11 Medical education 1

A Medical education in the UK

Medical education in the UK covers:

- **undergraduate** education – four or five years at **medical school**, the section of a university responsible for medical education
- a two-year **Foundation Programme** which provides training for new doctors after **graduation** through a series of placements in different specialties (see Unit 12)
- **postgraduate** training which doctors take to become GPs or **consultants** – senior specialists – often delivered through **colleges** for different specialties, for example the Royal College of Physicians
- **continuing professional development** in the form of courses and seminars, which doctors undertake throughout their working lives to keep up to date.

B Extract from an undergraduate prospectus

The MBChB (Bachelor of Medicine, Bachelor of Surgery) is a five-year undergraduate medical degree course. Most of your learning takes place in small groups. The main components are:

Core (Years 1–3)

An integrated programme of clinical and scientific topics mainly presented through **problem-based learning (PBL)**, where you work with others on a series of case problems.

Student Selected Modules

Student selected modules (SSMs) allow you to choose from a menu of subjects such as Sports Medicine or even study a language as preparation for an **overseas elective**, a hospital attachment of your own choice, between Years 4 and 5.

Vocational Studies and Clinical Skills

This component prepares you for the **clinical skills** required for contact with patients from Year 1 of your course, through periods of practical training where you are attached to a hospital department or general practice.

Clinical Attachments (Years 4 and 5)

A series of four-week **clinical attachments** in Medicine, Surgery, Psychological Medicine, Child Health, Obstetrics & Gynaecology and General Practice.

C A student's view

Ellen, a medical student, describes her course.

'I'm just finishing my first year of Medicine. What I like about this course is that you're involved with patients from the very beginning. Even in our first year, we spend time in hospital. Much of the course is PBL. We have two 2-hour sessions a week where we work in groups of eight to ten solving clinical problems. We decide together how to tackle the problem, look up books and online sources, make notes and discuss the case together. It's a great way of learning and getting to know the other students. In the past, medical students had **lectures** with the whole class taking notes from lecturers from 9.00 to 5.00, but now it's mainly group work, although we do have some lectures and **seminars**, where we work in small groups with a tutor. I like all of it, even the **dissection**. We get to cut up **cadavers** from the second month of the course.'

11.1 Match these activities to the stages of medical education in the UK given in A opposite.

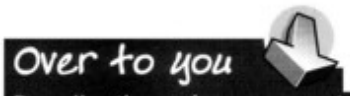
1 dissecting cadavers
2 keeping a log of surgical procedures observed and performed
3 working for four months in accident and emergency to experience this specialty
4 taking a four-week attachment in Obstetrics and Gynaecology
5 taking an online course on recent developments in cardiovascular disease

11.2 Complete the sentences. Look at B and C opposite to help you.

1 Just before their final year, students have the chance to take an ..... in a hospital of their choice anywhere in the world.
2 ..... contrasts with an approach where each subject is taught separately.
3 These days ..... are often interactive, with regular opportunities for the students to ask questions.
4 In ..... students learn how to treat and manage patients.
5 ..... can be a topic from outside medicine, such as a foreign language.
6 Dissection of ..... is an important part of the anatomy component.
7 The ..... at the University of Edinburgh is one of the oldest in the UK.
8 She's a ..... at the Royal; one of the leading paediatric heart specialists in the country.
9 The Royal ..... of Surgeons in Edinburgh dates from 1505.
10 We have a ..... each week where we discuss topics in a small group with our lecturer.

11.3 Match each of these activities to one of the components of the undergraduate course described in B and C opposite.

1 Julie spends six weeks working in a small hospital in the Himalayas.
2 A group of students discuss together the possible reasons for abdominal pain after meals in an obese 44-year-old male.
3 A small group of students trace the pulmonary artery in a cadaver.
4 Otto spends a month working in the paediatric ward of the local hospital.
5 Anne learns how to take blood from an elderly patient.
6 Juma chooses to study Travel Medicine in his fourth year.



Describe the main components of your undergraduate course.

12 Medical education 2

A The Foundation Programme

The Foundation Programme is a two-year training programme which forms the bridge between university-level study at **medical school**, and specialist or general practice training. It consists of a series of **placements**, each lasting four months, which allow the junior doctor, known as a **trainee**, to sample different specialties, for example paediatrics. A year one trainee (**FY1**) corresponds to pre-registration house officer (**PRHO**) posts and a year two trainee (**FY2**) to senior house officer (**SHO**) posts. Each trainee has an **educational supervisor** who ensures that more senior doctors deliver training in different ways, including clinical and educational supervision. To progress, trainees have to **demonstrate** a range of **clinical competencies** which are **assessed** through observation in their workplace.

(*BMJ Careers* 2005; Amended with permission from the BMJ Publishing Group)

B People in medical education

tutor	An academic, or in some cases a postgraduate student, who leads tutorials.
demonstrator	In anatomy teaching, someone who **demonstrates how to** dissect. Demonstrators are often postgraduate students paying their way through medical school.
lecturer / senior lecturer	An academic with teaching and research responsibilities who contributes to the teaching of a particular discipline.
professor	A senior academic with teaching and research responsibilities for a particular discipline. Usually a leading figure in their discipline.
college tutor	A consultant responsible for delivering a college training programme.
clinical trainer	A consultant assigned to a trainee who **provides training** during periods of direct clinical care.
educational supervisor	A consultant who **supervises** a trainee's period of training.

C Medical qualifications

BMSc BMed Sci	**Bachelor of Medical Sciences**. A **degree** often **taken** after three years of medical studies by students who may wish to follow a career in medical research.
MBChB, MBBS BMBCh, BMBS	**Bachelor of Medicine, Bachelor of Surgery**. Bachelor degrees are undergraduate degrees. This is the first degree for UK doctors.
MD, DM	**Doctor of Medicine**
DRCOG	**Diploma of** the Royal College of Obstetrics and Gynaecology
MRCP MRCS	**Member of** the Royal College of Physicians or Member of the Royal College of Surgeons. Doctors become Members by successfully completing the assessment procedures in their **college**.
FRCS FRCS(Ed) FRCS(Glas) FRCSI	**Fellow of** the Royal College of Surgeons of England. Other colleges are indicated by the letters which follow, for example Edinburgh, Glasgow or Ireland. How doctors become a Fellow depends on their college. For the FRCS, further examinations must be passed. For other colleges it is by nomination or work assessment.

