Library Services



Systematic Reviews

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1. Introduction

This guide tells you:

- what a systematic review is
- why you might want to do one
- what they are used for
- how to go about carrying one out.

It starts by outlining some of the characteristics of systematic reviews; talks about the best way of drawing up a search strategy to look for evidence; gives you some tips about where you need to look for information to include in a review and how to organise this information; and shows you where to look to find out extra information about systematic reviews. This guide is NOT about searching databases or using bibliographic software – you can find out more about these topics by visiting our web pages at http://www.kcl.ac.uk/library/index.aspx

High quality systematic reviews seek to:

- Identify all relevant published and unpublished evidence
- Select studies or reports for inclusion
- Assess the quality of each study or report
- Synthesise the findings from individual studies or reports in an unbiased way
- Interpret the findings and present a balanced and impartial summary of the findings with due consideration of any flaws in the evidence. (Hemingway, 2001)

It is also the foundation stone of evidence-based medicine.

Systematic reviews are – as far as is humanly possible – an exhaustive summary of the **high-quality** literature on a particular topic. They are usually based on randomised controlled trials which have met rigorous standards of quality. They aim to bring the same rigour to secondary research - i.e. research about research - as there should be in original (primary) research. They are objective and transparent and aim to avoid bias as much as possible. All the methodology the reviewers have used to look for and assess articles is set out in the review so other people can see what the researchers have done and repeat their work at a later date as new evidence is produced from clinical trials. Systematic reviews sometimes use a technique called **meta-analysis** to pool together results from a number of different trials.

2. The advantages of doing a systematic review

Systematic reviews can save busy clinicians a huge amount of time. It is estimated that over 2 million articles are published, in more than 20,000 journals each year. It would be impossible for anyone to keep up with all the developments in even quite a narrow field but a systematic review can summarise the best-available evidence and produce a conclusion to help clinicians make the right choice of treatment for their patients. Systematic reviews give a clear and consistent picture of the research instead of a number of smaller studies which may give contradictory answers to the same question. Sometimes systematic reviews come to the conclusion that there is not enough good evidence on a particular topic to draw any conclusions about it but even this is useful as it highlights the need for more research on a particular topic, draws attention to the shortcomings of the research

which has already been carried out, and stops clinicians from recommending a treatment until it has definitely been proved useful. Systematic reviews also exclude poor-quality trials from their analyses guaranteeing that any research that has been analysed is of a high quality. Because systematic reviews are deliberately open about the way they look for and analyse research they may be less biased than traditional literature reviews carried out by specialists in a particular field. They try to avoid publication bias - where only studies supporting a particular treatment are published in journals - by looking for unpublished material and grey literature, and selection bias where people only review articles which support their own opinions. The fact that they publish their methodology also means that they can be repeated later by other researchers to take into account any new studies or new developments since the review was first carried out.

3. Why do a systematic review?

There are a number of different reasons why you might want to do a systematic review:

- To keep up to date with the latest research
- To introduce a new treatment which might be more effective than existing ones
- To discontinue an old treatment which might be out of date, harmful or just a waste of money
- To draw up guidelines for treatment
- To organise people's care in a more efficient way
- To avoid duplication of effort and avoid wasting resources on researching topics where the evidence is already clear

4. What do systematic reviews cover?

Systematic reviews often look into the effectiveness of a particular drug treatment comparing it to either a placebo or to other existing treatments. However, systematic reviews cover much more than just drugs and can be used to look at a wide range of different issues including

- Drug treatment
- Surgical and nursing techniques e.g. the best ways of carrying out hip replacements or the best methods of caring for wounds
- Psychosocial interventions e.g. family therapy for eating disorders or mindfulness for anxiety
- Public-health interventions e.g. what are the best ways to encourage people to become more active?
- Adverse effects of drugs or other treatments
- Economic evaluations they can contribute towards the work of NICE and help clinicians make decisions about which treatments are cost effective

5. The Cochrane Library

One of the best places to find health systematic reviews is The Cochrane Library http://www.thecochranelibrary.com/

The Cochrane Library was founded in 1993 and named after the British epidemiologist Archie Cochrane (1909-1988). There are 15 Cochrane centres in different countries with teams of volunteers carrying out reviews for more than 50 Cochrane Review Groups - all based around a particular topic. The Cochrane Collaboration is a non-profit making organization and the library is updated four times a year to include the latest reviews carried out by the different groups.

