

Chapter 1

The surgical patient

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Introduction

In its crudest form, surgery can be narrowed down to three questions.

- ♦ Who to cut?
- ♦ What to cut?
- ♦ When to cut?

However, this is an oversimplification of the situation and the assessment and management of the surgical patient can be divided into a number of clearly defined steps:

- ♦ establishing a *diagnosis* through history taking, examination, and investigations;
- ♦ formulating a *management* plan;
- ♦ *optimizing* the patient's co-morbid medical problems and ensuring that he is adequately resuscitated;

and this well before knife has even reached skin!

Not all of these steps are possible in every single patient, and sometimes they need to be performed alongside each other, as with an unconscious patient or a shocked patient with an acute abdomen.

This chapter provides an outline for the general assessment of the surgical patient. Details specific to disease processes can be found in the other sections of the book. Special consideration is given to issues concerning consent, communication, breaking bad news, the elderly surgical patient, day-case surgery, death, and organ donation.

Assessment of the surgical patient

Regardless of whether the surgical patient is assessed on the ward, as an outpatient or as an emergency, the history and examination forms the most important component in establishing a diagnosis and evaluating fitness for surgery. More than 80 per cent of clinical diagnoses can be made on an accurate history and examination alone.

History

- Approach the patient with an open mind. Do not let your thoughts be misled by the contents of referral letters or by labels the patient may already have.
- Be systematic in your approach. A careful, systematic history is as essential in the management of a surgical patient as it is with a medical patient.

The following format is the standard approach most commonly used:

Demography *Name, age, occupation, time, and date seen* and the *source of admission* should be documented. Age is especially important as it will point towards different disease processes in patients with similar symptoms but different age groups.

Presenting complaint The *presenting complaint* should be no more than a few words and describes the patient's main complaint and its duration, e.g. 'Epigastric pain for 2 days', 'Right breast lump for 5 weeks', etc.

History of presenting complaint The *history of presenting complaint* should expand on the presenting complaint, in terms of its nature of onset, its progression, and associated symptoms and features. Relevant parts of the systems review should be brought forward to this point when particular systems may be involved. For example, enquire about the upper gastrointestinal tract, hepatobiliary, renal, and respiratory systems when considering right upper quadrant abdominal pain.

- **Pain** is a common complaint and the history should include its *nature and duration of onset*, any *precipitating factors*, its *site, severity*, and *nature* (whether dull or sharp, colicky or continuous). Ask whether it *radiates* or has moved and if there are any *exacerbating or relieving factors* or *associated symptoms*.

- ♦ **Vomiting.** Note onset and duration, persistence and contents (bile, coffee grounds, blood). Was it preceded by pain? If so, the cause is usually surgical.
- ♦ **Diarrhoea and constipation** may be relevant in complete/incomplete bowel obstruction. Ask if the patient has been able to pass flatus, as this is a more significant finding.

Past medical history Enquire about *past medical illnesses*, as these can influence surgical and anaesthetic decisions and may require optimization before surgery. Enquire specifically about *asthma, diabetes, hypertension, angina, recent myocardial infarction or stroke* and *jaundice, epilepsy*. Asthma, diabetes, hypertension, and angina all need to be controlled prior to surgery. General anaesthesia within 3 months of a myocardial infarction has an increased re-infarction rate of approximately 30 per cent reducing over 3–6 months to a baseline that is marginally higher than normal thereafter. Thus, whenever possible, surgery following recent myocardial infarction, and similarly stroke, should be delayed for at least 3 months, unless it is necessary. Jaundiced patients are at risk of having clotting disorders, and are a potential infection risk.

Previous surgical history should list previous operations, their dates and any complications. Enquire about *anaesthetic problems*.

Drug history *Regular medications*, particularly cardiac drugs, should be continued, even on the day of surgery. *Aspirin* has a theoretical risk of increased postoperative bleeding and some would advocate that it should be stopped 5 days before surgery. *Oral anticoagulants* should be stopped 3–4 days before surgery and the patient heparinized during this perioperative period. Ask about *steroids*, the dose may need to be increased in response to illness or may need to be administered intravenously. Allergies to any medications/Elastoplast or skin preparations should be noted.

Systems review Should assess the severity of co-morbid medical problems and give an indication of functional reserve. Ask about weight loss. In females of reproductive age enquire about last menstrual period, usual menstrual cycle, and the possibility of pregnancy.

Social history This is frequently overlooked but is important in influencing decisions regarding suitability for day-case surgery and the discharge of patients back to the community.

Enquire about *smoking* (which should be stopped at the very least 24 hours, or ideally 6 weeks, before surgery), *alcohol intake* and *occupation*.

Examination

This should include a general examination of the patient, including the cardiorespiratory system and abdomen and detailed examination of the affected region of the body, e.g. groin lump, abdomen.

It should be systematic and follow the pattern: inspect, palpate, percuss, auscultate.

General examination

- ◆ Weigh the patient. Assess his state of hydration (skin turgor, furred tongue).
- ◆ Look for *jaundice, anaemia, cyanosis, clubbing, peripheral oedema, lymphadenopathy*.
- ◆ Record the core temperature. If pyrexial, are there rigors?

Cardiovascular examination

- ◆ Check pulse (rate and rhythm), blood pressure, jugular venous pressure (JVP). Listen for murmurs.
- ◆ A tachycardia may be due to anxiety, shock, or pain. Beware of the beta-blocked patient.
- ◆ Beware of hypotension—it is a late indicator of shock. Uncontrolled hypertension (diastolic > 100 mmHg) runs an increased risk of myocardial infarction and stroke and should be corrected before elective surgery.
- ◆ Heart murmurs and prosthetic valves require antibiotic prophylaxis before surgery.

Respiratory system Check respiratory rate, position of trachea, movement of the chest wall, air entry, percussion, breath sounds. Tachypnoea occurs with pain, shock, and sepsis in addition to chest pathology.

Abdominal examination This is dealt with in more detail later. See pp. 11.

Specific region

Examine the *affected region of the body*.

