

4

Medicine

4.1 MEDICAL BREAKTHROUGHS

IN THIS UNIT

GRAMMAR

- future continuous, *going to*, present continuous
- future perfect simple, future simple

VOCABULARY

- personality adjectives
- medical terms
- illness and medicine
- dependent prepositions

SCENARIO

- discussing implications
- making difficult decisions

STUDY SKILLS

- evaluating resources on the internet

WRITING SKILLS

- a short report



Always laugh when you can. It is cheap medicine. Lord Byron, 1788–1824, English poet

SPEAKING AND LISTENING

- 1** What do you think are the most important personal qualities for someone who works in the medical profession? Choose your top three from the box. Can you add any others?

authoritative	calm	efficient	knowledgeable
objective	open-minded	patient	reassuring
sensitive	sociable	sympathetic	



- 2** **4.1** Listen to an interview with a doctor. Tick the points that he mentions.



A good doctor:

- knows the names of all his/her patients.
- uses everyday language rather than medical terms in discussions with patients.
- considers using alternative treatments such as hypnosis, acupuncture and aromatherapy.
- tells people how to live a healthy life.
- listens with sympathy to people who are not really ill.
- usually prescribes medication (e.g. anti-depressant tablets).
- thinks carefully about the cost of any treatments.

- 3** Work with a partner to discuss the statements. Which do you agree with? Give reasons.

VOCABULARY

MEDICAL TERMS

- 4a** Look at the words in the box and find the following.

- six people who work in medicine
- six treatments or types of drug
- six medical conditions

Alzheimer's	anaesthetist	antibiotic	arthritis
cancer	chest infection	diabetes	heart disease
injection	midwife	morphine	painkiller
pharmacist	physiotherapy	psychiatrist	
radiologist	surgeon	transplant	



- 4b** Complete the sentences with words in the box.

- A doctor writes a prescription, but you need to take it to a _____ to get the medicine.
- After my operation, I had _____ twice a week for three months until I could walk again.
- They found an organ donor in time, so it looks like the _____ will go ahead as planned.
- People who suffer from _____ need to take insulin or regulate their diets.
- People with eating disorders, like anorexia and bulimia, are usually treated by a _____.
- Some drugs are best given to patients by _____.
- Often caused by poor diet, _____ is the biggest killer in the western world.





PRONUNCIATION

5 4.2 Stressed syllables Mark the stressed syllable on the words in Exercise 4a and decide what the stressed vowel sound is. Listen and check your answers.

READING

6 You are going to read about some important medical advances: X-rays, penicillin, aspirin, anaesthesia. Work with a partner. What do you know about these medical breakthroughs (e.g. what they are and when they were discovered)? Share your ideas.

7a Work with a partner. You will each read two texts. Make notes about the medical advances, using the questions below. You may not find answers to all the questions.

- what?
- where?
- who?
- when?
- how?
- results/benefits?
- problems?

Student A: look at the texts on this page.

Student B: look at page 165.

ASPIRIN

Aspirin is one of the most effective painkillers in the world. Hippocrates, a Greek physician, wrote in the 5th century about a powder made from the willow tree, which could help aches and pains and reduce fever. However, it was not until 1897 that Felix Hoffmann, a German chemist, synthesised the ingredient acetylsalicylic acid to treat his father's arthritis. This was the first synthetic drug, which means it was a copy of something already existing in nature. Aspirin was patented on 6 March 1899. It was marketed alongside another of Hoffmann's products, a synthetic of morphine, called heroin, which he invented eleven days after aspirin. To start with, heroin was the more successful of the two painkillers and was thought to be healthier than aspirin. However, aspirin took over and has become the world's best-selling drug. In 1969, it even went to the Moon with Neil Armstrong. Today, it is still one of the most effective painkillers, despite having a number of side effects. Aspirin is also effective against many serious diseases such as heart disease, diabetes and arthritis.

7b Using your notes, tell your partner about the two breakthroughs.

8a Ranking by importance Work with a partner. Agree on a ranking of the four medical advances in the texts (put the most important first).

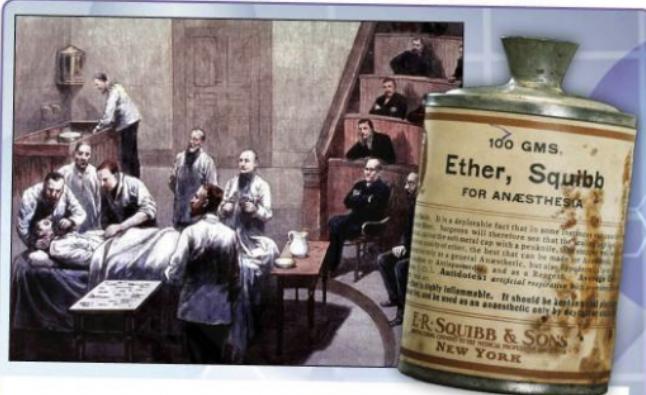
8b Now think of two more medical inventions that you think are very important (e.g. the thermometer, the scalpel).

8c Join another pair and justify your choices.

SPEAKING

9 Work in small groups and discuss the questions about medicine and the medical profession.

- 1 Should people have to pay for healthcare?
- 2 Do you think nurses and midwives are paid enough in your country? Why?/Why not?
- 3 Soon, medical advances will allow people to live to a very old age. Is this desirable? Why?/Why not?
- 4 Should new drugs be tested on both animals and humans before being prescribed by doctors?



