

11 Surgery

Scrub up

1 Work in pairs. Match each word with its description. How many of the items can you find in the pictures?

- | | |
|---------------------|---|
| 1 drapes | a a tool with a sharp blade for cutting |
| 2 forceps | b a scissor-like tool for gripping tissue |
| 3 an implant | c tubes attached to a pump for removing blood or other fluid from the surgical site |
| 4 a swab | d a device or artificial part that is inserted into the body, for example to replace or assist a defective part |
| 5 retractors | e stitches that are inserted to close a wound |
| 6 a scalpel | f sterile covers for the parts of the patient's body not involved in the operation |
| 7 a scar | g small pieces of wire that are pushed with a machine into each side of a wound to close it |
| 8 a clamp | h tools that hold organs out of the way to allow access to the surgical site |
| 9 suction | i a mark that remains after a cut has healed |
| 10 sutures | j a loose, sterile piece of clothing worn by people in the operating theatre |
| 11 diathermy plates | k a tool for holding a blood vessel closed to prevent bleeding |
| 12 a gown | l tools that use heat to close the ends of blood vessels to prevent bleeding |
| 13 an incision | m a piece of material, such as cotton, that is used to absorb blood during surgery |
| 14 staples | n a cut made by a surgeon to allow access inside the body |



2 Talk about what is happening in the picture.

3 Tell your partner about an operation you, someone you know, or a patient of yours has had. Talk about

- the reason for it
- what it involved
- the preparation
- the anaesthetic
- the after-effects.

In this unit

- naming operating theatre equipment
- future forms
- suffixes
- word stress
- post-operative complications
- understanding a patient care record

Listening

Preparing the patient for surgery

- 1 If you were having abdominal surgery, how much would the following things worry you? Mark them between 0 (it wouldn't worry me at all) and 5 (it would worry me a lot). Compare your answers with a partner.
- dying during surgery _____
 - having the wrong operation done _____
 - MRSA _____
 - pain after the operation _____
 - pain during the operation _____
 - scarring _____
- 2 🎧 Listen to the nurse talking to a patient before her operation. Tick (✓) the things in 1 that the patient is worried about.
- 3 🎧 Listen again and answer the questions.
- 1 What operation is Tori having?
 - 2 In what form is the pre-med?
 - 3 How will the pre-med make her feel?
 - 4 What will the anaesthetist ask her to do?
 - 5 What will Tori have to control her pain post-op?
 - 6 What is the worst pain she should have after the operation (out of ten)?
 - 7 What does the orderly check before taking Tori?
 - 8 What documents does the orderly take into theatre?

● Language spot

Future forms

- 1 Complete these sentences from *Listening* with the verbs below. Some of the verbs are used more than once.

be going to	ask	give
may	be	make
might	be able to	feel
should	let	wake up
will / 'll / won't	leave	

- a I'm worried that the anaesthetic *won't be* strong enough, and I _____ in pain, but _____ speak.

- b If you like, I _____ the anaesthetist to explain exactly what he does.
- c It _____ quite a neat little scar actually.
- d In a moment I _____ you a pre-med.
- e How _____ I _____ when I _____?
- f You _____ a little sick or you _____ really hungry.

- 2 Work in pairs. Discuss the questions.

- 1 Which sentences in 1 predict or imagine the future? _____
- 2 Which sentence states someone's intention? _____
- 3 Which sentence includes an offer or promise to do something? _____
- 4 Which modal verbs are used to mean 'possibly'? _____
- 5 Which modal verb is used to mean 'probably, if everything goes well'. _____
- 6 In which sentence is a present tense used to talk about the future? _____

- 3 Using the prompts below, make up a similar dialogue with your partner. Take turns as nurse and patient.