You can find an example of a systematic review here

http://onlinelibrary.wiley.com/o/cochrane/clsysrev/articles/CD004843/frame.html



The Centre for Reviews and Dissemination at the University of York produces the PROSPERO database - http://www.crd.york.ac.uk/PROSPERO/ - which lists prospective

systematic reviews. It could be a good idea to search this database before starting your systematic review just in case someone else is already planning to do a review in your topic.

6. The stages of a systematic review

The Cochrane Collaboration sets out **eight** stages for doing a systematic review.

- 1. Define what you need to know, and about what topics. It is a good idea at this stage to be as specific as possible. 'Is family therapy an effective treatment for anorexia nervosa?' for instance will be a more effective question and produce better results than 'How do I help people with eating disorders?' In this stage you also need to decide how you will choose which studies to include in your final analysis and which not to include.
- 2. Search for the articles you might want to include in your review
- 3. Select which articles are good enough to be included in the final review
- 4. Look for any risk of potential bias in the articles you have selected
- 5. Carry out a statistical analysis of the data from the trials you have selected
- 6. Check for any bias in the way the trials you have included have reported their results. Have they stressed positive results and downplayed negative ones or vice versa?
- 7. Present the statistical outline of your results and tables showing a summary of your findings
- 8. Interpret your results, come to some conclusions and express them in clear English for as wide an audience as possible

7. Exercise 1 – drawing up your search strategy

Is Vitamin C helpful for the common cold?

When carrying out your search in databases such as Ovid, Medline, PsycINFO etc the first step is to define your question clearly (see above) and break it down into individual concepts e.g. family therapy, anorexia nervosa; or vitamin C, common cold. You will need to do both a free-text search – matching specific search terms to the titles and abstracts of articles – and a subject-heading one. Library Services provide a number of courses on searching different databases so you might want to think about going on one of them before you start doing your systematic review. You will also need to bear in mind that terms can have a number of different synonyms, i.e. words that mean the same thing, and include as many of these as you can think of. For example if you are doing a search about depression you might also want to include the search terms 'major depression' 'depressive disorder' 'dysthymia' and 'mood disorder' to name but a few.

You can see an example of a search strategy, drawn up for a Cochrane review on the effectiveness of music therapy given to cancer patients here. Once you are on the Cochrane web site click on the link to the full version of the review then navigate to the appendices using the Jump To box. You can see that only a small part of the search strategy is to do with the subject of the review – the rest is designed to look for high-quality studies such as randomised controlled trials by using a filter (see below). You can find other examples of good-quality search strategies on the National Clinical Guideline Centre web site - http://www.ncgc.ac.uk/Guidelines/ and on the web site of the Health Technology Assessment programme http://www.hta.ac.uk/

Search strategies are usually published as part of the methodology of a systematic review and even if a review does not match yours exactly you can still use part of the strategy for your own search. For example you could look at a review of radiotherapy for cancer and use the 'cancer' part of the search strategy for a review on psychotherapy for people suffering from cancer. Good sources of published search strategies include:

The Cochrane Library - http://www.thecochranelibrary.com/ and

The Campbell Collaboration - http://www.campbellcollaboration.org/ - which produces systematic reviews in education, crime and justice, and social welfare

You can download a checklist to help you evaluate other people's search strategies at https://ejournals.library.ualberta.ca/index.php/EBLIP/article/view/7402/6436 - An Evidence Based Checklist for the Peer Review of Electronic Search Strategies (PRESS EBC).

8. More sophisticated search techniques

You can use a number of different techniques to improve the quality of your search strategy.

Truncation

You can use truncation as part of a free-text search to look for all words starting with a particular combination of letters. For example **depress*** will find references containing the words depressed, depression, depressive, depressing etc. Truncation symbols can vary from database to database so if * doesn't work you could try using the Help function to see if the database you are searching uses a different symbol

Wildcards

In some databases you can use a wildcard symbol in the middle of a word to search for different spellings – most typically American and UK English. For example p?ediatrics will find references containing both pediatrics (American spelling) and paediatrics (UK spelling). Again wildcard symbols can vary between databases so use the Help function to find out what the database you are searching uses

Adjacency Searching

You can use adjacency searching to find words in a reference within a particular number of words of one another. This allows you to carry out a search which will find more articles than a phrase search – where you enclose the phrase you are looking for in speech marks – but fewer than when you search for references which contain both words anywhere within them. So, for example in the Ovid platform for e.g. Embase or PsycIndo databases

acute adj5 otitis media will find articles where the word acute occurs within five words of the words otitis media. By increasing the number after 'adj' you can find more articles which may be less relevant and by decreasing the number after 'adj' you can find fewer, but more relevant, articles. There is no hard-and-fast rule for the 'right' number when you use adjacency searching so you will need to experiment to find the number which gives you the best balance between **sensitivity** (finding as many articles as possible) and **specificity** (making sure those articles are relevant). In fact you could say that the whole process of doing a good search is about finding the best balance between sensitivity and specificity.