ANAESTHESIA

Anaesthesia is a way of preventing patients from feeling pain during surgery. Crawford Williamson Long was the first person to use ether as an anaesthetic during operations in 1842. Then on 30 September 1846, in Boston, Massachusetts, William Morton, an American dentist, performed a painless tooth extraction after giving ether to a patient. He also gave the first public demonstration of the use of ether to anaesthetise a patient on 16 October 1846. Following the demonstration, Morton tried to hide the identity of the substance as he planned to patent it and profit from its use. However, it was quickly shown to be ether, and it was soon being used in both the USA and Europe. It was then discovered that ether could catch fire easily, so in England it was replaced with chloroform. Nevertheless, Morton's achievement was the key factor in the development of modern surgery.

LISTENING

- 1 Which illnesses are the biggest killers in your country, and in the world? Do you know what scientists are doing to try to prevent these illnesses?
- 2 4.3 Listen to a talk by Professor John Dodge, honorary Professor of Child Health at the University of Wales, Swansea. Which of these does he mention?

- Diseases: high blood pressure, asthma, polio, diabetes, dengue fever, malaria
- People who pay for drugs: insurance companies, major hospitals, state health services
- International agencies: the World Health Organisation, the World Bank, the United Nations, the European Union

3a Listen again and take notes.

3b Work with a partner. Take turns to summarise the main points in thirty seconds.

4 Reacting to the topic Work in small groups and discuss the questions.

- 1 Who should pay for medicines in poor countries?
- 2 Which disease/diseases do you think deserves the most research money spent on it? Why?

READING

5 Is malaria a problem in your country? What do you know about malaria and ways of fighting it?

6 Scan the texts to find the following.

- 1 two universities
- 2 two famous people who were killed by malaria
- 3 three continents where malaria is common
- 4 the leader of the study in the journal
- 5 the name of the parasite that spreads malaria
- 6 the name of a scientific journal
- 7 the date of Africa Malaria Day
- 8 the language that the word *malaria* originates from

7 Read the texts again. Are these statements true, false or not given?

- 1 It is not possible to recover from malaria.
- 2 Genetically modified mosquitoes could reduce mosquitoes which spread wild dengue fever.
- 3 Many scientists are trying to modify bacteria that live in mosquitoes.
- 4 Currently malaria is prevented by bed nets.
- 5 Professor Crisanti thinks it would be possible to introduce genes which will make mosquitoes target animals rather than humans.
- 6 The number of deaths from malaria is rising.
- 7 The study has had success in getting the genetic modification to spread effectively in large mosquito populations.

8 Work with a partner to discuss the questions.

- 1 Which do you think are the three most interesting facts about malaria, and why?
- 2 Are there any ethical issues around using genetically modified technology?

Facts about malaria

- The word *malaria* comes from the Latin for 'bad air'.
- Malaria is spread by the single-celled parasite plasmodium and it is endemic in parts of Asia, Africa and Central and South America.
- Symptoms of malaria include neck stiffness, fits, abnormal breathing and fever.
- Malaria kills over 600,000 people a year – more people than any infection apart from HIV/Aids.
- Pregnant women and children are at high risk of dying from the complications of severe malaria.
- 90 percent of malaria deaths occur among young children in sub-Saharan Africa.
- Every minute a child dies from malaria.
- Alexander the Great, Oliver Cromwell, Dante, Tutankhamen and Genghis Khan died of malaria.
- John F. Kennedy, Mother Theresa, Dr David Livingstone, Abraham Lincoln and Mahatma Gandhi contracted malaria but recovered.
- Celebrities who have had malaria include Didier Drogba, Cheryl Cole, Michael Caine and George Clooney.
- Malaria killed more people in Italy during World War II than bombs and bullets put together.
- There is currently no effective vaccine against malaria.
- Malaria mortality rates have fallen by more than 25 percent globally since 2000.
- Early diagnosis and prompt treatment of malaria helps prevent death.
- Sleeping under insecticide-treated nets protects against malaria.
- Africa Malaria Day takes place on 25 April every year.

Genetically Modified Mosquitoes Could Dramatically Reduce Spread Of Malaria

Scientists working on malaria have found a way of genetically manipulating large populations of mosquitoes that could eventually dramatically reduce the spread of the deadly disease.

In a study in the journal *Nature*, researchers from Imperial College London and the University of Washington, Seattle, found that after making specific genetic changes to a few mosquitoes and then allowing them to breed on, genetic alterations could be spread through large mosquito populations in a few generations.

This is the first successful proof-of-principle experiment of its kind, they said, and suggests the method may in future be used to spread genetic changes in wild mosquito populations to make them less able to transmit malaria.

'This is an exciting technological development, one which I hope will pave the way for solutions to many global health problems,' said Andrea Crisanti of Imperial's Life Sciences department, who led the study. But the success of a genetic approach depends on getting the genetic modification to spread effectively in large mosquito populations.



VOCABULARY

ILLNESS AND MEDICINE



9 Match words in *Facts about malaria* to their meanings 1–8.

- 1 a disease in part of your body caused by bacteria or a virus
- 2 a plant or animal that lives on or in another plant or animal and gets food from it
- 3 something that shows you have an illness
- 4 a symptom of illness in which you have a very high body temperature
- 5 to get a serious illness
- 6 a substance used to protect people against a disease, which contains a weak form of the virus that causes the disease
- 7 when a doctor says what illness someone has
- 8 another illness that happens when someone is already ill



GRAMMAR

FUTURE CONTINUOUS, GOING TO, PRESENT CONTINUOUS



10a 4.4 Listen to three people talking about a project to raise money using celebrities. The project plans to deliver mosquito nets to Western Uganda to help prevent malaria. Complete the extracts with the appropriate future form of the verbs in the box.

distribute film fly (x2) meet raise
spend wait work

- 1 All the support team ¹ ____ out to Kampala at 5 p.m. on Friday. We ² ____ from Heathrow. We ³ ____ all ⁴ ____ at check-in at 3 p.m. Everyone has been emailed and all the arrangements have been made.
- 2 The Ugandan team ⁵ ____ for the celebrities in the hotel reception on Monday morning at 9 a.m. when the celebrity bus arrives.
- 3 Then we ⁶ ____ the celebrity interviews for the fundraising appeal all Monday morning and then we ⁷ ____ the first batch of mosquito nets with the celebrities on Monday afternoon. Tom and I ⁸ ____ in Uganda all next month.
- 4 Some of the celebrities ⁹ ____ a few days sightseeing, but no arrangements have been made yet.
- 5 Well, everything's looking good ... and based on the money we've raised so far and the support we've had, I think we ¹⁰ ____ a lot more money than last year.