12.1 Complete the phrases with verbs from the box. Two phrases can be completed in two different ways. Look at A and B opposite to help you.

assess	deliver	demonstrate	provide	supervise	take

1 ..... a competence or how to do something
2 ..... a trainee by ensuring she successfully completes her training
3 ..... a course or a training programme (as a teacher)
4 ..... a course or a training programme (as a student)
5 ..... progress or competence

12.2 Match the two parts of the sentences. Look at A, B and C opposite to help you.

1 An FY1 is a doctor
2 A demonstrator is an anatomy teacher
3 A clinical trainer is a consultant
4 A supervisor is a consultant
5 A medical school is
6 A placement is
7 A college is
8 A Fellow is a specialist

a a body of specialists responsible for delivering and assessing training in their specialty.
b responsible for the training programme of a trainee.
c a period spent as a trainee in a hospital or in General Practice.
d in the first year of the Foundation Programme.
e who has reached the highest level in their specialty.
f who provides training during periods of direct clinical care.
g part of a university responsible for medical education.
h who teaches dissection.

12.3 Write in full the qualifications of the doctors and surgeons. Look at C opposite to help you.

1 Mr A. H. Younghusband, MBChB, FRCS, FRCSI

2 Dr C Doyle, BMed Sci, DM, MRCP

3 Ms E Inglis, MBBS, FRCS

4 Dr E Merryweather, BM, MD, FRCP

Over to you

How do you become a specialist in your country? List the stages.

13 The overseas doctor

A Types of registration

To manage and treat patients in the UK, all doctors must **register with** the **General Medical Council** (**GMC**). There are several types of registration:

- **Provisional registration** is for doctors who have just qualified from medical school in the UK or from certain European Economic Area (EEA) member states.
- **Full registration** is for doctors who have completed their year's clinical training.
- **Limited registration** is for international medical graduates who have not completed the equivalent of a year's clinical training in the UK.
- **Specialist registration** is for doctors who have completed specialist medical training and have a Certificate of Completion of Training (**CCT**).

The GP Register is a register of all those eligible to work in general practice in the NHS.

Note: For full details of the General Medical Council see www.gmc-uk.org

B PLAB

Before they can **obtain full registration**, some categories of overseas doctors are required to take the **Professional and Linguistic Assessments Board** (**PLAB**) test. PLAB is designed to ensure those who pass can practise safely at the level of an SHO in a first appointment in a UK hospital.

Part 1 consists of a written test of knowledge, skills and attitudes. Part 2 is an **Objective Structured Clinical Examination** (**OSCE**). It consists of 16 five-minute clinical **scenarios**, known as **stations**, to assess professional skills.

Note: For a full description of PLAB, see http://www.gmc-uk.org/doctors/plab/

C PLAB stations and advice

OSCEs assess these skills:

- Clinical examination: Your ability to carry out a physical examination of a simulated patient, an actor trained to play this role, will be assessed. Uncomfortable or intimate examinations will be carried out using a **manikin**, an anatomical model.
- Practical skills: You will be assessed on practical skills such as suturing and giving intravenous injections.
- Communication skills: Your ability to interact with a simulated patient, or in some cases the examiner, will be assessed. Skills tested may include breaking bad news and giving advice on lifestyle.
- History taking: Your ability to take an accurate history and make a reasoned diagnosis will be assessed.

Advice on the stations from a successful candidate:

> Read the instructions outside each station carefully. You have one minute for this.

> Don't forget the **ABC** (airways, breathing, circulation) **protocol** in every emergency station.

> Keep in mind **safety precautions** like throwing the **sharps** in the **sharps bin**.

> Check the patient understands what is happening; then ask them about any concerns they may have. Don't just give a lecture. Listen carefully to what the actor says.

Note: **Sharps** are needles and blades which must be disposed of safely in a special container called a **sharps bin**.

13.1 What kind of registration might these doctors obtain? Look at A opposite to help you.

1 A newly qualified Spanish doctor

2 A newly qualified Nigerian doctor

3 A doctor who has successfully completed the first Foundation Year (FY1)

4 An SHO who has successfully completed the Foundation Programme and gained a Certificate of Completion of Training after several specialist registrar posts

13.2 Write the abbreviations in words. Look at A, B and C opposite to help you.

1 Any doctor who wants to work in the UK must register with the *GMC*.

2 Some overseas doctors must pass the *PLAB* test before they can register.

3 Part 2 of the test consists of an *OSCE*.

4 In any emergency, remember the *ABC* protocol.

5 Before you can obtain specialist registration, you must have a *CCT*.

13.3 Complete the text. Look at A, B and C opposite to help you.

My name's Musa and I come from Yemen. I came to the UK about two years ago, after graduating. Because Yemen is outside the EEA, I could only obtain (1) .... with the (2) ..... at first. It was very difficult for me to obtain a place on a Foundation Programme. Although I speak good English, I had to take the (3) ..... test to show that I could work safely in the UK. If I had to give some advice to other candidates, it would be that at counselling (4) ..... , you shouldn't simply memorize a set of phrases. It's better to really think about what you're saying to the actor and get the intonation right.

After completing my year's clinical training, I was able to obtain (5) .... But I found it difficult to get an SHO post in my chosen specialty, paediatrics, as hospitals now have to demonstrate there isn't a suitable candidate from the EEA. Once I've completed my second Foundation Year, I should obtain a (6) ..... which will allow me to proceed to (7) .... with the GMC, an important step on the road to becoming a paediatric consultant.

Over to you

Explain how a foreign doctor can register to work in your country. Find out how you can register to work in another country of your choice.

14 Symptoms and signs

A Describing problems

The problems which a patient reports to the doctor are called **symptoms**, for example pain or nausea. **Signs** are what the doctor finds, also known as **findings**, on examining the patient, for example high blood pressure or a rapid pulse rate. Symptoms are also known as **complaints**. To report a patient's symptoms or complaints, doctors say:

Mr Farnsworth was admitted **complaining of** chest pain.

