anorexia nervosa, historically associated with a low BMI.

Box 1 Lived experience perspectives: why we need this guideline

"In hindsight, I've lived with disordered eating since I was a child. It emerged following some traumatic experiences, but my eating disorder wasn't first identified until I was 19 years old and presented at my General Practitioner [in the United Kingdom (UK)] for treatment for another mental illness. At that time, the eating disorder services in my area only accepted people with a low body mass index (BMI). Since moving to Australia at age 21, it's been a long journey of trying to access appropriate treatment, with periods where I've been well and managing, and several periods when I've relapsed. Currently, at age 32, I'd say I'm mostly well, but I still have periods where I binge, and others where I restrict 'to compensate', and food and eating remains something I'm hyper-vigilant about."

I feel very privileged to have been able to contribute to the development of this treatment guideline. For much of my recovery, I feel like I have been doing it alone, as I have struggled to access compassionate, equitable and effective treatment options for my eating disorder, as it presents in my higher weight body.

The most significant help I have received is access to high quality, trauma-informed psychological support. For so long, I believed—and others fed my belief—that my body was the way it was because of some inherent failure on my part. I've lost count of the number of times I've simply been told to 'eat less, and exercise more' (including by mental health professionals). That was never going to work for me—I needed psychological support that helped me to understand why I eat the way I do, and to provide me with other coping mechanisms when I need them.

Holistic care has also been central to this—health professionals across the range of services that I have accessed who understand my needs as a person with an eating disorder, whatever my weight. That means, a GP who understands that my eating disorder has prompted nutritional deficiencies, and treats them compassionately alongside my mental health needs, and a personal trainer who has taught me to love exercise for the way it makes me feel, not as a punishment.

But along the way, I have also experienced a lot of bad care. Health professionals who have made me feel ashamed for my weight and dismissed my concerns because I don't look like the stereotypical eating disorder patient. They have frequently centred my weight and weight loss as the primary goal for my health—as though I wasn't aware I was living at a higher weight! I've experienced a range of treatment from dismissive to outright discriminatory. Far from helping me recover, this care makes me feel worse about myself, usually leading to a worsening of my mental health (and often weight gain). I hope this guideline demonstrate the pernicious effects of weight stigma, right down to the language we use to describe eating disorders as they present in higher weight as somehow different from the same condition at a low weight (e.g., 'atypical anorexia nervosa'). Everyone is deserving of equitable care, regardless of what their body looks like.

Earlier identification and access to support likely also would have helped my recovery. My eating was viewed primarily as a weight issue by me, my family and health professionals, which got me caught in a spiral of thinking I was never good enough. Support and education for family members would also have helped to communicate what was happening with me and why. There is still a perception that people with eating disorders are thin, young, white women. If you don't fit into this body type, care can be dismissive, and there is an absence of culturally appropriate treatments and supports.

While I've experienced some very bad treatment, some has been good, too. This gives me hope that there's a future for eating disorder treatment without the stigma. I hope too that this guideline showcase the positive and proactive approaches to the treatment and support that works."

-Jo Farmer, lived experience advocate and Guideline Development Group member.

"I grew up chubby and as I entered adolescence and adulthood that became 'overweight' and then 'obese'. I have a few physical health issues that caused me pain and discomfort and I was told that losing weight would help and I should eat smaller portions and try to exercise more.

The first time I got this advice I was 10 years old. At age 10, I was told by my doctor that no one would ever love me at my current weight and that following his advice would make me healthier and happier. I followed this advice but never lost weight, so I was repeatedly doubted by many different medical professionals, so they repeated their advice. I missed out on a lot of typical teenage experiences by being at the gym and avoiding situations where I'd have to eat with people.

My eating disorder wasn't identified until I was admitted to an inpatient mental health unit at aged 20 but at the time, I wasn't in a place to treat it as depression and anxiety took priority. It took a few years before I was ready to get treatment for it, and I addressed it with my psychologist of the time. I was told advice that over the course of my life I have become very familiar with, eat less and exercise more. If I lost weight, then there'd be less fuelling the issues behind my disordered eating. Or at least that's how it was explained to me.

It took me some time to find a medical team I could feel comfortable with because even after explaining that I had an eating disorder, doctors would still tell me how much easier and better things would be if I lost weight. After 18 years and lots of support from family and medical professionals from various disciplines, I've stopped trying to lose weight and am focusing on healing my disordered relationship with food.

As I get older and my friends and family start having children, I've been worried that they will end up in a similar situation to what happened to me. My hope for these guidelines is that they teach people that eating disorders aren't just for certain body types and that they lead to better supports in place for this under-recognised group, that the young people in my life can get diagnosis and appropriate treatment no matter what they look like.

-Zoe Bower, lived experience advocate.

specifically for people with an eating disorder who are of higher weight. This encompasses, but is not limited to psychological, pharmacological, nutritional, medical, family and activity interventions. Management should address all aspects of an eating disorder, thus interprofessional collaborative practice (ICP) is

recommended, with each clinician practicing within the scope of their profession. Readers are referred to other literature for management of specific medical and other psychological disorders that are often experienced by people who have an eating disorder and are of higher weight.

Box 2 Weight loss and health in people with higher weight

It is common for people with an eating disorder to present seeking weight loss and to weight loss clinical programs [118]. The management of weight loss is outside the scope of this guideline and eating disorder providers should be cautious about engaging in weight loss advice. This guideline also acknowledges that this is an area of high contention in the field of eating disorders. Notwithstanding this caution, clinicians should be aware of the current evidence-based information that non-surgical weight loss is unlikely to be sustained in the longer-term [including behavioural weight loss interventions; 21, 22, 23] and impacts such as metabolic slowing, potential activation of a genetic predisposition to weight regain after weight loss, and the risk of relapse of the eating disorder. Whilst there is broad consensus that medically unsupervised weight loss regimes are likely to be unhelpful for people with eating disorders, no consensus was reached to make a recommendation in this guideline that a person with an eating disorder and higher weight should never attempt a medically supervised weight loss program. However, whilst there may be health benefits of moderate weight loss of 5–10% of body weight, clinicians should be aware of alternative approaches including non-diet weight-neutral approaches [e.g., HAES; 24, 25] with potentially similar health benefits such as improvements in lipid profiles and hypertension. Longer-term studies are needed of such weight-neutral approaches.

Eating disorder clinicians may advise and/or work in a multi-disciplinary metabolic, bariatric or similar medical clinic. This may be appropriate to support the essential need for screening, assessment and care of people with eating disorders presenting to such providers, and to increase awareness of weight stigma impacting on practice in such settings. In this context it is important to emphasise the importance of interprofessional collaborative practice (ICP; see “Management overview” section) and respecting the preferences of the person with the eating disorder and those who care for them. The presence of an eating disorder should not delay and does not preclude treatment for other medical/psychological conditions.

It is hoped that this guideline will assist health care professionals in all relevant fields to understand the needs of people in their care who have an eating disorder who are of higher weight, and support the clinician in providing appropriate management of the eating disorder. Moreover, it is hoped that clinicians are more aware of, and responsive to, the adverse effects of weight stigma on the lives, health and treatment seeking of people with eating disorders who are of higher weight. This guideline acknowledge deficits in knowledge and consequently the reliance on consensus and lower levels of evidence for many recommendations, and the need for research particularly evaluating weight-neutral and other more recent approaches in this field.

Scope

The aim of this guideline is to synthesise the current best practice approaches to management for people with an eating disorder who are at higher weight. The focus is on the treatment of the eating disorder (see “Background to eating disorders and how they occur” section for a definition of eating disorders), experienced in people living with higher body weight. The aim is not to address weight loss or “treatment of obesity”.

This guideline is intended for all health care professionals and does not present specialist information for any specific discipline. Where applicable, readers will be directed to resources for the latter. It is also not aiming to provide formal recommendations on prevention but does discuss clinical considerations of identification and assessment.

This guideline was developed within the Australian context and thus includes reference to Aboriginal and Torres Strait Islander peoples. However, it is anticipated to be relevant more widely as representing current

knowledge and best health practice broadly. For this reason we have chosen to publish in international literature where it comes under scrutiny with international review. As the focus of this guideline is on the management of eating disorders, the outcomes considered are those relevant to the eating disorder. General physical and mental health-related quality of life are relevant as secondary outcomes. A reduction in body weight, or stabilisation of fluctuating body weight in itself is not an outcome or goal of treatment of an eating disorder experienced by people with higher weight. Further, it is possible that attempts at weight loss may exacerbate eating pathology and therefore may be contraindicated in some people (see Box 2).

Notwithstanding that, we acknowledge that some people with significant medical co-occurring conditions or those presenting for bariatric surgery may require and seek significant weight loss, in the presence of diagnosed or undiagnosed eating disorders. We also acknowledge the complexities for people experiencing an eating disorder who are undergoing bariatric surgery and other weight loss regimes. While the management of obesity is not within the scope of this guideline, it is hoped that this guideline will assist health care professionals in all relevant fields to understand the needs of people in their care with an eating disorder, refer appropriately, and work collaboratively with other health professionals providing care and treatment for people experiencing eating disorders.

Weight stigma

Weight stigma is the disparaging association of higher weight with negative personal characteristics [3]. ‘Weight stigma’ in this guideline is used to mean the occurrence of discrimination against or stereotyping of a person

based on their weight, size or shape [4]. Other terms used are 'sizeism', 'weight/size oppression', 'weightism', 'weight/size bias', 'weight-based discrimination' and 'fat phobia'.

Internalised weight stigma occurs when an individual upholds these disparaging associations towards their own body weight. Stronger internalised weight stigma predicts greater eating disorder psychopathology, higher levels of body dissatisfaction and poorer quality of life [5] and is common among people seeking bariatric surgery [6]. Stigma may also extend to the negative impacts of weight-stigma in parents of higher weight children [7].

Weight stigma has serious adverse impacts on the lives, health and treatment seeking of people with higher weight. Weight stigma may lead directly to disordered eating via complex neurobiological mechanisms, or with the aim of reducing the emotional distress it causes [8, 9]. There is active investigation into neurobiological mechanisms of weight stigma and the relationship with disordered eating [e.g., the research of 9–11]. Understanding and addressing weight stigma is crucial to the care of people with higher weight. Experiences of weight stigma, body shame or other negative emotions such as guilt are traumatic and may contribute to the onset of eating disorders and increase disordered eating in those with eating disorders [12–14]. Perceiving and experiencing a health care provider as weight stigmatising is associated with disengagement from treatment or health care [15, 16].

An important aspect in addressing weight stigma is in the use of language that avoids stigmatising terms for someone experiencing weight stigma. For this reason, this guideline use the phrases 'people with higher weight' and 'living in a larger body'. Notwithstanding this approach, it is important to emphasise that there is not one universally preferred term for people living in larger bodies and health professionals should discuss preferred language with each person.

Despite being recognised for nearly half a century [17] weight stigma continues to be a major factor in the under-recognition and under-treatment of eating disorders, and especially of eating disorders experienced by people with higher weight. It is not well understood by the broader medical community that eating disorders among people of higher weight are just as serious and life threatening (from medical complications and self-harm) as eating disorders among people at lower weight. In addition, eating disorders at any weight are associated with a high level of psychological distress and psychopathology [18–20]. In reviewing the literature for this guideline, it is notable that the bias applies in both directions. That is, there are major gaps in the literature pertaining to both the treatment of binge-eating disorder (BED) for people at any size, and, more relevant to this

guideline, the treatment of eating disorders other than BED in people at higher body mass indexes (BMIs).

Health professionals may be influenced by societal views on higher body mass and offer treatment tailored to a person's weight rather than their eating disorder (e.g., advising a medication for its appetite suppressing effects rather than binge eating reduction). Health professionals need to be aware of the risks versus benefits of discussing body weight, particularly with people vulnerable to, or who have experienced an eating disorder. This guideline aims to promote weight-inclusive practice and advice on how to avoid weight stigmatising practices for people with an eating disorder who are of higher weight.

Limitations of body mass index (BMI),² language and definition of key terms

Cognisant of weight stigma and other considerations in this guideline, the terms *larger bodied* and *higher weight* includes people with high body mass index (BMI; kg/m²) through low adiposity and high muscle density (i.e., muscle building/athletes in larger bodies), as well as those with high adiposity. It may also include people with high adiposity but normal metabolic health indices and no physical health co-occurring conditions [27] although these may develop in the future. Thus, this guideline does not define higher weight by a BMI cut off but rather focusses on a conceptualisation of a larger body that includes people who may be impacted socially and by the health system by standard BMI cut off points.

Historically BMI has been and continues to be widely used as an indicator of risk relating to physical health status. However, it is acknowledged that there are limitations to sole reliance on BMI [28]. As noted above, body composition can be highly variable in people with the same BMI and is influenced by many factors such as age, sex, race and muscularity. BMI has utility as a chronic disease risk marker in a population but should be used with other indicators of health status for a person. In individual assessment, other anthropometric, biochemical and behavioural measures may include waist circumference, blood pressure, blood glucose and lipid profiles. In children and adolescents, the height and weight growth velocity is preferred to the BMI. For all people it is more useful, if possible, to consider the person's pre-illness growth trajectory as likely to be close to their 'normal' or 'natural' body habitus. This trajectory should be used to guide assessments of nutritional repletion and physical recovery. It is also important to note that people living

² When BMI is used in this guideline it is broadly based on the World Health Organization (WHO) BMI categories for adults over 20 years old, i.e.: BMI < 18.5 is underweight; BMI 18.5–24.9 is adequate weight; BMI ≥ 25 is overweight; and, BMI ≥ 30 is in an obese weight range [26].

Table 1 Overview of DSM-5 diagnostic criteria for eating disorders

	Anorexia nervosa	Bulimia nervosa	Binge-eating disorder	Avoidant/restrictive food intake disorder (ARFID)	Other specified feeding or eating disorder (OSFED)
Overvaluation weight &/or shape	Required	Required	May be present	Not present	May be present
Fear of fatness and/or behaviour preventing weight gain	Required	May be present	May be present	None but food is restricted	May be present
Underweight	Required ^a	Not present	Not present	May be present	May be present
Unmet nutritional and/or energy needs	Required	May be present	May be present	Required	May be present, likely in atypical anorexia nervosa
Weekly binge eating	May be present	Required	Required with distress and 3/5 descriptors ^c	Not present	May be present, likely in night eating syndrome
Weekly compensation ^b	May be present	Required	Not present	Not present	Likely in atypical anorexia nervosa and purging disorder but is not compensatory to binge eating
Remission specifier ^d	Partial/full	Partial/full	Partial/full	In remission	None
Severity specifier	BMI scale	Frequency of compensation	Frequency of binge eating	None	None

If anorexia nervosa is present, by definition no other eating disorder will be present. If avoidant/restrictive food intake disorder (ARFID) is present, by definition anorexia nervosa and bulimia nervosa are not present. Unspecified Feeding or Eating Disorder (UFED) has no specific criteria

^a In the ICD-11 people with anorexia nervosa who are not underweight (i.e., atypical anorexia nervosa in the DSM-5) can be classified under anorexia nervosa, and this is adopted when referring to treatment of anorexia nervosa in these guidelines (see also "Background to eating disorders and how they occur" section)

^b Weekly compensation can include, but is not limited to severe dietary restriction, driven exercise and/or purging

^c Descriptors include: eating much more rapidly than normal; eating until feeling uncomfortably full; eating large amounts of food when not feeling physically hungry; eating alone because of feeling embarrassed by how much one is eating; or feeling disgusted with oneself, depressed, or very guilty afterward

^d If the criteria are no longer met, the specifier indicates whether the eating disorder is in partial or full remission

in larger bodies, may have been engaged in weight suppression strategies for many years (in some instances, since childhood), and prior to the eating disorder, and thus their pre-illness BMI may yet be weight-suppressed rather than 'natural'.