10b Which future form is used in the extracts in Exercise 10a?

- a Extract 1
- b Extracts 2 and 3
- c Extracts 4 and 5

10c Match the future forms in Exercise 10b with meanings 1–5.

- 1 to talk about a planned action in progress over a certain period of time in the future
- 2 to talk about intentions
- 3 to talk about a longer action in the future that will be interrupted by a shorter action in the future
- 4 to refer to the future when arrangements have been made (e.g. tickets bought, bookings made) and someone is expecting us to do something or be somewhere at a particular time
- 5 to make a prediction based on present or past evidence

→ **Language reference and extra practice, pages 126–149**



11 Choose the correct form. (In some cases, both are possible.)

- 1 *I'm going to study / I'm studying medicine*, but I don't know where yet.
- 2 *Will you be passing / Are you passing the doctor's* when you're out? I need my prescription.
- 3 I can't see you next Monday as *I'm going to start / I'll be starting* my new job that day.
- 4 *I'm seeing / I'm going to see* the doctor next week.
- 5 Don't contact me between 2 and 3 p.m. as *I'll be operating / I'm going to operate* on a patient then.
- 6 We can't deliver the nets because I think *it's going to rain / it'll be raining*.
- 7 In a few minutes, we are *landing / we will be landing* in Lusaka.
- 8 I'm having an operation on Monday. *I'll be recovering / I'm recovering* next week and will miss the monthly meeting.
- 9 *We will be waiting / We are waiting* in the café opposite the station when the train arrives.

SPEAKING

12a Work in small groups. You are going to plan a fundraising day at your college/place of work to help support a malaria charity. Plan the day using the prompts below and your own ideas.

- how you are going to raise money
- how much money you will charge for tickets (adults, students, small children)
- sponsorship
- which celebrities to invite
- how to advertise the day and what publicity you want
- what events and activities you will have on the day (e.g. sports, music, dance, choirs, bands)
- the timetable for the day
- food and drinks

12b Form a new group with people from other groups and summarise your plan.

GRAMMAR

G1 FUTURE CONTINUOUS, GOING TO, PRESENT CONTINUOUS

FUTURE CONTINUOUS

Form the future continuous with *will/won't + be + -ing* form of the verb.

I **will be working** from home tomorrow, so I **won't be meeting** any clients.

Use the future continuous to talk about a temporary action in progress at a particular time in the future.

They'll **be opening** the new hospital next Tuesday.

I **won't be working** on Wednesday. It's my day off.

We can also use the future continuous to ask tentative questions about people's plans, especially if we want them to do something.

Will you **be coming** to the party? (I want you to come.)

Will you **be using** your car this evening? (I'd like to borrow it.)

We can also use this form to give reasons for refusing something.

I'm afraid I can't come to the party – I'll **be working**.

GOING TO

Use *going to* to talk about intentions (things you plan to do).

I'm **going to get** a new computer. (I want to get one, but I haven't ordered it yet.)

We're **going to work** much harder next term. (We want to do this, but we may not.)

PRESENT CONTINUOUS

Use the present continuous for fixed arrangements (things that have already been planned and organised).

I'm **getting** a new computer tomorrow. (I've already ordered it.)

Jane's **working** at the supermarket next week. (It's organised.)

We normally use a time reference (or the speakers know what time is being referred to) with the present continuous for fixed arrangements.

I'm starting my degree course **this September**.

G2 FUTURE PERFECT SIMPLE, FUTURE SIMPLE

FUTURE PERFECT SIMPLE

Form the future perfect simple with *will/won't + have + past participle*.

He **will have arrived** home by the time you phone.

We **won't have done** the work in time for the meeting.

Use the future perfect to talk about an action you expect to be completed by a time in the future.

By this time next year I **will have finished** all my exams.
(My exams will finish before this time next year.)

We usually use a time expression (*soon, by then, by + date, in + date*).

Don't worry – we'll have finished the project **by then**.
They will have completed the stadium **in time for the Olympics**.

FUTURE SIMPLE

We use the future simple (*will + infinitive*) to make predictions about the future.

They **will** lose the next election.

Use adverbs of certainty (*probably, possibly, definitely, certainly*) to make the predictions more or less certain. In affirmative sentences, the adverbs come after *will*, before the main verb.

The old hospital **will probably** close down in the next few years.

He'll **definitely** call you if he's interested in coming.

In negative sentences, the adverbs come before *will not*.
I **probably** won't come to the lecture tomorrow.

KEY LANGUAGE

KL DISCUSSING IMPLICATIONS

We need to look at the implications of doing it.
If we support him too strongly, the press may get hold of the story.

It could be really bad for our reputation.

But it's a risky option.

One consequence could be she'll start negotiating with us.

It has a serious disadvantage.

That could be a big problem for us.

It would have a huge impact on our profits.

It would also result in other patients coming forward with complaints.