In case notes, the abbreviation **c/o** is used:

c/o chest pain

B Presentation

Patients say they **went to (see) the doctor**; doctors say the patient **presented**. The symptom which causes a patient to visit a doctor – or to **present** – is called the **presenting symptom**, **presenting complaint** or **presentation**.

His	presenting symptom presenting complaint	was chest pain.

He **presented to** his GP **with** chest pain.

The usual presentation is chest pain.

C Talking about symptoms

Symptom	Meaning	Patients say
tiredness **lethargy** **fatigue** **lassitude**	loss of energy	I **feel tired** all the time. I **feel** completely **worn out**. Lately I've been feeling completely **exhausted** at the end of the day.
malaise	general feeling of being unwell	I feel unwell. I don't feel well. I've been **feeling off-colour** for two days. I **haven't been feeling myself** for a week. I've been **out of sorts** all day.
anorexia	loss of appetite	My appetite is very **poor**. I've been **off my food** for days.
weight gain	increase in weight	I've **put on** eight kilos in the last year. I've **gained** five kilos.
weight loss	decrease in weight	I'm not eating any less than usual but I've **lost** a lot of weight recently.
constipation	hard, infrequent faeces	My **motions** are very hard. I've been quite **constipated** lately. I'm not very **regular**.

Note: The verb **feel** is also used with other adjectives, such as **hot**, **cold**, **nervous**, **anxious**, **dizzy**, **weak** – *She said she felt dizzy.*

14.1 Complete the table with words from C opposite. Put a stress mark in front of the stressed syllable in each word. The first one has been done for you.

Noun	Adjective
ex'haustion	
fatigue	
lethargy	
tiredness	

14.2 Make word combinations using a word from each box. Look at A, B and C opposite to help you.

complain	with
off-	of
out of	out
present	on
put	colour
worn	sorts

14.3 Complete the sentences with the correct form of the verb *present*.

1 A 67-year-old man ..... with a 9-month history of increasing shortness of breath.
2 The most common ..... is loss of consciousness.
3 Cranial arteritis may ..... as fever without any obvious causes.
4 The patient usually ..... with a severe sore throat.
5 The ..... symptoms in this patient could perhaps be due to renal failure.
6 Other conditions with a similar ..... include acute cholecystitis.
7 Reduced growth is an important ..... complaint of coeliac disease.
8 Two months following ..... , the patient was able to walk.

14.4 Read the patient's description of her symptoms then complete the case report. Look at C opposite to help you.

I was well until a few months ago. In the beginning, I just felt off-colour and a bit tired. But lately I've been feeling completely worn out at the end of the day. I'm not eating any more than usual but I've put on nine kilos in the last year. My motions are hard and my hair has started to fall out.

Case 13

A 50-year-old housewife, who had been well until four months previously,
(1) ..... of tiredness and
(2) ..... . She had (3) .....
9 kg in weight in the year before she
(4) ..... to her GP although she denied eating more than usual. She was
(5) ..... and she noticed that her hair had started to fall out.

Over to you

Write a short case report about this 60-year-old man:

I haven't been myself for several months now. I feel completely worn out after doing anything. I've been off my food and I've lost ten kilos in weight.

Write in the past tense and use medical terms for the underlined expressions.
Practise writing similar case reports for your own patients.

15 Blood

A Full blood count

In the investigation of blood diseases, the simplest test is a **full blood count** (**FBC**). A full blood count measures the following in a sample of blood:

- the amount of haemoglobin
- the number of the different cells – **red blood cells** (erythrocytes), **white blood cells** (leucocytes) and **platelets** (thrombocytes)
- the volume of the cells
- the erythrocyte sedimentation rate (**ESR**) – a measurement of how quickly red blood cells fall to the bottom of a sample of blood.

B Anaemia

Anaemia is one of the commonest diseases of the blood. It may be due to:

- **bleeding** – loss of blood
- excessive destruction of red cells
- low production, for example because the diet is lacking, or **deficient in**, iron (Fe).

A medical student has examined an elderly patient with a very low level of haemoglobin and is discussing the case with her professor:

Professor: What's the **most likely diagnosis** in this case?
Student: Most probably carcinoma of the bowel with **chronic blood loss.**
Professor: What's **against** that as a diagnosis?
Student: Well, he hasn't had any change in his bowel habit, or lost weight.
Professor: What else would you **include** in the **differential diagnosis** of **severe anaemia** in a man of this age?
Student: He might have leukaemia of some sort, or **aplastic anaemia**, but that's **rare** – it would be very unusual. Another cause is **iron deficiency**, but he seems to have an **adequate** diet.
Professor: OK. Now, there's another cause of anaemia which I think is more likely.
Student: Chronic bleeding ulcer?
Professor: Yes, that's right. But what about **pernicious anaemia**? Can you **exclude** that?
Student: Well, he's got none of the typical neurological symptoms, like paraesthesiae.

C Pernicious anaemia

Jordi Pons, the medical student from Barcelona, has made some language notes in his textbook.

Pernicious anaemia (**PA**) is a condition in which there is atrophy of the gastric mucosa with consequent failure of intrinsic factor production and vitamin B_{12} malabsorption. The **onset** is **insidious**, with **progressively increasing** symptoms of anaemia. Patients are sometimes said to have a lemon-yellow colour owing to a combination of **pallor** and **mild jaundice** caused by excessive **breakdown** of haemoglobin because of ineffective red cell production in the **bone marrow**. A red **sore** tongue (glossitis) is sometimes present. Patients present with **symmetrical** paraesthesiae in the fingers and toes, early loss of **vibration sense**, and **progressive** weakness and ataxia. The spleen may be **palpable**.

onset = beginning
insidious = slowly developing
pallor = lack of colour
mild = slight
jaundice = bilirubinaemia
breakdown = division into smaller parts
bone marrow = soft tissue in the cavity of bones
symmetrical = each side the same
vibration sense = ability to feel vibrations
progressive = continuing to develop
palpable = can be felt with the hand

15.1 Find words in the box with opposite meanings. Look at B and C opposite to help you.

adequate	unlikely	mild	common	insidious	for
against	severe	rare	sudden	inadequate	likely

15.2 Make word combinations using a word from each box. Look at B and C opposite to help you.

bone	diagnosis
differential	sense
insidious	onset
iron	marrow
pernicious	increasing
progressively	deficiency
vibration	anaemia

15.3 Complete the sentences. Look at A, B and C opposite to help you.

1 A 39-year-old man presented with a history of ..... abdominal distension over a period of six months.
2 Blindness may be caused by vitamin A ..... .
3 The bleeding and purpura are caused by abnormal ..... function.
4 The white cell count is normal so we can ..... acute leukaemia.
5 The yellow colour of her skin and conjunctivae is probably due to ..... .
6 There was a ..... mass in the right upper quadrant of the abdomen.
7 Treatment is aimed at restoring fluid balance with ..... intravenous fluids.
8 The anaemia may be due to increased red cell ..... .