Examination of a lump Any lump can be described using the following features:

- ◆ site
- ◆ size
- ◆ shape
- ◆ contour (e.g. smooth, well-defined edge)

- ♦ consistency (e.g. fluctuant/hard/rubbery)
- ♦ colour of overlying skin (due to vascularity/inflammation/pigmentation)
- ♦ temperature
- ♦ tenderness
- ♦ transillumination, e.g. hydrocele
- ♦ fixity (to skin/underlying muscles—tested by getting the patient to tense the underlying muscles)
- ♦ pulsatility (is it pulsatile, i.e. transmitted, or expansile, i.e. aneurysmal?)
- ♦ reducibility, e.g. inguinal hernia—always ask the patient to try first!

Examination of an ischaemic limb/vascular disorder See Chapter 8.

Examination of the breast See Chapter 5.

Summary and provisional diagnosis

You should now write a brief summary of the patient's history and examination findings and formulate a provisional diagnosis or differential diagnoses. This will guide investigations and further management plans.

Investigations

Avoid unnecessary investigations. They are costly and can carry a significant morbidity and mortality. Choose the cheapest, easiest, safest, and most convenient one most likely to give you the answer you want.

Investigations can be *specific* or *general*. Specific investigations are used to establish a diagnosis or determine alternative plans of action. General investigations are used to assess preoperative fitness for surgery.

If in doubt about which test to choose, seek the advice of your colleagues or the labs.

General investigations Young, healthy patients under the age of 45 undergoing minor surgery do not require routine general investigations. However, menstruating females require a haemoglobin check.

Haematology

Full blood count

Anaemia may be chronic or due to an acute bleed, which may be obvious or occult. Unless there is an identifiable cause for chronic anaemia, e.g. renal disease, rheumatoid arthritis, its cause should be

investigated and corrected before embarking on elective surgery. Acute bleeds may not manifest themselves for 24–48 hours on haemoglobin assessment alone.

A raised *white cell count* can indicate infection, with counts above $20\,000 \times 10^9$ white blood cells/litre representing severe infections. Note that normal or low counts may also correlate with overwhelming sepsis. Trends are more useful than absolute values.

Thrombocytopenias with counts $< 50 \times 10^9$ platelets/litre require platelet transfusion prophylaxis prior to surgery, and aspirin and heparin prophylaxis should be discontinued. Patients with platelet counts below 10×10^9 /litre are at significant risk of spontaneous haemorrhage.

Clotting

This should be checked in patients who are jaundiced, have known bleeding disorders, are on anticoagulants, or have had massive blood loss/transfusions of more than 4 units of blood.

Sickle screen

Should be performed in all patients from the Middle East, Indian subcontinent and those of African and Mediterranean extraction.

Cross-match/group and save

Cross-match patients who are in hypovolaemic shock, active or potential bleeders, and for elective surgery according to local hospital policies.

Biochemistry

Urea and electrolytes (U&Es)

Should be checked in all patients over the age of 45, or where there is a history of cardiac, renal, or metabolic disease; drugs that impair renal function; or a history of intestinal obstruction, dehydration, or shock.

Glucose

Check in all patients over the age of 45, or where there is a history of diabetes, or if glucose and ketones are detected in the urine. A random glucose above 11 mmol/l is diagnostic of diabetes, above 8 mmol/l is suggestive and warrants a test of fasting glucose (diagnostic if > 8 mmol/l).

Liver function tests (LFTs)

Check in patients presenting with symptoms of hepatobiliary disease or where there is suspicion of disseminated malignancy.

Amylase

Check in all patients with acute epigastric/upper abdominal pain, particularly if no diagnosis is apparent.

β Subunit of human chorionic gonadotrophin (bHCG)/pregnancy test
In females of a reproductive age presenting with abdominal pain or when there is suspicion that they may be pregnant.

Microbiology Blood cultures should be performed in patients with temperatures $> 38.0^{\circ}\text{C}$, preferably before antibiotic therapy is instituted.

Send urine for microscopy, culture, and sensitivity if there is a history suggestive of renal-tract infection or if urine dipstick testing is abnormal.

Pus, sputum, and swabs should be sent fresh, as soon as possible. Inform the lab if the patient is already on antibiotic therapy, as this influences culture and sensitivity results.

Electrocardiogram (ECG) This is mandatory in all patients over the age of 50, or younger if there is a history of epigastric pain, asthma, cardiac disease, or a strong family history of cardiac disease.

Radiology

Erect chest X-ray (CXR)

Mandatory in all patients with suspected perforated abdominal viscera, upper abdominal pain, or active cardiac or chest disease.

Plain abdominal X-ray (AXR)

Useful for identification of dilated loops of bowel in cases of suspected gastrointestinal obstruction. The presence of valvulae conniventes (across the *whole* lumen width) is indicative of small bowel dilatation. Use of AXRs is otherwise limited and *not* a substitute for an erect chest film when there is suspicion of a perforated viscus. *KUB films* (kidneys/ureters/bladder) may be helpful in identifying urinary tract calculi.

Specific investigations Depend on the presenting complaint and will not be discussed further at this point.

Management

For patients undergoing surgery, ensure that the following check-points have been dealt with:

- The patient is adequately resuscitated.
- Co-morbid medical problems have been optimized.
- Adequate consent has been obtained.
- Deep venous thrombosis (DVT) prophylaxis has been given wherever appropriate.
 - Note: If a spinal or epidural is to be placed, omit in the 12 hours leading up to this and give once this is completed.

- Prophylactic antibiotics are written up to be given at induction, of anaesthesia when required, see p. 63.
- All appropriate investigations have been performed and results checked.
- The surgeons and anaesthetist have been informed of any problems.
- Blood has been ordered/group and saved sample sent, as appropriate. Specific guidelines will often be laid down and vary from hospital to hospital.
- The patient has been starved for at least 4 hours (unless immediate surgery is necessary).
- A urinary catheter is inserted in shocked patients or those requiring close fluid-balance monitoring, e.g. major intra-abdominal surgery, or when an empty bladder is required.
- Theatre staff are informed of any potential infection problems, especially methicillin-resistant *Staphylococcus aureus* (MRSA).