NB The Web of Science database uses **near/n** rather than adj but the underlying principles are the same.

Floating sub-headings

In Medline sub-headings are used to narrow a search down to a particular aspect of a topic. So, for instance, if you do a subject search for diabetes you will find subheadings for diagnosis, drug therapy, epidemiology etc. However, you can also search these subject headings in their own right and when you do this they are known as **floating sub-headings**. You can do a search for floating sub-headings by typing in the name of the subheading you want to search for then adding .fs at the end. For example a search for **drug therapy.fs** will find ALL the records in Medline with a sub-heading of drug therapy regardless of the condition that this drug therapy is aimed at. You can then combine this search – using either AND or OR – with a search on a particular condition or substance (for instance if you were only interested in the therapeutic use of St John's Wort rather than its chemistry or pharmacology). You could just do a subject search for a condition and then use the sub-headings on the following screen but using floating sub-headings can give you greater flexibility in your search strategy as you can combine them with searches that have already been combined together for e.g.

1 Bowel Neoplasms/ 2 Anemia/ 3 1 and 2 4 drug therapy.fs 5 3 and 4

would give you drug therapy for anaemia as a result of bowel cancer rather than drug therapy for either condition on its own.

9. Using filters

People doing systematic reviews often use filters to only include randomized controlled trials which are widely seen as the best kind of research for evidence-based medicine. You can find a list of some of these filters in the Cochrane Handbook:

http://www.mrc-bsu.cam.ac.uk/cochrane/handbook/chapter 6/6 4 11 search filters.htm

Other pre-tested search filters for different types of experimental design and for different databases which you can copy and paste line by line to your search are also available from:

SIGN

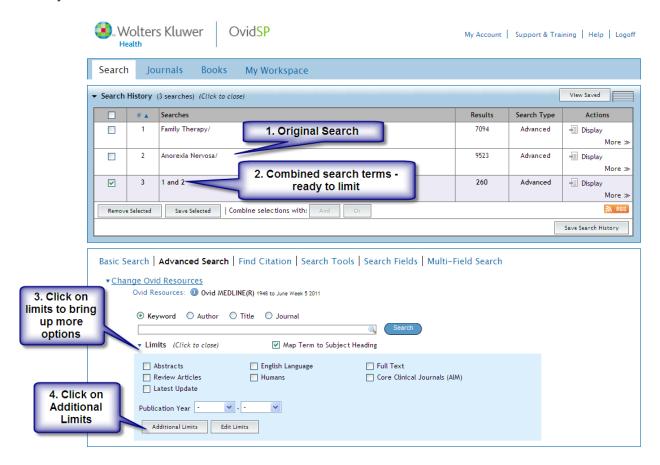
http://www.sign.ac.uk/methodology/filters.html

Centre for Reviews and Dissemination http://www.york.ac.uk/inst/crd/intertasc/

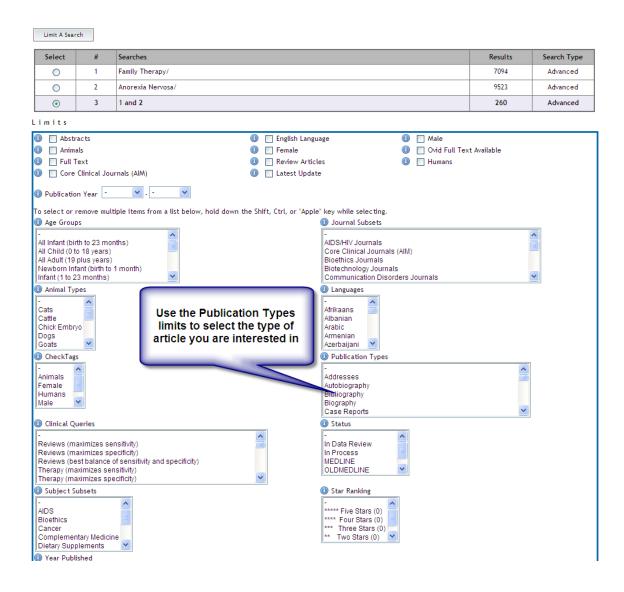
You can save search filters after you have typed them in by choosing to save your search history – then you can simply re-run them when you wish to apply them to a specific search.