15.4 Complete the conversation. Look at C opposite to help you.

Professor: What is against the diagnosis of pernicious anaemia on physical examination?
Student: The problem started quite suddenly. So it didn't have the typical (1) .... He doesn't have any skin (2) ..... and he doesn't have (3) ..... paraesthesiae, or absent (4) ..... sense, and I couldn't feel his spleen.
Professor: What about his tongue?
Student: His tongue was normal and not inflamed or (5) ..... .

Over to you

List the causes of anaemia mentioned in the conversation in B opposite. Then choose another condition that you encounter regularly and make a similar list of the causes in English. Use the index to help you.

16 Bones

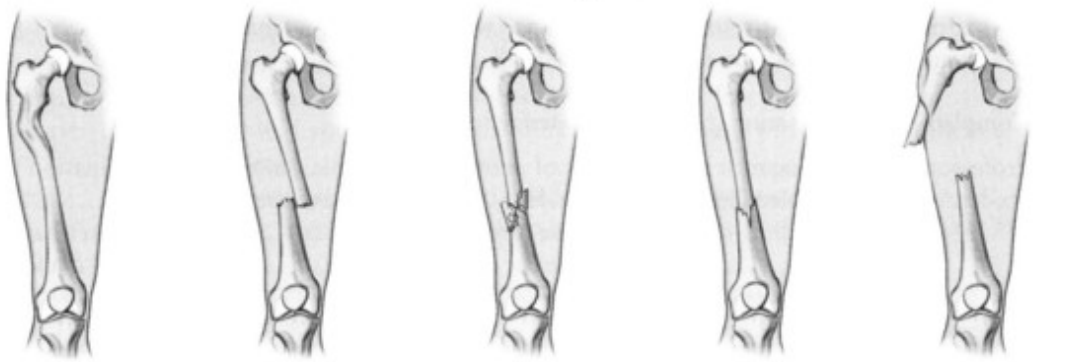
A Bones

Some common English names for bones:

English name	Anatomical name
skull	cranium
jaw bone	mandible
spine	vertebral column
breastbone	sternum
rib	costa
collarbone	clavicle
shoulder blade	scapula
thigh bone	femur
kneecap	patella
shinbone	tibia

B Fractures

A **fracture** is a break in a bone. Some of the different types of fracture:

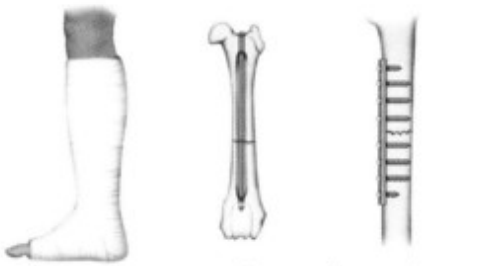


greenstick **displaced** **comminuted** **impacted** **open (compound)**

A **pathological fracture** is fracture in a diseased bone. A **fatigue** or **stress fracture** is due to repeated minor trauma, for example long-distance marching or running.

C Treatment of fractures

When the fragments of a broken bone heal and join together, they **unite. Union** may be **promoted,** or helped, by **reducing** the fracture – replacing the fragments in their anatomical position if they are displaced. After **reduction,** excessive movement of the broken bone is prevented by **fixation** – either external, for example a **splint** or **plaster of Paris cast,** or internal, for example a **pin** or a **plate and screws.** A displaced fracture which is not reduced may result in **malunion** – incomplete or incorrect union.



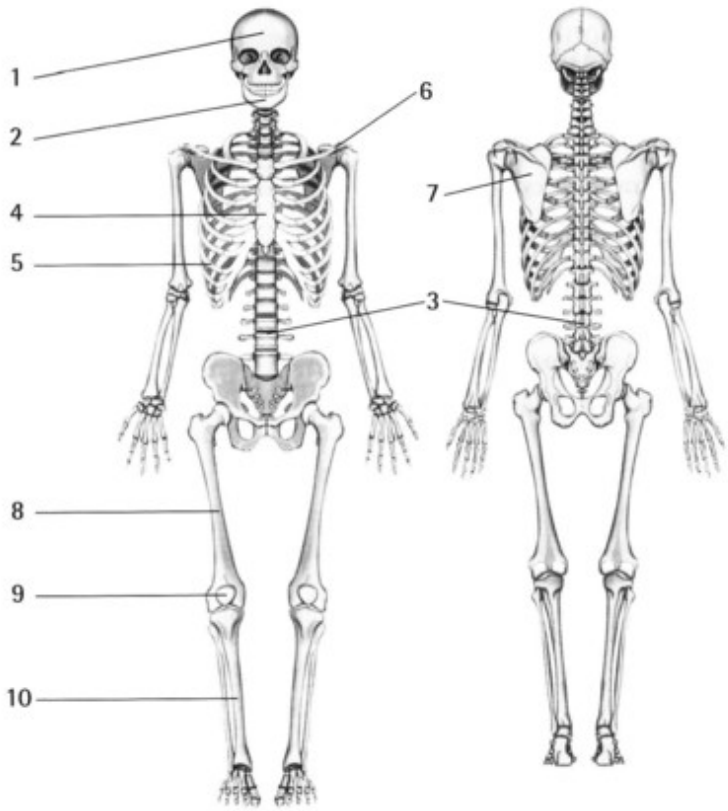
a plaster cast a pin a plate and screws

Note: The verb **reduce** has several meanings in medicine:

- to make smaller – *I think we'd better reduce the dose of your tablets.*
- (in surgery) to return to anatomical position – *A hernia can normally be reduced by manipulation.*
- (in chemistry) to remove oxygen or add hydrogen – *Nitric acid is a reducing agent.*

16.1 Label the diagram using words from the box. Look at A opposite to help you.

breastbone
collarbone
jaw bone
kneecap
rib
shinbone
shoulder blade
skull
spine
thigh bone



16.2 Match the types of fracture (1–5) with the descriptions (a–e). Look at B opposite to help you.

1 open
2 comminuted
3 displaced
4 greenstick
5 impacted

a There is a break in the skin.
b The bone is bent. It occurs mainly in children.
c The bone is broken into several pieces.
d The broken pieces are separated.
e The broken pieces are pushed together.