The diabetic patient See p. 120.

The patient on steroids If oral intake is to be discontinued, replace prednisolone with IV hydrocortisone at 100 mg four times a day, starting with 100 mg at induction, weaning down to 50 mg three times a day after 48–72 hours until such a time that the patient can resume his usual oral dose. This should cover the patient's stress response to surgery and illness.

For minor surgery, where there is no restriction on oral intake, the single addition of a dose of 100 mg IV hydrocortisone at induction is all that is necessary.

The orally anticoagulated patient The most commonly used technique where there is a risk of bleeding is to stop the warfarin 3–4 days prior to surgery and, once the international normalized ratio (INR) is less than 2 (higher for prosthetic heart valves), start heparin. This can be administered as subcutaneous heparin 5000 u or a low molecular weight heparin for prophylaxis against recurrent DVT, pulmonary embolism (PE), and atrial fibrillation (AF); or as an IV heparin infusion (initially 1000 u/h titrated 4 hourly until the APTR is twice normal) for prosthetic heart valve cover or active thromboembolic disease. The IV infusion should be stopped 4–6 hours before surgery and recommenced in recovery. Oral anticoagulation can be resumed the next day and heparin stopped once the INR is more than 2 again. Most surgeons will accept an INR of less than 1.5 as satisfactory before operating. However, this may vary, depending on the urgency and nature of the surgery.

The epileptic patient In general, anaesthesia raises the threshold for fitting. Simply continuing the patient's usual dose of medication is all that is required.

The hypertensive patient Elective surgery should be deferred in uncontrolled (hypertensives diastolic blood pressure (DBP) > 100 mmHg) until their blood pressure is well controlled, as there is a significant risk of perioperative stroke or myocardial infarct and bleeding postoperatively.

Examination of the abdomen

Develop a system for examining the abdomen: inspect, palpate, percuss, auscultate. Expose the abdomen from ‘nipple to knees’ during the course of your examination.

Inspect

- Look for swellings/distension—think of the five Fs: fat, faeces, flatus, fluid (ascites, urine), fetus.
- Are there any skin lesions, e.g. spider naevi (liver disease), pigmentation (Addison’s), caput medusae (portal hypertension), striations (pregnancy/Cushing’s), tortuous veins (inferior vena cava (IVC) obstruction).
- Look for scars—do they correlate with the surgical history?
- Does the abdomen move freely on respiration? Does the patient move freely or lie still with diminished movements on breathing? If the latter, this may suggest peritonitis.
- Are there any visible pulsations? The aorta can be seen to pulsate in thin patients or in aortic aneurysms. Right ventricle pulsations may be transmitted to the epigastrium, and tricuspid regurgitation may cause a pulsatile liver. Be clear about the difference between a pulsatile and expansile mass (fingers move in the same direction when encompassing a pulsatile mass, i.e. movement is transmitted by the mass, but in opposite directions for an expansile mass).
- Are peristaltic waves visible? If so, where and in which direction? Left to right in pyloric stenosis, right to left in transverse colon obstruction, and ladder pattern for small bowel.

Palpate

- Be sure your hands are warm and that the patient is lying flat with his head on a pillow.
- Position yourself at the same height as the patient’s abdomen.
- Ask where the most painful area is and start away from it working around to this area last.
- Lightly feel for any tenderness, guarding, or masses in the nine regions of the abdomen and then repeat, palpating more deeply. Watch the expression on the patient’s face—this can be more revealing than waiting for patients to tell you something hurts!
- Determine the site, shape, consistency, and mobility of any masses.

- With children, get them to put their hand between yours and their abdomen. Feel specifically for:
- *Liver*, starting in the right iliac fossa, dipping the fingers to feel for an edge as the patient breathes in. Note the relation of the edge to the costal margin, its consistency and contour, and any tenderness or pulsation.
- *Spleen* starting in the right iliac fossa again, working up towards the left upper quadrant. It is characterized by four features: it moves on respiration, has a notched lower edge, no upper edge is palpable, and it is dull to percussion.
- *Kidneys*, by bimanually palpating them. Unless the patient is thin or the kidneys grossly enlarged, they are often impalpable. Note any tenderness when balloted from the back.
- The *uterus/bladder* emerges from the hypogastrium and their size is assessed by height in relation to the umbilicus/distance from the symphysis pubis.
- *Ascites*, if marked, can produce a fluid thrill on one flank when an assistant places a hand in the midline and the other flank is tapped with a finger.
- *Aorta*, noting its calibre, and *femoral pulses*, noting their relation to the radial pulses.

Percuss

Confirm organomegaly of solid viscera by percussion. If ascites is suspected, check for shifting dullness by percussing from the midline laterally until dullness is obtained. Then roll the patient away from this side—subsequent resonance on percussion is consistent with free fluid in the peritoneum.

Auscultate

Listen for bowel sounds. They are diminished or absent in peritonitis and ileus, and increased in obstruction. A succussion splash may be heard in pyloric stenosis by rocking the abdomen. Listen for bruits over the femoral and renal arteries.

Groins

Look for hernia or glands. Reducible inguinal hernias may disappear with the patient flat and appear on coughing/straining/elevating the legs. They always lie above and medial to a line drawn between the pubic tubercle and anterior superior iliac spine. Feel for femoral hernias infero-lateral to this line. They always occur medial to the femoral pulsations. Beware of any irreducible, tender lumps in this region—they may represent an incarcerated hernia.

Genitalia

Do not overlook this part of the examination. In males examine the testes for any unusual swellings or tenderness. Look for cellulitis of the scrotal skin. Feel the cord. Any lumps appearing above them are inguinal in origin; beneath are scrotal. Look for any penile abnormalities or urethral discharge. Transilluminate any swellings to see if they are solid or cystic. In females examine for any vaginal discharge, warts, and, when necessary, perform a vaginal examination.

