



## Infective endocarditis

The aim of this fact sheet is to provide information and advice on infective endocarditis.

### What is infective endocarditis?

Infective endocarditis is a life-threatening infection in which the inner lining of the heart, particularly the heart valves, becomes inflamed.

### Who is at risk of infective endocarditis?

You are more likely to get infective endocarditis if you already have a heart condition or heart valve damage. It is best to ask your cardiologist if you are more at risk of infective endocarditis. However, generally, your risk for developing infective endocarditis is increased if you:

- have had a valve replacement;
- were born with a heart condition (other than an isolated atrial septal defect, a repaired ventricular septal defect or a repaired patent ductus arteriosus);
- have hypertrophic cardiomyopathy
- have a disease affecting your heart valves; or
- have had infective endocarditis before.

You should not be at increased risk of infective endocarditis if you:

- have a pacemaker or defibrillator;
- have an arrhythmia such as supraventricular tachycardia (SVT); or
- have acquired heart disease which has not damaged the heart valves, for example, Kawasaki Syndrome.

### What causes infective endocarditis?

Infective endocarditis is caused by certain types of bacteria that get into the blood stream in very large numbers.

Your blood does not usually contain any bacteria. However, this can change if you have an infection somewhere in your body. Bacteria can also be 'pushed' into the bloodstream during some surgical procedures, and during some types of dental treatment. Cleaning your teeth and passing a motion can also cause bacteria to get into the blood stream, but only in small numbers.

Small numbers of bacteria in the blood are usually quickly destroyed by the body's immune system. However, when a large number of bacteria rush into the blood (bacteraemia), they will form strings which can then stick to rough patches of the heart.

Infective endocarditis can only develop if there is a rough patch in the heart for the bacteraemia to attach to. This means that if you have a heart condition, the risk of you becoming infected depends on whether your condition has caused rough patches on what should otherwise be a smooth surface in the heart.

Rough patches are likely to occur where the blood is turbulent. For example, blood passing through a VSD at high pressure, could cause roughening to the lining of the valves in the right ventricle. Rough patches can also occur if there are areas of scarring in the heart, usually from surgery.

Once the bacteraemia attach to a rough patch in the heart, an infection develops and infective endocarditis can then spread within the heart.

## What are the symptoms of infective endocarditis?

The symptoms of infective endocarditis can either develop slowly or come on suddenly. These can include:

- feeling generally unwell, tired and inactive;
- having a fever; and/or
- shivering and sweating at night.

If you suspect infective endocarditis, you should contact your GP. Remind the GP that you are at increased risk of infective endocarditis because of your heart condition and ask for a blood test. If you feel the need for a diagnosis is urgent, contact the cardiac liaison nurse (CLN) at your nearest paediatric cardiac unit. The CLN should then arrange for a blood test to be taken, or arrange for you to see a cardiologist.

## Diagnosis

A blood test and an echocardiogram (an ultrasound scan of the heart) will usually be enough to show if you have infective endocarditis.

## Preventing infective endocarditis

There are a few things that you can do to try and prevent getting infective endocarditis.

- Good oral hygiene  
Dental problems such as tooth decay and gum disease can lead to infective endocarditis. Therefore it is important to make sure that your teeth and gums are properly looked after.
- Piercing and tattooing  
Avoid any body piercing or tattooing as these carry a high risk of infection. Piercings on or around the mouth are very risky. You should check with your cardiologist if ear piercing should be carried out with antibiotic cover.

### Evidence and sources of information for this CHF information sheet can be obtained at:

(1) National Institute for Health & Care Excellence. *Prophylaxis against infective endocarditis: antimicrobial prophylaxis against infective endocarditis in adults and children undergoing interventional procedures*. CG64. London: NICE; 2017. Available at: <https://www.nice.org.uk/guidance/cg64>

(2) National Institute for Health & Care Excellence. *Sepsis: recognition, diagnosis and early management*. Guidance NG51. London: NICE; 2017. Available at: <https://www.nice.org.uk/guidance/ng51/chapter/Recommendations>

## Infective endocarditis and antibiotics

Until recently, people at risk of infective endocarditis were offered antibiotics before certain medical or dental procedures. However, the effectiveness of preventing infective endocarditis by taking antibiotics had never been properly investigated. As a result, the National Institute for Health and Clinical Excellence (NICE) was asked to examine this in more detail and, based on their findings, provide guidance on the use of antibiotics against infective endocarditis.

As of 17th March 2008, NICE is recommending that antibiotics should no longer be offered before medical and dental procedures, unless the procedure is at a site where there is already a suspected infection.

The reason for this change in guideline is because dental and medical procedures are no longer thought to be the main cause of infective endocarditis. Taking antibiotics can also carry its own risks as it may lead to anaphylactic shock (a severe allergic reaction).

If you have been receiving antibiotics for dental treatment in the past, you can talk to your cardiologist about the recent changes in the guidelines and how these affect you.

## More information

You may also find it useful to read our fact sheet '**Your child's teeth**' which provides information on keeping teeth healthy.

You can download more information on the new NICE guideline from:  
<http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11938>

(3) NHS Choices. *Endocarditis*. London: NHS; 2017. Available at: [www.nhs.uk/conditions/endocarditis/Pages/Introduction.aspx](http://www.nhs.uk/conditions/endocarditis/Pages/Introduction.aspx)

(4) European Heart Journal, *Volume 38, Issue 26, 7 July 2017, Pages 2021-2023. Congenital heart disease: some progress, but still the challenge of a lifetime!* Thomas F. Luscher, MD, FESC. Available at: <https://doi.org/10.1093/eurheartj/ehx372>

### About this document:

Published: June 2013  
Reviewed: June 2017  
Due for review: June 2019

To inform CHF of a comment or suggestion, please contact us via [info@chfed.org.uk](mailto:info@chfed.org.uk) or Tel: 0300 561 0065

© Children's Heart Federation  
[www.chfed.org.uk](http://www.chfed.org.uk) | infoline: 0300 561 0065