



DEDER GENERAL HOSPITAL

PRE-ADMISSION EVALUATION PROTOCOL

PREPARED BY: HSQU

JULY 2016 E.C

DEDER, EASTERN ETHIOPIA



PROTOCOL APPROVAL SHEET

NAME OF PROTOCOL: PRE-ADMISSION EVALUATION PROTOCOL

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THIS PROTOCOL IS EFFECTIVE
FROM
JULY 2016 E.C TO JUNE 2018 E.C

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INTRODUCTION

Many patients requiring inpatient elective procedures arrive in hospital on the day of surgery. Therefore a 'preoperative assessment' clinic may be the only opportunity to gather all information, optimize comorbidities, and then organize anesthetic, surgical and postoperative care before surgery actually takes place. First, a history should be taken, examination performed and the relevant investigations ordered. Focus should then turn to the specific problems uncovered. All sources of information should be exploited including the patient, the general practitioner (GP) and hospital records. GPs can offer valuable help by monitoring chronic conditions, adjusting medications, facilitating weight reduction, as well as encouraging the patient to take exercise and stop smoking. Patients with severe comorbidities should be referred to the relevant specialist to quantify the risks and to take appropriate measures to minimize operative morbidity. Surgery cannot be made risk free, but risks must be known so that the patient can make an informed decision. Patients should be given advice on when they should be nil by mouth (NBM) and what to do about regular medications and premedication. Finally, a plan for the operating list should be drawn up and all those involved in making the list run smoothly should be informed

PURPOSE

To organize preoperative care and the operating list, understand Surgical, medical and anesthetic aspects of assessment, to optimize the patient's condition, to take consent and organize an operating list

PATIENT ASSESSMENT

The aim of a structured assessment is to learn to look actively for risks and manage them so as to enable surgery to go ahead safely. Assessment is done by the surgical, nursing team and/or anesthetic team at outpatient or inpatient setting.

HISTORY TAKING

A standard history should be taken focusing on the patient's hopes and expectations (open questions and then listen), then on specific questions aimed at clarifying the diagnosis and severity of symptoms (closed questions). A set of fixed questions are needed to determine 'fitness' for surgery. Surgery specific symptoms (including features not present), onset, duration and exacerbating and relieving factors should also be documented.

For each system a relevant history should be taken, noting what problems have occurred and when. These should include a cardiovascular history focusing on high blood pressure, chest pains, palpitations, syncope, dyspnea and poor exercise tolerance. Similarly, respiratory problems should be explored further if there is history of

smoking, productive cough, wheeze, dyspnea, hoarseness of voice or stridor present. Increasing severity of symptoms generally indicates worsening of the condition.

The history of past surgery and anesthesia can reveal problem that may present during current hospitalization (e.g. intra abdominal adhesions and suxamethonium apnea). The use of recreational drugs and alcohol consumption should be noted as they are known to be associated with adverse outcomes. Check for allergies and risk factors for deep vein thrombosis (DVT). Social history, ability to communicate and mobility are important in planning rehabilitation after surge

Table-1 Key topics in past medical history

Cardiovascular	Ischaemic heart disease: angina, myocardial infarction Hypertension, Heart failure, Dysrhythmia, Peripheral vascular disease Deep vein thrombosis and pulmonary embolism
Respiratory	Chronic obstructive pulmonary disease, Asthma, Respiratory infections
Gastrointestinal	Peptic ulcer disease and gastro-esophageal reflux Liver disease
Genitourinary tract	Urinary tract infection, Renal dysfunction
Neurological	Epilepsy, Cerebrovascular accidents and transient ischaemic attacks Psychiatric disorders Cognitive function
Endocrine/metabolic	Diabetes , Thyroid dysfunction, Pheochromocytoma, Porphyria
Locomotor system	Osteoarthritis Inflammatory arthropathy, such as rheumatoid arthritis
Previous surgery	Problems encountered Family history of problems with anaesthesia
Other	Human immunodeficiency virus Hepatitis Tuberculosis Malignancy Allergy

EXAMINATION

Patients should be treated with respect and dignity, receive a clear explanation of the examination undertaken and kept as comfortable as possible. A chaperone should always be present, especially for intimate examinations.