Rectal examination

Note any haemorrhoids, external skin tags, fissures, or perianal warts. Perform a gentle digital examination with a lubricated index finger, assessing for any intraluminal or pelvic tenderness or masses, noting their relation to the perineal body. Assess the anal tone. In the male assess the prostate gland in terms of size, symmetry (there should be a central sulcus in the normal prostate), and consistency. In females feel for cervical excitation (suggestive of pelvic inflammatory disease).

Note the presence of any blood, mucus, or pus on withdrawal of the finger. If necessary proceed to a proctoscopy and rigid sigmoidoscopy (see Chapter 7).

Regions of the abdomen and their relationship to disease

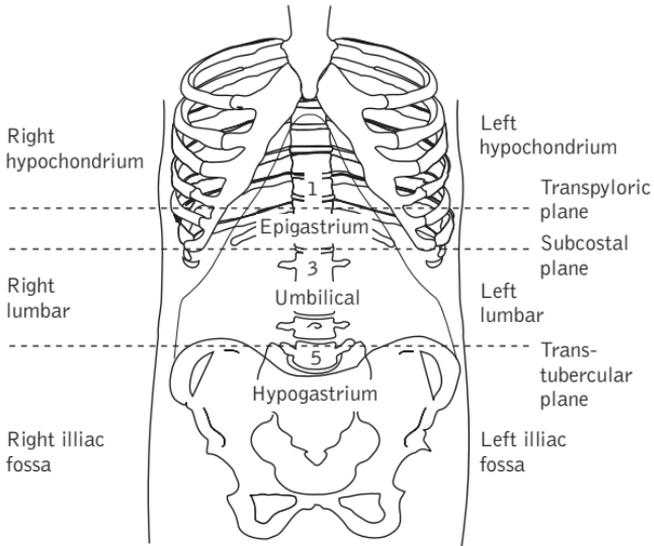
The abdomen can be divided into nine regions by an imaginary grid formed horizontally by:

- the *transpyloric plane*, which lies midway between the symphysis pubis and jugular notch. It corresponds with the lower border of L1, tips of the ninth costal cartilages, body and pylorus of the stomach, splenic vein, and fundus of the gall bladder—the left and right renal hila lie above and below this plane; and
- the *trans-tubercular plane*, which passes through the tubercles of the iliac crest and corresponds with the centre of L5;

and vertically, by two imaginary lines drawn from the mid-inguinal points to the tip of the ninth costal cartilages (where the lateral edges of rectus abdominis meet the costal margin).

The *subcostal plane* passes through the lowest border of the tenth costal cartilages and corresponds to the upper border of L3. It can be used as an alternative to the transpyloric plane when describing the regions of the abdomen.

Some of the common causes of acute abdominal pain are illustrated opposite.



Regions of the abdomen

Hepatitis Cholecystitis	Peptic ulcer Pancreatitis Leaking aneurysm	Splenic rupture or infarct
Ureteric/ renal colic Leaking aneurysm	Small bowel obstruction Leaking aneurysm	Ureteric/ renal colic Leaking aneurysm
Appendicitis Crohn's Meckel's	Large bowel obstruction Fibroids Urinary retention Ovarian cyst Ectopic pregnancy Salpingo-oophoritis	Diverticulitis

Common causes of acute abdominal pain

REMEMBER: Medical conditions can present with abdominal pain.

The elderly surgical patient

A large proportion of general surgical and surgical speciality procedures are performed on patients over 65 years of age. Over 75 per cent of perioperative deaths (i.e. within 30 days of surgery) occur in this age group, most commonly in urgent and emergency cases.

The problems and the reasons

- Coexistence of multisystem diseases, including cancer, results in an impaired reserve against the stress of surgery and current disease process.
- Late presentation of the disease, often attributed to 'old age', leads to further systemic and general disturbance.
- Difficulties in obtaining a good history through impaired cognition.
- Surgical and anaesthetic factors. In real terms, these account for a small proportion of all deaths, but are the ones most easily corrected.

Aims of surgery in the elderly

- To comfort it not to cure.
- To allow the patient to return home; whenever possible, back to his family.
- Unless surgery is going to be of any benefit, do not consider it.

Common pitfalls in practice resulting in adverse outcome

Note, these apply to patients of ALL age groups, not just the elderly, although the elderly will be most vulnerable.

- Inadequate preoperative investigations, e.g. failure to perform gastrograftin enemas in intestinal obstructions to identify non-mechanical causes.
- Inadequate fluid resuscitation—this *cannot* be overemphasized. If necessary, central venous pressure and advanced haemodynamic monitoring should be used. However, their implementation should not impede resuscitation. If the rate of bleeding clearly exceeds the rate of resuscitation, e.g. from a ruptured aortic aneurysm/ectopic pregnancy, immediate surgery should proceed *alongside* resuscitation.

- ♦ Inadequate DVT and antimicrobial prophylaxis.
- ♦ Failure to control and correct certain medical conditions; most notably diabetes, hypertension, uncontrolled AF, heart failure, and chest infections. Unless immediate surgery is necessary, steps should be taken to correct these first.
- ♦ Inexperience and overconfidence, resulting in incorrect or inappropriate operations.

Reducing the risks

- ♦ Consider each patient individually, and consult seniors regarding when and which operation should be done. In difficult cases, the decision to operate or not should be made jointly between the consultant anaesthetist and surgeon.
- ♦ Correct and optimize any coexisting medical disorders.
- ♦ Ensure appropriate antimicrobial and antiembolic prophylaxis is given.
- ♦ Monitor fluid balance and electrolytes carefully.
- ♦ If appropriate, high dependency and intensive care unit (ICU) monitoring should be used.
- ♦ A multidisciplinary approach should be used, involving the anaesthetist, physician, rehabilitation services, GP and family, whenever appropriate.
- ♦ Ambulate and rehabilitate as soon as possible after surgery.
- ♦ Consider who is left at home—do they need help?

Consent

Successful surgery depends on a relationship of trust between the patient and doctor. To establish this, the patient's right to autonomy must be respected, even if their decision results in harm or death. This right is protected by law. Thus patients should be given sufficient information, in a way that they understand, to enable them to make informed decisions about their destiny.