Context

Rationale for this guideline

Historically, eating disorders have been conceptualised as illnesses of people of low body weight [1] and typified by disorders such as anorexia nervosa. There is now substantive evidence that this is inaccurate. The most common eating disorders are BED, other specified feeding or eating disorder (OSFED)³ and bulimia nervosa, and these occur in people across a broad socio-demographic spectrum and a range of body types. This guideline address the particular issues that arise in the care of people experiencing eating disorders who are of higher weight. These individuals represent over half of all people experiencing

an eating disorder in Australia with rates of eating disorders increasing most in people with higher weight [2]. The issues affecting people with eating disorders who are of higher weight are complex and important. These issues include delayed identification, misdiagnoses in assessment, subsequent inappropriate and inadequate treatment, widespread stigma, and the introduction of new disorders (i.e., anorexia nervosa without low weight). To our knowledge there are no current Australian guidelines to assist health professionals caring for people with both eating disorders and higher weight.

Background to eating disorders and how they occur

The main DSM-5 eating disorders⁴ are described in Table 1. They comprise anorexia nervosa, bulimia nervosa, BED, avoidant restrictive intake disorder (ARFID),

³ OSFED includes presentations that do not meet the full criteria for any of the disorders in the feeding and eating disorders diagnostic class including: atypical anorexia nervosa; bulimia nervosa (of low frequency and/or limited duration); binge eating disorder (of low frequency and/or limited duration); purging disorder; and night eating syndrome.

⁴ There are other syndromes such as orthorexia nervosa, emotional overeating and food addiction which are also disorders of feeding and/or eating. However, they are not considered in the present guideline as they are outside the major intentional diagnostic schemes. Similarly, diabulimia is not a diagnosable eating disorder, but rather a term used to denote insulin misuse as a weight control behaviour and/or compensation for binge eating episodes in people with diabetes and an eating disorder.

Box 3 Trauma-informed care

A relationship between trauma and eating disorders is well established. Adverse experiences (e.g., emotional/physical/sexual abuse, crime victimisation, bullying) across the lifespan, but particularly in childhood are risk factors for the development of eating disorders [89–92]. Moreover, people who are at a higher weight are at greater risk of adverse experiences such as bullying and weight-related victimisation from peers, friends, parents and teachers than their peers without higher weight [93, 94].

Eating disorder treatment, in and of itself, may be traumatising for the person experiencing an eating disorder, especially when there is a lack of collaborative care and the misuse of power relations [95]. Components of eating disorder management such as weighing in a professional's office may provoke intense anxiety, distress, and erode feelings of safety and trust. Thus, a crucial consideration for health professionals working with people with eating disorders who are of higher weight is to practice trauma-informed care through understanding the effects of actions that may be perceived as abusive, traumatic and/or triggering of previous trauma and moderating these actions as appropriate [88]. This is vital across all aspects of management of people with eating disorders who are of higher weight. For a detailed discussion of treatment principles for trauma informed care for eating disorders see Brewerton [88, 96, 97] and Trim et al. [98].

In addition to trauma-informed care, due to the high prevalence of co-occurring trauma and eating disorders, mental health professionals working with people with eating disorders who are of higher weight should also assess the need to incorporate specific trauma specific interventions (such as trauma-focused cognitive behaviour therapy or prolonged exposure) with eating disorder treatment.

OSFED and unspecified feeding or eating disorder (UFED). Only one, anorexia nervosa, is defined by weight (i.e., underweight criteria). Where all features of anorexia nervosa are present except for low body weight, DSM-5 suggests a diagnosis of 'atypical anorexia nervosa'. In most respects the World Health Organization ICD-11 [29] criteria closely match those of the DSM-5, though the ICD-11 does not require low-weight for a diagnosis of anorexia nervosa. For the purposes of this guideline, when providing advice on assessment or recommendations for treatment, the ICD-11 terminology for anorexia nervosa is adopted. That is, anorexia nervosa (code 6B80) is used as a broad term to include people at all body weights and without specifying the underweight criterion (sub coded in ICD-11 as 6B80.0, anorexia nervosa with significantly low body weight). The other eating disorders can occur in individuals across the weight spectrum.

Eating disorders are common and increasing in prevalence. There is a lifetime estimated prevalence of 8.4% for women and 2.2% for men [30]. In Australia, the 3-month point prevalence is around 0.5% for low weight anorexia nervosa, 1% for bulimia nervosa and 1.5% for BED (broadly defined with ICD-criteria) and 3.2% for OSFED [including anorexia nervosa (without low weight) prevalence of 2.5%]. Furthermore, around 10% of people have recurrent binge eating [31] with rates of binge eating increasing most in people with higher weight [2]. A recent meta-analysis suggested lower rates of eating disorders but this may be accounted for by 25% of included studies being from China with large samples and generally low identification of eating disorders in these studies other than anorexia nervosa [32].

Eating disorders are also prevalent in diverse populations including men [33], across sexual and gender minority identities [34], all levels of socioeconomic status [35] and, migrant status [36]. Whilst more prevalent

among adolescents and young people, they can affect people at any age including middle-aged and older adults [35, 37]. There is limited research on the experience of eating disorders in Aboriginal and Torres Strait Islander peoples. However, emerging research suggests that eating disorders are more common in Aboriginal and Torres Strait Islander adults and youth compared with non-Indigenous people [38].

Eating disorders have complex biological, social, and psychological determinants [39]. These include strong heritability and a range of risk factors that are common to and overlap with a predisposition to a higher body size, such as a personal history of trauma (see Box 3) in the formative years of life [40–42]. For people with higher weight, recommendations for weight loss by health professionals without sufficient monitoring, may be associated with the onset of an eating disorder, especially in adolescents [43].

Eating disorders have severe psychological, medical, community, public health, and fiscal consequences [44] with the highest mortality rates of any mental disorder [45] and high global burden—an estimated 6.6 million disability-adjusted life years [46]. Psychological comorbidity occurs in over 80% of people with eating disorders, and more specifically, in over 90% of people with bulimia nervosa or BED. Over 50% of people with bulimia nervosa or BED may have a major depressive disorder, followed by persistent depression, and around 40–50% have experienced anxiety disorders (most commonly generalised anxiety disorder). Also occurring frequently are posttraumatic stress disorder, substance use disorder (particularly alcohol use disorder), followed by a personality disorder [47]. Physical co-occurring conditions are also common. In the Udo and Grilo (2019) study [47], disorders associated with the metabolic syndrome such as hyperlipidaemia and diabetes

mellitus were particularly common, as well as musculoskeletal disorders such as arthritis, fibromyalgia, and sleep problems in people with binge-eating disorder. Osteoporosis was most prevalent in people with low weight anorexia nervosa but also occurred in 6.1% of people with BED, where bowel problems (e.g., inflammatory bowel disease and irritable bowel syndrome) were also higher (around 11%) than in people without an eating disorder.

Current status of treatment and outcomes for all eating disorders⁵

Psychological: first line

The first line outpatient treatment for any person with an eating disorder is an evidence-based psychological therapy delivered by an eating disorder informed and trained therapist [48, 49]. The therapies are described in Table 2. Whilst there are distinct features of these therapies, it should be noted that there are many common elements including but not limited to addressing body image (see Box 4).

Adults Psychological therapies in adults include: cognitive behaviour therapy-enhanced (CBT-E); cognitive behaviour therapy for anorexia nervosa (CBT-AN); Maudsley model of anorexia nervosa treatment for adults (MANTRA), specialist supportive clinical management (SSCM); focal psychodynamic therapy (FPT); interpersonal psychotherapy (IPT); family based treatment; and dialectical behaviour therapy (DBT). Only one, CBT-E is 'transdiagnostic' (i.e., has an evidence-base for use in adults with anorexia nervosa, bulimia nervosa, BED and OSFED types). They are all manualised. Some have been evaluated in group, internet and self-help formats. In particular, cognitive behaviour therapy (CBT) for BED and bulimia nervosa may be delivered by primary care therapists in a guided self-help form. However, abstinence and attrition rates are superior in traditional psychological therapy and guided self-help versus pure self-help modes [49].

Children and youth Family involvement in the treatment of children and adolescents at all levels of care is developmentally appropriate and best practice. A special form of family therapy with a specific eating disorder focus first developed in the UK and later the US (often referred to as the Maudsley model, family based treatment or family therapy for anorexia nervosa) is first line for children and adolescents with low weight anorexia

nervosa and has been adapted for use in other eating disorders such as bulimia nervosa [49–52]. Family therapy (FBT/FT-AN) aims to establish parental management of their child's nutritional recovery before focussing on other psychological and psychosocial issues. It has been found to be effective in a number of randomised controlled trials (RCTs) and is supported by a recent systematic review [53]. If family therapy (FBT/FT-AN) is contraindicated owing to family availability or safety concerns, then a second line treatment should be considered. High levels of family involvement in inpatient and day patient settings are usually a standard part of any program [c.f. 54–56]. Recent research has also explored the use of FBT for transition age youth (17–25 years) with anorexia nervosa, but with a more collaborative stance between parents and the young person that reflects their age [57]. The evidence-base for FBT in this age group is yet to be established.

While there is less evidence for the treatment of adolescents with bulimia nervosa in comparison with low weight anorexia nervosa, the current first line treatment for adolescents with bulimia nervosa is also FBT [58]. Family interventions for BED are yet to be studied. Alongside the published manuals for anorexia nervosa and bulimia nervosa there is also an FBT manual specific to ARFID [59] and a manualised form of CBT developed for children and adolescents with ARFID (CBT-AR) that can be delivered in individual or family based formats [60]. It is undergoing evaluation. People with OSFED are usually treated with the therapy corresponding to the full syndrome (e.g., subthreshold bulimia nervosa and bulimia nervosa).

Family specific interventions for BED are yet to be studied but there are some promising applications of IPT [61] emerging in the literature that focus on preadolescents vulnerable to developing excessive weight gain and BED. In both individual and family formats, IPT has led to improvement in internalising symptoms thought to lead to a loss of control, a symptom of BED. These are promising results given the importance of early intervention in the development of an eating disorder. In addition to IPT there is emerging evidence for CBT and DBT for BED in adolescents. CBT has been shown to be effective when compared to a weight loss treatment at both end of treatment and in the longer term [62] and DBT in reducing BED symptoms, although was not more effective than behavioural weight loss [63].

While family based treatments remain first line for anorexia nervosa and bulimia nervosa there is a need for other treatments to emerge that can specifically address other eating disorders (i.e., ARFID, BED) and non-responders in a similar evidence based way. Current recommended second line treatments for children and adolescents are noted in the next section.

⁵ This section outlines the current status of treatment and outcomes for all eating disorders, including for people who have low weight anorexia nervosa.

Table 2 Overview of main psychological therapies for the management of low weight anorexia nervosa, bulimia nervosa and binge-eating disorder

	CBT-E/CBT-AN^a [143, 311]	MANTRA [312]	SSCM [313]	FPT [99]	IPT [100]	FBT/FT-AN [50, 51]	DBT [101]
Eating disorder indicated evidence base for use	Adults, Older adolescents Transdiagnostic/ Adults with anorexia nervosa	Adults with anorexia nervosa	Adults with anorexia nervosa	Adults with anorexia nervosa	Adults with bulimia nervosa and BED	Children and adolescents with anorexia nervosa and bulimia nervosa	Adults with bulimia nervosa and BED
Theoretical model	CBT formulation & in CBT-E transdiagnostic maintaining factors	Cognitive/Interpersonal-sonal	Atheoretical	Psychodynamic formulation	Interpersonal functions bidirectional relationship with bulimia nervosa/BED symptoms mediated by self-esteem & negative affect	Atheoretical/agnostic'	Understanding the dialectic of opposing views of eating disorder behaviours and their use in distress reduction
Targets	Dysfunctional eating, weight/shape (body dissatisfaction) beliefs, disordered eating	Intra- and interpersonal maintaining factors, e.g., inflexibility	Undernutrition, other 'targets' as personalised goals	Intra- and interpersonal maintaining factors, e.g., low self-esteem	Interpersonal (IP) problem areas: Grief, Role transitions, Role disputes, IP sensitivities	Food restriction and family eating; Other family/adolescent issues	Learning skills in: mindfulness; distress tolerance; emotion regulation; & interpersonal effectiveness
Therapy tools	Behavioural monitoring, behavioural experiments, cognitive restructuring, chain analyses	Motivational interviewing, social integration, cognitive remediation	Psychoeducation, goal-directed and supportive therapy	Exploration of beliefs/ schema, interpersonal therapy goal setting, new behaviours	Exploration of interpersonal function and eating disorder, encouraging affect, clarification, communication analysis, therapeutic relationship	Psychoeducation, externalisation of the eating disorder, family meals with initial parental empowerment to progressing to age-appropriate independent eating	Training in emotion regulation skills; 'meaning making' as acceptance and change; validating the worth of the individual
Mood symptoms	Core mood intolerance module in CBT-E	Emotion skills training	Symptom management	Exploration/analysis of affective-emotional experiences	Encouraging affect; acceptance; effective communication of affect; experience suppressed affects	Symptom management	Addressed through emotion regulation skills and other training

The Table is adapted from Table 2 in Hay, P. (2020). Current approach to eating disorders: A clinical update. *Internal Medicine Journal*, 50(1). Reproduced with permission of the author (Open Access copyright)

BED = binge-eating disorder; CBT-E = cognitive behaviour therapy-enhanced; CBT-AN = cognitive behaviour therapy-for anorexia nervosa; MANTRA = Maudsley model of anorexia nervosa treatment for adults; SSCM = specialist's supportive clinical management; FPT = focal psychodynamic therapy; IPT = interpersonal psychotherapy; FBT = family based treatment; FT-AN = Family Therapy for Anorexia Nervosa; DBT = Dialectical Behaviour Therapy

It was beyond the scope to include all the psychological therapies with emerging evidence for the treatment of eating disorders e.g. Integrated cognitive affective therapy [ICAT]; and readers should not take this as an exhaustive list

^a CBT In Guided Self-Help (CBTgsh) forms are effective for bulimia nervosa and BED

Box 4 Body image

Distressing and distracting eating, weight and shape preoccupations, fear and avoidance of social eating and body exposure, behaviours such as frequent body size checking/weighing, and weight/shape (negative) overvaluation are problematic symptoms across all eating disorders. These symptoms are particularly difficult for people with higher weight where health professionals and others may assume them to be ‘understandable’ or at worst, desirable. For this reason, most psychological therapies (e.g., cognitive behaviour therapy for eating disorders) incorporate specific elements aimed to reduce body dissatisfaction, address weight stigma internalisation and improve body image. In this regard, as part of the decision-making process around weight loss or weight management, the clinician should assist the person to explore the driving factors that underlie the desire to lose weight and offer options for the person to upskill in addressing weight stigma and improve body acceptance.