The filters look complicated but you should be able to cut and paste them into the search box in Ovid. Remember though – each line of the filter is a separate search on Ovid and you will need to combine them in exactly the same way as is set out in the filter

Alternatively you can use the Limit buttons in the Ovid databases to limit the type of article found by your search – this could include randomized controlled trials, literature reviews and systematic reviews



When you click on Additional Limits you should see the following screen



You can use the Publication Types limits to select the types of article you are interested in. For a systematic review these might include Randomized Controlled Trials, Meta-Analyses and Reviews

Exercise 2 - Using limits and filters

Carry out the search on Family Therapy and Anorexia then use (i) the filter from the Cochrane web site and (ii) the limits on Ovid. How many articles are you left with in each case?

10. Which databases should I search?

The types of databases you will need to search depend on the topic of the review you are carrying out. The bare minimum of databases you would need to search would include at least the major medical databases such as MEDLINE, EMBASE, CINAHL and PsycINFO and the Central Register of Controlled Trials which is available via the Cochrane Library. There are no official rules about how many databases you need to search but for some topics, which straddle a number of different disciplines, you will need to look beyond the standard healthcare databases.

11. Grey Literature

Grey literature can be defined as:

"Information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing i.e. where publishing is not the primary activity of the producing body."

(ICGL Luxembourg definition, 1997 - Expanded in New York, 2004).

Grey literature can include:

- Technical or research reports from government agencies
- Reports from scientific research groups
- · Working papers from research groups or committees
- Doctoral dissertations
- Some conference proceedings and official publications

Why is grey literature important?

Grey literature includes both theses and conference proceedings. Theses are important as they often explore very specialised or previously little-researched topics and can mark the beginnings of a new field of enquiry or the latest development in a particular subject which researchers are just getting to grips with. In the same way researchers often 'rush out' their research at conferences before it gets published in the journal literature so by searching conference proceedings you could be looking at the latest developments in a particular topic or important research which has yet to find its way into the journal literature.

Despite their sophistication and the complex search strategies you can use to look for material no database is perfect and sometimes a search through one of the clinical-trials registers can find a study that has not been unearthed by searching one of the bibliographic databases. For instance, a recent search for a study on dietary interventions during pregnancy failed to find a trial because the authors referred to it as a 'lifestyle intervention' in the abstract and there was no subject-index heading for Diet for this reference – but the trial was later found by searching the clinicaltrials.gov website.

However, the main reason for searching for grey literature is to avoid publication bias

Publication bias

Publication bias refers to the fact that studies with more 'positive' results – i.e. which show a definite effect for a particular treatment – are more likely (three times more likely in fact) to be published than ones which show little or no positive effect for a treatment. Researchers themselves often think that studies which show no or little effect for a treatment aren't worth publishing so these studies are less likely to be submitted for publication – the so-called 'file-drawer' problem. Once submitted they are less likely to be accepted by a journal, less likely to be published in a 'high-impact' journal and less likely to be published in English making them all the more difficult to find. Less scrupulous researchers are sometimes known to selectively report the results of trials, reporting results that show treatments in a good light while glossing over ones which show that it is ineffective in a process called HARKing – Hypothesizing After the Results are Known. Looking for grey literature can unearth the unpublished trials which show interventions in a less-than-glowing light and can significantly affect the outcome of a systematic review. A good example of this is this study into the anti-depressant Agomelatine

Agomelatine: an example of publication bias

Publication bias and outcome reporting bias: agomelatine as a case example. Howland RH.

Journal of Psychosocial Nursing & Mental Health Services. 49(9):11-4, 2011 Sep.

Publication bias and outcome reporting bias contribute to distorted perceptions of drug efficacy and the underreporting of adverse events. To demonstrate these biases, this article describes how the clinical profile of the antidepressant agent agomelatine (Valdoxan) has been presented in the literature. Agomelatine has been systematically assessed in 10 short-term placebo-controlled studies and three long-term placebo-controlled relapse prevention studies. Five published trials demonstrated clinically modest but statistically significant benefits over placebo. Five unpublished trials did not find agomelatine more effective than placebo, but in two of these studies the active comparison drug (fluoxetine) or paroxetine was more effective than placebo. Agomelatine was more effective than placebo in one of three relapse prevention studies, but only the positive study was published. Based on what is evident in the entire published and unpublished dataset, agomelatine does not have a tremendously superior sleep and sexual effects profile. The risk of liver toxicity is also not prominently highlighted in the published literature.