VOCABULARY

V1 MEDICAL TERMS

Alzheimer's, anaesthetist, antibiotic, arthritis, cancer, chest infection, diabetes, heart disease, injection, midwife, morphine, patient, painkiller, pharmacist, physiotherapy, psychiatrist, radiologist, surgeon, transplant

V2 ADJECTIVES

authoritative, calm, efficient, knowledgeable, objective, open-minded, patient, reassuring, sensitive, sociable, sympathetic

V3 ILLNESS AND MEDICINE

complication, contract (v), diagnosis, fever, infection, parasite, symptom, vaccine

V4 DEPENDENT PREPOSITIONS

agree with, apply for, care for, complain about, deal with, focus on, protect from, recover from, rely on, specialise in, succeed in, suffer from, worry about

LISTENING

1 What medical developments do you think will happen in the next 100 years?

2 **4.5** Listen to six doctors and medical researchers predicting what medical developments will take place. Tick the topics which are mentioned.

- | | |
|-----------------|-------------|
| 1 radiation | 4 blindness |
| 2 heart attacks | 5 obesity |
| 3 knee injuries | 6 cancer |

3 Listen again. Match statements a–i with extracts 1–6. There are three extra statements.

- a People will wear airbag suits to avoid injury to their knees.
- b Cancer is probably not going to be a problem.
- c We will have developed the ability to diagnose at birth all known genetic diseases.
- d Scientists will have created miniature robots capable of performing microsurgery.
- e X-rays and radiation will still be around.
- f We probably won't be able to grow a baby completely outside a woman's body.
- g We will probably find a genetic way to cure the main cause of blindness.
- h Most medical education will be done at a distance.
- i We will be able to help people exposed to radiation through research in space.

4 Work with a partner. Which of the developments do you think will be the most useful?

VOCABULARY

DEPENDENT PREPOSITIONS

5a Write the prepositions that follow these verbs. Then look at Audio script 4.5 on page 172 to check. Look at Extracts 1, 3, 4 and 6.

- | | |
|-----------|-----------|
| 1 focus | 5 worry |
| 2 succeed | 6 agree |
| 3 suffer | 7 protect |
| 4 recover | 8 care |

5b Complete the sentences with verbs and prepositions from Exercise 5a.

- 1 Has he ____ his illness yet?
- 2 I feel very lonely and I ____ depression.
- 3 He spent five years ____ his aged mother.
- 4 This net should ____ you ____ mosquitoes.
- 5 Parents are often anxious and ____ their children.
- 6 The doctor ____ me that while she's sick, she needs a little extra care.
- 7 You need to concentrate and ____ your exams.
- 8 You have to work hard if you want to do well and ____ medicine.

6a Complete the questions with the prepositions in the box.

about for in on with

- 1 What do you complain ____ the most?
- 2 Who is the most difficult person you have to deal ____?
- 3 What courses have you applied ____ recently?
- 4 What subject have you / would you like to specialise ____?
- 5 Who can you rely ____ the most?

6b Work with a partner and ask and answer the questions.

GRAMMAR

FUTURE PERFECT SIMPLE, FUTURE SIMPLE

7a Look at these examples of the future perfect simple and choose the correct alternative in the explanation.

- 1 By 2120, engineers **will have developed** a 'smart suit'.
- 2 In 100 years **we will have developed** a way to protect astronauts from radiation.

GRAMMAR TIP

We use the future perfect simple for an action completed before a point in time in the future / in progress at a time in the future.

7b Now complete this rule for the formation of the future perfect simple.

The future perfect simple = ____ / **won't** + ____ + past participle (e.g. *developed*)

→ Language reference and extra practice, pages 126–149

8 Look at Audio script 4.5 on page 172 and underline examples of the following. Do the adverbs come before or after *will* and *won't*?

- 1 the future perfect simple
- 2 the future simple
- 3 adverbs of certainty (e.g. *certainly, possibly*)

9 Complete this company announcement using the correct form of the verbs in brackets.

Anderson Bio-Sciences announces its takeover next week of the Essex-based company HGP. Together, ABS and HGP

¹ ____ (form) the largest genetic engineering company in the UK, and by 2025, we ² ____ (expand) to employ over 1,000 people. In addition, by 2025, the company ³ ____ (become) the largest employer of medical researchers in the country. HGP has made exciting discoveries about the human chromosome set and we ⁴ ____ (publish) that knowledge on the internet. This ⁵ ____ (revolutionise) biology and medicine and ⁶ ____ (give) researchers huge potential to develop new drugs. In 2025, medical records

⁷ ____ (include) people's complete genomes and this ⁸ ____ (permit) doctors to treat people as genetic individuals. By 2025, the company ⁹ ____ (make) substantial progress towards true 'cloning' of certain organs.

10 Write five sentences about yourself using the future simple or the future perfect simple. Use time references as well.

LESSON 4.3 RECORDING 4.5

- 1 Well, in terms of sight, I think 100 years from now we will probably have a genetic way to fix diabetes, which is the number one cause of blindness in this country. And as diabetes accounts for 10% of the health budget, it's a good area for researchers to focus on. I also think we'll have succeeded in preventing some eye diseases – maybe with a pill. I think we'll definitely be able to transplant the optic nerve and the area at the back of the eye and will possibly be able to clone eyes from skin cells. People ask me if scientists will make a bionic man or woman soon. Well, they have already made a bionic eye.
- 2 By 2120, engineers will have developed a 'smart suit', or a sort of special 'airbag' ... and when you're skiing or doing other vigorous activities and you start to fall then the suit would quickly adjust to help protect you.
- 3 I believe that in the not too distant future, scientists will have created personal virtual computer models that will be constantly updated to record injuries, accidents or diseases or illnesses that you suffer from. It will be kept in cyberspace and your doctor will probably be able to access it from anywhere in the world. I also think they will have invented tiny robots that you swallow which will

perform surgery. The robots would go right to the problem area and use lasers or stitches or produce a healing material which will help patients recover from their injuries quickly.