Table 3 Psychotropic medications commonly used in anorexia nervosa, bulimia nervosa and binge-eating disorder

Psychotropic	Medication/class	Indication	Main effects	Appetite impacts	Other and adverse effects
Antidepressant	SSRI	Bulimia nervosa; BED; Depression	Reduction binge eating Improved mood	Increase or decrease	Generally well-tolerated; may have longer term adverse effects (e.g., sexual dysfunction)
Anticonvulsant	Topiramate	Bulimia nervosa; BED	Reduction binge eating	Decrease	Sedation and neurological side effects
Antipsychotic	Second generation (e.g., quetiapine, olanzapine)	Anorexia nervosa	Reduction of anxiety & eating disorder ideation/preoccupation	Increase	Sedation and other adverse effects; appetite impacts when at an adequate weight
Psychostimulant	Lisdexamfetamine ^a	BED	Reduction binge eating	Decrease	Risk of dependency ^b ; unclear when to withdraw ^c

SSRI selective serotonin reuptake inhibitor

^a Only Therapeutic Goods Administration (TGA) approved medication for use in eating disorders in Australia

^b Less than for other psychostimulants

^c Long-term impacts on appetite and weight after withdrawing are unknown

Psychological and other: second line treatments

Adults For adults who have difficulty accessing a first line therapy and/or who do not respond, or only have partial improvement, a second line treatment may be considered. Second line psychotherapies in adults include ‘third-wave’ [64] psychological therapies such as mindfulness-based therapy and Acceptance and Commitment Therapy (ACT). These have less evidence of efficacy compared to first line treatments, but may be helpful options when first line treatments have not been effective.

A psychological therapy informed by weight neutral practice and Health at Every Size® (HAES) principals (J.L Gaudiani, personal communication to author PH, August 21, 2021) has been developed with one open unpublished report (see “[Psychological therapy for adults](#)” section later in this document). It is based on an understanding that body dissatisfaction emerges in the context of weight stigma, and both are important predisposing, precipitating and perpetuating factors in eating disorders; it thus comprises weight-inclusive and trauma-informed care where body acceptance (amongst others) is a protective factor.

Family interventions for adults with an eating disorder are less common and none are currently recommended as first line treatment [49]. However, some family inclusive interventions have been evaluated. The most established

is Maudsley collaborative care [65, 66]. This model educates carers of adults with anorexia nervosa to support their loved one with strategies that target maintaining aspects of the illness. Parts of this intervention are also part of MANTRA, a firstline therapy (see Table 2). Other such approaches include the addition of family therapy or couple therapy alongside individual therapy [67–69] as well as group-based programs for carers.

Multiple family therapy has also been shown to be feasible with adults with anorexia nervosa [57, 70, 71]. Most studies to date report the inclusion of families in the treatment of adults with anorexia nervosa, but a recent study by Runfola et al. [72] tested a model for couple therapy specifically designed for BED in a small open trial and was found to be feasible.

Second line psychotropic medications include antidepressants, antipsychotics, psychostimulants and anti-convulsants. Their main use is summarised in Table 3. All psychotropic medications have potential to impact on appetite and body weight (though our current understanding of these effects is poor). They are seldom considered as a stand-alone treatment in eating disorders particularly because risk of relapse when discontinued and are most often prescribed as adjunctive to psychological therapy [48].

Children and youth In children and adolescents, where family therapy is not available or inappropriate, the two most common second line treatments for anorexia nervosa [49] are CBT-E for adolescents [73, 74] and adolescent focused therapy [AFT; 75]. Parent and family sessions should be offered alongside the individual sessions. Other commonly utilised interventions involving families for children and adolescents include multifamily group programs [76] and parental psychoeducation [77] as adjunctive to a first line intervention.

Other treatments

Behavioural weight loss intervention (BWLI) is a comprehensive psychobehavioural treatment with activity and nutrition therapy developed for people with higher weight that has since been tested as an active and as a control psychological therapy for people with recurrent binge eating and other eating disorders and found to be efficacious. In the short-term, binge eating frequency improves but in the longer term, maintenance of change is less clear [78].

Exercise and its management in general eating disorder populations (largely focusing on bulimia nervosa and low weight anorexia nervosa) is mainly targeted at reducing compulsive overexercise [79]. These interventions typically include structured physical activity under supervision (often in a group setting) and individual psychotherapy, and demonstrate improvements in depressive symptoms, skeletal muscle mass and quality of life [80, 81]. Interestingly, effects on exercise compulsion have been mixed [82]. Dittmer et al. [83] found a significant reduction in compulsive exercise in their intervention for inpatients with low weight anorexia nervosa, whilst Mathisen et al. [84] and Zeeck et al. [82], found no significant reductions compared with control groups. In contrast, Ng et al. [85] and Moola et al. [86] found that compared to a control group, people with low weight anorexia nervosa undertaking prescribed exercise reduced eating disorder symptoms, including disordered beliefs about food and exercise, and enhanced quality of life.

More recently, there have been some RCTs of neuro-modulation treatments for people with eating disorders such as low weight anorexia nervosa, bulimia nervosa and BED. Treatments such as repetitive transcranial magnetic stimulation (rTMS) may aid in reducing symptoms such as binge eating and improving appetite regulation and mood [87]. As of writing this guideline they remain experimental treatments for eating disorders in Australia.

Psychological co-occurring conditions Notwithstanding the need for evidence-based eating disorder treatment many people may also require psychological or other

treatments for common co-occurring conditions such as major depression, anxiety disorders and/or substance-use disorder. Psychological therapy for people with eating disorders may also benefit from a trauma-informed care (see Box 3) or specific therapy such as eye movement desensitisation and reprocessing (EMDR) for post-traumatic stress disorder [88].

Physical co-occurring conditions and consequences

Physical co-occurring conditions in people experiencing an eating disorder, with or without a high body weight, are common. In a national US sample of 36,309 adults (NESARC-III),⁶ more than half of those with an eating disorder reported at least one chronic medical condition diagnosed within the previous 12 months ($54.5 \pm 5.1\%$ for bulimia nervosa and 68.6 ± 63.0 for BED), as seen in Tables 3 and 4 of Udo and Grilo [47; see further 103, 104]. Prevalence of co-occurring somatic conditions is outlined in Box 5.

While higher weight has been linked to various co-occurring somatic conditions, a review by Olgun et al. [105], discussed cross-sectional epidemiologic data that showed BED was associated with diabetes, hypertension, dyslipidaemias, sleep problems/disorders, and pain conditions, and that BED may be related to these conditions independent of BMI or co-occurring psychiatric disorders. Prospective data suggest that BED may be associated with type 2 diabetes and metabolic syndrome independent of weight. BED and binge eating behaviour are also associated with asthma and gastrointestinal symptoms and disorders, and among women, menstrual disruption, pregnancy complications, intracranial hypertension, and polycystic ovary syndrome (PCOS).

The consequences of bulimia nervosa are similar regardless of BMI. These consequences include the physical effects of purging, which can affect the skin, teeth, eyes/ears and nose, throat, gastrointestinal tract, electrolytes, heart, a possible increase risk of miscarriages, and a rare risk of aspiration pneumonia [106].

People with eating disorders who restrict their dietary intake and/or engage in other behaviours such as purging may experience malnutrition resulting from poor dietary quality leading to altered body composition and body cell mass, and diminished physical and mental function and impaired clinical outcomes [107, 108]. Further, the severity of the eating disorder in anorexia nervosa (without low weight) is more closely related to the amount and rapidity of weight loss and weight suppression (which may be seen also in BED and bulimia nervosa) than the

⁶ NESARC-III (i.e. third wave of National Epidemiologic Survey on Alcohol and Related Conditions) is the largest epidemiologic household survey of US adults that assessed eating disorders.

Table 4 Assessment instruments recommended for use with people with higher weight

Format	Useful for	Considerations for use
<i>Self-report</i>		
Eating Disorders Examination Questionnaire (EDE-Q) Version 6 [143]	28-items, with 22-items assessed on a 7-point Likert scale generate four subscale scores (Restraint, Eating Concern, Weight Concern, and Shape Concern), averaged to create a global score. Higher scores equal greater severity Specific behavioural components of disordered eating are also assessed, including binge episodes, self-induced purging, laxative misuse, diuretic misuse, and excessive exercise (not included in the global score)	Evaluating the occurrence and severity of eating disorder features in adolescents (YED-E-Q) and adults of higher weight. The YED-E-Q [144] includes age appropriate language and examples A revised version of the EDE-Q can be considered in people who have had, or are candidates for, bariatric surgery [145] Notes: EDE-Q subscale scores can still be computed provided at least half the items for the particular subscale are completed which would allow an item which may be not appropriate for a person with higher weight (e.g. Item 11—Have you felt fat?) to be skipped EDE-Q scores may vary for age, BMI and other features [eg. 146–148] Available online with scoring: https://www.credo-oxford.com/pdfs/EDE-Q_60.pdf https://nedc.com.au/research-and-resources/show/eating-disorders-examination-questionnaire-ede-q-v-6-0-pdf-smart-form https://insideoutinstitute.org.au/assessment?startd=true Accessed 10/2/2021
ED-15	Consists of 10 attitudinal items and 5 behavioural items, all rated on a 7-point Likert scale	Not suggested as a replacement for EDE-Q. ED-15 can be used as a brief complementary tool for evaluating the impact of eating disorder treatment session-by-session Available online with scoring: http://cbt-tggroup.shef.ac.uk/wp-content/uploads/2019/05/ED-15-Appendix-2.pdf Accessed 25/5/2021
Binge Eating Scale (BES) [149]	16-items, each item presents three or four differently weighted statements with a final score varying from 0 to 46. Higher scores equal greater severity	Useful for the assessment of binge eating severity and BED in people of higher weight Available online (https://www.credo-oxford.com/72.html ; accessed 10/02/2021) but requires training in administration Approx. 45–90 min to administer
<i>Diagnostic interview</i>		
Eating Disorder Examination (EDE) Version 17D [150]	A lengthy interview assessing core cognitions and behaviours over the preceding 3-months Regarded as a gold-standard	Most widely used measure and provides severity levels of key eating disorder features as well as generating diagnoses. Normative values are published Available online (https://www.credo-oxford.com/72.html ; accessed 10/02/2021) but requires training in administration Approx. 45–90 min to administer
Eating Disorder Assessment for DSM-5 (EDA-5) [151]	A semi-structured interview for feeding and eating disorder diagnosis	Assessment of DSM-5 feeding and eating disorders including bulimia nervosa and BED however validation studies are limited A newer tool designed specifically for the assessment of DSM-5. Focus on diagnostic evaluation not related psychopathology Approx. 20 min to administer

actual admission weight or BMI in adolescents and physical consequences may be similar to low weight anorexia nervosa [19, 109].

Acute medical issues and admission

People with an eating disorder at any weight may need admission to a medical or psychiatric ward to stabilise very severe eating disorder symptoms (e.g., very frequent binge eating) and/or to reverse a starvation state or acute medical complications such as low potassium levels [see RANZCP guidelines; 112]. People may also have a co morbid medical or psychological complication requiring acute care (e.g., unstable diabetes or suicidal ideation with intent).

Methods of guideline development

Aim and method

Aim

The aim of this guideline is to synthesise the current best practice approaches to the management of eating disorders for people who are of higher weight. The focus is on the treatment of the eating disorder, with consideration of higher weight. The aim is not to address weight loss or treatment of obesity. The guideline provides guidance on providing treatment for people currently with higher weight whether or not the eating disorder developed when the person was of a higher weight.

Formation of the guideline development group

The National Eating Disorders Collaboration (NEDC) synthesises research evidence, clinical expertise and lived experience in national standards and workforce initiatives to build and effective, equitable and accessible system of care for all Australians. This guideline received funding from the Australian Government Department of Health. The NEDC Steering Committee agreed to auspice this guideline in 2019 and members of the Steering Committee with diverse discipline specific expertise volunteered to comprise a Writing Group. Members of the Writing Group included individuals with lived experience and/or clinical expertise and/or research expertise. At the first meetings of the Writing Group, additional members were invited into the Writing Group so representatives were included to reflect disciplines and expertise not already within the group. A wider group was then formed, namely the Guideline Development Group. This comprised the members of the Writing Group as well as additional people with lived experience who had diverse demographic characteristics (e.g., gender; Aboriginal and Torres Strait Islander status) as well as varied experiences of eating disorders, such as different diagnoses and roles (i.e., whether they had a personal lived experience of an eating disorder or were a family member or support

for someone with an eating disorder). Membership was approved by the NEDC Steering Committee and NEDC National Director.

Guideline Development Group Members' curriculum vitae are found in Additional file 1: Appendix A along with members' declarations of interest at the end of this document.

Process of guideline development

The Guideline Development Group followed the process outlined in Box 6 which is modelled on the 'Guidelines for Guidelines' process outlined by the National Health and Medical Research Council [NHMRC; 113]. The Group also followed the RIGHT (Reporting Items for Practice Guidelines in Healthcare) Statement for Practice Guidelines [Additional file 2: 114]. Decisions were made by consensus in consideration of identified evidence, and expertise and experience of members.

NEDC intends to update this guideline in 2025.

Research evidence

The guideline was informed by recent systematic reviews and meta-analyses as well as identified primary trials. With regard to psychological interventions for eating disorders in people with a higher weight, evidence was specifically sourced from the results of a systematic review and meta-analyses [115; manuscript in preparation]. Systematic reviews and meta-analyses were identified through a systematic literature search, existing guidelines, personal libraries of authors and additional papers identified by expert reviewers. The quality of systematic reviews and meta-analyses was critically appraised using the JBI critical appraisal checklist for systematic reviews and research syntheses [116]. The appraisal was conducted independently by author AR and contributor KP and disagreements were resolved by consensus (Additional file 3).

A full list of all the meta-analyses, systematic reviews and identified primary trials not included in a referenced systematic review used to inform this guideline is provided in Additional file 1: Appendix B. Recommendations were graded according to NHMRC categories A–D (Additional file 1: Appendix C).

It should be noted that there is a paucity of research that includes the voice of people with a lived experience.

Lived experience contribution

In addition to the lived experience representatives within the Guideline Development Group, further lived experience expertise was sought to co-write sections of this

Box 5 Prevalence of co-occurring somatic conditions across DSM-5 bulimia nervosa and binge-eating disorder across the BMI spectrum

Atherosclerosis
 Type 2 diabetes
 Hypertension^a
 High cholesterol^a
 High triglycerides
 Myocardial infarction
 Other heart conditions
 Stomach ulcer
 Epilepsy or seizure
 Arthritis^a
 Stroke
 Sleep problems^a
 Cancer
 Anemia
 Fibromyalgia
 Bowel problems
 Osteoporosis
 Lung problems
 Liver diseases
 Nerve problems

Majority are uncommon (< 20% prevalence estimates)

^a Common (20–30%) prevalence estimates in BED from Udo and Grilo [47]. Whilst diabetes, cardiovascular and metabolic conditions such as hypertension are also associated with a high BMI with or without an eating disorder, data were corrected for BMI in a later study [18] where similar findings to Udo and Grilo were found; similar findings have also been reported in two studies of children of associations between metabolic syndrome and binge-eating status [110, 111]

guideline for specific considerations for LGBTIQA+ people and Aboriginal and Torres Strait Islander peoples (see “Cultural considerations” section). We acknowledge that there is great diversity of all peoples’ lived experience, in particular, within Aboriginal and Torres Strait Islander peoples, exemplified by over 250 different languages across Australia. Moreover, we acknowledge intersectionality of people’s experiences and identities, that is, that people may belong to more than one minority group and that this may compound the difficulties they experience. Thus the views represented within this document may not capture this diversity.

