

Risks associated with your anaesthetic

Section 6: Postoperative chest infection

Summary

This leaflet explains why there is a risk that you may develop a chest infection after an operation. A general anaesthetic can affect the normal way that phlegm is moved from the lungs. Pain from the operation may also make it more difficult to cough or breathe deeply, which means there is a higher risk of chest infection.

This leaflet tells you what it feels like to have a chest infection and how it may affect your recovery. It includes information about what you can do to help prevent yourself from getting a chest infection, including stopping smoking before your operation. Most people who develop a chest infection make a full recovery.

What is a chest infection and why can it happen after surgery?

Chest infections are caused by bacteria or a virus. General anaesthetics affect the normal way that phlegm is moved out of the lungs. Pain from the operation can mean that taking a deep breath or coughing is difficult. As a result of these two things, phlegm can build up in the lungs. An infection can develop in the phlegm. Pneumonia is a type of chest infection, and you may also hear the name 'lower respiratory tract infection', or 'LRTI'.

What does it feel like?

- You may feel very unwell and tired.
- You may have a high temperature.
- You may have a cough that brings up thick yellow or green phlegm.
- It will become harder to breathe, and your breathing may be quite fast.
- Chest pain can also be a sign of a chest infection.
- Some patients, especially older people, become confused. This is usually temporary and is likely to improve as the chest infection gets better.





Section 6: Postoperative chest infection

Here are some ways that patients who developed a postoperative chest infection described it:

'I woke up all sweaty with a pain in my back, like a tight band across my back.'

'I was so flat out I didn't even have the energy to eat or wash myself.'

'The nurse said my temperature and heart rate was up, and I could feel the heart racing in my chest. My breathing wasn't right either.'

How do you know if you have a postoperative chest infection?

- Doctors and physiotherapists listen to your chest with a stethoscope. They can hear extra crackles and wheezes.
- A chest infection can usually be seen on a chest X-ray.
- Blood tests can show that you have an infection.
- A sample of your phlegm can be sent to the lab to try to identify any bacteria which are causing the infection.
- Sometimes your heart rate becomes faster and your blood pressure can fall. These are signs of a serious chest infection.

Who is most likely to get a postoperative chest infection?

The following factors make a postoperative chest infection more likely:

- being overweight
- increased age (over 50)
- having a long-term medical condition – for example, diabetes, kidney disease, asthma or chronic obstructive pulmonary disease^{1,2}
- having a weakened immune system. This makes a person less able to fight off bacteria or virus infections. This includes people who have a long-term disease of the immune system or who are on medications that suppress their immune system, such as steroids
- certain operations: you are more likely to get a chest infection if your operation is on the abdomen or the chest, or if you are having major surgery on the head or neck³
- being immobile after surgery and unable to get out of bed, either due to the surgery or due to a pre-existing problem with moving about.

It is clear that good pain relief after your surgery reduces the risk of getting a chest infection. In some cases the best pain relief will be an epidural. You can find out more about these alternatives and whether they may be suitable for you from the booklet *Anaesthesia explained* on the RCoA website (rcoa.ac.uk/documents/anaesthesia-explained). There is a lot of debate about whether the type of anaesthetic makes any difference. There is some evidence that having a regional anaesthetic, for example, a spinal or epidural injection, either with or without a general anaesthetic, reduces your risk of a chest infection compared to having a general anaesthetic alone.¹



Section 6: Postoperative chest infection

How likely is it I will get a chest infection?

The risk is very variable depending on all the factors listed above. One example is that around 1 in 5 people having major abdominal surgery are likely to get a chest infection that may be mild or severe. However, people with none of the risks above are quite unlikely to get an infection.

How serious is it if I get a chest infection?

If you were previously healthy, you are very likely to recover fully from a postoperative chest infection. However rarely, people who were well before their surgery die from pneumonia afterwards.