Nurse	how / feeling?
Patient	OK / nervous
Nurse	what / worrying?
Patient	anaesthetic / not strong enough / in pain / not / able to speak
Nurse	I / ask / anaesthetist / explain / what / does
Patient	thanks
Nurse	in a moment / give / pre-med / feel / relaxed / sleepy
Patient	OK
Nurse	after that / theatre / anaesthetist / connect up / monitoring equipment / give / drugs / sleep
Patient	how / feel / wake up?
Nurse	pain relief / waking up – fully awake / little pump / only mild pain

- 4 Work in pairs. You are going to role-play a nurse reassuring a patient about an operation. Student A, go to p.112. Student B, go to p.113.

» Go to **Grammar reference** p.121

In 2001, Professor Jacques Marescaux, in New York, performed the most common keyhole operation on a patient in Strasbourg, France.

Do you know what operation this is?

Reading

Keyhole surgery

1 Which of these phrases do you think will be included in a text on keyhole surgery?

- 1 hand-eye coordination
- 2 images on screens
- 3 oxygen therapy
- 4 one-centimetre cuts
- 5 robots' hands

Read the text quickly to check your answer.

2 Read the text again and answer the questions.

- 1 What other job did surgeons do in the past?
- 2 What two special skills do keyhole surgeons need to develop?

- 3 How many incisions are made in a keyhole heart bypass operation?
- 4 What four complications are mentioned that keyhole surgery reduces?
- 5 What advantages do robots have over human surgeons, according to the text?

3 Match the halves of these collocations. Then look at the text again to check.

- | | |
|-----------------------|----------------|
| 1 a low | a blood clot |
| 2 open | b instrument |
| 3 a complex | c operation |
| 4 a precision | d success rate |
| 5 a potentially fatal | e surgery |

4 Discuss the questions in small groups.

- Why isn't every operation done using keyhole surgery?
- How do you think surgery will be different in 50 years' time?

Surgery – the repair of a body with knives and stitches – is thousands of years old, and in the past it was performed by unqualified men whose other job was cutting hair. For a long time, surgery was limited to amputations which were performed incredibly fast, without anaesthetic, and without knowledge of microbes. Success rates were low and many patients died from shock or post-operative infections.

Despite the many innovations that have made surgery safer, open surgery has remained a bloody business which involves cutting open the body, holding it open with metal retractors, and putting both hands into the hole. However, the invention of the laparoscope – a tube for looking inside the body – has led to the development of a whole new way of doing things, commonly known as 'keyhole' surgery. Now, complex operations are done through small incisions using instruments at the ends of long tubes. It is precise and delicate work and involves the minimum of invasion.

Refinements in technology mean that now surgeons don't have to hold a tube in one hand and look down it – they see images on screens made by a tiny video camera at the end of the laparoscope. The surgeon moves the precision instruments using two sets of controls like the handles of scissors. It has



A less invasive surgery

been compared to painting the hallway of your house using a brush on a long stick pushed through the letter box. It demands a lot of practice both in hand-eye coordination and in depth perception (most video screens are two-dimensional) in order to accurately navigate around the internal organs. Surgeons who grew up with computer games take to it quite naturally.

Keyhole surgery means less pain and less scarring. In conventional heart bypass surgery, for example, the surgeon has to open the patient's chest with a 30 cm long incision, whereas keyhole surgery involves just three one-centimetre cuts. Recovery time is much faster with keyhole surgery, which frees up hospital beds, and disrupts the patient's life less. There are fewer wound complications like infection, haematoma, and hernias, and because a patient is active soon after surgery, there is less risk of a potentially fatal blood clot in the veins.

Further advances in keyhole surgery are being made with robots. Robots' hands have a greater range of movement and don't shake. In a recent trial, their accuracy was measured against surgeons'. In a test to insert a needle into an exact spot in a dummy patient's kidney (the first stage in removing kidney stones), the human hand found the exact spot 79% of the time. The robots' score was 88%.

Each year in the USA, **1,500** people have objects left inside them during surgery.

- What do you think is the most common object left?
- What does the theatre nurse do to prevent this happening?