16.3 Complete the textbook extract. Look at C opposite to help you.

(1) ..... a fracture involves trying to return the bones to as near to their original position as possible. If a fracture is allowed to heal in a displaced position the fracture will (2) ..... but it may go on to (3) ..... .

Over to you

You have diagnosed a stress fracture of the tibia in a young female dancer. How would you explain to her the cause and management of this condition?

17 Childhood

A Milestones

Childhood is the period during which a person is a child. It ends with **puberty** – the onset of sexual maturity. **Infant** is another word for a young child; **infancy** is the period from birth until about five years of age.

The **milestones** in a child's **development** and the ages at which they usually occur are:

- **sitting** – by 9 months
- **crawling** – by 12 months
- **first words** – by 18 months
- **walking** – by 18 months
- **talking** (two-word sentences) – by 3 years.

B Common infectious diseases

Disease	Common name
morbilli/rubeola	**measles**
rubella	**German measles**
varicella	**chickenpox**
infectious parotitis	**mumps**
pertussis	**whooping cough**
acute laryngotracheitis	**croup**
scarlatina	**scarlet fever**
rheumatic fever	**rheumatic fever**
tetanus	**lockjaw**
poliomyelitis	**polio**

C Coeliac disease

A medical student has made some language notes while reading her textbook.

Coeliac disease is a disease of the small intestine caused by **sensitivity to** gluten. It can present at any age but in infancy it appears after **weaning** on to cereals containing gluten. The **clinical features** include diarrhoea, **malabsorption** and **failure to thrive**. There may be signs of **malnutrition** and there may be some abdominal **distension**. There is **delayed growth** and **delayed puberty**, leading to short **stature** in adulthood.

sensitivity to = having a negative reaction to
weaning = changing the diet from milk only to solid foods
clinical features = the symptoms and signs of a disease
malabsorption = poor absorption
malnutrition = poor diet (nutrition)
adjective = **malnourished**
thrive = grow strongly
distension = swelling
delayed = later than expected
failure = when something that is expected does not happen
stature = size, especially height

17.1 Complete the table with words from A and C opposite. Then complete the sentences with words from the table.

Verb	Noun(s)	Adjective(s)
delay		
develop		
distend		distended
fail		
nourish		

1 Babies with the fetal alcohol syndrome may present with ..... to thrive.
2 Abdominal ..... may be due to an enlarged liver.
3 Small amounts of alcohol in pregnancy can affect fetal ..... .
4 Mortality from measles can be reduced by better ..... .
5 ..... in one or more of the milestones may be the first sign of disease.

17.2 Complete the sentences. Look at A and C opposite to help you.

1 After sitting, babies learn to ..... and then to walk.
2 A child who has started eating solid food has been ..... .
3 Someone who is not very tall is said to be of short ..... .
4 The stages in a child's development are known as the ..... .
5 A child who is beginning to develop sexually has reached ..... .

17.3 Write the common English name for each disease, using your medical knowledge.

1 enlarged parotid glands
2 difficulty opening the mouth
3 rash and enlarged posterior occipital nodes
4 paroxysmal cough with vomiting
5 papules and vesicles, first on trunk
6 cough and cold followed by rash
7 sore throat and rash
8 swollen joints and a heart murmur
9 fever followed by muscle weakness
10 cough with stridor

Over to you

What are the main childhood illnesses in your country? What are the clinical features of those illnesses?

18 The endocrine system

A Excess and deficiency

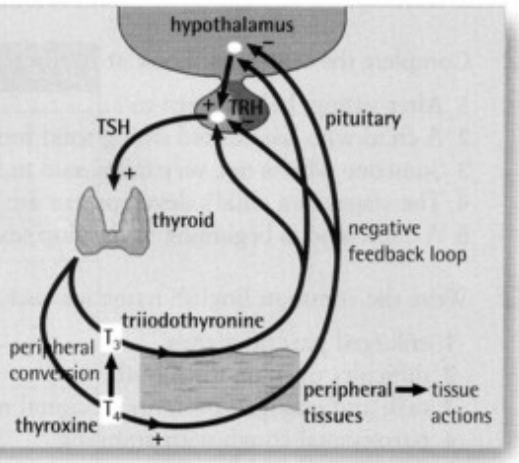
An **excess** – too much, or a **deficiency** – too little, of circulating **hormones** causes a wide range of medical conditions, for example **hyperthyroidism** and **hypothyroidism**. Where there is an excess of hormone, one form of treatment consists of giving the patient something which **inhibits** the production of that hormone, as in the use of carbimazole to treat hyperthyroidism. When a hormone is **deficient**, treatment may be by **replacement therapy**, for example injections of insulin in the treatment of Type 1 diabetes.

Doctors say:

> Sufferers of type 1 diabetes are **deficient in** insulin.

B Negative feedback systems

1. TRH (thyrotrophin-releasing hormone) is **secreted** in the hypothalamus and **triggers** the **production** of TSH (thyroid-stimulating hormone) in the pituitary.
2. TSH **stimulates** the TSH receptor in the thyroid to increase **synthesis** of both T_4 (thyroxine) and T_3 (triiodothyronine) and also to **release** stored hormone, producing increased plasma levels of T_4 and T_3.
3. T_3 **feeds back** on the pituitary and perhaps the hypothalamus to inhibit TRH and TSH **secretion**.