Medical examination

- I. General:** Anaemia, jaundice, cyanosis, nutritional status, sources of infection (teeth, feet, leg ulcers)
- II. Cardiovascular:** Pulse, blood pressure, heart sounds, bruits, peripheral oedema
- III. Respiratory:** Respiratory rate and effort, chest expansion and percussion note, breath sounds, oxygen saturation
- IV. Gastrointestinal:** Abdominal masses, ascites, bowel sounds, hernia, genitalia
- V. Neurological:** Consciousness level, cognitive function, sensation, muscle power, tone and reflexes
Airway assessment

Along with routine cardiovascular examination one should look specifically for evidence of cardiac failure (raised jugular venous pressure (JVP), fine crackles, gallop rhythm), peripheral vascular disease (loss of peripheral pulses, ulcerations) and valvular heart disease with characteristic murmurs (e.g. ejection systolic in aortic stenosis, pansystolic in tricuspid regurgitation and mid-diastolic murmur in mitral stenosis heard at the respective area on auscultation) in symptomatic patients. Presence of a high respiratory rate, reduced air entry, crepitations and ronchi indicate respiratory problems. History of dyspnoea along with examination findings of tachycardia, raised JVP, tricuspid regurgitation, hepatomegaly and oedema of the feet will indicate severe respiratory disease with pulmonary hypertension and right ventricular failure

Examination specific to surgery

At preoperative assessment, the clinical findings, site, side, specific imaging or investigation findings related to the pathology for which the surgery is proposed should be noted. Suitability of the patient for the proposed surgical option and vice versa should also be assessed. For example, laparoscopic procedures are less invasive and are therefore preferred in most. However not all patients can tolerate a pneumoperitoneum, head-down positioning, etc. Surgery puts the patient's life 'at risk' and so the benefit of the procedure should outweigh the risk of surgery. Type of surgery along with patient comorbidities determine perioperative risks

Investigations

Minor and intermediate surgery generally requires no routine investigations unless the patient has co-morbidities.

- **Full blood count.** A full blood count (FBC) is needed for major operations, in the elderly and in those with anemia or pathology with ongoing blood loss. A sickle cell test is needed in any patient of Afro-Caribbean origin.
- **Urea and electrolytes.** Urea and electrolytes (U&E) are needed before all major operations, in most patients over 60 years of age especially with cardiovascular, renal and endocrine disease or if significant blood loss is anticipated. It is also needed in those on medications which affect electrolyte levels, e.g. steroids, diuretics, digoxin, NSAIDs (non-steroidal anti-inflammatory drugs), intravenous fluid or nutrition therapy.
- **Electrocardiography.** **Electrocardiography (ECG)** is required for those patients aged over 60 years, cardiovascular, renal and cerebrovascular involvement, diabetes and in those with severe respiratory problems.
- **Clotting screen.** If a patient has a history suggestive of bleeding diathesis, liver disease, eclampsia, cholestasis or has a family history of bleeding disorder, or is on antithrombotic or anticoagulant agents, then coagulation

screening will be needed. However, the effects of antiplatelet agents, low molecular weight heparins and newer agents affecting factor Xa cannot be measured by routine laboratory tests.

- **Chest radiography.** A chest x-ray is not required unless the patient has a significant cardiac history, cardiac failure, severe chronic obstructive pulmonary disease (COPD), acute respiratory symptoms, pulmonary cancer, metastasis or effusions, or is at risk of tuberculosis.
- **Urinalysis.** Dipstick testing of urine should be performed on all patients to detect urinary infection, biliuria, glycosuria and inappropriate osmolality.
- **b-Human chorionic gonadotrophin.** Pregnancy needs to be ruled out in all women of childbearing age.
- **Blood glucose and HbA1c.** These should be performed in patients with diabetes mellitus and endocrine problems. HbA1c indicates how well diabetes has been controlled over a longer duration
- **Arterial blood gases.** This test allows detailed assessment of severe respiratory conditions and acid–base disturbances.
- **Liver function tests.** These are indicated in patients with jaundice, known or suspected hepatitis, cirrhosis, malignancy or patients with poor nutritional reserves.
- **Other investigations.** Further relevant investigations should be undertaken to assess capacity of specific organ system and risks associated. Specialist radiological views and recent imaging are sometimes required. If imaging is going to be needed during surgery, then this needs to be planned in advance.