So how can I find grey literature?

There are a variety of ways you can search grey literature but you need to look in the right places for the right resources. Some databases specialise in technical reports, unpublished research and the work of government departments while others specialise in clinical trials, conference proceedings and theses. Depending on what kind of material you are looking for, what topic you are researching and how much time you have available you might decide to search only one of these databases, a few of them or, if you want to be really thorough, search them all.

A good starting point is the Open Grey database at http://www.opengrey.eu/ OpenGrey is a European database which contains nearly 700,000 references covering science, technology, biomedical science, economics, social science and the humanities. It is compiled by different national libraries in various European countries who submit any grey literature they receive to the database.

The Canadian Agency for Drugs and Technologies in Health have produced a very useful guide to international sources of grey literature – including those in the UK – which you can find at http://www.cadth.ca/en/resources/finding-evidence-is/grey-matters

The HMIC (Healthcare Management Information Consortium) is available as part of the package of Ovid databases - which includes Medline, Embase and Psycinfo - and indexes publications from the Department of Health and the King's Fund, an independent charity which produces research on health and community, care management, organizational development, inequalities in health, user involvement, race and health.

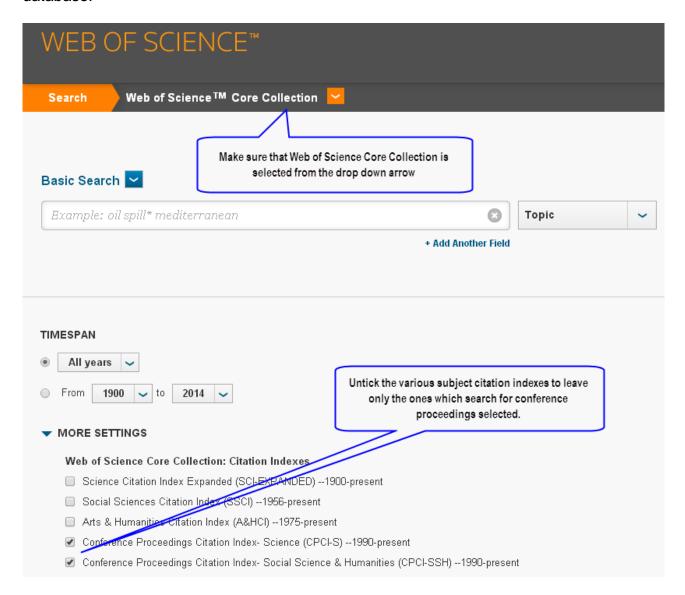
Libraries of specialist research organisations and professional societies can also be useful sources of grey literature.

The <u>www.opendoar.org</u> (Directory of Open-Access Repositories) website searches the open-access repositories of thousands of universities all over the world. Many of the references contain full-text working papers alongside references to journal articles, theses and reports and full-text is available where copyright allows.

The Social Science Research Network - http://ssrn.com/ bills itself as the best openaccess repository in the world although, as its name implies it is geared more to the social sciences than health research. However, this is a good resource for public health and areas where the social sciences and health interact e.g. the effect of urban sprawl on obesity, teenage smoking etc.

Conference Proceedings

You can search for conference proceedings using a number of the databases available via the Library Services' web page. On Medline you can search for them by combining a search for Congresses with a subject search for whatever topic you are looking for. You can also restrict your search to conference proceedings when using the Web of Science database.



Alternatively, search the Web of Science leaving all the citation indexes selected but use the Refine Results options to limit to e.g. Proceedings Paper or Meeting Abstract.

You can also use the Scopus database in the same way to restrict your search to conference proceedings

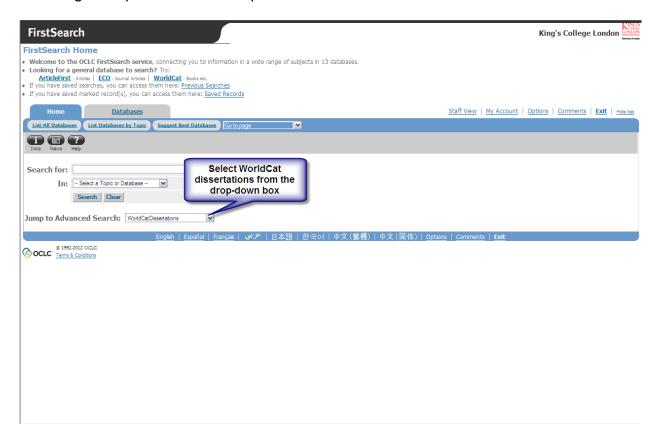
Theses and Dissertations

One of the best ways of searching for dissertations and theses is the WorldCat database produced by OCLC which is available via the College's database page. Follow the links through to WorldCat in the same way as you access the other databases.