If you were not previously healthy and had longstanding lung disease or another long standing illness, then you are more likely to have a serious, life-threatening postoperative chest infection. However, many people with pre-existing lung disease recover after a postoperative chest infection. Your anaesthetist will be able to talk to you about the risks which apply to you.

What can I do to prevent a chest infection?

- If your GP has advised you that you have an increased risk of getting influenza (flu), then being immunised against the flu virus (having a flu jab) is a good idea. This may help prevent a chest infection after your surgery. However, this should be done well ahead of your operation, and avoided in the two weeks before your surgery.
- Smokers are more likely to get a chest infection after an operation. Giving up smoking, even a few days or weeks before coming into hospital, will allow the damaged linings of your airways to begin to repair. This reduces your risk of getting an infection.⁴ However, you will gain the most if you can give up smoking at least six weeks before your operation.¹
- You are more likely to be successful in giving up smoking if you use a stop smoking support service. Your GP or hospital clinic can help you find your nearest provider of this service; the NHS Stop Smoking Service is available at: nhs.uk/smokefree
- Your anaesthetist will consider whether a certain anaesthetic technique will help prevent a chest infection. You may be offered a local or regional anaesthetic. These are injections which can numb an area of the body, meaning that you do not need a full general anaesthetic for the surgery. This is only possible for certain types of operations. You can find out more about this in the booklet Anaesthesia explained on the College website (rcoa.ac.uk/documents/anaesthesia-explained). They can also be used to provide pain relief after your operation whether you had a general anaesthetic or regional anaesthetic.
- Your doctors and nurses will be ready to help make your pain relief as good as possible by adjusting your pain relief medicines if necessary. This will enable you to breathe deeply and cough more easily, which will help prevent or clear any infection. The anaesthetist will talk to you about a plan for pain relief. Reminding yourself to breathe deeply after your operation and to cough at regular intervals helps prevent a chest infection.



Section 6: Postoperative chest infection

- A physiotherapist may work with you after your surgery to prevent or treat a chest infection. He/she is an important member of the healthcare team who will teach you how to breathe and cough more effectively to keep your chest clear.

What is the treatment for a postoperative chest infection?

You will require oxygen, which is given through a facemask or through small plastic tubes that sit just inside your nostrils (sometimes called nasal prongs or nasal specs). The flow of oxygen can be quite noisy and can make your mouth and nose dry.

You may be given intravenous fluids (a 'drip' into a vein) to prevent dehydration. This will help thin the phlegm in your lungs and make it easier to cough up. A cannula is inserted into a vein in your hand or arm. This is a thin plastic tube which is inserted using a needle, and the needle is then discarded. The cannula will be replaced every 48 hours or so. You will also be encouraged to drink plenty, if your recent operation allows this.

Antibiotics can also be given through the cannula into a vein. For mild infections, tablet antibiotics may be given. Antibiotics kill bacteria or slow down their growth. There are many types and doctors try to choose the one most likely to be effective in each type of infection. Antibiotics do have side effects and your doctors should tell you what to expect when they are prescribed.

Pain from your operation, and other pains such as headache, will be treated with pain relief medicines. It is important that you tell your doctors and nurses about your pain, so they can help you.

Occasionally, the physiotherapist, nurse or doctor will ask you to use oxygen under pressure by breathing through a mouth piece (like a snorkel) or through a tight fitting mask which covers the mouth and/or nose. This helps to expand the lungs better.

If your chest infection is very severe, you may need help with your breathing. This is done in an intensive care unit. You are heavily sedated while a tube is inserted through your mouth or nose into the trachea (windpipe). A ventilator (breathing machine) is used until your condition improves. Admission to an intensive care unit with a postoperative chest infection is very serious and some people do not survive.

What does getting a chest infection mean for my recovery?

If you get a postoperative chest infection, your discharge from hospital will be delayed by days or weeks.⁵ Severe chest infections can have many complications. Fluid can build up in the lungs or infection can spread in the bloodstream to affect other organs in your body. Specific treatment is given for these on the ward or in the intensive care unit. If you are admitted to the intensive care unit, your recovery is likely to take a long time.