SPECIFIC PREOPERATIVE PROBLEMS, REFERRALS AND MANAGEMENT Specific medical problems encountered during preoperative assessment should be corrected to the best possible level. Many patients with severe disease will need to be referred to specialists;

the referral letter should include all the details including history, examination and investigation results

Cardiovascular disease

Patients who can climb a flight of stairs without getting short of breath or having chest pain, or indeed stopping have a lower risk of perioperative morbidity and mortality of cardiovascular origin than those who cannot.

At preoperative assessment, it is important to identify the patients who have a high perioperative risk of myocardial infarction (MI) and make appropriate arrangements to reduce this risk. These patients include those who have suffered coronary artery disease, congestive cardiac failure, arrhythmias, severe peripheral vascular disease, cerebrovascular disease or renal failure, especially if they are undergoing intra-abdominal or intrathoracic surgery.

In patients with ischaemic heart disease (IHD), the left ventricular status can be evaluated using a stress test. The test has a high negative predictive value and a low positive predictive value. In other words, if the test is negative, then the patient is unlikely to have IHD and if it is positive the chances of the patient actually having IHD is not high. For patients with symptomatic valvular heart disease or poor left ventricular function, an echocardiography should be performed. Pressure gradients across the valves, dimensions of the chambers and contractility can be determined using echocardiography; an ejection fraction of less than 30 per cent is associated with poor patient outcomes

Cardiopulmonary exercise testing when performed provides a non-invasive assessment of combined pulmonary, cardiac and circulatory function.

The patient should be referred to a cardiologist if:

- A murmur is heard and the patient is symptomatic.
- The patient is known to have poor left ventricular function or cardiomegaly.
- Ischaemic changes can be seen on ECG even if patient is not symptomatic

(silent MI).

- There is an abnormal rhythm on the ECG, tachy/bradycardia or a heart block that may lead to cardiovascular compromise.

I. Hypertension, ischaemic heart disease and stents

Prior to elective surgery, blood pressure should be controlled to near 160/90 mmHg. If a new antihypertensive is introduced, a stabilization period of at least 2 weeks should be allowed.

Patients with angina which is not well controlled should be investigated further by a cardiologist. Some of these patients may need thrombolysis, percutaneous coronary balloon angioplasty, statins, coronary artery bypass surgery or coronary stenting prior to non-cardiac surgery.

Elective surgery should be postponed for three to six months after a proven myocardial infarct to reduce the risk of perioperative reinfarction.

Patients may have had coronary stents inserted for IHD and should be asked about effectiveness of the treatment, concurrent antiplatelet medications, e.g. clopidogrel and/or aspirin. Risk of stent thrombosis with consequences of MI and death is reduced if elective surgery is delayed until after dual antiplatelet therapy is stopped (about 6 weeks after bare metal and 12 months after drug-eluting stent insertion). If surgery cannot be postponed and the risk of significant perioperative bleeding is low, the dual antiplatelet therapy can be continued during surgery.

If surgery poses a significant risk (spinal, intracranial, cardiac, posterior chamber of eye and prostate surgery), clopidogrel may be stopped and aspirin continued, however, cardiology opinion will need to be sought.

Most long-term cardiac medications should be continued over the perioperative period. Ongoing treatment with betablockers and statins is known to reduce perioperative morbidity and mortality.

Dysrhythmias

In patients with atrial fibrillation, beta-blockers, digoxin or calcium channel blockers should be started preoperatively (or continued if the patient is already on the treatment) in order to control the rate and possibly rhythm. Cardiac output can increase by 15 per cent if sinus rhythm is restored. This reduces the risk of perioperative myocardial ischaemia and infarction. Warfarin in patients with atrial fibrillation should be stopped 5 days preoperatively to achieve an INR (international normalised ratio) of 1.5 or less, which is safe for most surgery; an alternative anticoagulation is not required in the perioperative period.

Implanted pacemaker and cardiac defibrillator checks and appropriate reprogramming should be done preoperatively. Bipolar diathermy activity during surgery may be sensed by the pacemaker as ventricular fibrillation. Therefore, cardioversion and overpace modes may be turned off (switch on after surgery) or converted to 'ventricle paced, not sensed with no response to sensing' (VOO) mode especially if bipolar diathermy cannot be used.

Symptomatic heart blocks and asymptomatic second- (Mobitz II) and third-degree heart blocks, if discovered at preoperative assessment clinic, will need cardiology consultation and temporary pacemaker insertion.