Culturally informed practice

At the time of writing this guideline, it was apparent that there are significant gaps in the understanding and development of culturally informed assessment and treatments for larger-bodied Aboriginal and Torres Strait Islander peoples with eating disorders. When working in Australia, health professionals at all levels of experience should have received training in culturally informed practice particularly when working with Aboriginal and Torres Strait Islander peoples. This is also important to

consider when working with people from culturally and linguistically diverse backgrounds and other minority groups (such as LGBTQAI+ people).

Recommendations

Identification and assessment

People of higher weight are at increased risk of eating disorders compared to those with lower weight [117], but due to many reasons, including poor health literacy (e.g., lack of understanding that eating disorders occur across the weight spectrum) and weight stigma in the community and in health care providers, their symptoms often go undetected and untreated (see Box 7 for a lived experience perspective) [118]. Early intervention provides the best chance of recovery when an individual is experiencing an eating disorder. Notwithstanding this, it is noted that approaches to screening have a very limited evidence-base particularly in children and adolescents, and more research is needed to establish risks and benefits [119, 120]. It is therefore imperative that eating disorder symptoms are identified and that intervention is offered as soon as possible [121] to all individuals experiencing eating disorder symptoms regardless of weight status.

Box 6 Process of guideline development

Guideline Development Group wrote and produced a first draft of this guideline (Version 1; 2020).

Version 1 was circulated to the NEDC Steering Committee for feedback.

Guideline Development Group produced Version 2 (2021).

Version 2 was circulated for further consultation to key stakeholders including expert reviewers with professional and/or lived experience and professional organisations. A list of reviewers can be found in the acknowledgements at the end of this document. A consultation workshop was also held at the Australia and New Zealand Academy for Eating Disorders 2021 Conference.

Guideline Development Group produced Version 3 (2021).

Version 3 was circulated to NEDC members and open access to the general public on the NEDC website.

Guideline Development Group produced Version 4 (2022).

Version 4 was approved by NEDC Steering Committee.

Development Group produced Version 5 (February 2022).

Version 5 was circulated for peer review.

It is important to note that binge eating, loss of control, grazing or emotional eating are not the only or even predominant eating behaviours experienced among people with higher weight [2, 122]. Dietary restriction and other disordered behaviours (e.g., use of laxatives, purging, driven or compulsive exercise, dietary supplements use or abuse) are also frequently present among people with higher weight [2]. Notably, people with higher weight experience the cognitive factors associated with an eating disorder, including overvaluation of and preoccupation with weight, shape, eating and their control, and the distress associated with these cognitions. Warning signs and clinical considerations for eating disorders among people with higher weight are outlined in Box 8.

When people living in larger bodies seek primary or mental health care for weight loss, assessment of eating disorder symptoms should be made. All services recommending or providing weight loss advice or programs (including bariatric surgery) should screen for disordered eating, risky behaviours such as use of unregulated weight-loss pills/supplements or laxatives, and body image concerns. All positive screens should be discussed with the individual and a more extensive eating disorders assessment should be undertaken. Health professionals in any setting should monitor any attempts at weight loss or muscle building. Short screening tools such as the Eating Disorder Screen for Primary Care [ESP; 123; see Additional file 1: Appendix D] may be also useful for this purpose. The components of a mental health assessment for eating disorders is detailed in Box 9.

It is important to note that there is currently a lack of data regarding identification and assessment for under-represented groups including males, adolescents, LGB-TIQA+ people and people from cultural minority groups [119, 120]

Although body weight fluctuations can be a sign of an eating disorder, clinicians should not wait for body weight changes to occur before considering an eating disorder assessment.

Assessment of eating pathology in people with higher weight

Assessment of a person suspected to have an eating disorder should proceed in accordance with the Australia and New Zealand Academy for Eating Disorders Practice Standards 2020 [136]. Described here are particular considerations for the assessment of eating disorders among people with higher weight.

Because of wide-spread weight stigma in the community, people living in larger bodies often experience stigmatisation and discrimination because of their weight (i.e., weight teasing or bullying, negative interactions with family, friends, partners, co-workers, education or healthcare providers). Body dissatisfaction may be a natural consequence of ongoing negative evaluation rather than an irrational fear or distortion. People with higher weight also have often experienced weight-related trauma, such as bullying in high school or weight-related emotional abuse. Experiences of stigma and discrimination may lead to individuals being reluctant to talk about their weight or eating, for fear of being further shamed and/or disbelieved, and these issues must be approached respectfully, with consideration of prior negative experiences.

Disordered eating behaviours may function as a coping mechanism in the face of the trauma of persistent weight stigma. Severe dietary restraint and unhealthy compensatory behaviours may have been positively rewarded and reinforced by an individual's social network or health professionals. The person may therefore be reluctant to disclose compensatory behaviours, over-eating, or to make

Box 7 A lived experience perspective: identification and assessment

"My daughter's eating disorder sneaked into our lives so quietly that we didn't notice at first. She was 15 years old and during early puberty had gained an amount of weight that placed her into an 'overweight' BMI body. So, when she suggested she might try some 'healthy eating' we didn't think that was a warning sign of anything more insidious. Within 6 months, she had lost more than 20% of her body weight and her period had stopped. We were very concerned as she had withdrawn from her family, wasn't her normal happy self and her behaviours and fears around food were not normal. Our first visit to the GP was the 'sliding doors' moment where an eating disorder should have been identified. Instead, she was weighed and we were told, 'It's fine, she's still a normal BMI. Her body probably went into shock from the weight loss and if she maintains this weight then her period will return'. Of course, that was not the case and it took another eight months before she finally received a diagnosis of Atypical Anorexia and formal treatment/refeeding began. I consider our family lucky in that despite the unacceptable delay in beginning treatment, my daughter is now fully recovered. My wish would be for families who present to their medical practitioner asking for help, to have their concerns taken seriously on Day 1.

My message to clinicians: An eating disorder cannot and should not be diagnosed by an arbitrary number on a scale...be curious and ask more questions. Please learn as much as you can about eating disorders and continue to keep your knowledge up to date with new findings/studies. Question your own biases/understanding around weight vs health and learn about Health at Every Size. Learn how to identify an eating disorder and the best evidence treatment modalities available. Eating disorders exist in all age groups, all body sizes, all genders, and all cultures. The full recovery rate from a restrictive eating disorder such as anorexia remains abysmally low so early intervention and immediate action is key to helping as many people as possible recover and go on to fulfilling lives...please learn how to be a part of the solution! For an adolescent sufferer, the carers/parents are key to doing the hard work of refeeding at home so learn how to support and empower them—this is hard work for everyone, but the rewards are huge."

- Julia Quin, lived experience advocate and Guideline Development Group member.

changes to any weight loss strategies, even though these strategies may be harmful. As opposed to attitudes of concern expressed towards smaller-bodied people engaging in dietary restriction, larger-bodied people engaging in the same or more severe degrees of restriction are often commended and encouraged to continue, with many eating disorder symptoms being perceived as helpful to the achievement of a weight loss goal. Further, where qualifying for surgery or other interventions requires the absence of eating disorder symptoms, clinicians must be cautious in their assessment of a person's presentation.

For all people with an eating disorder, information on eating, purging and compensatory behaviours may need to be gathered from multiple sources, including family and supports, especially among children and adolescents. Eating psychopathology can impair perceptions of frequency of disordered behaviours or amount of food intake, so verification with other sources can be useful for establishing clinical status. However, for people with higher weight, it is important not to assume that the person is being untruthful. Instead, be respectful and sensitive when gathering information, even with the knowledge that a person may minimise their symptoms for fear of losing important coping mechanisms or access to interventions. The way clinicians approach questioning about eating habits and compensatory behaviours is critical to establishing a non-stigmatising and supportive therapeutic alliance. This includes respectfully seeking permission to obtain further information from family or others.

It is important not to make assumptions about a person's eating or compensatory behaviours on the basis of weight. For example, do not assume that the person is engaging in binge eating, is untruthful about their dietary

Box 8 Warning signs and clinical considerations for eating disorders among people of higher weight

Warning signs and clinical considerations for eating disorders among people of higher weight include:

Recent body weight fluctuations (increases or decreases) [124].

Requests for weight loss interventions [118].

Dietary changes or severe dietary restrictions for medical (e.g., coeliac disease, allergy) or non-medical reasons (e.g., sport, veganism) [125, 126].

Presence of food insecurity [127].

Using food consumption or restriction to help regulate emotions [128].

Increases in or driven/compulsive exercise, especially where there are musculo-skeletal injuries limiting active exercise [124].

Body image concerns, especially where size and shape are influencing self-esteem (overvaluation) [124].

Depression, anxiety or substance misuse [depression/anxiety especially predictive of eating disorders in adolescent girls, not as much as in boys; [129].

Loss of menstruation or fertility in women (not due to fluctuations with puberty onset or menopause) [124].

Muscle building behaviours in males or females (i.e., intense weight training, use of sports/protein supplements, anabolic steroid use) [125, 130].

Risk for or diagnosis of type 2 diabetes (e.g., impaired glucose tolerance, signs of metabolic syndrome) [131].

Insulin misuse in diabetes (type 1 or 2) [132, 133].

Participation in elite sports or aesthetic-based industries [125, 134, 135].

Presentation with nutritional (e.g., iron) deficiency/ies [124].

intake, or is not restricting. There are a wide range of eating disorder presentations among those living in larger bodies, including severe dietary restriction, and all possible diagnoses should be assessed before being ruled out.

A comprehensive assessment of the individual and their circumstances should be undertaken to confirm an eating disorder diagnosis and any co-occurring psychiatric or medical diagnoses, to evaluate medical and psychiatric risks, and to develop a biopsychosocial formulation. Collecting assessment information is an ongoing task as clinical issues and priorities unfold throughout treatment.

In some people with eating disorders, weight loss treatment may be contraindicated or may exacerbate their eating disorder. Where possible, attempts at weight loss or plans for bariatric surgery should be conducted in a setting to allow their eating disorder to be managed. Communication of diagnosis, medical and psychiatric risk, to other relevant treating professionals is therefore essential, especially where there are prescriptions for weight-loss treatments and/or plans for bariatric surgery. Referrals to support organisations for loved ones, family and parents are also recommended.

Assessment instruments The ANZAED practice standards [137] recommend use of a psychometric assessment tool suitable for the assessment of eating disorders (using the Eating Disorders Examination Questionnaire; EDE-Q) and session by session review of progress (using the shorter ED-15). However, there is a paucity of high-quality instruments that have been validated for the full range of eating disorders among people with higher weight. Most eating disorder assessment tools have been developed and validated with predominantly low- or average-weight populations, and the language they use and concepts they measure, therefore present potential for stigmatisation and minimisation of pathology with higher weight (e.g., EDE-Q Item 11 of the shape concern subscale asks *Have you felt fat?*; and this is only considered an indicator of psychopathology in individuals of low weight). Health professionals are therefore advised to be aware of the limitations of these instruments and available to answer clarification questions in the context of a therapeutic interview. Also, the subscale scores can still be computed on the EDE-Q provided at least half the items for the particular subscale are completed which would allow item 11 to be skipped. Moreover, most validation studies for assessment measures have been conducted in predominantly White female populations and therefore may not account for variations in eating practices seen in culturally and/or gender diverse samples.

Provided in Table 4 is a review of instruments recommended for use with people of higher weight. Please note that these instruments are not necessarily the most

widely used nor the most frequently recommended for assessment of eating pathology in people with lower weight. Table 4 presents tools that have the most robust evidence for sensitivity, specificity and low risk of stigmatisation in the assessment of eating disorders for people with higher weight. More detailed information is provided in Additional file 1: Appendix D: Table of screening instruments.⁷

Assessment of anorexia nervosa and dietary restriction⁸ The use of the broader ICD-11 diagnosis of anorexia nervosa without weight criterion (as is used in this guideline) is encouraged.

For detailed information regarding anorexia nervosa see Box 10. For the assessment of anorexia nervosa among people with higher weight, it is recommended that the EDE-Q (see "Assessment Instruments" for considerations regarding inappropriate items), is used to examine restriction, with additional questions about total and recent weight loss [19].

Dietary restriction may be used by a person to assist in emotion regulation, or in response to experiences of weight stigma and discrimination, without weight loss, especially where restriction leads to loss of control or binge eating. For the assessment of restriction without weight loss, additional scales such as the Dutch Eating Behaviour Questionnaire [DEBQ; examines emotional, external, restraint eating; 152], or the Modified Weight Bias Internalisation Scale (WBIS-M), may also be useful.

Assessment of binge or loss of control eating Although the EDE-Q is a suitable assessment tool for eating disorders among people with higher weight (see "Assessment Instruments" for considerations regarding inappropriate items), it is known that the EDE-Q measurement of binge eating and compensatory behaviours is less reliable in this population. This is because the items that pick up on frequency of loss of control eating do not contribute towards the global EDE-Q score. If binge eating or loss of control is indicated in EDE-Q items-13–15, then it is optimal to also administer the Binge Eating Scale, as this latter measure

⁷ Note. Table 4 does not contain a comprehensive list of all instruments that may be used in the assessment of people with eating disorders who are of higher weight, but as stated, we selected those with the most robust evidence. There are many instruments (e.g., Emotional Eating Scale for children and adolescents [EES-C; 138]; Eating in the Absence of Hunger Questionnaire for children and adolescents [EAH-C; 139]; Questionnaire of Eating and Weight Patterns—adolescent version [QEWP-A; 140]; Children's Eating Attitude Test [CheAT; 141, 142]); and, the Repetitive Eating Questionnaire (Rep(eat)-Q [157]) that may also be used in this context.

⁸ Restriction is a reduction in dietary intake, eating less food than your body requires. Restraint is the intention to restrict.

Box 9 Mental health assessment for eating disorders

Core cognitive features.

Overvaluation of weight and shape.

Eating-related cognitions (e.g., guilt, control).

Preoccupations (e.g., with food preparation, eating, body image/appearance).

Body dissatisfaction.

Body checking.

Fear of fatness, fear of weight gain, internalised weight bias.

Perfectionism.

Food intake.

Nutritional adequacy (malnutrition is possible; nutritional status greatly impacts mood and anxiety).

Fluid intake.

Typical eating patterns/usual day.

Eating behaviours.

Past and current, and motivation to change these.

Food rituals.

Avoided foods and food sensitivities.

Triggers to eat or avoid eating (i.e., emotional eating, binge eating, perceived restriction, rewarding oneself, sensation seeking).

Food restriction and restraint.

Weight history.

Current height and weight.

Weight changes and rate of change.

Weight-loss treatment history (especially but not only surgical interventions).

Current desire for weight loss/target weight.

Binge eating, purging or compensatory behaviour.

Type of compensatory behaviour (e.g., laxative use, excessive exercise, diet pills, steroid use).

Frequency.

Amount.

Types of food.

Triggers to binge.

History of Medical co-occurring conditions.

Especially (but not only) metabolic syndrome, type 1 diabetes, type 2 diabetes, cardiovascular disease, sleep apnoea, musculoskeletal, polycystic ovary syndrome.