C Goitre

An enlarged thyroid gland is called a **goitre**. The enlargement may be **diffuse** – involving most of the gland, or **localized** – limited to a particular area, as in a **solitary** (single) nodule. The increased blood flow in diffuse enlargement, for example in Graves' disease, may give rise to a palpable **thrill** – vibration felt with the hand, and an audible **bruit** – noise heard through a stethoscope, over the gland.

D A letter of referral

Mrs Davis's doctor has referred her to an endocrinologist.

Dear Doctor,

I would be grateful if you would see this 50-year-old woman who has lost 20 kilos in weight in spite of eating more than usual. She describes herself as **overactive** and at first she thought the weight loss was due to this. But more recently she has developed **palpitations**, diarrhoea, and **heat intolerance**. She has noticed that her hands have a tendency to shake.

Her symptoms suggested hyperthyroidism and this was confirmed by my examination which revealed an enlarged thyroid, red sweaty palms and a **fine tremor** of the hands.

overactive: more active than is usual

palpitations: awareness of rapid or irregular heartbeat

heat intolerance: inability to cope with high temperatures

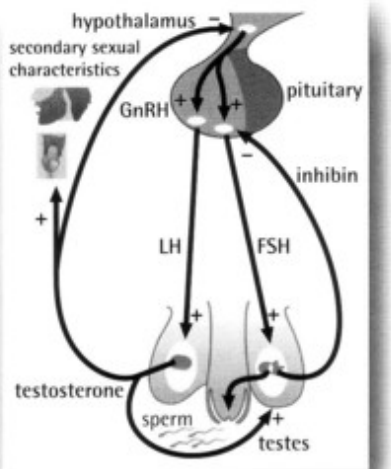
fine tremor: very slight involuntary movements

18.1 Complete the table with words from A, B and C opposite and related forms. Put a stress mark in front of the stressed syllable in each word. The first one has been done for you.

Verb	Noun
in'hibit	
produce	
release	
replace	
	secretion
	stimulation

18.2 Complete the passage from a textbook, using the illustration and your own knowledge. Look at B opposite to help you.

Pulses of GnRH (gonadotrophin-releasing hormone) are released from the hypothalamus and (1) ..... LH and FSH (2) ..... from the pituitary. LH (3) ..... testosterone (4) ..... from Leydig cells of the testis.
Testosterone (5) ..... back on the hypothalamus/pituitary to (6) ..... GnRH (7) ..... . FSH (8) ..... the Sertoli cells in the seminiferous tubules to (9) ..... mature sperm and the inhibins A and B. Inhibin causes feedback on the pituitary to decrease FSH (10) ..... .



18.3 Complete the sentences. Look at A and C opposite to help you.

1 A ..... change affects many parts of an organ or gland.
2 A ..... change affects only one part.
3 His diet is ..... in iron: he doesn't get enough iron.
4 ..... T_3 and T_4 increase the basal metabolic rate.

18.4 Match Mrs Davis's symptoms (1–7) with the questions her doctor asked (a–g). Look at D opposite to help you.

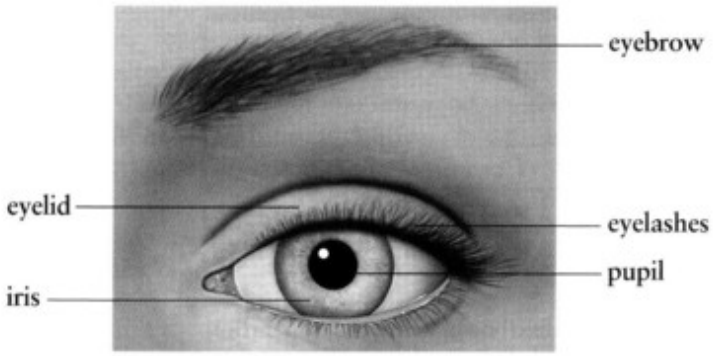
1 diarrhoea	a Do you prefer hot weather or cold?
2 eating more	b Is your weight steady?
3 heat intolerance	c What is your appetite like?
4 overactivity	d Are your bowels normal?
5 palpitations	e Are you able to sit and relax?
6 weight loss	f Do your hands shake?
7 tremor	g Have you ever felt your heart beating rapidly or irregularly?

Over to you

Write a referral letter to an endocrinologist for a patient who you believe has hypothyroidism. Use the letter in D opposite as a model.

19 The eye

A Parts of the eye



B Examination of the eye

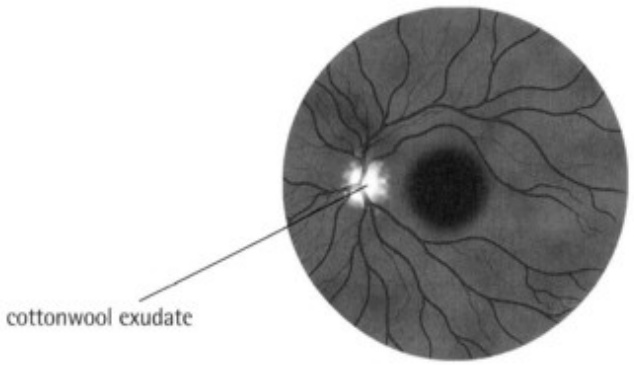
Here is an extract from a textbook description of how to examine the eye.

> Look for **squint** (strabismus), **drooping** of the upper lid (ptosis) or **oscillation** of the eyes (nystagmus). In **lid lag**, the upper eyelid moves irregularly instead of smoothly when the patient is asked to look down.
>
> Next, examine the **pupils** and note whether:
>
> - they are equal in size
> - they are **regular in outline** (evenly circular)
> - they are abnormally **dilated** (large) or **constricted** (small)
> - they **react** normally to light and **accommodation** (focus on near objects).
>
> To test the reaction to accommodation, ask the patient to look into the distance. Hold your finger in front of their nose, and ask the patient to look at it. The eyes should come together, or **converge**, and the pupils should **constrict** as the patient looks at the finger.
>
> Check also for **cataract** (opacity of the lens).