Most people who get a postoperative chest infection go on to make a full recovery without long-term effects.



Section 6: Postoperative chest infection

References

- 1 Sachdev G, Napolitano LM. Postoperative pulmonary complications: pneumonia and acute respiratory failure. *Surg Clin North Am* 2012;**92**:321–344.
- 2 McAlister FA et al. Accuracy of the preoperative assessment in predicting pulmonary risk after non-thoracic surgery. *Am J Respir Crit Care Med* 2003;**167**:741–744.
- 3 Woodall N, Goddard H. Airway complications during anaesthesia. (In Valchanov K, Webb ST, Sturgess J, eds). *Anaesthetic and perioperative complications CUP, Cambridge* 2011.
- 4 Hawn MT et al. The attributable risk of smoking on surgical complications. *Ann Surg* 2011;**254**:914–920.
- 5 Thompson DA et al. Clinical and economic outcomes of hospital acquired pneumonia in intra-abdominal surgery patients. *Ann Surg* 2006;**243**:547–552.

Further information

Anaesthetists are doctors with specialist training who:

- discuss the type or types of anaesthetic that are suitable for your operation. If there are choices available, your anaesthetist will help you choose what is best for you
- discuss the risks of anaesthesia with you
- agree a plan with you for your anaesthetic and pain control
- are responsible for giving your anaesthetic and for your wellbeing and safety throughout your surgery
- manage any blood transfusions you may need
- plan your care, if needed, in the intensive care unit
- make your experience as calm and pain free as possible.

Common terms

General anaesthesia – This is a state of controlled unconsciousness during which you feel nothing and may be described as ‘anaesthetised’.

Regional anaesthesia – This involves an injection of local anaesthetic which makes part of your body numb. You stay conscious or maybe sedated, but free from pain in that part of your body.

You can find out more about general and regional anaesthesia in the patient information booklet *Anaesthesia explained*, which is available from the College website via:

rcoa.ac.uk/documents/anaesthesia-explained



Section 6: Postoperative chest infection

Risks and probability

In modern anaesthesia, serious problems are uncommon. Risk cannot be removed completely, but modern drugs, equipment and training have made anaesthesia a much safer procedure in recent years.

The way you feel about a risk is very personal to you, and depends on your personality, your own experiences and often your family and cultural background. You may be a 'risk taker', a 'risk avoider', or somewhere in between. You may know someone who has had a risk happen to them, even though that is very unusual. Or you may have read in the newspapers about a risk and be especially worried about it.

People vary in how they interpret words and numbers. This scale is provided to help.



Your anaesthetist will give you more information about any of the risks specific to you and the precautions taken to avoid them. There are some rare risks in anaesthesia that your anaesthetist may not normally discuss routinely unless they believe you are at higher risk. These have not been listed in this leaflet.

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This leaflet has been reviewed by the RCoA Patient Information Group which consists of patient representatives and experts in different areas of anaesthesia.

Disclaimer

We try very hard to keep the information in this leaflet accurate and up-to-date, but we cannot guarantee this. We don't expect this general information to cover all the questions you might have or to deal with everything that might be important to you. You should discuss your choices and any worries you have with your medical team, using this leaflet as a guide. This leaflet on its own should not be treated as advice. It cannot be used for any commercial or business purpose.

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Section 6: Postoperative chest infection

Information for anaesthetic departments on printing this leaflet

Please consider the visual impairments of patients when printing or photocopying this leaflet. Photocopies of photocopies are discouraged as these tend to be low quality prints and can be very difficult for patients to read. Please also make sure that you use the latest version of this leaflet, which is available on the RCoA website: rcoa.ac.uk/patientinfo/risk-leaflets

Tell us what you think

We welcome suggestions to improve this leaflet. Please complete this short survey at: surveymonkey.co.uk/r/testrisk. Or by scanning this QR code with your mobile:



If you have any general comments, please email them to: patientinformation@rcoa.ac.uk

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