- 4 I think cancer will be treated differently. Instead of trying to totally destroy the cancer from the outside, I think we will have found something very small that can get into the cell. Mind you, I think we'll probably have a whole different set of diseases that we'll be worrying about. I agree with those who say that cancer probably won't be a big problem in 100 years.
- 5 In terms of imaging technology, I guess that in 100 years, three-dimensional imaging (and I mean things like CAT scans and three-dimensional ultra sound) will be huge. X-rays and radiation will certainly not disappear completely, but we will have found ways to use lower amounts of radiation.
- 6 100 years ... well, in 100 years people will probably be living on other planets or out in space. I think by then we will have developed a way to protect astronauts from radiation exposure, and those methods could be used to help prevent damage in people exposed to radiation and it will be easier to care for them.

READING

11 Work in small groups to discuss the questions.

- 1 What do you think are the most exciting recent or current medical breakthroughs?
- 2 What would you most like to see, smell, taste, hear or touch, if you could only have that sense for one more day?
- 3 Which of the following do you think are the most important: bionic eyes, bionic arms, bionic hands, bionic legs, bionic nose, bionic tongue?
- 4 How do some animals sense the world differently to humans?



12 Read the online article about a current medical breakthrough quickly and note down who or what the following are.

- 1 Dianne Ashworth
- 2 The Royal Victorian
- 3 Bionic Vision Australia
- 4 Penny Allen



13 Read the article again and decide which three of the following could be subheadings (to attract online readers to read the article).

- 1 Australian woman was first to receive radical implant.
- 2 Scientists make blind mice see with radical new implant.
- 3 Dianne Ashworth has spoken for first time of the 'little flash' that signalled the return of her vision.
- 4 Breakthrough is one of several projects around the world that could restore vision for millions.
- 5 Researchers hope blind people will be able to move independently.

14a Make notes on the key points in the article. Make sure you cover the following main topics.

- what has just happened
- what the bionic eye is, how it works, who designed it
- future developments and hopes

14b Retelling a story Work with a partner and retell the story in your own words.

SPEAKING

15 Work in groups. What do you hope for your country, in terms of health and society? Discuss your hopes for the next fifty years.

I hope my country will have eradicated polio in the next few years and I also hope my country will have improved opportunities for women.

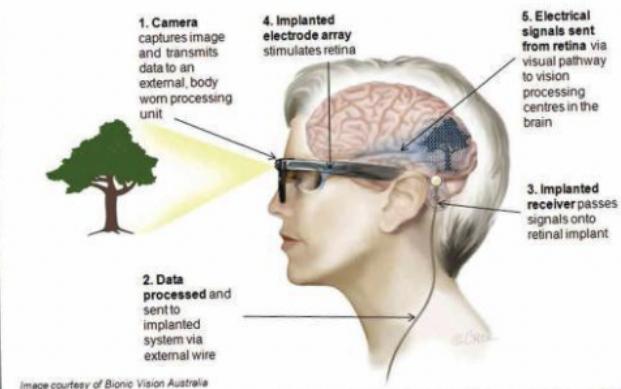


MEET THE EXPERT

Watch an interview with Dr Tina Chowdhury, a lecturer in Musculoskeletal Science, about medical bionics. Turn to page 151 for video activities.

The bionic eye - how it works

First prototype: Wide-view neurostimulator



Vision of the future: The bionic eye that could help millions of blind to see again after woman had some sight restored in pioneering tests

Scientists have taken an important step towards helping visually impaired people lead independent lives after a bionic eye gave a blind Australian woman some sight.

Dianne Ashworth, who has severe vision loss due to the inherited condition retinitis pigmentosa, was fitted with a prototype bionic eye in May at the Royal Victorian Eye and Ear Hospital. It was switched on a month later, and today researchers revealed the results.

'It was really funny when it switched on. I was waiting, waiting,' she said. 'I had these goggles on and I didn't know what to expect, and I don't know if anyone did know what I was going to see. Then, all of a sudden, I went "yep" – I could see a little flash and it was like a little, I suppose, a splinter. There were different shapes and dark black, lines of dark black and white lines together. Then that turned into splotches of black with white around them and cloud-like images. I can remember when the first bigger image came I just went "Wow", because I just didn't expect it at all, but it was amazing.'

The bionic eye, designed, built and tested by Bionic Vision Australia, a group of researchers supported by the Australian government, is equipped with twenty-four electrodes with a small wire that extends from the back of the eye to a receptor attached behind the ear. It is inserted into the space next to the retina within the eye.

'The device electrically stimulates the retina,' said Dr Penny Allen, a specialist surgeon who implanted the prototype. Electrical impulses are passed through the device, which then stimulate the retina. Those impulses then pass back to the brain, creating the image. The device restores mild vision, where patients are able to pick up major differences and edges, such as light and dark objects. Researchers hope to develop it so blind patients can walk independently.

'Di is the first patient of three with this prototype device, the next step is analysing the visual information that we are getting from the stimulation,' Allen said.

The operation itself was made simple so it can be readily taught to eye surgeons worldwide. 'We didn't want to have a device that was too complex in a surgical approach that was very difficult to learn,' said Allen.

According to the World Health Organization, 39 million people around the world are blind and 246 million have low vision. ■



SITUATION

1a Work with a partner. Read about the pharmaceutical company RXZ and discuss the questions.

- 1 In your opinion, was the doctor's mistake very serious, quite serious, or not very serious? Give reasons.
- 2 What do you think is the best way for RXZ to deal with the problem?

RXZ is an international company with its Head Office in a European country. Like all pharmaceutical firms, it has to deal with problems concerning confidential medical data about the drugs it is developing, and also with ethical issues that arise from time to time.

The Human Resources Department (HRD) is currently dealing with the following problem.

