



## Managing bacterial urinary-tract infections in adults

*A booklet for patients and carers*

*October 2012*





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## ***What is SIGN?***

We at the Scottish Intercollegiate Guidelines Network (SIGN) write guidelines which give advice to health-care professionals, patients and carers about the best treatments that are available. We write these guidelines by working with health-care professionals, other NHS staff, patients, carers and members of the public. The guidelines are based on the most up-to-date scientific evidence.

You can read more about us by visiting [www.sign.ac.uk](http://www.sign.ac.uk) or you can phone and ask for a copy of our booklet 'SIGN guidelines: information for patients, carers and the public'.

If you would like a copy of this booklet in another language or format such as in large print, please phone Karen Graham, Patient Involvement Officer, on 0131 623 4740, or email her at [karen.graham2@nhs.net](mailto:karen.graham2@nhs.net).

## *What is this booklet about?*

This booklet is about caring for and treating adults who have a suspected urinary-tract infection (UTI). It has been written for patients, carers, families or anyone who has an interest in the condition.

It aims to make patients and their families aware of the care and treatment that should be available. It also aims to help patients and their families manage their condition by understanding the latest research evidence.

This booklet is based on the recommendations from the SIGN national clinical guideline on managing suspected bacterial urinary-tract infections in adults.

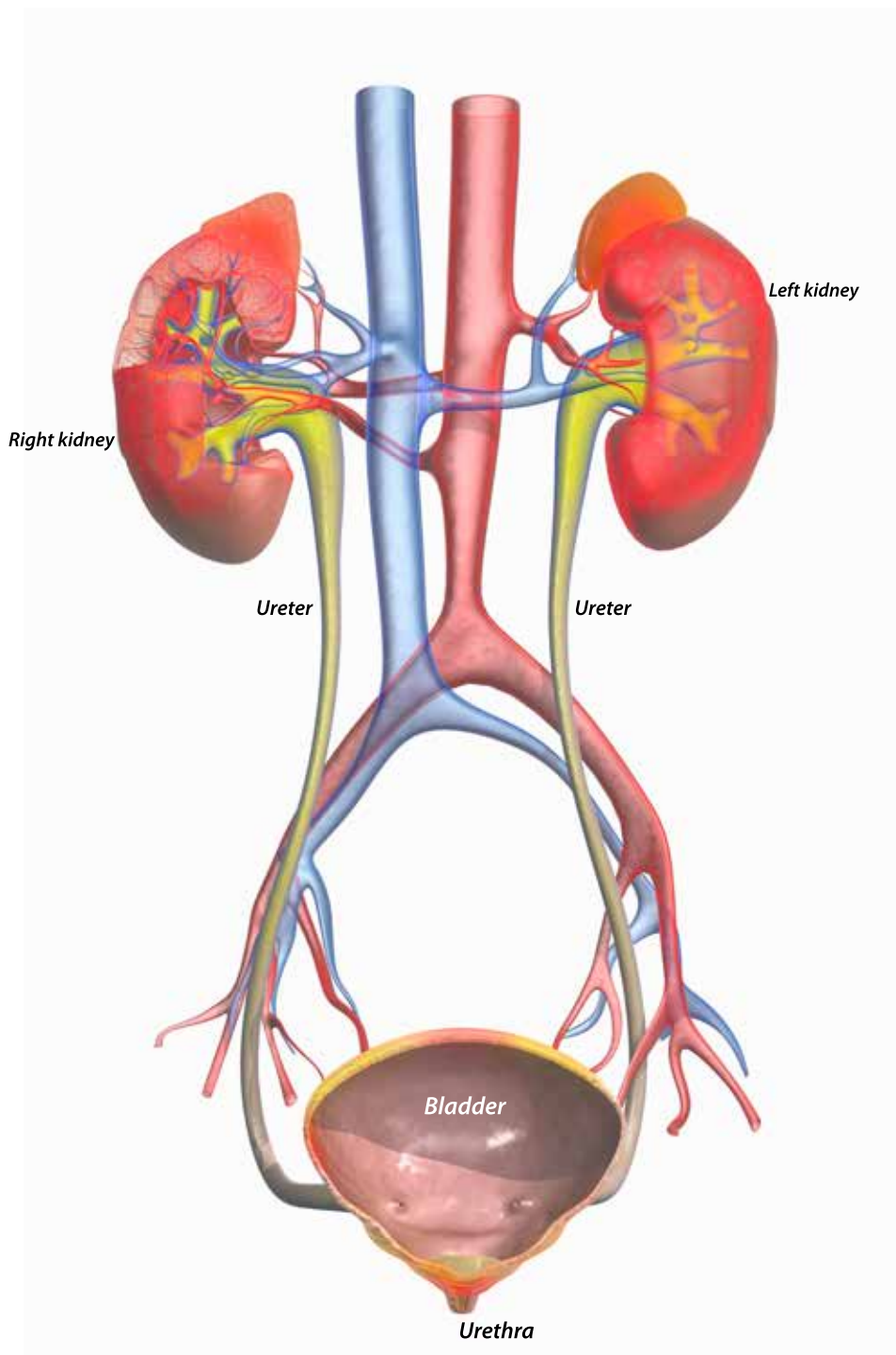
The booklet explains the following.