Valvular heart disease

While anaesthetic management is altered to achieve haemodynamic stability in moderate valvular diseases, the patients with severe aortic and mitral stenosis may benefit from valvuloplasty before undergoing elective non-cardiac surgery. Appropriate referral to anaesthetist and cardiologists should be made.

In patients with mechanical heart valves, warfarin needs to be stopped for 5 days before surgery, and an infusion of unfractionated heparin started when the INR falls below 1.5. The activated partial thromboplastin time (APTT) should be monitored to keep it at 1.5 times normal and the infusion is then stopped 2 hours before surgery. Heparin and warfarin should be started in the postoperative

period and heparin is stopped when the full effect of warfarin is realised.

Anaemia and blood transfusion

Patients found to be anaemic at preoperative assessment should be treated with iron and vitamin supplements. Chronic anaemia is well tolerated in the perioperative period; however, if the patient is undergoing a major procedure, preoperative transfusion may be considered below a haemoglobin level of 8 g/dL. If excessive bleeding is expected, then a preoperative 'group and save' should be performed and an appropriate number of units of blood crossmatched. Jehovah's Witness patients usually refuse blood transfusion; the legal document as to which blood and products they will accept or refuse should be made available and abided by (e.g. cell salvage, reinfusion from drains may be acceptable).

RESPIRATORY

The patient's current respiratory status should be compared with their 'normal state'. Note should be made of regular treatment, records of peak expiratory flow rates (PEFR), use of steroids, home oxygen and continuous positive airway pressure (CPAP) ventilation; check for evidence of right heart failure. Encourage the patients to be compliant with the medications, take exercise and a balanced diet, and stop smoking. Administration of regular medications with an additional dose of bronchodilators given just prior to surgery will reduce the chances of untoward events. Patients taking more than 10 mg of prednisolone and undergoing high-risk surgery will need peri operative steroid supplements. Regional anaesthetic techniques and less invasive surgical options should be considered in severe cases. Elective surgery should be postponed until acute exacerbations are treated.

Refer the patient to respiratory physicians if:

- There is a severe disease or significant deterioration from usual condition.
- Major surgery is planned in a patient with significant respiratory comorbidities.

- Right heart failure is present: dyspnoea, fatigue, tricuspid regurgitation, hepatomegaly and oedema of the feet.
- The patient is young with COPD (indicates a rare and life threatening condition).
- Pulmonary function tests will indicate the type and severity of the disease, as well as response to the treatment.

Smoking

Information should be provided to indicate perioperative risks associated with smoking. Stopping smoking reduces carbon monoxide levels and the patient is better able to clear sputum.

Asthma

It is important to establish the severity of the asthma, precipitating causes, frequency of bronchodilator and steroid use, PEFr (peak expiratory flow rate) and any previous intensive care unit admissions. Patients should continue to use their regular inhalers until the start of anaesthesia. Brittle asthmatics may also need extra steroid cover.

Chronic obstructive pulmonary disease

Patients on steroid treatment, or oxygen therapy, or who have a forced expiratory volume in the first second (FEV1) less than 30 per cent of predicted value (for age, weight and height) have severe disease and may have respiratory failure in the post operative period. Preoperative chest x-ray or scans are useful in patients with known emphysematous bullae, pulmonary cancer, metastasis or effusions. Patients with significant COPD who are undergoing major surgery will need to be referred to the respiratory physicians for optimization of their condition. An arterial blood gas analysis may also be useful as it can give an indication of carbon dioxide retention. This is associated with an increased risk of perioperative respiratory complications.

Infection

Elective surgery should be postponed if the patient has a chest infection. It should be treated with antibiotics and physiotherapy and the operation rescheduled after 4–6 weeks.

GASTROINTESTINAL DISEASE

Nil by mouth and regular medications

Patients are advised not to take solids within 6 hours and clear fluids (isotonic drinks and water) within 2 hours before anaesthetic to avoid the risk of acid aspiration syndrome. Infants are allowed a clear drink up to 2 hours, mother's milk up to 3 hours and cow or formula milk up to 6 hours before anaesthetic. If the surgery is delayed, oral (until 2 hours of surgery) or intravenous fluids should be started especially in the vulnerable groups of patients, e.g. children, elderly and diabetics. Patients can continue to take their specified routine medications with sips of water in the nil by mouth period.