Psychosexual and interpersonal functioning.

Including important domains of functioning such as work/studies/home duties.

Eating disorder treatment history.

Psychological co-occurring conditions.

Anxiety, depression, post-traumatic stress, substance misuse all commonly co-occur with eating disorder presentations.

Personality disorders or obsessive-compulsive disorder may also be present.

Family of origin and support system.

Formative years and trauma history, especially (but not only) experiences of weight stigma and weight discrimination (i.e., teasing, bullying and harassment or denial of access or social exclusion on the basis of weight).

Mental state assessment.

Mental health risk factor history (including self-harm and suicidality).

Psychometric assessment.

provides a better examination of behavioural indicators and distress associated with binge eating. A loss of control overeating instrument may also be used, e.g., the Loss of Control over Eating Scales LOCES [LOCES; 153]. Where 'binge' eating appears present without loss of control, the

emotional and external eating subscales of the DEBQ [152] may also be useful, especially because it has been validated in a wide range of languages.

Another form of eating associated with loss of control is grazing [154] for which brief instruments have

Box 10 Anorexia nervosa (without low weight)

Anorexia nervosa (without low weight; also referred to as 'atypical anorexia nervosa'; see "Background to eating disorders and how they occur" section for definition) is a diagnosis under the OSFED category in DSM-5. This requires all criteria for anorexia nervosa are met except that despite significant weight loss, the individual's weight is within or above the normal range."Significant weight loss" in this context has been defined in adult men and women as 5% or more of body weight accompanied by cognitive concerns about eating and weight [175]. Significant weight loss for adolescents, however, may be less according to developmental stage [19].

Anorexia nervosa (without low weight) is commonly, but falsely, perceived as being less severe than low weight anorexia nervosa. People with anorexia nervosa (without low weight) may be just as physically compromised and experience similar or higher levels of psychopathology compared with their peers with low weight anorexia nervosa [19, 20, 176]. For people with anorexia nervosa (high or low weight) requiring hospital admission, recent and total weight loss have been shown to be stronger predictors of many physical complications, such as bradycardia, than admission weight [19].

Behaviours and outcomes that are viewed as concerning in people of low weight, such as severe restriction and weight loss, are often praised and encouraged for people with higher weight and viewed as 'helpful' to the achievement of a weight loss goal. All people who have lost a significant amount of weight, either recently or in total, should be assessed for an eating disorder regardless of their weight. Clinicians should be cognisant that weight gain, regardless of BMI range, may be necessary as a part of recovery (see "Nutritional and medical management" section Malnutrition). Furthermore, the use of the broader ICD-11 diagnosis of anorexia nervosa without weight criterion (as is used in this guideline) is encouraged.

been developed [155–157] although to our knowledge these have not been validated in people with a high BMI.

Assessment of exercise Assessment of exercise among people with eating disorders is either by self-report instrument or clinical interview. A recent systematic review identified two validated instruments specifically developed for people with eating disorders, namely the Compulsive Exercise Test and the Exercise and Eating Disorders [158]. Exercise may also be assessed objectively with an accelerometer or similar, but this is not recommended clinical practice and may be triggering for people with higher weight as these are frequently used in weight loss programs.

Assessment of muscle dysmorphia Muscle dysmorphia is currently characterised in the DSM-5 as a specifier of body dysmorphic disorder and with obsessive-compulsive and related disorders. Although some research has suggested muscle dysmorphia is a subtype of body dysmorphia [159], other research suggests strong similarities with anorexia nervosa, where pathological concern with muscle gain replaces pathological concern with weight loss [160]. Recent research suggests muscle dysmorphia may have validity for a stand-alone diagnosis [161].

Individuals engaging in muscle building can have very high BMI due to high muscle density but low adiposity. They are at high-risk of a wide range of disordered eating behaviours [162], and use of anabolic steroids [163, 164]. For the assessment of muscle dysmorphia, the Muscle Appearance Satisfaction Scale (MASS), the Muscle Dysmorphia Questionnaire (MQMDQ), the Muscle Dysmorphic Inventory (MDI) and the Muscle Dysmorphic Disorder Inventory (MDDI) are recommended.

Avoidant restrictive food intake disorder (ARFID) ARFID is a newly described eating disorder and occurs across the weight spectrum. People living in larger bodies may experience ARFID and should be assessed and managed in the same way as for people not living in a larger body. The nine-item Avoidant/Restrictive Food Intake Disorder Screen (NIAS) is an assessment instrument which have been developed for adults [165]. The Child Food Neophobia Scale (CFNS) is a good psychometric measure of food avoidance in children [166].

Children and adolescents with higher weight A recent study of adolescents in New South Wales [117] found that eating disorders were more likely to be experienced by adolescents who had a BMI percentile higher than those in the lower/average weight range. Further, adolescents who met criteria for bulimia nervosa, BED, anorexia nervosa (without low weight), subthreshold bulimia nervosa, or UFED had significantly greater odds of reporting high BMI, as compared to adolescents without these disorders. Younger adolescents (Grades 7–8; 13–14 years) were as likely to experience eating disorders as older adolescents (Grades 11–12; 17–18 years), though the distribution of diagnoses among these groups was different (with older adolescents significantly more likely to meet criteria for bulimia nervosa or BED). No effects of migrant or socio-economic status were found on the likelihood of meeting criteria for any current eating disorders when controlling for age, gender and BMI percentile.

The Youth EDE-Q [YEDE-Q; 144] has been validated among adolescents with higher weight and includes age-appropriate language. The YEDE-Q is therefore recommended for evaluating eating disorder features in adolescents with higher weight.

Diabetes and eating disorders Whilst the link between type 1 diabetes and low weight anorexia nervosa is well documented, there is a dearth of literature around anorexia nervosa (without low weight) and type 1 diabetes. Adolescents with type 1 diabetes who are of higher weight are at greater risk of disordered eating than peers with type 1 diabetes but not high weight [167]. Age, diabetes duration, cultural background, family structure, insulin regimen, daily insulin dose, or glycated haemoglobin A1c concentration have not been found to be associated with risk of onset disordered eating in adolescents with type 1 diabetes, but gender and BMI have. However, high glycated haemoglobin A1c may be a marker for insulin misuse and other harmful behaviours.

Among individuals with type 2 diabetes, the prevalence of eating disorders has been estimated to be between 6.5 and 9.0% [168]. There are more therapeutic options in the management of type 2 diabetes, with many people utilising non-insulin therapies, some of which are weight-neutral (metformin and dipeptidyl-peptidase 4 inhibitors) or promote weight loss (glucagon-like peptide 1 agonists or sodium-glucose transport protein 2 inhibitors) compared to agents that promote weight gain (insulin, Sulphonylureas and Pioglitazone). The selection of medication should be made on the basis of optimising blood sugar regulation in the long-term.

Two specific instruments have been developed for screening for eating disorders among individuals with diabetes: the Disordered Eating in Diabetes—Revised [DEPS-R; 169] and modified SCOFF [mSCOFF; 170]. However, because of issues with the validity and reliability of the SCOFF for people of higher weight, the DEPS-R is the recommended instrument, particularly in type 1 diabetes [see also 171]. This is because the DEPS-R has different psychometric properties according to whether the person under examination has type 1 diabetes requiring insulin, versus type 2 diabetes. Alternatively, use of the single question 'I take less insulin than I should' has been identified as potentially important for detecting eating disorder symptomology in people with diabetes who are using insulin [132].

Weight stigma It is acknowledged that health professionals, because they are humans who are part of society and because of their socialisation as health professionals are likely to hold both implicit and explicit bias towards people with higher weight. The Academy of Eating Disorders recommends that all health professionals evaluate their own weight stigma with an online tool [172]. While some people with eating disorders may experience improved health with weight loss, to appropriately assess and treat people with eating disorders who are of higher weight, it is recommended that health professionals adopt

a weight-inclusive or weight-neutral stance, advocating for increases in health behaviours and decreases in disordered eating, instead of a focus on weight loss, which can be perceived as inherently weight stigmatising [for a detailed analysis of how weight stigma can generate stress, disordered eating and further weight gain, see 9, 173]. To examine levels of internalised weight bias in people of higher weight, the Modified Weight Bias Internalisation scale [WBIS-M; 174] may be used to document links with eating disorder psychopathology.

Management overview

The major treatment approaches for all eating disorders have been outlined in "[Current status of treatment and outcomes for all eating disorders](#)" section. The following sections address treatment recommendations (see Tables 5, 6, 7, 8, 9, 10, 11) specifically for people with an eating disorder who are of higher weight. Treatment encompasses, but is not limited to psychological, pharmacological, nutritional and activity interventions. For all, it is important that management addresses all aspects of an eating disorder and thus will be, for the majority of people, multidisciplinary and requiring practitioners to work together as a formal or 'virtual' team through interprofessional collaborative practice (ICP) with each clinician practicing within the scope of their profession. ICP occurs when healthcare workers from different professional backgrounds work alongside the person experiencing the health condition, their supports, and communities to deliver collaborative care underpinned by teamwork, effective communication, and shared values [177]. This is recognised consistently throughout international and national guidelines and practice standards [48, 49, 178].

Psychological therapy

Psychological therapy for adults

Evidence overview At this time, there is no evidence to suggest that recommended evidence-based psychological treatments for eating disorders in adults of various weights (described in "[Current status of treatment and outcomes for all eating disorders](#)" section and in Table 2) are not appropriate for people of higher weight, however it is possible that they may benefit from adaptations or additions.

These psychological treatments include:

- Cognitive behaviour therapy-enhanced (CBT-E), interpersonal psychotherapy (IPT) and dialectical behaviour therapy (DBT) for adults with bulimia nervosa or BED
- Cognitive behaviour therapy (CBT), Maudsley model of anorexia nervosa treatment for adults

Table 5 Recommendation for the management of eating disorders for people with higher weight: management overview

Recommendation	Level of evidence
All treatment should be provided in the context of interprofessional collaborative practice	C
NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C	

(MANTRA), specialist supportive clinical management (SSCM) and focal psychodynamic therapy (FPT) for anorexia nervosa (without low weight)

Other approaches (e.g., BWLI) have been used for people with disorders characterised by recurrent binge eating, however these approaches are discussed only as they relate to their evidence for adults with an eating disorder and not as primary treatments for the eating disorder.

For this guideline specific research was sought for RCTs examining psychological treatments for eating disorders in adults with higher weight. A systematic review (Brennan et al. in preparation) has informed the majority of the literature presented in this guideline. A number of psychological treatments for eating disorders have been evaluated in RCTs specifically for the treatment of binge-eating disorder in adults with higher weight. These include CBT, IPT and DBT. Most of these interventions have been tested in group formats.

However, a major gap in research evidence is that RCTs in this population are nearly all confined to studies including participants with a diagnosis of BED. In particular, there were no RCTs examining the treatment of anorexia nervosa (without low weight) in people with higher weight. A further limitation was that the primary aims of most RCTs included in this review were to examine the effect of interventions on binge eating behaviours and weight. That is, higher body weight was positioned as (alongside binge eating) the therapeutic target, rather than body distress, pathological eating behaviours or eating disorder recovery. Thus, there is a need for measurements of a broader range of eating disorder outcomes (e.g., eating disorder psychopathology such as dietary restriction, body image dissatisfaction and self-induced vomiting), other psychosocial outcomes (e.g., quality of life, depression), and thorough assessment of potential harms. Follow-up in the longer term was also lacking. Further, the majority of trials of psychological interventions for people with BED (with the exception of CBT-E compared to another psychological intervention) are

regarded as of low to very low quality due to high risk of bias in published reviews [e.g., 49].

Cognitive behaviour therapy (CBT) CBT is the most frequently examined psychological intervention for eating disorders in adults with higher weight. Compared to wait list control groups, CBT has been shown to result in improvements in eating disorders symptoms [179–181]. CBT has also been shown to improve some body image aspects of eating disorder psychopathology (e.g., drive for thinness, body image dissatisfaction, eating concern, shape concern) relative to wait list control [182]. One study has investigated the impacts of involving spouses in CBT intervention. This did not impact on binge eating and it was associated with increased restraint [181]. CBT has been most commonly compared to BWLI and these studies are discussed below.

Brief and guided self-help CBT Guided self-help (gsh)⁹ interventions have also been trialled. CBTgsh resulted in greater improvement in binge eating than BWLgsh [183]. However, CBTgsh did not improve either binge eating relative to usual care [i.e. participants' standard individual care from primary care physician; 184] or placebo [185]. One study comparing brief CBT comprised of 6-sessions delivered over 3 or 6 weeks demonstrated similar reductions in binge eating severity and frequency in both conditions [186]. Further, CBTgsh has been evaluated and found to be effective in reducing binge eating and other symptoms in many RCTs for people with binge-eating disorder where the majority of participants are at a higher weight [see 49, pp. 620–22].

Other psychological interventions Other psychological interventions that have demonstrated improvements in eating disorder symptoms relative to wait list control include behavioural activation [187], and DBT [188, 189]. In one RCT, DBT also resulted in reduced binge eating behaviours and cognitions control after a 10-week intervention compared to a wait list [189].

⁹ Guided self-help (self-help material with clinician guidance) is distinct from pure self-help (self-help material only).

Table 6 Recommendations for the management of eating disorders for people with higher weight: psychological therapy for adults

Recommendation	Level of evidence
Psychological treatment should be offered as first-line treatment approach for bulimia nervosa or binge-eating disorder (BED)	A
Cognitive behaviour therapy (CBT) for an eating disorder either in standard form or therapist guided self-help should be considered as first-line treatment in adults with bulimia nervosa or BED	B
Other psychological treatments with evidence such as interpersonal psychotherapy (IPT) and dialectical behaviour therapy (DBT) should be considered as second-line treatment options in adults with bulimia nervosa or BED	B
Other feeding or eating disorder (OSFED), unspecified feeding or eating disorder (UFED) or subsyndromal eating disorders should be treated with treatment recommended for the most similar disorder	C
Consider using therapies utilising non-dieting principles and interventions to reduce disordered eating	D
Therapies with demonstrated efficacy for the treatment of anorexia nervosa* in general, that is cognitive behaviour therapy-enhanced (CBT-E), specialist supportive clinical management (SSCM), Maudsley model of outpatient treatment (MANTRA) and focal psychodynamic therapy (FPT) should be considered as treatment options	D

NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C

* In this guideline, the ICD 11 terminology for anorexia nervosa is adopted rather than the DSM-5 criteria. That is, anorexia nervosa (code 6B80) is used as a broad term to include all people at all body weights and without specifying the underweight criterion (sub coded in ICD-11 as 6B80.0, anorexia nervosa with significantly low body weight). See "[Background to eating disorders and how they occur](#)" section for more detail.