The company often asks doctors to trial new drugs. One of the doctors who frequently does this kind of work for the company didn't tell his patient that he was trialling a new drug. He was doing research for RXZ, but without the permission of the patient. The patient has found out what the doctor was doing and is now threatening to take legal action against RXZ.

KEY LANGUAGE DISCUSSING IMPLICATIONS

2 **4.6** Two members of the HRD, Sandra and Hans, are talking about the problem. Which possible solutions do they mention?

- 1 Emphasise the good qualities of the doctor to gain the patient's cooperation.
- 2 Advise the patient to continue using the drug and persuade her to take no further action.
- 3 Offer her money to stop her taking legal action against the company.
- 4 Explain that the doctor was trying to give the patient the best treatment currently available.
- 5 Say that there is an effective alternative drug that can replace the drug she is taking.

1b Work with other pairs and compare your answers.



3a Listen again. The implications of the possible actions are jumbled. Number them in the order you hear them.

- a If we support him too strongly, the press may get hold of the story.
- b It would have a huge impact on our profits.
- c We need to look at the implications of doing it.
- d It could be really bad for our reputation.
- e But it's a risky option.
- f It would also result in other patients coming forward with complaints.
- g That could be a big problem for us.
- h One consequence could be that she'll start negotiating with us.
- i It has a serious disadvantage.

3b Work with a partner. You are senior managers at a hospital. Read the situation, decide what action to take and consider its implications.

A young, inexperienced nurse at your hospital has given the wrong dose of a drug to a patient. Her mistake could have resulted in the patient's death.

TASK

MAKING DIFFICULT DECISIONS

4a Work in small groups. You are members of the Human Resources Department at RXZ. Each person chooses a different problem or issue on page 165. Make notes about the problem/issue so that you can summarise it for the other members of your group.

4b Summarise your problem or issue for your group. Then discuss how to solve or deal with it. Consider the implications of each option that you discuss.

4c Discuss the questions with the class.

- 1 Which was the most interesting problem/issue?
- 2 Which decisions from the other groups do you agree or disagree with?
- 3 Which decision was the most difficult to make?



STUDY SKILLS

EVALUATING RESOURCES ON THE INTERNET

1 Work in small groups. People use the internet for different purposes. Discuss the questions about how you use the internet.

- 1 What was the most recent thing you looked up on the internet for your studies or work?
- 2 How many clicks did you take before you found the information you were looking for?
- 3 For what purposes do you use the internet in your studies or work?
- 4 How do you use the internet to make new contacts in your field of studies or work?
- 5 Do you use social networks in your studies or work? If so, how do you use them?
- 6 Which blogs or forums do you read, follow or contribute to?

2 4.7 Listen to Jeffrey Davis, a business consultant, talking about how he uses the internet for his work. What three uses of the internet does he mention?

3a Listen again and make notes about these topics.

- 1 how he deals with the great amount of material on the internet
- 2 how he finds out about new articles or publications
- 3 the kind of networking he does
- 4 the difficulty of keeping up to date with trends and business issues
- 5 how to make a lot of money in the future from the internet

3b With a partner, compare the way Jeffrey uses the internet with your own use of internet resources. In what ways is your use similar or different? Do you have the same problems he mentions?

3c What did you find most interesting about his talk?

4 When evaluating websites for research purposes, useful information can be found by looking at the domain suffix at the end of the website address. Complete the sentences with the domain suffixes in the box.

.ac .co .com .edu .gov .net .org

- 1 The domain suffix for companies and businesses is either _____ or _____.
- 2 Another popular website suffix is _____. It is used by non profit-making organisations.
- 3 Internet-based companies, such as network providers, frequently use the _____ suffix but it is also used by all kinds of businesses.
- 4 Educational organisations, such as schools and universities, usually use either the _____ suffix, or the _____ one.
- 5 The _____ suffix indicates that it is a government website.

5 Work in small teams. You are going to have a competition to test your knowledge of country domain suffixes (e.g. .uk at the end of a website means that it is a United Kingdom-based website). In your teams, try to identify as many of the country websites below in two minutes.

.ru	.de	.tr	.us	.cz	.fr	.ch	.cn	.dk	.uz
.in	.jp	.ar	.br	.ua	.sg	.th	.vn	.it	.hu

6a Work in small groups. Read the suggestions for evaluating websites used for research and choose the six suggestions that you consider to be most useful.

- 1 You should always find out who runs the website.
- 2 You need to consider the purpose of the website.
- 3 It is important to know how old the website is.
- 4 It is not possible to know in which country a website is based.
- 5 Websites run by governments are usually fairly reliable.
- 6 Commercial websites give reliable, accurate information.
- 7 Professional associations (e.g. scientific societies) are probably a good source of information.
- 8 A reputable website will not give you links to other websites.
- 9 A website will be a useful source of information only if it is updated regularly.
- 10 A website is usually reliable if it contains facts and opinions, and the names of experts.
- 11 Social networks are the best source for finding new contacts in your field.
- 12 A good website will often invite responses.
- 13 Reliable websites will usually give you links to other websites.
- 14 You need to consider if the writer of the website is objective or biased.
- 15 It is helpful if the website invites responses and you can see who to respond to.

6b Join another group and compare your choices. Try to agree on the top six choices.

7 4.8 Listen to a lecturer giving a presentation on evaluating internet resources. Note down her six key points. Then compare her tips with the ones you chose in Exercise 6b. Are they the same or different?

8 Imagine you are going to write a report on hypnotherapy for a serious magazine called *Science Today*. Look up the topic online and choose the three best websites to get information for your article. Compare your choice with other students.