Good consenting practice

The key to good consenting is effective communication. Choose a quiet place—free from disturbance, avoid standing over the patient, and use plain English, avoiding jargon. Take time to find out what the patient already knows and ought to know, based on their needs and priorities.

At the end, check whether the patient has understood the information or wants more information. Remind them they can still change their mind at any time or seek a second opinion, if they so wish.

Contents of consent

There are essentially four components to consent:

- Information regarding the *illness* and its *prognosis*.
- An explanation of the *proposed treatment*—what it will involve, practical implications and prognosis.
- The *risks* of surgery, *specific* to the procedure (e.g. stoma, limb dysfunction) and in *general* (e.g. anaesthesia, bed rest, DVT).
- *Alternatives* to the proposed treatment, including non-treatment, with their advantages and disadvantages.

The *amount* of information provided should be sufficient to allow a mentally competent patient to make an informed decision. This will vary according to what is known about the individual, and other factors such as the nature of the condition, the complexity of treatment, and risks involved; particularly when a procedure is associated with a high failure rate or significant complications.

It is unacceptable to limit the amount of information given to a patient on the basis that it may distress him; particularly if the long-term aim is to treat the patient in ignorance.

Modes of consent

- *Implied*: the patient is presumed to consent to preliminary procedures, e.g. ECGs, X-rays, when he attends hospital at a given date and time.

- ♦ *Written*: whenever possible, this should be obtained for all patients undergoing procedures involving an anaesthetic, complex treatments with significant risks and side-effects, or as part of research.
- ♦ *Verbal*: should be obtained when it is not possible to get written consent (preferably witnessed by an independent healthcare professional, and documented in the notes accordingly) or for simple procedures with minimal risk of harm, e.g. rigid sigmoidoscopies.

Note: Written consent is not legal proof that adequate consent was obtained at the time the document was signed.

Who should consent?

The clinician

- ♦ Ideally, the person providing the treatment; or
- ♦ a delegated person who is sufficiently trained and qualified, and has sufficient knowledge of the proposed procedure.

The patient

- ♦ The presence of relatives and friends can sometimes be useful. However, *no one else* may make decisions on behalf of a *competent adult*.
- ♦ If there are language difficulties, the use of an independent interpreter should ensure that the correct information is delivered to the patient.
- ♦ If a patient asks you withhold information or make a decision on their behalf, you should stress the importance of them knowing the different options, and you should still provide the basic information about the treatment.

Special considerations

Emergencies When consent cannot be obtained you may provide emergency medical treatment provided it is limited to what is needed to preserve life. However, you must respect any valid advance refusals which you know about or are drawn to your attention.

Mentally incapable patients Again, no one may act as legal proxy to a mentally incapacitated person. You must first assess the patient's competence to make an informed decision. If unable to decide, and provided they comply, treatment may be instigated which is judged to be in their best interest. Otherwise, treatment may be compulsorily laid out under the safeguards of the Mental Health Act 1989. Controversial and non-therapeutic treatments (e.g. sterilizations) require court approval.

Advance statements/living wills Advance statements made by patients who have lost the capacity of informed consent must be respected provided the decision is applicable to the present circumstances and there is no reason to believe that they may have changed their minds. The known wishes of the patient should be taken into consideration if an advance statement is unavailable.

Children

- ♦ Over 16s can be regarded as young adults, and therefore have the capacity to decide.
- ♦ Under 16s may give their own consent, if they understand what is involved.
- ♦ Unlike adults, where a competent child refuses treatment, a person with parental responsibility (except in Scotland) or a court may authorize treatment if deemed in the child's best interests.
- ♦ If the parents refuse treatment deemed in the child's best interests, you are not bound by this and may seek a ruling from the court. Fortunately, these difficult situations occur infrequently.
- ♦ Emergency treatment may be instigated without consent in a similar manner to that in adults.

Pregnancy The right to autonomy applies equally to pregnant women and includes the right to refuse treatment which is intended to benefit the unborn child.

In difficult situations

Consult with senior colleagues or seek the advice of the medical legal bodies (Kirk 1999).

Day-case surgery

Day-case surgery has become increasingly popular since the 1960s. Its advantages are shorter inpatient hospital stay allowing for recovery to occur at home, shorter inpatient hospital waiting lists, and lower infection rates. It is also economically advantageous as there are no additional costs associated with overnight stay.

However, the success of day-case surgery relies on careful selection criteria, of both the type of surgery being performed and which patients are operated on.

Types of surgery

In general, any operation is suitable if expected to take less than 1 hour and where undue pain or haemorrhage are not expected and post-operative instrumentation, monitoring, or medical input or specialized nursing are not required (e.g. urinary catheterization, nasogastric tubes, surgical drains).

Minor procedures to cutaneous lesions, hernia repairs, tonsillectomies, endoscopic procedures, varicose vein surgery, etc. are all suitable. Clearly, any form of open abdominal surgery or other major surgical procedure is not.

Patient selection

For cases requiring general anaesthesia the patient should be fit with no pre-existing medical problems (ASA Grade I) or have mild systemic disease that does not incapacitate the patient (ASA Grade II). Some ASA Grade III patients (mild systemic disease which can incapacitate) may still be suitable for short examination under anaesthesia.

The patient must:

- be accompanied home, and should not drive or operate machinery for 24 hours after the operation;
- have a responsible adult at home on the night of surgery; and
- have access to a telephone and be within reasonable travelling distance of the hospital, in case problems arise.

Other factors, including the weight of the patient, may also influence the suitability for day-case surgery.

Cancellation of cases

The most common causes include ingestion of food within the prescribed period of 6 hours before surgery, recent onset of an upper respiratory tract infection, and resolution of the initial problem.

Less frequent causes include incorrect patient selection and hypertension. It is therefore worthwhile checking the patient's blood pressure in out-patient clinic, and arranging any routine investigations, including blood tests and ECGs, at the same time, whenever appropriate.