Table 7 Recommendations for the management of eating disorders for people with higher weight: psychological therapy for children and adolescents

Recommendation	Level of evidence
Psychological treatment for an eating disorder should be offered as first-line treatment approach	A
Family-based treatment (FBT) should be considered as first-line treatment for children and adolescents with bulimia nervosa and anorexia nervosa*	B
Other psychological treatments with evidence such as adolescent focused therapy (AFT) and CBT for an eating disorder should be considered as second-line treatment options in children and adolescents with anorexia nervosa* (AFT, CBT) or with bulimia nervosa (CBT)	B
Other psychological treatments with evidence such as cognitive behaviour therapy (CBT) for an eating disorder should be considered as second-line treatment options in children and adolescents with bulimia nervosa	B
Children and adolescents with higher weight should be offered a first line evidence-based treatment approach for eating disorders as those who do not have higher weight	C
Other feeding or eating disorder (OSFED), unspecified feeding or eating disorder (UFED) or subsyndromal eating disorders should be treated with treatment recommended for the most similar disorder	C

NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C

To our knowledge, there is one study of a weight-inclusive therapy. Gaudiani [190] has reported an open case series of 12 individuals (92% women, mean age 36.7 years, SD=6.8) with data extracted from electronic medical records. All were perceived as living in a larger body with high levels of eating disorder symptoms and low levels of intuitive eating. Eating disorder symptoms, intuitive eating and other psychological and physical health measures all significantly improved at follow-up. Notably, body weight was not measured during therapy or reported as an outcome as this is inconsistent with the treatment [190]. Systematic reviews have also found

neutral or weight-inclusive approaches such as HAES to be associated with improvements in eating behaviours (i.e., reduced cognitive restraint, disinhibition and binge eating) in people of a higher body weight [24, 25].

Other psychological treatments have also been compared to CBT. The one study comparing DBT to CBT reported no between group differences in eating disorder psychopathology at post-treatment, but the CBT group demonstrated greater improvements at follow-up. In addition, the CBT group demonstrated greater improvements in binge eating post-treatment, but no differences between treatments at follow-up [191]. One

Table 8 Recommendations for the management of eating disorders for people with higher weight: pharmacotherapy

Recommendation	Level of evidence
Consider using psychotropic medications with evidence in the treatment of eating disorders	B
Monitor for any non-prescribed use of medication in the context of an eating disorder	D
NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C	

Table 9 Recommendations for the management of eating disorders for people with higher weight: physical activity

Recommendation	Level of evidence
Physical activity interventions should focus on physical activity for positive physical and mental health benefits and away from exercising for weight or shape change	C
If compulsive exercise is present, referral to an exercise physiologist experienced in working with larger-bodied people and eating disorders populations is desirable	D
NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C	

study comparing CBT to IPT demonstrated that both treatments resulted in comparable improvements in binge eating frequency and cessation post-treatment, and while there were minor increases in binge eating frequency at 12-month follow-up, both groups continued to demonstrate reductions in binge eating compared to pre-treatment. Both groups demonstrated reductions in pathological dietary restraint, CBT had larger effects

post-treatment, but groups were equivalent at 12-month follow-up [192]. Hilbert et al. [193], have reported effects which were sustained in the longer-term, up to four years. A further study compared IPT, BWLI and CBTgsh and found that post-treatment all treatments produced improvements in binge eating frequency and cessation, and eating, shape and weight concerns, but that at 2-year follow-up IPT and CBTgsh resulted in greater binge eating remission rates, and BWLI resulted in greater cognitive restraint [78]. For people with a higher frequency of binge-eating, IPT appeared to be more effective than CBTgsh and BWLI [78].

Adapted treatments including CBT and BWLI for eating disorders characterised by recurrent binge eating Psychological interventions have been most often compared to or used consecutively with BWLI. BWLI however aims to both reduce binge eating and elicit weight loss [see Box 2; 194]. While BWLI and CBT share some common characteristics (e.g., self-monitoring, use of behavioural strategies to reduce binge eating episodes) the primary goal of CBT is treatment of the eating disorder, and restraint is considered a maintaining factor and therefore a target of CBT interventions is the reduction of restraint. Furthermore, most RCTs have found CBT to be more effective than BWLI in improving eating disorder symptoms (e.g., binge eating) and in some cases achieving remission of binge eating [195–197]. However, in some studies there is no difference between treatments at 6-months [199], or 12-month follow-up [196], and in other studies, between-group differences are greater at 6-month follow-up [197, 198].

Only a few studies comparing CBT and BWLI have measured other eating disorder psychopathology such as body image concerns [194]. One found that CBT and BWLI resulted in similar improvements in eating, weight and shape concern [196]. Conversely, Grilo et al. [197] found that neither of these treatments produced an effect on these variables nor on restraint. One further study found BWLI to increase restraint relative to CBT [78], and another that CBT resulted in greater improvements

Table 10 Recommendations for the management of eating disorders for people with higher weight: family and other interventions for adults, adolescents and children

Recommendation	Level of evidence
Include families and other carers when indicated for anyone with an eating disorder	B
Family psychoeducation around impacts of body and eating conversations should include modelling body image acceptance, weight stigma and a focus on health in recovery	D
NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C	

Table 11 Recommendations for the management of eating disorders for people with higher weight: nutrition and medical management

Recommendation	Level of evidence
Nutritional/medical guidance should minimise language that can reinforce poor self-worth and contribute to worsening eating disorder behaviours	C
Irrespective of body size, addressing malnutrition and poor diet quality is essential	C
NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C	

in eating, weight and shape concern, but not restraint, relative to BWLI [202]. Only one study comparing CBT to BWLI has conducted long-term follow-up. At post treatment, CBT resulted in greater improvements in binge eating frequency and BED diagnosis [196]. However, there were no differences between groups at 6-year follow-up [199].

Other studies have evaluated sequential CBT and BWLI. For example, in one study participants who responded to CBT (i.e., improved eating disorder symptoms) were then offered BWLI while those who did not respond to CBT were offered IPT. The responders offered BWLI intervention demonstrated further improvements in binge eating and further weight loss, while the non-responders offered IPT demonstrated increased binge eating and small increases in weight [179]. In a second study, participants received either CBT, BWLI, or CBT followed by BWLI. There were no differences in binge eating remission between groups post treatment, but at 6-month follow-up the CBT alone group demonstrated significantly greater binge eating remission than BWLI alone or in combination with CBT [197].

A recent study compared BWLI to a stepped care model in which non-responders to BWLI were stepped up to CBTgsh. Both conditions demonstrated significant improvements in binge eating remission and frequency, with no difference between groups [200].

One RCT has tested an integrated BWLI with CBT-E in a transdiagnostic group with BN, BED and OSFED [201].¹⁰ There were significant within group reductions in eating disorder symptoms but only one between group difference for main eating disorder psychopathology outcomes. This was an increased binge eating remission rate with the integrated intervention at one year compared to CBT-E. Secondary outcomes are yet to be published

[206]. Cooper, Calugi and Dalle Grave [203] have also proposed an integrated treatment but this is as yet untested.

A systematic review of mindfulness-based interventions for people of higher weight found that mindfulness-based interventions resulted in a significant decrease of binge-eating disorder symptoms, when compared with control [204]. However this was an exploratory analysis due to the limited number (i.e., three) of studies available.

CBT and other dietary and non-dietary interventions CBT in combination with dietary interventions, such as low calorie diets (LCDs) or nutritional counselling, has not demonstrated advantages over CBT alone with regards to eating disorder symptoms [205, 206]. In contrast, combining CBT with inpatient treatment for obesity has been shown to improve binge eating episodes, relative to inpatient treatment alone, at 12-month follow-up [207]. BWLI has also been compared to non-dieting interventions (promoting improvements in health behaviours and body image without intentional weight loss). Both resulted in improvements in binge eating severity [208]. More recent weight neutral or weight-inclusive approaches, such as HAES, have shown improvements in eating behaviours (i.e., reduced cognitive restraint, disinhibition and binge eating) however such interventions have no published evidence to date in people with eating disorders [24, 25].

Clinical considerations There are some important issues specific to the treatment of people with eating disorders who are of higher weight that clinicians should be aware of.

Approaches for people with anorexia nervosa/restrictive eating disorders

Resumption of menses has been identified as an important treatment goal for females with restrictive eating disorders as it is a factor contributing to improved bone mineral density [209]. Restoration to pre-morbid weight,

¹⁰ Palavras et al., [201] was not included in the Brennan et al., review (manuscript in preparation) as the primary outcome was weight loss. It did however investigate a broad range of outcome including quality of life, eating disorder psychopathology and physical health stature and met the inclusion criteria for the scope of this guideline.

even if this is at a relatively high BMI, may achieve the most complete and long-lasting recovery [210]. However, research on weight restoration for anorexia nervosa among people living in larger bodies is currently lacking but has been noted as a priority for future research.

The value of in-session collaborative weighing

Evidence-based psychological therapies for eating disorders all stress the importance of in-session weighing. This is to monitor weight for safety reasons (e.g., in the case of anorexia nervosa and related disorders to make sure the person is restoring weight and/or not losing weight) as well as for the purpose of achieving cognitive change. However, when working with people with eating disorders who are of higher weight, the value of in-session weighing should be carefully considered, and the benefits evaluated against the risks of any possible negative consequences. For some people with higher weight, in-session weighing is recommended but options such as blind weighing can be considered. Again, this issue should be raised by the therapist and discussed openly with the individual before treatment begins. Where malnutrition is suspected (for example after prolonged dietary restriction or significant weight loss, regardless of current body weight) or there are medical co-morbidities present, a dietitian and a general practitioner should be closely involved in care and may use weight change as a marker of nutritional status. However, as above, weight change can be monitored without the person being aware of their weight if that is their preference.

Weight stigma

As highlighted in “[Weight stigma](#)” section ‘weight stigma’, therapists working with people experiencing eating disorders who are of higher weight need to be aware of the negative effects of weight stigma, and that fact that they, themselves, may be influenced by weight stigma which may make it more difficult to focus treatment on the person’s eating disorder rather than on their weight. Further training and supervision by a skilled clinician in this area may be helpful.

Psychological therapy for children and adolescents

Evidence overview There is no evidence to suggest that current evidence-based treatments for eating disorders in children and adolescents are not appropriate for people with higher weight. As outlined in “[Current status of treatment and outcomes for all eating disorders](#)” section FBT is the first line treatment for anorexia nervosa and bulimia nervosa for this age group, with second line treatments for anorexia nervosa being adolescent focused therapy

(AFT) and CBT-E. CBT-E is also considered a second line treatment for bulimia nervosa. However, guidelines vary as to how strongly these second line treatments are recommended [49, 52]. For BED, adult treatments are recommended [49] and for ARFID there is no recommendation, but CBT is noted as promising [52]. As noted earlier, an evidence-base for specific psychological interventions or modifications to current evidence-based treatments for those with higher weight does not exist.

Clinical considerations Modification of current evidence-based treatment for young people with an eating disorder and who are of higher weight is not yet indicated and treatment directives such as weighing the person experiencing the eating disorder in session should be followed. However, clinicians should proceed with sensitivity and judgement mindful of the potential for increasing shame and the impact of weight stigma and how this may impact on the young person’s and family experience. Some aspects of public health campaigns focussing on reducing childhood obesity (e.g. weighing of children in school) may trigger the development of an eating disorder in vulnerable young people. A common clinical impression from parents is the lack of recognition they can receive for their child’s difficulties and the delay this creates in receiving help. Young people on the other hand, often feel a sense of failure to be ‘seen’ as sick enough because of their weight. These and other related experiences should be recognised and integrated into the young person and family’s treatment to improve engagement.

Pharmacotherapy

Evidence overview

There are no medications developed for the treatment of people experiencing an eating disorder who are of higher weight where the primary outcome is improvement in eating disorder symptoms and/or behaviours. There are also no medications recommended in current general guidelines [48, 49] as first line in the treatment of an eating disorder. Whilst RCTs have found evidence of efficacy for some medications, for example, SSRIs particularly in people with BED or bulimia nervosa, effects are not sustained when the medication is withdrawn [48]. There are two groups of medications that are, however relevant to the scope of this guideline:

1. Medications that may be used for people with eating disorders. These are not recommended as ‘first-line’; they are most often used as adjunctive treatments.
2. Medications used to reduce appetite with potential to impact on eating disorder treatment.

It is also important to acknowledge that research in the use of medications in BED has been biased towards participants of whom either all or a very high proportion were people with higher weight. For example, in the NICE [49] guidelines all reported RCTs of pharmacological therapies in BED are of participants with a high BMI (>mean 30). Covertly or overtly, weight loss/maintenance in these trials is often presumed to be a positive treatment outcome.

Furthermore as we have noted medications are most often used as adjunctive treatments where they may enhance the efficacy of the psychological therapy however the present state of evidence is insufficient to recommend routine use in addition to psychological therapies.

Medications that may be used for people with eating disorders (see also Table 3)

Lisdexamfetamine This is a stimulant approved in Australia for treatment of BED. It is not approved for appetite suppression but has this effect. It is cautioned and is a relative contraindication in people with histories of substance use disorder and/or who are in the underweight range, in a state of weight loss or weight suppression. This is particularly true for people with past or current anorexia nervosa and some people with bulimia nervosa. Most efficacy trials have included a majority of people with a high BMI.

Antidepressants The majority of evidence for efficacy of antidepressants for people of a high BMI and an eating disorder is confined to BED and is of low to very low quality. They are inferior to CBT, and there is insufficient evidence they will enhance CBT or other psychological therapies. Relative risk for remission is 1.39 (0.92–209) in four studies to 12 months [49; Table 275]. Most evidence is for fluoxetine (up to 80 mg per day in BED; 60 mg per day in bulimia nervosa). Antidepressants may be considered for bulimia nervosa and BED where there is co-occurring depression or difficulties accessing psychological therapy. Antidepressants may reduce appetite in the short-term and/or be associated with reduced appetite in the longer term.

Anticonvulsants There is limited evidence for the use of topiramate in bulimia nervosa and BED. It is poorly tolerated with several adverse effects including weight loss, sedation and neurological symptoms [211]. One RCT of lamotrigine [212] in people with BED with higher weight reported a very high placebo response, similar to the active drug effect for binge eating.

Antipsychotics/mood regulating agents All antipsychotics and mood regulating agents, but particularly second-generation medications such as olanzapine, may cause

increased appetite, weight gain and exacerbate conditions associated with a high BMI such as metabolic syndrome and type 2 diabetes [213]. They also have a range of other problematic adverse effects such as sedation. When prescribed for a person with higher weight, one that is least likely to impact on appetite should be considered [214]. If there is severe weight gain, a change in antipsychotic/mood regulating agent should be considered as people may develop an eating disorder or exacerbation of eating disorder symptoms as a consequence.

Other agents Atomoxetine is a selective norepinephrine reuptake inhibitor. Evidence in eating disorders is limited to one trial in BED where it was associated with binge eating reduction [215]. Similarly Armodafinil, a psychostimulant has been found in one trial of BED to reduce binge eating [216]. Finally, dasotraline, a new agent with dual dopamine and noradrenaline reuptake inhibition, has been found in two RCTs to reduce binge eating in people with BED [217, 218]. It also reduced appetite in people with higher weight [219]. None of these agents are approved for use in eating disorders in Australia.

Medications used to reduce appetite

The weight loss medication orlistat has been trialled in people with BED who are of higher weight but it has poor tolerability and there have been reports of its abuse in people with bulimia nervosa [220]. It has not been approved for use in BED in Australia. Medications such as metformin, insulin and semaglutide may alter food consumption and consideration of this, and potential for non-prescribed use needs to be applied in the care of a person living with a higher body weight and an eating disorder.