Vocabulary

Suffixes

- 1 Match the meanings 1–6 with the groups of words a–f.

- 1 cutting into
- 2 making a puncture in order to drain off fluid or air
- 3 making a passage from an organ to the skin
- 4 optical examination
- 5 surgical removal
- 6 surgically changing the shape

- a thoracocentesis amniocentesis arthrocentesis
- b endoscopy gastroscopy colonoscopy
- c hysterectomy vasectomy tonsillectomy
- d tracheostomy colostomy oesophagostomy
- e laparotomy gastrostomy nephrotomy
- f dermatoplasty tyimpanoplasty abdominoplasty

- 2 Listen and decide which of the operations or procedures in 1 is being referred to by each speaker.

- | | |
|---------|---------|
| 1 _____ | 4 _____ |
| 2 _____ | 5 _____ |
| 3 _____ | 6 _____ |

Pronunciation

Word stress

- 1 Work in pairs. Circle the stress pattern that represents the word.

- | | | |
|-------------------|----------|----------|
| 1 colostomy | a •••• | b •••• |
| 2 tracheostomy | a ••••• | b ••••• |
| 3 encephalograph | a ••••• | b ••••• |
| 4 encephalography | a •••••• | b •••••• |
| 5 endoscope | a ••• | b ••• |
| 6 endoscopy | a •••• | b •••• |

- Listen and check.

- 2 Underline the part of the word you think is stressed.

- | | |
|------------------|------------------|
| 1 vasectomy | 5 radiography |
| 2 laparotomy | 6 cardiograph |
| 3 oesophagostomy | 7 cystoscopy |
| 4 microbiology | 8 ophthalmoscope |

- Listen and check.

It's my job

- 1 Work in pairs. Write down words that you know for operating theatre equipment under the following headings.

cleaning	cutting	dealing with bleeding	clothes	other
soap				

- 2 Read the text and tick (✓) the items in 1 that Matthew mentions.

Matthew Binns

I'm a theatre nurse. When I start a shift, my first duty is to prepare the theatre. My team and I dust everything and check that all the electrical equipment is working. We make sure the table's set up, and that we have everything we need such as gowns, gloves, soaps and brushes, waste bags, and stocks of swabs. Then I check the operation list and prepare the equipment tray for the first one. I count all the swabs, sutures, blades – anything that could be left inside a patient – and write it all up on the whiteboard.

Our patients are all unconscious, and it's part of our job to make sure they are not injured or uncomfortable when they are on the operating table. During the operation you need to anticipate what the surgeon will need next. They generally work with forceps and scalpel, and you always need the right type of swab ready. With experience, you get to know what clamp or blade will be needed next.

At the end of the operation, we count in all the equipment that's been used, clean up the patient, and take them to the recovery room. Then it's back to the theatre to wipe down all surfaces and start all over again.

The basic job stays the same, but technology brings in new things. About half our operations here use keyhole surgery, which means we have to operate TV screens and other equipment. I've also been trained to use the laser machine, which is used for cutting or removing tissue.



The longest operation ever lasted **97** hours, when surgeons separated eleven-month-old Nepalese conjoined twins, Jamuna and Ganga Shrestha, who were connected at the tops of their heads and whose brains were partially fused together.



Signs and symptoms

Post-operative complications

1 Match the common complications 1–6 with the information about them A–F.

- 1 Atelectasis
- 2 Deep-vein thrombosis
- 3 Low urine output
- 4 Post-operative pain
- 5 Post-operative wound infection
- 6 Pyrexia

Different types of surgery have different types of complications. Generally though, patients face the following risks.

A _____ treated by antibiotics.

B _____ (fever) a symptom of infection either at the surgical site, in the lungs (for example, pulmonary oedema), or in the urinary tract.

C _____ The standard treatment is by intramuscular opioid (usually Morphine).

D _____ After surgery, there is a tendency for patients to retain fluid, and urinary output is a measure of the performance of the liver and kidneys.