When you get there you will need to select King's College and log in with your College user name and password.



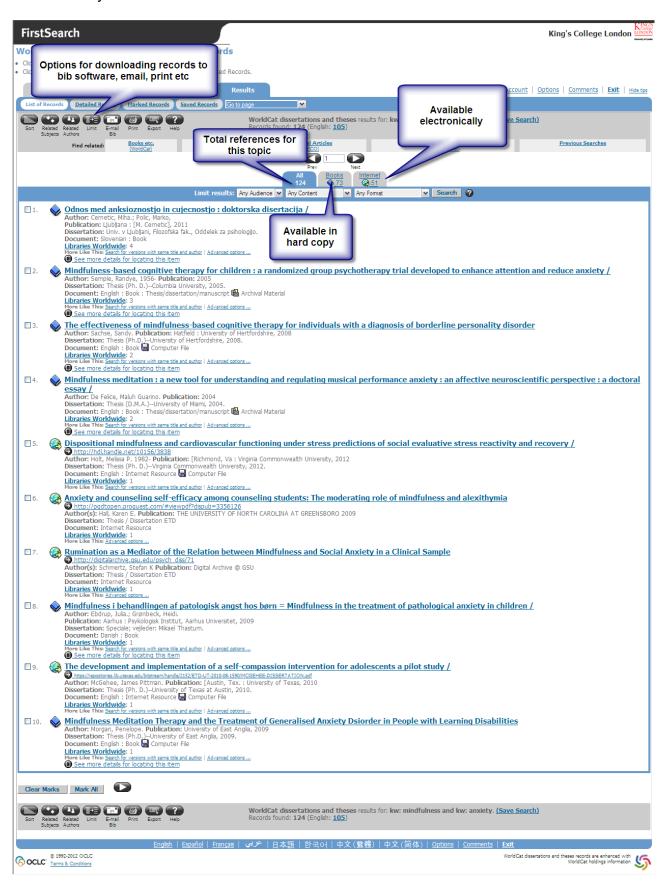
Once you have logged in you can choose to search just for theses and dissertations by selecting this option from the drop-down box



This will take you to the search screen



Your results are broken down into theses/dissertations which are still available only in print (you will have to order these via inter-library loan) or those which are available electronically.



Another good resource for finding theses is the British Library's Ethos web site http://ethos.bl.uk which is an open-access digital repository of theses produced by British higher-education establishments. This is a free service although you will need to register for it in the same way as you might register to use Amazon or Hotmail.

Some of the databases available at King's such as CINAHL and Psycinfo also include theses.

If you are a member of the Senate House library – click <u>here</u> for instructions on how to register – you can have access to the Index of Theses in Great Britain and Ireland which includes over 500,000 theses.

12. Trials registers

These are a useful source of unpublished and ongoing trials:

- Metaregister of controlled trials Pools together several international trial sources, for example the ISRCTN Register and ClinicalTrials.gov: http://www.controlled-trials.com/mrct/mrct_about.asp
- IFPMA clinical trial portal -http://clinicaltrials.ifpma.org/no_cache/en/myportal/index.htm
- ISRCTN (International Standard Randomised Controlled Trial Number) register - http://isrctn.org/
- WHO International clinical trials registry platform search portal http://apps.who.int/trialsearch/
- ClinicalTrials.gov registry of federally and privately supported clinical trials conducted in the United States and around the world - www.ClinicalTrials.gov

There are additional trials registers listed in 6.2.3 of the Cochrane Handbook: http://www.cochrane-handbook.org/

13. Other internet resources

There are a number of specialist web sites which cover specific topics and many Royal Colleges publish their own reports on their web sites.