Other points

Patients should be advised not to eat and drink for the 6 hours (4 hours for children) leading up to surgery involving a general anaesthesia. They should, however, take all their regular medications as usual on the day of surgery.

Ethics/good medical practice

Duties of surgeons to patients

A surgeon must maintain the highest professional standards and practise his profession without a profit motive.

He must:

- ♦ be obligated to preserve human life;
- ♦ be loyal to his patients;
- ♦ summon a second opinion if a certain type of treatment is outwith his ability;
- ♦ maintain confidentiality on his knowledge of patients;
- ♦ give emergency care where indicated as a duty unless others are able and willing to administer such care.

Duties of surgeons to one another

Surgeons must:

- ♦ behave respectfully and professionally towards colleagues;
- ♦ not attempt to or succeed in enticing patients from surgical colleagues.

Unethical practices

- ♦ Self-advertisement.
- ♦ Collaboration in medical practice where clinical independence is not maintained.
- ♦ Receiving monies, other than proper professional fees.
- ♦ Acts or advice which could weaken the mental or physical status of a person and which could result in profit of some kind for the surgeon.

Caveats

- ♦ Beware of new discoveries and techniques unless they are properly tried and tested.
- ♦ Give certification or testify only to that which you can verify personally.

Negligence

Insure yourself against professional negligence and ensure that your subscription is up to date.

Common surgical reasons for allegations of negligence

Amputation of the wrong digit or limb/operating on the wrong side This is virtually indefensible and is due to carelessness in the patient/doctor relationship. If you are operating, speak to the patient on the preoperative ward round and identify the side. Record it in the notes. Mark the side/digit with a waterproof marker pen yourself. Speak to the patient again in the anaesthetic room and repeat the process. *Do not permit the induction of anaesthesia until you are certain.*

Leaving swabs or instruments in the patient It is the total responsibility of the operating surgeon to ensure that nothing is left in the patient. Satisfy yourself that the swab count, etc. is correct. If in doubt X-ray the patient on the operating table.

Removing the wrong organ/removing a solitary organ (when there should be two!) When one of paired organs is diseased, ensure that it is the diseased organ which is removed. When there is a diseased or damaged organ of a pair ensure that its mirror image is *present* and *functional* (e.g. kidney). If the operation is vital for the well-being of the patient, then his consent should be obtained. Under exceptional circumstances (e.g. road traffic accidents) it may not be possible to obtain consent.

Ligating ducts/ureters/arteries Be aware of the perioperative risks of each procedure you carry out, e.g. biliary surgery is fraught with the danger of damage to the bile ducts; colonic (right and left) surgery may lead to damage to the ureters or duodenum; laparoscopic sterilization may lead to small intestinal injury with subsequent pelvic abscess or peritonitis.

If your patient is not recovering as predicted, carry out further investigations to ascertain why. Laparotomy may be necessary.

It may be *accidental* to cause damage to a structure during surgery, but it is *negligent* not to act if the patient has signs that suggest such damage.

Operating on the wrong patient This results from breakdown of patient identification. Check that each patient corresponds with the list, both numerically and for the surgical procedure. Risks are reduced if you recognize your own indelible marker. Check the notes and patient identification in the anaesthetic room *before anaesthesia* is induced (see above).

Failing to X-ray fractures/applying splints too tightly/applying plaster casts too tightly Look for the clinical signs of fractures. X-ray if suspicious. Beware the quiet fractures—scaphoid (may not show radiologically for 10–14 days), C7/C8 fractures (X-ray in ‘swimming’ position. Ask for C7/C8/T1 views). Check splints and plasters after 24 hours. Give the patient a warning card to return if there is pain, discomfort, or numbness.

Wrong transfusion/wrong drugs/wrong dose Transfusion mistakes can be avoided by checking carefully that the name, hospital number, and date of birth correspond to the label on the blood bag. Blood samples for cross-matching should be accurately labelled immediately the blood is taken. Drugs and dosages should be clearly legible on the Kardex. If in doubt, check with your senior or consultant.

Communication and breaking bad news

Communication is the act of imparting (knowledge) or exchanging (thoughts, feelings, or ideas) by speech, writing, or gestures. Doctors must be able to communicate successfully with patients, colleagues, nursing staff, and administrators.

Five areas of communication

What to tell The truth if at all possible. Establish the diagnosis by histology (e.g. malignant disease) or overwhelming radiological or biochemical evidence. Use clear non-esoteric language. Tell the truth calmly. Sit at the same level as the person to whom you are speaking. Discuss treatment options.

When to tell When all relevant results are available, a full diagnosis with implications of treatment and prognosis can be given. It may be easier to give the diagnosis in stages: a clinical impression in the SOPD, the results of relevant investigations or histology in SOPD on the ward, and the operative findings once the patient has recovered sufficiently to understand (usually the first postoperative day). Try to tell the patient and relatives as soon as possible.

Whom to tell Tell the patient. Use discretion when the prognosis is very poor. Permit the patient to ask questions. He has a right to know what is happening to him. Discuss the clinical implications of the diagnosis with the closest relatives. Reassure them that a truthful approach will permit maximum co-operation from the patient and also justify future admissions, treatments, or continued follow-up at hospital, etc.

Where to tell Speak to the patient or his relatives in privacy—not in the corridor. If in the open ward, draw the screens and ask the nurse allocated to the patient's care to accompany you.

Who tells? Junior hospital doctors (housemen—senior registrar), consultants, staff nurses, or sisters. Establish the ward and consultant's policy. Nurses are often asked the diagnosis or result of an operation during the delivery of care. They are frequently better at speaking to patients than are doctors, and should be involved. After telling the patient, be prepared to talk to him again. When the initial shock has passed there may be many questions. Others may be

relieved to have a diagnosis for their troublesome symptoms. Some may accept the situation without further discussion.

Communication with colleagues

Personal anxiety and frustrations are rarely caused by patients but they can be caused by outside sources such as colleagues, nursing, administrative, and laboratory staff.

Communication with hospital doctors

When making requests for clinical consultations, write a letter to the consultant concerned. Be brief and clear. Check that this is the person that your chief wants to see the patient. Ask him for his opinion or advice on management. Do not refer at registrar or houseman level alone without informing the consultants involved.