Regurgitation risk

Patients with hiatus hernia, obesity, pregnancy and diabetes are at high risk of pulmonary aspiration even if they have been NBM before elective surgery. Clear antacids, H₂-receptor blockers,

Liver disease

In patients with liver disease, the cause of the disease needs to be known, as well as any evidence of clotting problems, renal involvement, and encephalopathy. Elective surgery should be postponed until any acute episode has settled (e.g. cholangitis). The blood tests which need to be performed are liver function tests, coagulation, blood glucose, urea and electrolyte levels. The presence of ascitis, oesophageal varices, hypoalbuminaemia, sodium and water retention should be

noted as all these can influence choice and outcomes of anesthesia and surgery.

GENITOURINARY DISEASE

Renal disease

Underlying conditions leading to chronic renal failure, such as diabetes mellitus, hypertension and ischaemic heart disease, should be stabilised before elective surgery. Appropriate measures should be taken to treat acidosis, hypocalcaemia and hyperkalaemia of greater than 6 mmol/L. Arrangements should be made to continue peritoneal or haemodialysis until a few hours before surgery. After the final dialysis before surgery, a blood sample should be sent for FBC and U&E. Chronic renal failure patients often suffer chronic microcytic anaemic that is well tolerated, therefore preoperative blood transfusion is usually not necessary. Acute renal failure can present with acute surgical problems, for example bowel obstruction needing emergency surgery. In such patients, simultaneous medical and surgical treatment and critical care unit support will be needed in the perioperative period.

Urinary tract infection

Uncomplicated urinary infections are common in women, while outflow uropathy with chronically infected urine is common in men. These infections should be treated before embarking on elective surgery where infection carries dire consequences, e.g. joint replacement. For emergency procedures, antibiotics should be started and care taken to ensure that the patient maintains a good urine output before, during and after surgery.

Endocrine and metabolic disorders

Malnutrition

Body mass index (BMI) is weight in kilograms divided by height in metres squared. A BMI of less than 18.5 indicates nutritional impairment and a BMI of less than 15 is associated with significant hospital mortality. Nutritional support for a minimum of 2 weeks before surgery is required to have any impact on subsequent morbidity. If a patient is unlikely to be able to eat for a significant period, arrangements should be made by the preoperative assessment team to start nutritional support in the immediate postoperative phase.

Obesity

Morbid obesity is defined as BMI of more than 35 and is associated with increased risk of postoperative complications. Patients should be made aware of risks involved and advised on healthy eating and taking regular exercise. Associated sleep apnoea can be predicted by using a clinical scoring system of perioperative sleep apnoea prediction (P-SAP) score or sleep apnoea studies. Patients should be asked to continue to use a CPAP device for obstructive sleep apnoea and cholesterol-reducing agents in the perioperative phase. If possible, delay surgery until the patients are more active and have lost weight. If this fails, prophylactic measures need to be taken (such as preventative measures for acid aspiration and deep vein thrombosis (DVT)) and associated risks need to be explained prior to the surgery.

Diabetes mellitus

Diabetes and associated cardiovascular and renal complications should be controlled to as near normal level as possible before embarking on elective surgery. Any history of hyper- and hypoglycaemic episodes, and hospital admissions, should be noted. HbA1c levels should be checked. Lipid-lowering

medication should be started in patients who are in a high-risk group of cardiovascular complications of diabetes. Patients with diabetes should be first on the operating list and if they are operated on in the morning advised to omit the morning dose of medication and breakfast. Though tight control of blood sugar is not needed, the patient's blood sugar levels should be checked every 2 hours. For those on the afternoon list, breakfast can be given with half their regular dose of insulin (or full-dose oral anti-diabetic agents) and then managed with regular blood sugar checks as above. An intravenous insulin sliding scale should be started for insulin-dependent diabetes mellitus undergoing major surgery or if blood sugar is difficult to control for other reasons.

Adrenocortical suppression

Patients receiving oral adrenocortical steroids should be asked about the dose and duration of the medication in view of supplementation with extra doses of steroids perioperatively to avoid an Addisonian crisis.

Coagulation disorders

Thrombophilia Patients with a strong family history or previous personal history of thrombosis should be identified. They will need thromboprophylaxis in the perioperative period.