Evidence Search: Health and Social Care is a search portal produced by the National Institute for Health and Clinical Excellence (NICE) which can be searched for guidelines, systematic reviews, patient information and clinical trials. Search results are ranked according to their quality so the best evidence – RCTs and systematic reviews – comes at the top of the search results. You can find the NICE Evidence Search engine at https://www.evidence.nhs.uk/

The TRIP (Turning Research into Practice) database concentrates on research which is useful to clinicians. As with NHS Evidence search results are ranked according to their quality with the best evidence being presented at the top of the search results. As this database makes a conscious effort to concentrate on clinically-useful research you should find clinically-useful research rather than more theoretical studies which may or may not be what you are looking for. http://www.tripdatabase.com/

Health Technology Assessment Agencies

Euroscan

http://euroscan.org.uk/

The International Information Network on New and Emerging Health Technologies (EuroScan International Network) is a collaborative network of member agencies for the exchange of information on important emerging new drugs, devices, procedures, programmes, and settings in health care.

National Institute for Health Research - Horizon Scanning Centre http://www.hsc.nihr.ac.uk/

The NIHR HSC aims to supply timely information to key health policy and decision-makers within the NHS about emerging health technologies that may have a significant impact on patients or the provision of health services in the near future.

The technologies include pharmaceuticals, medical devices and equipment, diagnostic tests and procedures, therapeutic interventions, rehabilitation and therapy, and public health activities.

<u>National Institute for Health Research – Health Technology Assessment Programme</u> http://www.hta.ac.uk/research/index.shtml

The HTA Programme produces independent research about the effectiveness of different healthcare treatments and tests for those who use, manage and provide care in the NHS. It covers a range of methods used to promote health, prevent and treat disease and improve rehabilitation and long term care including:

- Drugs: such as antidepressants, contraceptives, antibiotics
- Devices: such as pacemakers, dialysis machines, hearing aids
- Procedures: such as surgical techniques, acupuncture, counselling
- Settings of care: such as general practice, hospitals, care homes
- Screening: for cancer, sexually transmitted diseases, stroke

National Guideline Clearing House

http://www.guideline.gov/

A US site which brings together clinical guidelines, not just from the US, but the whole world.

The European Medicines Agency

http://www.ema.europa.eu/ema/index.jsp

The European Medicines Agency produces European public-assessment reports for every medicine granted a central marketing authorization by the European Commission. EPARs are full scientific assessment reports of medicines authorized at a European Union level and the site also contains information on medicines that have been refused a marketing authorisation or that have been suspended or withdrawn after being approved.

Medicines and Healthcare Products Regulatory Agency

http://www.mhra.gov.uk

The Medicines and Healthcare Products Regulatory Agency is a UK body which compiles information about the safety of drugs and devices and any adverse effects they might have. You can search their site by the name of a drug or device to see if there have been any reports of adverse effects for that particular intervention which have not been reported in journals.

14. Hand-searching and scanning reference lists

Hand-searching involves looking through the contentsof journals, conference proceedings and abstracts yourself page by page. This process can identify articles (and other items, e.g. letters) which have not yet been included in electronic databases, and those which are not indexed or have been indexed incorrectly.

Deciding which journals to search through in this way can be done by analysing the results of your database searches to see which journals contain the largest number of relevant studies.

You can also find other studies by looking through the references of papers you have found by searching electronically.

15. Contacting authors, experts, and other organisations

You can get hold of further information about unpublished or ongoing research by making contact with study authors, and organisations, e.g. drugs companies and research centres. Experts can also be contacted and shown the list of evidence which you have found to see if they know about any articles you have missed out.

16. Grey literature exercises

WorldCat Exercise

How many theses are there on hepatitis and genetics? Of these how many are available in full-text?

Open Grey Exercise

- 1. Using the refine function click on Medicine>Cancer>Colorectal Cancer. How many studies can you find?
- 2. Search 'colorectal cancer' in the search box. How many studies can you find this time?

Web of Science Conference Proceedings Exercise

How many conference proceedings are there on cataracts and surgery? Who is the most prolific author? How many proceedings were published in 2005?

ClinicalTrials.gov

How many trials were there on steroids for asthma? How many of these are studies with results?

17. Selecting studies and managing references

Not all the articles you find with your literature search will be suitable for inclusion in your systematic review. You may well find the same article on several different databases and you can weed out duplicate search results by using bibliographic software such as EndNote. You will probably be able to exclude certain studies just by looking at their title and abstract although it is usually considered good practice to keep a record of any studies you have excluded, together with the reasons why you have excluded them.