WRITING SKILLS

A SHORT REPORT

9 The government's Health Department plans to provide information about alternative therapies on its internet site. It has asked a consumer research agency, GRS, to write a report on a very popular alternative therapy, homeopathy. Read the report. Are these statements true, false or not given?

- 1 Mr J. Simmons, Health Department, is the writer of the report.
- 2 The purpose of the report is to highlight the dangers of homeopathy.
- 3 Homeopathy was invented by a German scientist.
- 4 Homeopathy products do not use large amounts of natural materials.
- 5 Medical experts believe that homeopathy products are effective in treating illnesses.
- 6 The writer believes that all homeopaths should be registered.
- 7 The writer advises people not to buy homeopathic products on the internet.

10 Read the report again. Put the topics in order.

- a the writer's advice to readers of the report
- b what the writer discovered in her investigation
- c the subject of the report
- d the person who asked for the report
- e the writer's opinion of the facts

11 **Making recommendations** Report recommendations are usually written in an impersonal style to make it clear that they are based on fact, not just the opinion of the writer. They are often written using a structure which makes the information clear and gives it impact. What impersonal phrase is used to introduce each recommendation?

12 Rewrite five recommendations using the alternative grammatical structures below.

- must + active or passive verb
- It is advisable to ...
- It is vital that ...
- should/might/could + active/passive verb
- It is a good idea to ...

Patients must understand that symptoms can get worse before they get better.

13 Choose one of the following tasks. (You work for GRS and both reports have been requested by Mr J. Simmons, Health Department.)

- 1 Write a report on herbal remedies (i.e. plant-based treatments to improve health). Use the notes on page 166.
- 2 Write a report on hypnotherapy, using your research from Exercise 8.

14 Work with a partner. Look at each other's reports and try to improve them.

report on homeopathy

Introduction

This report was requested by Mr J. Simmons, Health Department. It investigates homeopathy and considers whether the therapy is effective and safe. The report was to be submitted by 10 May.

Facts and findings

- 1 Homeopathy was developed in Germany in the late 1700s. Illnesses are treated with very small samples of natural materials such as plants, minerals and some animal products.
- 2 Homeopathic prescriptions are tailored to each patient. Two patients may have the same symptoms, but be given different remedies.
- 3 Homeopathy is considered safe by most users and experts because the ingredients are used in small quantities and are diluted.
- 4 Some leading medical journals say that the therapy does not have any real benefits. However, some studies have found that homeopathic remedies are 'equivalent to conventional medicines' in treating certain illnesses.

Conclusion

Scientific experts and users of the therapy are divided about its benefits. However, homeopathy is considered to be safe.

Recommendations

It is recommended that patients:

- consult their doctor before using homeopathic remedies.
- get advice from a registered homeopath before taking a remedy.
- understand that symptoms can get worse before they get better.
- read the instructions on homeopathic products carefully before using them.
- buy products from an established outlet, for example a reputable healthcare store.
- think carefully before using products advertised on the internet as they may not be of good quality.

Aileen McGuire
Director, GPS

H.W.

Vocabulary: Adverbs of Certainty (2)

Fill in the blanks with the correct adverb. The first letter is given for you.

1 I will p robably ask for an increase in our budget, but it will depend on how much money we spend on research next month.

2 He will c _____ agree. I can guarantee that.

3 There will d _____ be some disadvantages. I'm sure of it.

4 There will p _____ be an opportunity to take the exams next year, but I think it unlikely.

5 U _____, there will be people who will criticise you. There always are.

Academic Collocations (1)

Drag the words in to the correct box to make the right collocations.

⌨ Keyboard instructions ▾

Move

medical	private	natural	effective	give somebody	public	state	appropriate	biological	receive
---------	---------	---------	-----------	---------------	--------	-------	-------------	------------	---------

Treatment

medical (Example)

Sector

private (Example)

Science

natural (Example)

1

huge we would to us, on consider all the options impact so a have It need

 DRAG ITEM HERE

carefully.

2

the at implications. to look need we

 DRAG ITEM HERE

3

be bad for us. really could It

 DRAG ITEM HERE

4

a risky option. It's

 DRAG ITEM HERE

5

has a disadvantage. It serious

 DRAG ITEM HERE

Academic Collocations (2)

Write the correct words to complete the sentences. The first letter of each word is given.

- 1 If we give her the most e ffective treatment - injections every hour - she should be better by tomorrow.
- 2 The hospital promised to give her the best m treatment available.
- 3 A private hospital offered him a great salary but he prefers to work in the p sector.
- 4 Aromatherapy is a n treatment that only uses real herbs and plant extracts.
- 5 His interest in the human body led him into the field of b science.
- 6 He's not going to get better if he refuses to r treatment.
- 7 She'll get better if she gets the a treatment - not the leaves that your mother is boiling!
- 8 Unlike private hospitals, hospitals in the s sector are often unable to buy the best equipment.

That could be a big problem for us

It would also result in needing more doctors than we have now.

So, one consequence of this is that the hospital will be open again.

If we open the department, the machines might not be ready.

A If we open the department, the machines might not be ready.

B Well, most of them have been checked and we can manage without the rest for the first couple of weeks.

A  DRAG ITEM HERE

B Again, that's true but I have the twenty waiting to start.

A  DRAG ITEM HERE . We don't have the money to pay them.

B Peter has said he is happy to pay their first week's wages from the emergency fund.

A OK.  DRAG ITEM HERE And everyone will see that.

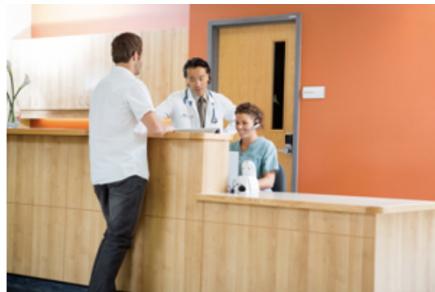
B Yes, and that is very important. Public confidence will be restored.