Physical activity

Evidence overview

While there has been much research on exercise interventions for people of higher weight, few studies directly examine physical activity in the treatment of eating disorders among people with higher weight. However, a range of physical and psychological benefits (e.g., improved self-perception, body image and mood) have been found in studies involving structured and tailored exercise interventions in eating disorder populations. Such exercise is commonly part of a broader lifestyle, BWLI or LCD intervention and may take place in the workplace, where people spend a large portion of their time. It includes the implementation of walking routes, team exercise classes, improvements in cafeteria/vending machine options and team psychoeducation [221]. It is likely that these programs vary greatly in their weight-centrism and potential to reinforce weight stigma. As

this literature does not directly assess or refer to underlying eating disorder psychopathology caution is needed when translating such findings to eating disorder populations where exercise can become compulsive and used in an attempt to compensate for binge eating episodes. Meta-analyses have consistently found that exercising for predominately weight and shape reasons is likely to be associated with the onset and/or exacerbation of an eating disorder [222–224].

Levine et al. [225] looked at the effects of a 6-month exercise intervention in women with $BMI > 30$ and BED and found significant reductions in binge eating symptomatology in the treatment group compared with control, but no difference in effect on depressive symptomatology. Pendleton et al. [226] trialled exercise-augmented CBT in BED and also found significant reductions in binge eating symptomatology post-treatment. McIver et al. [227] found a yoga intervention significantly reduced self-reported binge eating in higher weight individuals as compared with a wait list control group who did not improve on any measure at post-test.

Clinical considerations

The literature has been evaluated in conjunction with clinical expertise to inform this guideline, and further research is needed to build a solid evidence-base. Primary treatment goals in this population should be psychotherapeutic and focus on self-acceptance and the development of a healthy relationship with exercise [228]. Emphasis should be placed on the physical and mental health benefits of regularly engaging in exercise [229], and more importantly, improvements in self-perception and positive wellbeing [230, 231] rather than a narrow focus on weight. Whether conducted with a normative or general eating disorder population, research consistently demonstrates multicomponent approaches including psychoeducation to be more broadly effective for improving physical and psychological health than behavioural changes alone [232]. What constitutes 'effective' will also depend on the individual and their goals. Exercise recommendations rarely consider current fitness levels, impaired mobility, or existing mental health concerns, such as eating disorders. Wherever possible, people with an eating disorder and are of higher weight should be engaged with a multidisciplinary team and any exercise or physical activity program should be closely monitored by a trained eating disorder and exercise professional, begin at an appropriate intensity and increase slowly over time in a graded fashion [228; see Box 11].

Notably, clinical judgement should be utilised when dealing with vulnerable populations. For people with eating disorders exercise can be pathological or unhelpful in nature

or frequency, thus exercise interventions for those people with higher weight need to take a different approach. People with higher weight may face additional challenges when attempting to implement exercise interventions due to current and/or previous experiences of weight stigma, prejudice and discrimination. Notably, exposure to exercise environments (such as gyms) very often involve exposure to weight stigmatising environments.

Family and other interventions for adults, adolescents and children

Evidence overview

The evidence-base for family interventions specific to people with an eating disorder who are of higher weight is extremely limited and no interventions developed for children and adolescents with eating disorders note any specific treatment adjustments for young people with higher weight. Further, none of the adult family interventions reported above ("Current status of treatment and outcomes for all eating disorders" section) specifically address or recommend an augmentation for people with eating disorders who are of higher weight.

People with anorexia nervosa (without low weight) may live, or have previously lived in a larger body. While FBT (see "Context" section, Table 2) was initially developed for people with eating disorders who are in an underweight range, there is some evidence for its application to individuals with anorexia nervosa (without low weight) without augmentation of the model [234]. However, a recent qualitative study of practitioners applying FBT to people with anorexia nervosa (without low weight) identified a lack of clarity on appropriate weight targets, the use of the weight chart in treatment and difficulty activating urgency in the parents [235]. These are all critical aspects of FBT for anorexia nervosa.

There is a body of literature around the negative effects of weight/shape and eating conversations, from familial, peer and other sources, for children and adolescents. Amongst many psychological consequences is an increased risk of eating problems [236, 237].

Clinical considerations

Clinicians should implement evidence-based treatment interventions for people with eating disorders who are of higher weight as recommended and continue to involve families in treatment. At the least, psychoeducation of families and supports are needed. This would include emphasising that nutrition is critical, providing information about what constitutes normal eating, and the way in which malnutrition impacts the brain and makes body distortion/fear of weight gain worse. Nutritional recovery often leads to weight gain, regardless of the person's initial starting weight. Similarly, nutritional

Box 11 Exercise in eating disorder treatment

Exercise can be an effective intervention for many psychological health issues [e.g., depression; see 233], however, has often been overlooked as a potential adjunct intervention to eating disorder treatment. A systematic review by Cook et al. [228] outlined 11 core themes describing techniques that have been successful in using exercise as an adjunct in eating disorder treatment. These themes are: "employ a team of relevant experts; monitor medical status; screen for exercise related psychopathology; create a written contract of how therapeutic exercise will be used; include a psycho-educational component; focus on positive reinforcement; create a graded exercise program; begin with mild intensity exercise; tailor the mode of exercise to the needs of the individual; include a nutritional component; and debrief after exercise sessions" [228; p.1408]

recovery commonly results in improved cognitive function, although improvements in eating disorder thinking often lags behind other changes. It is ideal to deliver psychoeducation on psychosocial impacts of an eating disorder when in a larger body. This may include how families manage their own weight stigma and conflicting advice from health professionals regarding the desirability of weight loss.

Structured support from family/supports to facilitate regular and adequate eating will assist with eating disorder cognitions and returning a normal eating pattern. This may include the responsibility of purchasing of food, preparing of meals, and support at mealtime. Families should be encouraged to check in with their own assumptions about body shape and size so their loved one can focus on recovering from the eating disorder, rather than on a fear of returning to or maintaining larger body size. Families should be encouraged to use body neutral and body positive talk. Health professionals reflecting on their own use of body negative talk and overvaluation of shape and size is important. Changing our own language and thoughts can model body image acceptance and a focus on health in recovery.

Families should be encouraged and supported to develop distress tolerance skills for both themselves and the person with the eating disorder rather than using disordered eating behaviours to reduce distress. Encouraging families and supports to consider social media usage in the home and supporting media literacy in the eating disorder affected person is also likely to be helpful. Evidence-based resources include Mental Health First Aid, including online resources, and eating disorder specific training.

It is important to note that families are also expected to be active in the second line individual treatments (CBT-E and AFT) discussed earlier. While parents are not present for every session their role is defined and participation critical. Similarly, the inclusion of parents in any emerging treatment for children and adolescents is going to be essential given the importance of both the relationship and family context. IPT for BED as discussed in “[Psychological: first line](#)” section is an exemplar of a novel treatment also being delivered in a family-based format [238].

Nutritional and medical management**Evidence overview**

The research evidence for nutrition care for people with an eating disorder who are of higher weight is covered above in the sections on BWLI, CBT and other dietary interventions, and exercise. There is no evidence to support any dietary intervention as stand-alone care for treatment of an eating disorder. Nutritional assessment and management of nutritional care in larger-bodied people with eating disorders is best provided with the support of a dietitian.

Clinical considerations

The nutritional and medical management of person with an eating disorder who are of higher weight must address both the eating disorder and any other health needs of the individual. This may include nutritional complications of the eating disorder, and the nutritional needs of physical and mental health co-occurring condition. A priority is the nutritional management of medical conditions such as type 1 diabetes, with awareness that an eating disorder may complicate dietary management.

Malnutrition

Addressing malnutrition is essential for preventing life-threatening and longer-term complications in those with a restrictive or other eating disorders [19, 239]. Malnutrition is generally defined as a $BMI < 18.5 \text{ kg/m}^2$ or unintentional weight loss of $\geq 5\%$ with evidence of suboptimal intake resulting in subcutaneous fat loss and/or muscle wasting regardless of BMI [240]. However, *intentional* weight loss, or being in a state of ‘weight suppression’ (i.e., a discrepancy between one’s highest adult weight and current weight), should not preclude a diagnosis of malnutrition in someone with an eating disorder, and identifying malnutrition beyond current weight, with assessment of percentage of weight loss is recommended by the American Academy of Paediatrics, American Society for Parenteral and Enteral Nutrition, Academy of Nutrition and Dietetics and the Society for Adolescent Health and Medicine [209, 241, 242]. However, identification and assessment are only the first steps in the nutritional rehabilitation process required to reverse malnutrition.

There are numerous clinical guidelines outlining the best evidence-based strategies for treating malnutrition and improving dietary quality [243], which may help guide the nutritional interventions for malnourished people with an eating disorder who are of higher weight. However, it is important to ensure that nutritional rehabilitation not only addresses immediate nutritional needs to prevent further weight loss, but also the body's need for physical repair of any damage incurred during dietary restriction and other eating disordered behaviours resulting in malnutrition. A person's body weight may need to increase to allow for this physical repair and restoration. This may be difficult for the person with an eating disorder to accept when their sense of identity is closely linked to their appearance, and they have been striving to lose weight. They also will encounter, and be distressed by, the negative consequences and stigma (perceived or actual) of a higher weight.

Micronutrient deficiencies

People with higher weight may have micronutrient deficiencies (e.g., zinc, iron, vitamin D, B-group vitamins, etc.) due to low diet quality and potentially reduced bioavailability [244–246]. Moreover, eating disorders may potentially result in micronutrient abnormalities or deficiencies as a result of dietary restriction and eating disorder behaviours (e.g., vomiting) leading to medical complications.

Other medical problems

While higher weight is associated with a multitude of medical and psychological conditions, this section deals with the management of medical conditions in people with both an eating disorder and with higher weight. Eating disordered behaviours in people with higher weight may also lead to a range of medical complications that require intervention. As previously mentioned, people of any weight with BED are at risk of medical complications such as type 2 diabetes, hypertension and dyslipidaemia [47]. These conditions often require specific dietary restriction and modification. Although traditional dietetic interventions for people with higher weight with such medical conditions have promoted the primary goal of specific dietary modification for weight loss [247–249], these effects appear short-term, and may bring unhelpful consequences such as weight regain, binge eating, body dissatisfaction, eating disorders and low self-esteem [250, 251]. Further, health gains may be achieved with improved diet quality alone [252, 253].¹¹

Nutritional guidance on management of such medical complications therefore needs to be aware of language and avoid messaging that can reinforce poor self-worth, feelings of failure and stigmatisation, which can all contribute to worsening eating disorder behaviours rather than reducing the medical complications. Individualised nutrition counselling and dietary adaptations to manage medical co-occurring conditions are important. This may include non-weight loss focussed dietary approaches and HAES approaches, which incorporate directly targeting unconditional body shape and size acceptance, and encourage physical activity and eating for well-being, including eating according to appetite, decreasing vulnerability to external stimuli and coping with emotional eating. A systematic review of randomised and non-randomised studies examining HAES interventions for management of BMI suggests that HAES, focusing on more comprehensive health outcomes rather than weight loss alone, may be effective for improving some cardiovascular outcomes, but further studies examining the effect on blood glucose and blood pressure are needed [24].

The presence of binge eating, purging and other eating disorder behaviours complicates the management of diabetes. Goebel-Fabbri [258] has written a practical guide to management of eating disorders and type 1 diabetes, some of which is also relevant for management of type 2 diabetes. A clinical guideline for disordered eating and eating disorders in adults with type 1 diabetes (aged 16 years and over) produced by Queensland Health is also available [259]. Polycystic ovary syndrome (PCOS) is also associated with an increased risk of disordered eating [260, 261] and care needs to be taken not to exacerbate body image issues and eating disorders in this group of women [262].

In the case of bone health, although people with higher weight are thought to have higher bone mineral density (BMD), they appear to have an increased risk of fractures at some sites [263]. If severe dietary restriction and malnutrition is layered on top of this, leading to inadequate calcium intake and potentially a fall in oestrogen in females, this may place the individual at an increased risk of fractures. Current research suggests adults with anorexia nervosa (without low weight) have significant bone deficits, while adolescents with anorexia nervosa (without low weight) have BMD scores higher than adolescents with anorexia nervosa who are underweight [264], with their BMD potentially protected by their pre-morbid higher weight. Further, in atypical anorexia nervosa, lack of current low weight or amenorrhoea does not prevent reduced vertebral strength [265], and should be considered as a potential concern in all individuals with an eating disorder who have a history of severe dietary

¹¹ It should be noted that in long-term follow-up of interventions aimed to reduce disorders associated with high weight, improvements have been reported in body dissatisfaction and binge eating frequency [254–257]. However, these are studies of high weight disorder and not of people with both an eating disorder and with high weight for whom the results cannot be directly applied and are out of scope for this guideline.

restriction. However, findings have been inconsistent [e.g., 266].

Bariatric surgery

It is important to assess for an eating disorder in people with higher weight attending for bariatric surgery assessment, as the prevalence is high [267]. People with a history of eating disorders also often plan to undergo bariatric and/or cosmetic surgery [268]. Additionally, although binge eating and psychological conditions like anxiety and depression may improve in the short-term following bariatric surgery, they may restart over the longer term [269, 270]. Continuing psychological support may improve outcomes in the longer-term from bariatric surgery [271]. However, the data are quite mixed and most point to the need for an improved understanding of who will develop loss of control eating after surgery as opposed to prior to surgery.

Other psychiatric therapy for co-occurring conditions (e.g., bipolar disorder, psychosis)

Both BED and bipolar spectrum disorders are frequent co-occurring conditions in people with higher weight, and experiencing both BED and bipolar disorder concurrently is associated with more severe eating behaviours and psychopathology [272]. Furthermore, it is suggested that approximately 10% of people with schizophrenia have BED [273]. People with such psychiatric co-occurring conditions often require antipsychotic medication which is associated with rapid weight gain and metabolic abnormalities as detailed earlier [274–276]. These medications are known to increase appetite, decrease satiety and increase cravings for sweet foods and drinks, as well as contribute to disordered eating habits, such as only eating one main meal each day [277, 278]. Mood stabilisers (e.g., lithium) and anticonvulsants (e.g., valproate) can also have weight gain effects [276]. In people with an eating disorder who are of higher weight who are also taking antipsychotic medication, it is important to be aware of the risk of onset of disordered eating and eating disorders in this context.

Cultural considerations

Evidence-based knowledge of cultural considerations in the management of eating disorders is in its infancy. To our knowledge there are no studies that specifically addresses cultural considerations for the treatment of eating disorders for people with higher weight. The following paragraphs are derived from research pertaining to cultural considerations for the treatment of eating

disorders (at any weight) as well as lived experience and clinical expertise. The below groups were chosen as salient groups that are under-represented in the eating disorders literature and treatment services within the Australian context, however such considerations may be relevant for similarly under-represented and disadvantaged groups across the international context. See a recent systematic review by Acle et al. [279] for empirically derived guidance on how to effectively address culture in eating disorder treatment among racial/ethnic minorities. A lived experience perspective is provided in Box 12.

Men with eating disorders

Historically perceived as disorders of women, eating disorders can affect people of any gender. While there has been an under representation of males in eating disorder research [280], it is estimated that one third of people reporting eating disorder behaviours in the community are male [281]. Males account for approximately 30% of people with bulimia nervosa, 57% of people with BED, 55–77% of people with OSFED [subtype-dependent; 282] and 67% of ARFID [283].