C Retinopathy

Hypertensive changes in the retina can be classified from grades 1 to 4:

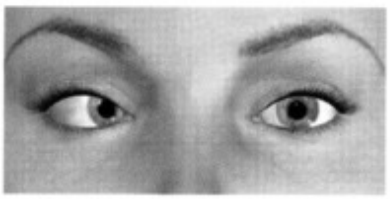
- grade 1 – **silver wiring** (increase in the light reflex) of the arteries only
- grade 2 – grade 1 plus arteriovenous **nipping** (indentation of veins where they are crossed by arteries)
- grade 3 – grade 2 plus **flame-shaped haemorrhages** and **cottonwool exudates**
- grade 4 – grade 3 plus papilloedema.

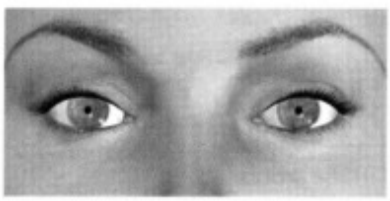


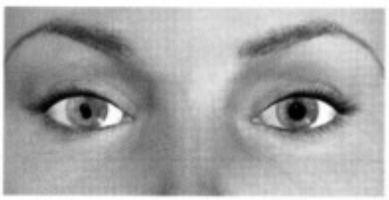
19.1 Complete the table with words from B opposite and related forms.

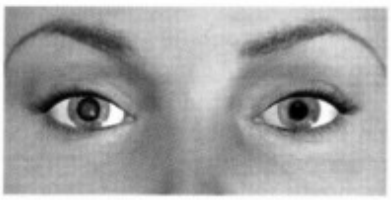
Verb	Noun	Adjective
accommodate		
	constriction	
	convergence	
	dilation, dilatation	
droop		
oscillate		
react		

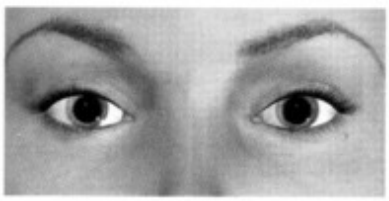
19.2 Match the pictures (1–6) with the conditions (a–f). Look at B opposite to help you.

1 

4 

2 

5 

3 

6 

a drooping of lids
b dilated pupils
c irregular pupil
d cataract
e squint
f constricted pupils

19.3 Complete the extract from a textbook. Look at C opposite to help you.

Retinoscopy

Examine the retina with an ophthalmoscope, if possible with the (1) ..... dilated to obtain the maximum view. Look for papilloedema, and for (2) .... haemorrhages and (3) ..... exudates. Assess the state of the (4) ..... and note the presence of any narrowing, as well as (5) ..... at arteriovenous crossings.

Over to you

Traditionally, eyesight problems are corrected with spectacles or contact lenses. In recent years, laser therapy has become a popular alternative. What are the advantages and disadvantages of this technique?

20 The gastrointestinal system

A Examination of the abdomen

Here is an extract from a textbook description of how to examine the abdomen.

> Note if the abdomen is **distended** by fluid or gas. The presence of fluid can be confirmed by demonstrating **shifting dullness**: **percuss**, or tap, first with the patient lying supine – flat on their back; then ask the patient to lie on one side and percuss again. If fluid is present, the dull note heard on percussion moves. **Palpate** each region, feeling for **tenderness** – pain when touched, or **masses** – palpable enlargement of tissue. Note also any **guarding** or **rigidity**, shown by contraction of the abdominal muscles. Guarding may be due to tenderness or anxiety and can be reduced if the patient is persuaded to relax. Rigidity, however, is constant and is due to peritoneal irritation. **Rebound tenderness** is pain when the palpating hand is suddenly removed. It is a sign of peritonitis. Listen for **bowel sounds**.

B The faeces

There are several words for the **faeces**.

Doctors sometimes say:

There was blood in the **stools**.

Have you **passed** black **stools**?

Patients sometimes say:

My **motions** have been very loose lately.

Bowel movement is used to refer to defecation:

Have your bowels moved today?

Have you had a bowel movement today?

Bowel habit is a medical expression meaning the pattern of defecation.

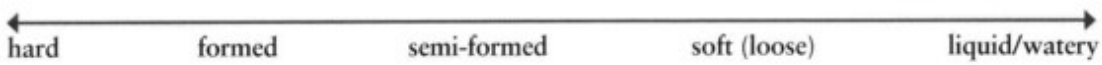
Have you noticed any **change of bowel habit**?

How often do you **open your bowels**?

Are you **going to the toilet** more often than normal?

Change in bowel habit could be **constipation** – hard, infrequent stools, or **diarrhoea** – frequent soft or liquid stools.

Normal stools are brown in colour, and semi-solid, or **formed**. The **consistency**, or degree of hardness and softness, can be shown on a scale:



The colour can vary from black, due to altered blood as in melaena, to yellow, grey or even white. Melaena stools are often described as **tarry** – like tar, the black sticky substance that is used in road making. The stools may be red when fresh blood is present. Blood that can only be detected with special tests is called **faecal occult blood** (FOB). When there is a high fat content, the stools are pale, and are sometimes described as **clay-coloured**. Stools that are large in volume are described as **bulky**. A bad smell is described as **foul** or **offensive**.

20.1 Complete the case report. Look at A opposite to help you.

Case 14

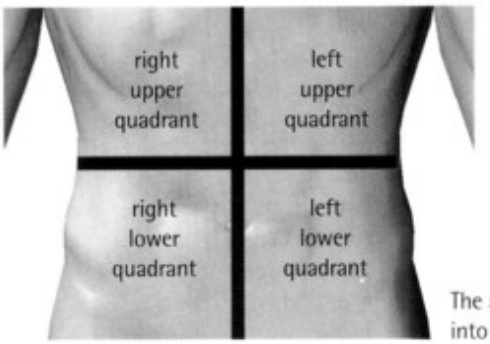
Physical examination revealed a thin girl with slight pallor. She was not obviously dehydrated. The temperature was 38°C, pulse 100/min, blood pressure 110/80 mmHg. Examination of the rest of the cardiovascular and respiratory systems was normal. The abdomen was not (1) ..... . There was generalized (2) ..... , which was most marked in the right lower (3) ..... and was associated with (4) ..... but not (5) ..... . There was no rebound (6) ..... and no (7) ..... were felt. (8) ..... sounds were reduced.

20.2 Match the descriptions of the stools (1–6) with the conditions most likely to cause them (a–f), using your medical knowledge. Look at B opposite to help you.