E _____ This occurs when a blood clot develops, usually in the lower leg. It can cause a fatal pulmonary embolism. Early signs of clot formation include hypertension and cold feet. Heparin is commonly used as a prophylactic (a course of action to prevent a disease).

F _____ (collapsed lung) caused by blocked air passages. One of the first signs is abnormally high heart rate (tachycardia) and abnormally rapid breathing (tachypnea). Mechanical ventilation is provided to help patients breathe.

2 Use words and phrases from 1 to complete the patient care record below.

PATIENT			
Isak Christiansen			
AGE	DIAGNOSIS	HISTORY	SURGICAL OPERATION
79	abdominal aortic aneurism	ischemic heart disease	midline incision to repair aorta and removal of aneurism. Admitted ICU 16.00
OBSERVATIONS		NURSING INSTRUCTIONS	
0-4 HOURS POST-OP	mild _____ ¹ (38°)		
	risk of _____ ²		<input type="checkbox"/> administer _____ ³ (Cefazolin) intravenously
	_____ ⁵		<input type="checkbox"/> monitor _____ ⁴ for inflammation & ooze
	low _____ ⁷		<input type="checkbox"/> send nasal swab to lab to test for Staphylococcus
	patient has _____ ⁸		provide relief by _____ ⁶ infusion
	risk of _____ ⁹		fit catheter to take hourly measurements
12 HOURS POST-OP	abnormally _____ ¹¹		<input type="checkbox"/> give Metoprolol infusion hourly (beta blocker) to lower blood pressure
DAY 2 POST-OP	x-ray confirms pulmonary oedema falling O ₂ level		<input type="checkbox"/> cover feet with extra blankets
DAY 5 POST-OP	condition stable no evidence of pulmonary oedema remaining		give Heparin as a _____ ¹⁰
			give Arnioderone infusion to slow heart give chest x-ray
			provide _____ ¹² to assist breathing
			extubate discharge to Coronary Care Unit

Speaking

Discussing what people should do

Work in small groups. Read these situations and discuss the questions.

- 1 A 50-year-old woman has a slow-growing brain tumour, which doctors are refusing to operate on because they feel the operation is too risky. She wants her family to pay for her to fly to another country, where a surgeon has offered to perform the operation, but her doctor says the stress of the experience could kill her. What should her family do?
- 2 A man has lost his face in a dog attack. A surgeon is ready to do a face transplant as soon as a donor can be found. However, the risk of rejection is great, which would leave the man in an even worse position, without the underlying facial tissue. Should he risk the transplant?

Writing

A case study

As part of your training in the surgical unit, you have to write a case study of a patient undergoing surgery. Use the information in the patient care form to complete the account of Mr Christiansen's post-operative progress.

Isak Christiansen has a history of heart disease. He was
diagnosed with abdominal aortic aneurism. An operation
was performed to remove the aneurism.
Because of the risk of post-operative wound infection,
the patient was given an antibiotic (Cefazolin).
The surgical site was monitored for infection and a nasal
swab was sent to the lab for analysis.
The patient suffered post-operative pain and he was given ...

Project

Research the procedure and pre- and post-operative care required for one of the following operations. Prepare a five-minute talk for the next class.

- cataract removal
- heart transplant
- ectopic pregnancy

Checklist

Assess your progress in this unit. Tick (✓) the statements which are true.

- I can name operating theatre equipment
- I can talk about future events and actions using appropriate verb forms
- I can understand and use suffixes to describe surgical procedures
- I can correctly place the stress on words with common suffixes
- I can describe common complications after surgery
- I can understand and explain a patient care record

Key words

Adjectives

complex
intravenous
post-operative

Nouns

accuracy
amputation
catheter
complications
conventional surgery
discomfort
haematoma
hernia
incision
keyhole surgery
precision
success rate

Look back through this unit. Find five more words or expressions that you think are useful.