In comparison with women, men are more likely to have a history of higher weight prior to their eating disorder, accompanied by weight-related bullying [236, 284]. In addition to weight stigma and the stigma associated with having a mental illness, males may experience stigma associated with having a ‘female’ disorder which may present as a barrier to seeking and engaging in treatment [33, 285]. Men also experience a later age of onset [281] and higher rates of co-occurring psychiatric conditions [286]. Despite this, research shows that health professionals are less likely to recognise eating disorder behaviours in males as a mental health problem, and this less likely to offer treatment [280, 287].

In Westernised society, the majority of males report desiring a lean muscular physique [288, 289] as opposed to a ‘thinner’ physique often desired by women [290]. This pursuit of a masculinity may manifest in a wide range of eating disorders behaviours including misuse of anabolic steroids [163, 164].

While men can experience all eating disorder diagnoses, some differences in eating disorder psychopathology have been noted across genders. Men are less likely to report a loss of control over eating, despite having similar rates of objective binge eating to women and are more likely to engage in compulsive exercise for emotion regulation [291]. The management approaches described throughout this guideline are not gender-specific, however health professionals may need to hold additional considerations in mind when working with men such

Box 12 A lived experience perspective: cultural considerations

"It started when I was in high school. I was 15. I was not coping at home. I was not coping at school. My fixation with food intake or lack of it, was something that I could control. After passing out a number of times, I was tested for everything from diabetes to possible brain tumours. The doctors just kept saying that they could not find anything wrong with me.

Throughout this time, I had body maintenance and being male, no-one could acknowledge or diagnose that I had an eating disorder. In Year 10, after collapsing in the playground at lunch, I was transferred to hospital by ambulance. It was a teacher that escorted me in the ambulance that made a comment to the paramedics that she thought I may be experiencing an eating disorder. At the hospital things started to change. I was not poked and prodded at, rather the doctors and nurses started talking to me about my thoughts, feelings and experiences. I was diagnosed with bulimia. I was given the label—but no-one really knew how to work with me. 'I never worked with a male before', 'it is not common in boys', and 'you don't meet the case studies that I have seen in research' were common statements that the medical staff and allied health professionals like psychologists and social workers stated to me. The health workers struggled at times to engage with me. I already felt odd and out of place and then to be told that I was an 'anomaly' was so hard. I remember being given a booklet about eating disorders. I could not see anything in it that related to me. It told me that my periods would stop, and my breast development would be disrupted. Everything that a 16-year-old boy needs to be aware of. Being an Aboriginal male there was also very little information about eating disorders in community or any real cultural support offered. I am not sure that much has changed over the last 30 years. What I would like to see in the future is more recognition that eating disorders affect all people and is predominate in all cultures. It is important for young men to understand that eating disorders can affect them and to have resources and support tailored to meet their unique needs. It is also pertinent that health professionals work in culturally safe ways to support Aboriginal & Torres Strait Islander people and their families throughout their diagnosis and treatment journey. So for me there were at least four assumptions that were wrongly made that prevented me from getting help earlier. Firstly, it was about who has/ or can develop an eating disorder. The second was that health professionals were looking for a certain body size. Thirdly, there was a cultural barrier, nothing that was Aboriginal-specific as a resource and lack of cultural awareness or cultural competence. Finally, there was also a gender barrier that involved both the fact the professionals that I worked with mostly non-indigenous females and I was a young Aboriginal male who didn't meet the stereotypes of those with an eating disorder, as well as literature that aimed for female clients. It is now time to make changes to stereotypes and becoming more culturally alert to the diverse range of clients.

AJ Williams-Tchen, lived experience advocate and Guideline Development Group Member.

as the importance of exploring and challenging 'masculine' concepts of strength, power and control for greater treatment engagement [292]. Clinicians are also encouraged to be attuned to how men express and communicate (often gendered) emotions including distress, anger, grief, irritability, anxiety and sadness. For additional information on considerations for psychological therapy when working with men with eating disorders see Bunnell [293].

Aboriginal and Torres Strait Islander peoples

Owing to the limited evidence for the treatment of eating disorders for Aboriginal and Torres Strait Islander people, health professionals working with people experiencing eating disorders and their families, should apply caution when applying this guideline to Indigenous peoples and recognise there may be a need to customise or tailor current treatment and communication approaches to accommodate their culturally diverse needs, resources and expectations.

It is suggested that health professionals refrain from using clinical language and overreliance of health literature in awareness that some Indigenous peoples have lower literacy levels and/or English as a second language, lower health literacy, and lower mental health literacy than non-Indigenous Australians.

A clinical yarning approach [see 294] could help mitigate any potential barriers with establishing therapeutic

rapport, service engagement and possible referral pathways. When making recommendations for treatment, health professionals should be aware that Indigenous peoples often face multiple access barriers (e.g., cost, transport, limited range of service for rural and remote communities) especially when needing to access multiple and ongoing health care as is required for eating disorder treatment.

Health professionals are also encouraged to conceptualise eating disorders from the perspective of social emotional wellbeing [see 295]. Social emotional wellbeing is phrase and holistic concept of health unique to Aboriginal and Torres Strait Islander peoples and distinguishes the understanding of mental health disorders from the medical orientated, euro-centric conceptualisation of mental health and treatment. As such, standard nutrition guidance may not be suitable for Aboriginal and Torres Strait Islander People who are accustomed to living off the country or are experiencing high rates of food insecurity [296]. Additionally, it is important for health professionals to understand that the shame experienced by some people with disordered eating behaviours may vary across cultures and a tailored understanding of shame in the context of Aboriginal and Torres Strait Islander people is necessary.

It is also recommended that health professionals practice and provide trauma informed care (see Box 3) due to the ongoing and intergenerational trauma, grief

and loss consequential to colonisation and its continual impact on contemporary Aboriginal and Torres Strait Islander peoples [297]. Practicing cultural reflexivity (i.e., critically examining one's own attitudes, values and biases) is a step towards cultural competency. Working in true partnership with Aboriginal and Torres Strait Islander people (i.e., acknowledging the person experiencing the eating disorder, their family and community as equally experts in the process) and collaborating with Aboriginal-led medical and community services or Aboriginal allied health professionals may foster cultural safety and improve engagement [297].

Finally, health professionals are encouraged to broaden their perspective of what constitutes an Indigenous person's support system which may often involve input from Elders, community members, extended family and friends. It is also important to explore the role of Traditional Healers and bush medicines people, where and if appropriate.

LGBTIQA+¹² individuals

Research on the prevalence of eating disorders in gender and sexual minority people is limited, however, emerging research suggests higher rates of eating disorders in LGBTIQA (lesbian, gay, bisexual, transgender, gender diverse, intersex, queer, asexual and questioning) people compared to their heterosexual and cisgender peers [298, 299]. Health professionals may need to hold in mind additional considerations and tailor aspects of management and communication when working with LGBTIQA+ people with eating disorder who are of higher weight.

Body image dissatisfaction is a core symptom and stressor for sexual and gender minorities and a significant risk factor for the development of an eating disorder [300]. This is especially true for the transgender population where higher levels of incongruence between biological and assigned sex and gender identity are related to higher levels of body image dissatisfaction [301]. Clinicians should explicitly seek consent to physical examine a person's body and have an awareness of the potential distress related to physical examinations, especially when gender dysphoria is present.

Practicing trauma-informed care (see Box 3) is of particular importance when working with LGBTIQA+ people as research suggests this population experiences higher rates of adverse events compared to the general

population [302–304]. People from sexual and gender minorities may face additional stressors including 'minority stress', i.e., identity-based stress experienced by members of disadvantaged social groups, over and above the general life stressors experiences by all members of society [305] as well as 'intra-minority stress' i.e., stress derived from within the LGBTIQA+ community [306]. LGBTIQA+ people with eating disorders who are of higher weight endure 'double stigma' (i.e., weight stigma as well as the stigma from being in a minority group) and associated prejudice and discrimination [307, 308].

Research suggests that 40% of transgender people with an eating disorder did not disclose their gender identity to their clinicians due to fears (based on past experiences with health professionals) of being ignored, stigmatized and/or discriminated against [309]. It is important that health professionals foster a sense of safety by being gender affirmative and do not make assumptions about a person's gender or sexual identity. This may include asking the person experiencing an eating disorder about their pronouns and seeking consent before disclosing their gender or sexual identity to other health professionals, family members and/or supports. Using gender neutral language when discussing management with people experiencing eating disorders (e.g., swapping the terms 'breast' for the term 'chest'; 'motherhood' for 'parenthood'; and 'breastfeeding' for 'nursing') and may help validate a person's gender identity and foster a safe healthcare environment. Health professionals are encouraged not to make assumptions about people's body image and/or body image distress as stereotypes of an 'ideal body/shape/weight' may vary across LGBTIQA+ cultures.

Finally, clinicians are encouraged to expand their perspective of what constitutes a family and support system to include 'chosen and created families' (i.e., non-nuclear supports) who may provide vital support throughout the treatment journey for people with an eating disorder who are of higher weight. While this also applies to both heterosexual and cisgender people, it is of particular importance for LGBTIA+ people, who, when compared to heterosexual cisgender people are more likely to live alone, less likely to have children and more likely to be estranged from their biological family [310].

Discussion

A summary of key recommendations⁹ is provided in Table 12.

¹² It is acknowledged that there are differences across issues of gender identity compared with sexual identity, however for ease of reference, both are included in this section. It is also acknowledged that some terminology is contested and language in this area is evolving.

Table 12 Summary of key recommendations

Recommendations for the management of people with eating disorders who are of higher weight	Level of evidence
Management overview	
All treatment should be provided in the context of interprofessional collaborative practice	C
Psychological therapy for adults	
Psychological treatment should be offered as first-line treatment approach for bulimia nervosa or binge-eating disorder (BED)	A
Cognitive behaviour therapy (CBT) for an eating disorder either in standard form or therapist guided self-help should be considered as first-line treatment in adults with bulimia nervosa or BED	B
Other psychological treatments with evidence such as interpersonal psychotherapy (IPT) and dialectical behaviour therapy (DBT) should be considered as second-line treatment options in adults with bulimia nervosa or BED	B
Other feeding or eating disorder (OSFED), unspecified feeding or eating disorder (UFED) or subsyndromal eating disorders should be treated with treatment recommended for the most similar disorder	C
Consider using therapies utilising non-dieting principles and interventions to reduce disordered eating	D
Therapies with demonstrated efficacy for the treatment of anorexia nervosa* in general, that is cognitive behaviour therapy-enhanced (CBT-E), specialist supportive clinical management (SSCM), Maudsley model of anorexia nervosa treatment for adults (MANTRA) and focal psychodynamic therapy (FPT) should be considered as treatment options	D
Psychological therapy for children and adolescents	
Psychological treatment for an eating disorder should be offered as first-line treatment approach	A
Family based treatment should be considered as first-line treatment for children and adolescents with bulimia nervosa and anorexia nervosa*	B
Other psychological treatments with evidence such as adolescent focused therapy (AFT) and CBT for an eating disorder should be considered as second-line treatment options in children and adolescents with anorexia nervosa* (AFT, CBT) or with bulimia nervosa (CBT)	B
Other psychological treatments with evidence such as CBT for an eating disorder should be considered as second-line treatment options in children and adolescents with bulimia nervosa	B
Children and adolescents with higher weight should be offered a first line evidence-based treatment approach for eating disorders as those who do not have higher weight	C
OSFED, UFED or subsyndromal eating disorders should be treated with treatment recommended for the most similar disorder	C
Pharmacotherapy	
Consider using psychotropic medications with evidence in the treatment of eating disorders	B
Monitor for any non-prescribed use of medication in the context of an eating disorder	D
Physical activity	
Physical activity interventions should focus on physical activity for positive physical and mental health benefits and away from exercising for weight or shape change	C
If compulsive exercise is present, referral to an exercise physiologist experienced in working with larger-bodied people and eating disorders populations is desirable	D
Family and other interventions for adults, adolescents and children	
Include families and other carers when indicated for anyone with an eating disorder	B
Family psychoeducation around impacts of body and eating conversations should include modelling body image acceptance, weight stigma and a focus on health in recovery	D
Nutritional and medical management	
Nutritional/medical guidance should minimise language that can reinforce poor self-worth and contribute to worsening eating disorder behaviours	C
Irrespective of body size, addressing malnutrition and poor diet quality is essential	C

NHMRC grades range: A. Body of evidence can be trusted to guide practice e.g., meta-analyses of randomised controlled trials (RCTs) low risk of bias; B. Body of evidence can be trusted to guide practice in most situations (RCTs or other controlled studies, low risk of bias); C. Body of evidence provides some support for recommendation(s) but care should be taken in its application (moderate risk of bias in trials); and D. Body of evidence is weak and recommendation must be applied with caution (high risk of bias in trials). Full criteria in Additional file 1: Appendix C

* In this guideline, the ICD 11 terminology for anorexia nervosa is adopted rather than the DSM-5 criteria. That is, anorexia nervosa (code 6B80) is used as a broad term to include all people at all body weights and without specifying the underweight criterion (sub coded in ICD-11 as 6B80.0, anorexia nervosa with significantly low body weight). See “Background to eating disorders and how they occur” section for more detail.

Conclusion

In conclusion, this guideline have compiled a series of recommendation for the approach and care of people with eating disorders who have higher body weight. This guideline has been written from the perspective of the adverse effects of weight stigma and the complexity of causes of eating disorders across people of all sizes. The readers are referred to other literature for management of specific medical and other psychological disorders that are often experienced by people with an eating disorder who are living in a larger body.

Abbreviations

ARFID: Avoidant/restrictive food intake disorder; AFT: Adolescent focused therapy; BED: Binge-eating disorder; BMI: Body mass index; BWL: Behavioural weight loss interventions; CBT: Cognitive behaviour therapy; CBT-E: Cognitive behaviour therapy-enhanced; DBT: Dialectical behaviour therapy; EMDR: Eye movement desensitisation and reprocessing; FBT: Family based treatment; FPT: Focal psychodynamic therapy; gsh: Guided self-help; HAES: Health at every size®; ICP: Interprofessional collaborative practice; IPT: Interpersonal psychotherapy; LCD: Low calorie diet; LGBTIQA+: Lesbian, gay, bisexual, transgender, gender diverse, intersex, queer, asexual and questioning; MANTRA: Maudsley model of anorexia nervosa treatment for adults; NHMRC: National Health and Medical Research Council; NICE: National Institute for Health and Care Excellence; NEDC: National Eating Disorders Collaboration; OSFED: Other feeding or eating disorder; PCOS: Polycystic ovary syndrome; PRISMA: Preferred reporting items for systematic and meta-analysis; RCT: Randomised controlled trial; rTMS: Repetitive transcranial magnetic stimulation; SSCM: Specialist supportive clinical management; UFED: Unspecified feeding or eating disorder; WHO: World Health Organization.

Supplementary Information

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Additional file 1. Appendices. Appendix A - D.

Additional file 2. RIGHT Checklist. RIGHT (Reporting Items for Practice Guidelines in Healthcare) Statement for Practice Guidelines checklist.

Additional file 3. Quality appraisal. Quality appraisal of systematic reviews and meta-analyses appraised using JBI critical appraisal checklist for systematic reviews and research syntheses.

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PH and members of the NEDC Steering Committee conceived the idea for this project. All authors were involved in drafting the manuscript. PH chaired the

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