The progesterone-only pill should be continued, however, the risks of continuing the combined pill (slight increased risk of significant thrombosis) should be weighed against the risks of an unplanned pregnancy. Hormone replacement therapy (HRT) should be stopped 6 weeks prior to surgery. Patients with a low risk of thromboembolism can be given thromboembolism-deterrent stockings to wear during the perioperative period. High-risk patients with a history of recurrent DVT, pulmonary embolism (PE) and arterial thrombosis will be on warfarin. This should be stopped before surgery and replaced by low molecular weight heparin or factor Xa inhibitors. Each hospital has guidelines which advise what type of DVT prophylaxis should be used for each type of surgery.

Neurological and psychiatric disorders

In patients with a history of stroke, pre-existing neurological deficit should be recorded. These patients may be on antiplatelet agents or anticoagulants. If it is felt and cardiovascular thrombotic risks are low, antiplatelet agents should be withdrawn (7 days for aspirin, 10 days for clopidogrel). If the thrombotic risks are perceived to be high and the patient is undergoing surgery with a high risk of bleeding, aspirin alone should be continued.

Anticonvulsant and antiparkinson medication is continued perioperatively to help early mobilisation of the patient. Lithium should be stopped 24 hours prior to surgery; blood levels should be measured to exclude toxicity. The anaesthetist should be informed if patients are on psychiatric medications such as tricyclic antidepressants or monoamine oxidase inhibitors, as these may interact with anaesthetic drugs.

Musculoskeletal and other disorders

Rheumatoid arthritis can lead to unstable cervical spine with the possibility of spinal cord injury during intubation. Therefore, flexion and extension lateral cervical spine x-rays should be obtained. Assessment of severity of renal, cardiac valvular and pericardial involvement, as well as restrictive lung disease, should be carried out. Rheumatologists will advise on steroids and disease-modifying drugs so as to balance immunosuppression (chance of infections) against the need to stabilise the disease perioperatively (stopping disease-modifying drugs can lead to flare up of the disease).

In ankylosing spondylitis patients in addition to the problems discussed above, techniques of spinal or epidural anaesthesia are often challenging. Patients with systemic lupus erythematosus may exhibit a hypercoagulable state along with airway difficulties.

Airway assessment

The ability to intubate the trachea and oxygenate the patient are basic and crucial skills of the anaesthetist. The ease or difficulty in performing airway manoeuvres can be predicted by simple examination findings of full mouth opening (modified Mallampati class), jaw protrusion, neck movement and thyro mental distance. The Samssoon and Young modified Mallampati test is performed with the clinician sitting in front of the patient, with the patient's mouth open and tongue protruding.

The higher the grade, the higher the risk in obtaining and securing an airway. Look for loose teeth, obvious tumours, scars, infections, obesity, thickness of the neck, etc., which will indicate difficulty in obtaining the airway. When more than one of the above tests is positive, the chances of experiencing difficulty in obtaining and securing the airway become greater.

Preoperative assessment in emergency surgery

In urgent or emergency surgery, the principles of preoperative assessment should be the same as in elective surgery, except that the opportunity to optimise the condition is limited by time constraints. Medical assessment and treatments should be started (e.g. according to the Advanced Trauma Life Support (ATLS) guidelines) even if there is no time to complete those before the surgical procedure is started. Some risks may be reduced, but some may persist and whenever possible these need to be explained to the patient.

RISK ASSESSMENT AND CONSENT

All life- or limb-threatening complications and all complications with an incidence of 1 per cent or more should be discussed with the patient. The risk of death doubles with every seven years of adult life lived. The presence of peripheral vascular disease, stroke, heart failure, myocardial infarction or renal failure each independently increases the risk of death by about 1.5 times the baseline. The

risks of the surgical procedure itself are then to be added on separately. Valid consent implies that it is given voluntarily by a competent and informed person who is not under duress.

In emergency situations or in an unconscious patient, consent may not be obtained and the procedure carried out 'in the best interests of the patient'. Adults are presumed to have capacity to consent unless there is contrary evidence. For adults who are not deemed competent to give consent, treatment can still proceed in their best interests by filling in an inability to consent form. Those under 16 years who demonstrate the ability to appreciate the risks and benefits fully are deemed competent. This is known as Gillick competence.

ARRANGING THE THEATRE LIST

The date, place and time of operation should be matched with availability of personnel. Appropriate equipment and instruments should be made available. The operating list should be distributed as early as possible to all staff who are involved in making the list run smoothly. Prioritise patients, e.g. children and diabetic patients should be placed at the beginning of the list; life- and limb-threatening surgery should take priority; cancer patients need to be treated early.