You might decide to include only randomised-controlled trials which are usually seen as the gold standard of clinical research although this is not always possible if ethical considerations mean that an RCT approach can't be adopted. You could set criteria for how big a trial needs to be before you include it in your review as generally-speaking the more participants there are in a study the more reliable are the results. You might also decide to only include **double-blinded** trials i.e. ones in which neither the participants nor those giving the treatment know whether they are using the intervention or a placebo/sham treatment. Interventions and treatments can be compared to another treatment, a placebo or (in the case of psychosocial interventions) being on a waiting list so you could decide that just being more effective than a placebo is not sufficient evidence of benefit to include a trial in your review.

The EQUATOR Network - http://www.equator-network.org/about-equator/about-equator/ - is an international initiative that seeks to enhance reliability and value of medical research literature by promoting transparent and accurate reporting of research studies and in turn has links to the Consort (Consolidated Standards Of Reporting Trials) site - http://www.consort-statement.org - which is an evidence-based, minimum set of recommendations for reporting RCTs. The site offers a standard way for authors to prepare reports of trial findings, facilitating their complete and transparent reporting, and aiding their critical appraisal and interpretation and the CONSORT Statement comprises a 25-item checklist and a flow diagram, along with some brief descriptive text. The checklist

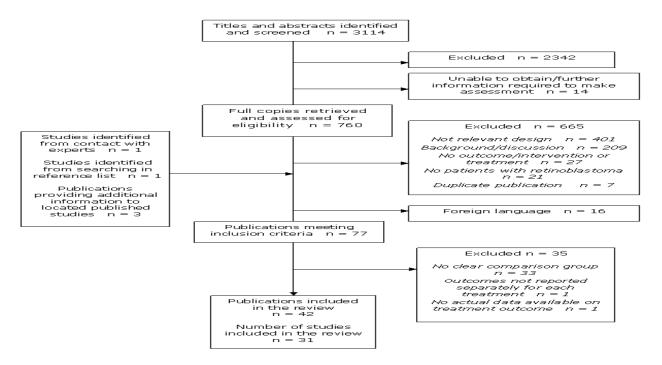
items focus on reporting how the trial was designed, analyzed, and interpreted; the flow diagram displays the progress of all participants through the trial.

Sometimes the same trial gets reported in a number of different papers so you will need to link together these **multiple reports** so that you only count them once in your meta-analysis. Once you decide which articles you are going to include in your review you can then set about getting the full text using either as an ejournal or via the College's interlibrary loan service.

18. Study flow diagrams

People often use study flow diagrams to record the decisions they make about including and excluding trials. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is a system of check-lists and standards as to how people report the process of carrying out systematic reviews and conducting meta-analysis and you can find out more about this initiative at http://www.prisma-statement.org/

There is an example of a study-flow diagram below and in the slides for Part II of the course.



19. When should I stop searching?

You can never be completely sure you have found all the literature on your topic so when you decide to stop searching will usually be governed by how much time – and money – you have at your disposal. If you get too many search results focusing on RCTs will reduce the number you need to look at. You can also use the knowledge within your team to check whether there are any important trials or pieces of research you have not found during your literature search.

20. Documenting the search

Searches should be recorded in enough detail for other people to assess how good they are and carry them out again in the future. What you record about your search should

include information about the databases and interfaces searched (including the dates covered and when the search was run), full detailed search strategies and the number of records you found.

All searches should be recorded, including handsearching, contact with experts and internet searching.

Examples of documented searches are given in Appendix 3 of CRD's guidance for undertaking reviews in health care

http://www.york.ac.uk/inst/crd/SysRev/!SSL!/WebHelp/SysRev3.htm

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Statement website also contains a useful flow diagram for study selection: www.prisma-statement.org/index.htm

21. Further information and support

Your Information Specialist can provide support for systematic reviews. Contact details: http://www.kcl.ac.uk/library/contact/spec/specialists.aspx

User guides on specific interfaces and databases at available at: http://www.kcl.ac.uk/library/help/guides.aspx

Other sources of information about systematic reviews you might find useful are:

The Critical Appraisal Skills Programme which contains a wealth of information about assessing the quality of articles http://www.casp-uk.net/

The Centre for Evidence-Based Medicine http://www.cebm.net/

The Centre for Reviews and Dissemination at York University http://www.york.ac.uk/inst/crd/index_guidance.htm

The Cochrane Handbook http://www.cochrane-handbook.org/

Alliance for Useful Evidence

http://www.alliance4usefulevidence.org/

- <u>Learning from Research: Systematic reviews for informing policy decisions</u>, <u>December</u>
 2013
- This guide describes the logic of a systematic review, mixed methods reviews, the main stages of undertaking a review and some of the key issues to consider during the process.