When asked to see a patient, go the same day if possible. Write your opinion in the case notes stating clearly what you recommend. If in doubt, discuss it with your colleagues on your own firm.

Communication with general practitioners (GPs)

Telephone the GP in the case of an OP admission or death of a patient. When discharging, give the discharge letter to the patient to deliver to the GP by hand. Mark it 'This must be delivered to your GP's surgery as soon as possible'. Even so, almost 25 per cent of letters remain undelivered and there may be a 4-week delay before the GP receives any details at all. The handwritten discharge should be delivered within 4 days, and the typed discharge summary with all results within one week. With the advent of electronic patient records, a full coded discharge can be e-mailed as the patient leaves the ward.

Be polite in telephone calls and letters. State the diagnosis, treatment, and prognosis clearly with dates of follow-up visits. Tell the GP what you have told the patient and his family.

X-ray and laboratory colleagues

Is the investigation really necessary? If there is doubt about the correct investigation, telephone for advice. Complete request forms correctly and include clinical data where necessary, e.g. symptoms and sigmoidoscopy findings in a barium enema request.

Anaesthetists

Where there are specific medical problems or drug treatments, make sure that the anaesthetist is informed about them. It may pay to find out which laboratory investigations and X-rays the anaesthetist concerned likes to be done routinely before being given an operating list for the following day.

Administrators

Complete all official forms regarding employment and contracts as quickly as possible. Produce the certificate of your Defence Union. Complete holiday and study leave forms clearly, and ask your chief to agree to your request. When making enquiries be polite and calm. You are not the only one who has hassle in their life.

Nurses

Co-operate with the nursing staff. Introduce yourself on arrival to sister or staff nurse. They will help you learn the ropes. Do your ward work efficiently, dovetailing with the delivery of nursing care. Let sister or staff nurse know when you are going to lunch. It might save you being buzzed. Do an evening ward round to check on problem patients and drug requirements. It usually lets you have a good night's sleep.

Death

Definition

There is no legal definition of death in the UK. Traditionally, it has been regarded as the cessation of circulation and respiration. Thus clinically, there is:

- No respiratory effort, denoted by the absence of breath sounds on auscultation over 1 minute.
- Absence of a palpable pulse and heart sounds over 1 minute (to exclude prolonged bradycardia).
- No response to a painful stimuli, e.g. sternal rub or supraorbital nerve pressure.
- Fixed dilated pupils (an unreliable sign, as drugs such as atropine have the same effect).

Caveats

- If there is doubt, perform an ECG.
- Where hypothermia is thought to be the cause, the patient should be warmed to a core temperature of at least 34 °C before death is diagnosed.

Brain death/brainstem death

The concept of *brain death* has arisen from the advances in intensive therapy and the ability to maintain cardiac and respiratory function artificially in patients who have sustained severe irreversible brain damage. Brain death is defined as the *irreversible cessation of all functions of the entire brain, including the brainstem* (Report of the medical consultants on the diagnosis of death to the President's commission for the study of ethical problems in medicine and biomedical and behavioural research 1981). This, alongside the traditional definition, is taken to equate to death in the UK, USA, Australia, and many other countries.

In order to diagnose brain death, a number of strict criteria must be met:

- An identifiable cause for the brain death must be established, e.g. severe head injury/intracerebral bleed.
- Other causes, including CNS depressants, hypothermia, metabolic and endocrine disturbance, need to be excluded.
- The patient is unable to breathe spontaneously despite adequate CO₂ drive (i.e. PaCO₂ > 6.7 kPa).

If all these criteria are met, brain death may only then be diagnosed if the following brainstem reflex tests have been met on two separate occasions, usually 24 hours apart. They are performed by the consultant in charge (or deputy of 5 years' registration) and another suitably experienced doctor.

- ♦ Both pupils are fixed and unresponsive to light (oculomotor nerve).
- ♦ Corneal reflexes are absent (trigeminal nerve).
- ♦ Vestibulo-ocular reflexes are absent. Absent eye movements when 20 ml of ice-cold water is injected into each ear. Ensure the tympanic membranes are visible beforehand (vestibulo-cochlear nerve).
- ♦ Absent motor responses to painful stimuli in the distribution of the cranial nerves—as spinal cord injury may ablate peripheral motor responses. Ensure that the patient has not received any neuromuscular blocking drugs.
- ♦ Absent gag and cough reflex upon pharyngeal and endotracheal stimulation.
- ♦ Absence of respiratory effort when disconnected from the ventilator despite a $\text{PaCO}_2 > 6.7$ kPa. Increase this threshold for the patient with COAD. Ensure that the patient is preoxygenated with 100 per cent O_2 beforehand and monitor his oxygen saturations throughout the apnoeic period.

After death

Inform the consultant, the patient's relatives, and their GP. In the event of brain death, consider organ donation (see below). Inform the coroners when:

- ♦ a surgical procedure involving an anaesthetic has taken place in the last 6 months (whether related or unrelated to the death);
- ♦ death has occurred within 24 hours of hospital admission;
- ♦ more than 14 days has elapsed since the patient last saw a doctor;
- ♦ there is doubt about the cause of death, or it is believed that surgery is related to the death. With exception the last point, when a post-mortem examination is desirable, the coroner may be happy for the doctor to issue a death certificate if the cause of death is clearly identifiable.

Note: The above guidelines may vary from region to region.

Issuing the death certificate

This can be issued by anyone with full medical qualifications who is able to certify the cause of death, or where referral to the coroner has been made and permission to issue the certificate without a post-mortem examination has been granted.

The cause, not mode, of death is indicated in Ia, and events leading up to Ia are identified in Ib and Ic. Any condition that has *contributed* to death but is not directly the cause is indicated in Part II.

For example, a patient with gastric carcinoma, who undergoes a partial gastrectomy and dies of respiratory failure due to an aspiration pneumonia 5 days later would be certified as Ia aspiration pneumonia, II gastric carcinoma. Had the same patient died as a direct result of an inoperable widely disseminated gastric carcinoma, this would be certified as Ia carcinomatosis, Ib gastric carcinoma.