Previous H.W

Vocabulary: Illness and Medicine

Drag the words into the correct spaces.

📱 Keyboard instructions ▾



⋮ Move

infection vaccine fever parasite symptoms diagnosis complications contracted

1 Keep indoors out of the cold or you might get a /an infection , like a sore throat.

2 The DRAG ITEM HERE from the doctor was very good. You've only got a cold.

3 He's got a / an DRAG ITEM HERE . We need to bring his temperature down.

4 There is still no DRAG ITEM HERE developed for malaria.

5 Although he was recovering from the disease, he then developed DRAG ITEM HERE , which made him sick again.

6 He DRAG ITEM HERE malaria when he was on holiday in Africa.

7 Does he show any DRAG ITEM HERE , for example, a high temperature or red marks on the body?

8 The DRAG ITEM HERE gets into your blood and affects the whole body.

Reading (1)

Read the article and type the letter for the sentences (A-C) in the right place.

- A The European Centre for Disease Prevention and Control (ECDC) yesterday confirmed that, like malaria, there is no treatment for Chikungunya disease.
- B The Ministry of Health in Italy has confirmed an outbreak of Chikungunya disease near Ravenna in the region of Emilia Romagna, 200 miles north of Rome.
- C Like malaria, Chikungunya is carried by mosquitos.



KILLER MOSQUITO DISEASE ARRIVES IN EUROPE

06 September 2010

A TROPICAL DISEASE that has caused illness and significant panic on the islands of the Indian Ocean has appeared in Europe for the first time.

1 [] A total of 151 cases were reported in two villages near the town of Cervia between 4 July and 3 September. Eleven patients were taken to hospital; one died.

2 [] The disease is transmitted by one particular type, the Aedes albopictus, which is common in southern Europe and has been found as far north as Belgium. It is the first time this disease has been detected in Europe and raises the threat that the risk of infection could increase in other countries, including the UK.

3 [] In addition, there is no vaccine or way to immunise oneself against the disease. They warned travellers to Emilia Romagna to protect themselves against mosquitoes. Pregnant women and those with chronic illnesses were urged to seek medical advice before visiting the area.

- 1 This is the first time we have heard about this disease.
- 2 The disease has previously been seen in Europe.
- 3 This disease is carried and given to people by insects.
- 4 There is no danger that this disease will spread to the UK.
- 5 As yet there is no cure for the disease.
- 6 People should avoid the area completely until the disease is under control.

Grammar (2): Future Continuous, Going to, Present Continuous

Complete the sentences with the right future form of the word in brackets.

Example:

- 1 Before you go on holiday, is it your intention to have an injection for malaria? (have)

Before you go on holiday, are you going to have an injection for malaria?

- 2 My appointment with the doctor is for Monday at 10.30 a.m. (see)

I on Monday at 10.30 a.m.

- 3 I'm going home now and then travelling to my parent's to stay for the rest of the week. (stay)

From tomorrow, I with my family.

- 4 When I've finished the report, I want to take a break. (take)

When I've finished the report, a break.

- 5 Have you arranged to meet Peter this weekend? (meet)

Are Peter this weekend?

- 6 The midwife is arranging check-ups for all our expectant mothers throughout this week. (arrange)

The midwife check-ups for all our expectant mothers this week.

- 7 I want to see the exhibition before it closes on Friday. (see)

I the exhibition before it closes on Friday.

- 8 The cleaners take the first bus just for this week. (arrive)

The cleaners on the first bus this week.

Vocabulary: Personal Adjectives (1)

Click on the letters to form ten personal adjectives to describe people from the medical profession. To choose a word, click on the first and last letter of the word. To delete a word, click the trash can icon.



patient efficient calm authoritative
knowledgeable sensitive reassuring
objective openminded sociable
sympathetic

Vocabulary: Medical Terms

Type one word into each gap in the text. Some of the letters are given to help you.



HEALTH CENTRE NEWSLETTER

December 2013

Unfortunately the pharmacist's office has had to close. This means that the Health Centre will no longer provide ant **i**biotic s or pa **p**. There is a pharmacy on the High Street which will supply you with what you need. Please remember to always have your prescription with you.

Although the pharmacy here has closed, the Health Centre will continue to give in **s** for people over the age of 65 who suffer from dia **g** and/or arth **r**.

There are some changes to the staff here at the Health Centre. We'd like to welcome a new member to the team. Melanie Sykes is our new m **a**fe. She is hoping to run her first course for pregnant mothers next week and will start visiting the week after. At the same time, we are sorry to say goodbye to Dr Tellman, who intends to continue his studies to become a su **u**. He is particularly interested in learning to do tr **e**s for sufferers of heart di **l**.

Finally, a reminder for elderly patients. Be especially careful of catching a bad cough or getting a ch **c** infection at this time of the year. keep warm and you should be fine.

open-minded efficient sympathetic authoritative calm knowledgeable reassuring objective
sensitive sociable patient

1 He's so **authoritative** ! He's always telling people what to do.

2 Please keep . If you worry, you'll only make yourself ill.

3 To understand other people's opinions, you need to listen and not take sides. You need to be .

4 Amanda is very . She's always making new friends.

5 Paul is always so worried about things but Clare always makes him feel better. She's so .

6 If you want to find more about Ancient Greece, Nikos is very on the subject.

7 You need to be careful what you say to David. He is very .

8 You can rely on them. They are very at getting the job done on time.

9 When I lost my dog, Anne was very as she had lost her dog the month before.

10 If you can be and wait another ten minutes, I'm sure he will arrive.

11 He's so ; he is prepared to accept all sorts of weird and wacky ideas. Even little green men on Mars!