Type of stools	Condition
1 loose, bloody	a gastric ulcer
2 loose, pale, bulky	b irritable bowel syndrome
3 clay-coloured	c ulcerative colitis
4 black, tarry	d cholera
5 small, hard	e coeliac disease
6 clear, watery with mucus	f obstructive jaundice

20.3 Match the features (1–7) to the doctor's questions (a–g). Look at B opposite to help you.

1 blood	a How often do you open your bowels?
2 bowel habit	b Are you going to the toilet more often than normal?
3 change in bowel habit	c Are the motions hard or loose?
4 bulk	d Do the motions have an unusual smell?
5 colour	e What about the appearance of the stools?
6 consistency	f Have you passed black stools?
7 offensiveness	g Is the size or the amount of the stool normal?



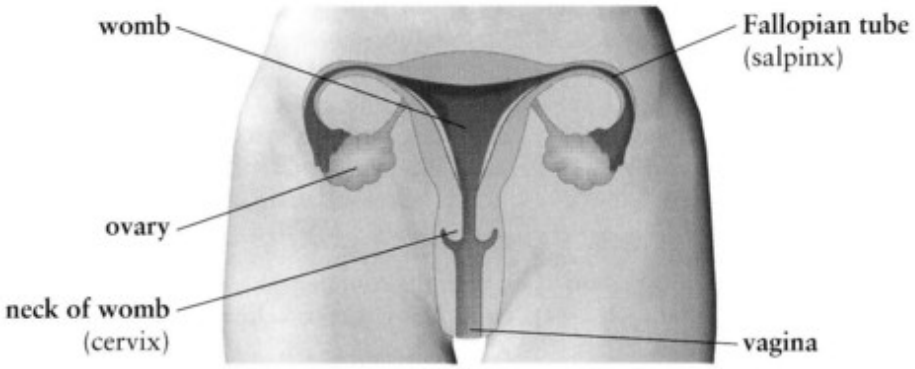
The abdomen can be divided into four quadrants.

Over to you

Look back at 20.2 above. In what other conditions that you encounter regularly is the appearance of the stools typical? How would you describe their appearance?

21 Gynaecology

A The female reproductive system



B Menstruation

A **period** is the common name for a **menstrual (monthly) period.** The **onset of menstruation** is known as menarche. The last menstrual period is commonly abbreviated in doctors' notes: **LMP 2/52 ago** means the last menstrual period was two weeks ago. The **menstrual cycle**, or length and frequency of periods, is usually written in the form 4/28, which means lasting 4 days and occurring every 28 days. If a period lasts more than four or five days it can be described as **prolonged**. The term **heavy periods** means excessive blood loss – menorrhagia, often with the **passage of clots** – coagulated blood. The term **period pains** means dysmenorrhoea, or painful menstruation.

The time when a woman stops menstruating, normally at about the age of 50, is called the **menopause** or **climacteric**. In everyday English it is known as the change of life, or simply **the change**. Symptoms of the menopause include **hot flushes** – sudden sensation of heat – and **night sweats**.

C A gynaecological consultation

A gynaecologist is talking to a 30-year-old woman.

Gynaecologist	Patient
Are your periods **regular**?	Yes.
How often do you **get** them?	Every four weeks.
How old were you when you started to get them?	About 12.
When was your **last period**?	A week ago.
How long do the periods last usually?	4 or 5 days.
Would you say they are **light** or **heavy**?	Light.
Do you **get clots**?	No.
Do you get **period pains**?	Not really.
Is there any **discharge** between the periods?	A little.
What colour is it?	White.

D Contraception

For women, methods to prevent pregnancy include the **oral contraceptive pill** (known as **the Pill**), the **diaphragm**, and the **intrauterine device** (**IUD**) or **copper coil**. **Condoms** are available for both men and women.

21.1 Write a simple English phrase for each of the medical terms below using your medical knowledge. Look at A and B opposite to help you.

1 hysterectomy
2 menorrhagia
3 salpingitis
4 cervical biopsy

21.2 Read the conversation between the gynaecologist and the patient in C opposite, and complete the notes about the patient.

menarche:
menstrual cycle:
LMP:
menorrhagia?
dysmenorrhoea?
discharge?

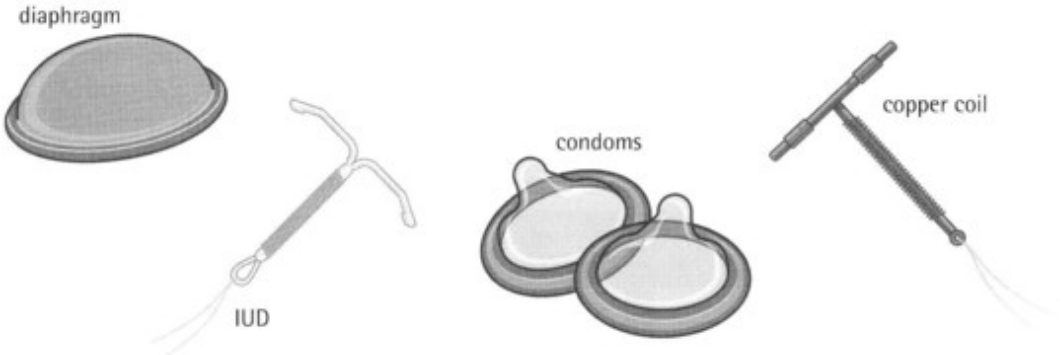
21.3 Now write the questions that the doctor asked. Look at C opposite to help you.

menarche:
menstrual cycle:
LMP:
menorrhagia?
dysmenorrhoea?
discharge?

21.4 Complete the case report. One word is needed twice. Look at B and C opposite to help you.

Case 15

A 45-year-old woman had been having (1) ..... periods lasting for 8 days, with the passage of (2) ..... , for 9 months. There was no bleeding between (3) ..... or after intercourse. Her (4) ..... were not particularly painful. She had not noticed any hot (5) ..... or night sweats, and her general health had always been good. She had taken the (6) ..... contraceptive (7) ..... until a year previously, when a copper (8) ..... was fitted. She had had a normal pregnancy when she was 25.



Over to you

What is the attitude to contraception in your country? At what age do you think females should be prescribed contraceptives?