Certain terms may not be accepted by some centres, e.g. heart failure and sepsis.

Cremation forms

These forms vary slightly in their appearance from region to region. However, certain rules apply universally.

- There are two parts. The first part is filled in by a doctor who attended the patient during the illness leading up to death. The second part is completed by an independent clinician who has been fully registered for at least 5 years.
- They should not be issued if a post-mortem examination is required or the cause of death is not established.
- It is the responsibility of the issuing doctor to ensure that he has seen and identified the person after death and that there are no radioactive implants or pacemakers present. If there are, they must be removed.

Organ donations

- When brain death is established, organ donation should be considered for all patients who are under 75 years of age with no history of malignant disease or major untreated sepsis. All suitable donors should be tested for HIV and hepatitis B and C.
- Organ donation is usually co-ordinated by regional transplant teams. The staff on ITUs should know how to contact them.
- The body should be identified and ownership established. If despite reasonable attempts, the identity of the corpse or next of kin remains unknown, the body becomes the property of the health authority. If a donor card is present, it is reasonable to assume that the deceased wished to donate his organs, and the transplant team can proceed.
- If relatives are identified, and do not wish organ donation to proceed, even though there is a donor card, their wishes must be respected.
- Relatives should be asked to act as agents in expressing what they believe to be the wishes of the patient. Ideally, the person seeking

permission should be someone who they already know. This may be the consultant in charge, but on occasion a senior staff nurse, chaplain (or other religious figure), or the family GP may be more appropriate.

- In the case of accidental deaths, the coroner's permission should be sought before proceeding.

Suicide

The suicide rate in the UK is currently 12.5 per 100 000. The society EXIT, founded in 1935, concentrates on giving advice to people on how to commit suicide painlessly and effectively. It also aims to achieve legislation to permit voluntary euthanasia. However, to date this has not been passed in the UK.

Patients at risk

- The recently bereaved (p. 38).
- Cancer patients have a five times increased risk.
- Men over 55 years with oral cancer and a history of alcohol abuse.
- Women of any age often suffering from gynaecological or breast cancer. (In both these latter groups the treatment of the disease involves disfigurement and a change of body image. Additionally, women may suffer a sense of loss of femininity.)

Action

Patients about to undergo disfiguring surgery for any reason should be counselled carefully in the period after confirmation of the diagnosis and before surgery. Doctors should discuss all treatment options and implications clearly. The support of a 'mastectomy counsellor' or 'stomatherapist's is invaluable.

Euthanasia

Euthanasia is the painless termination of life at the request of the patient concerned. In the UK it is illegal to administer any drug to accelerate death, irrespective of how compassionate the motive may be. The law holds that the intention to kill is malicious, and such action would be classified as murder.

Withholding treatment from handicapped babies may also be seen as a form of euthanasia, but this is not simply a medical decision. The parents must be involved and understand the alternatives fully. Many handicapped children (e.g. Down's syndrome) enjoy life. This positive aspect must be considered when speaking to parents about the implications of a child's handicap.

Many doctors in The Netherlands have purposely courted litigation by indicating that a patient's death was due not to natural causes but euthanasia. Where court cases ensued the doctors involved were acquitted, but there has been subsequent pressure on the Dutch government to review the penalties relating to doctors and their dying patients.

In the UK in 1985 the British Voluntary Euthanasia Society (EXIT) reported that 75 per cent of a sample of the general public surveyed felt that 'The Law should allow adults to receive medical help to an immediate peaceful death if they suffer from an incurable illness that is intolerable to them', but only 15 per cent of doctors agreed with this.

Why do patients request euthanasia?

Terminally ill people may have several reasons:

- ♦ fear of awaiting death
- ♦ intractable pain
- ♦ disfigurement
- ♦ fear of becoming a burden
- ♦ to establish whether euthanasia is in fact an option in British medical care.

Why have parents requested non-treatment for newborn babies?

- ♦ Down's syndrome
- ♦ severe spina bifida
- ♦ severe chromosomal abnormalities.

Guidelines

- There are no social or legal criteria for withholding treatment. The decision is difficult and is not purely medical.
- Most patients' fears can be eliminated by skilled care and support.
- Most patients' symptoms can be controlled by appropriate medication.
- In a few patients, increasingly large doses of drugs must be given to relieve symptoms. In these patients the risk of unconsciousness and hypostatic pneumonia is increased.
- Learn to recognize when attempts to cure have been exhausted, and direct your energies into caring for the patient. There may be a need for the absolute control of discomfort in those who are dying.
- Always discuss the care of terminally ill patients with your senior colleagues.

Death after bereavement

In the UK 2 per cent of men and 8 per cent of women between 45 and 60 years suffer conjugal bereavement. In those people over 75 years, 30 per cent of men and 65 per cent of women are widowed. The estimated population suffering bereavement is about 4 million.

Risks for the bereaved

Risk of death for the survivor of conjugal bereavement is greatest in the first 6 months for men, and in the second year for women. Men and those bereaved when younger tolerate bereavement badly, and have a poorer prognosis.

The risks seem to be related to loss of care experienced by the survivor, which can lead to self-neglect, often the case in widowers. Reduced resistance to infection may also be a factor brought on by an unhealthy existence due to excessive drinking or smoking. Grief itself may suppress lymphocyte function, which could increase the risk of cancer. Those who remarry early after bereavement live relatively normal lives afterwards.

Causes of death

Cardiovascular disease, cancers, suicides, and accidents.

Bereavement counselling

Professional counselling by nurses, doctors, and self-help groups reduces the mortality of the bereaved population. The aim is to provide 'therapeutic communication'—in other words, sympathy.

Moral

It is possible to die of a broken heart. Although there is rarely enough time to spend lengthy periods with bereaved families, the effort should be made. Even a one-off interview can have a settling effect. This should be followed up by the district nurse or general practitioner and is one good reason why the GP should be informed of the death of a patient promptly.