- ★ What bacterial UTI is.
- ★ How bacterial UTI is diagnosed.
- ★ How bacterial UTI is treated in different groups of people including:
  - ~ women (over 16 years);
  - ~ men (over 16 years);
  - ~ women who are pregnant; and
  - ~ men and women who have urinary catheters.

The booklet also aims to make you aware of the latest advice on using antibiotics.

If you have bacterial UTI, you will be managed individually depending on factors such as your age, sex and the symptoms that you are experiencing. It is important that you get all the information you need. Your health-care professional can help you decide which sections of the booklet would be most helpful for you to read.

On page 21, there is an explanation of all the medical terms we have used.



## *What is a bacterial urinary-tract infection?*

UTIs are common but usually pass within a few days or are easily treated with antibiotics. UTIs are often caused by bacteria that live in our digestive system. Some bacteria lie around your anus (back passage) after you pass faeces (poo). These bacteria sometimes travel to your urethra (see diagram) and into your bladder where they can multiply and cause an infection. Some UTIs are caused by bacteria from other sources.

UTIs are more common in women than in men. This is because, compared with men, their urethra is shorter and opens nearer the anus. When the infection is in your urethra and bladder, this is known as a lower UTI. If the infection travels up your ureter to your kidneys, this is known as an upper UTI. Upper UTIs can be more serious as the infection can travel to your bloodstream and cause permanent damage to your kidneys if not treated quickly.

## What are the symptoms of a urinary-tract infection?

UTIs have a range of symptoms and these are shown in the table below. Your doctor will ask if you are experiencing any of these symptoms to help find out if you have a urinary-tract infection.

Symptoms of lower UTI	Symptoms of upper UTI Similar symptoms as lower UTI but also:
<ul style="list-style-type: none"><li>• Pain or a burning sensation when passing urine</li></ul>	<ul style="list-style-type: none"><li>• a fever (a high temperature of 38°C (100.4°F) or above)</li></ul>
<ul style="list-style-type: none"><li>• A need to pass urine more often than usual</li></ul>	<ul style="list-style-type: none"><li>• uncontrollable shivering</li></ul>
<ul style="list-style-type: none"><li>• A need to pass urine urgently</li></ul>	<ul style="list-style-type: none"><li>• nausea (feeling sick)</li></ul>
<ul style="list-style-type: none"><li>• Pain or tenderness in your lower abdomen (tummy) or back</li></ul>	<ul style="list-style-type: none"><li>• vomiting</li></ul>
<ul style="list-style-type: none"><li>• Blood in your urine</li></ul>	<ul style="list-style-type: none"><li>• diarrhoea</li></ul>
<ul style="list-style-type: none"><li>• Generally feeling unwell</li></ul>	<ul style="list-style-type: none"><li>• headache</li></ul>

In older people (over 65) and people who have urinary catheters, the only symptoms may be becoming confused or feeling generally unwell. Some people may also start to behave differently, for example they may become agitated or confused, or have poor diabetes control or loss of appetite.



## *How is a urinary-tract infection diagnosed?*

A UTI is diagnosed by your symptoms and sometimes also a urine test, not by the look, colour or smell of your urine. Sometimes your symptoms may be enough to confirm that you have a UTI and need treatment with antibiotics. However, if you have symptoms of a UTI, your doctor may ask for a sample of urine. A urine sample may be used for a dipstick test or may be sent for a urine culture test.

Your doctor may carry out a dipstick test to help decide if you have bacteria in your urine and need treatment with antibiotics. A dipstick test is done in your GP surgery by dipping a small plastic strip into your urine sample and comparing its colour against a chart. This is usually done for women under 65 years who are not pregnant.

Your urine sample may be sent to the laboratory for a urine culture test to identify the type of bacteria in your urine. This helps to confirm which antibiotics are suitable for treating the infection. Your doctor will send a sample of urine to the laboratory for a urine culture test if you:

- ★ are male;
- ★ are pregnant;
- ★ have a urinary catheter; or
- ★ are a woman over 65 years.

The results of a urine culture test usually take about 48 hours to be reported back to your doctor from the laboratory. Your doctor may prescribe antibiotics for you to start taking immediately without waiting for the urine culture results. Once the results are available, your doctor should check that the antibiotic is the correct one to treat your infection and may suggest changing to a different one if necessary.

## *How are urinary-tract infections treated?*

### *Antibiotic treatment*

A course of antibiotic treatment will usually clear the infection quickly. Antibiotic treatment will be chosen for you individually depending on the symptoms that you are experiencing. For example, you may have a lower UTI and need treatment with a course of antibiotic tablets or capsules that you can take at home. If you have an upper UTI, you may need to be treated in hospital with antibiotics (given through an intravenous drip).

### *Pain relief*

If you are experiencing pain associated with your UTI, you may use paracetamol or ibuprofen to relieve your pain. If you take other medication, you should ask your pharmacist for advice on which painkiller is suitable.

### *What are the risks and benefits of taking antibiotics?*

Your doctor should discuss with you the risks and benefits of antibiotic treatment.

Antibiotics are important medicines which are used to treat bacterial infections and in some circumstances they can save the lives of people with serious infections such as meningitis and pneumonia. However, we must be careful how we use antibiotics because bacteria can become resistant to them, meaning the antibiotic will no longer be effective in treating infections (antimicrobial resistance). Antimicrobial resistance is a growing problem because antibiotics are often prescribed when they are not needed. Patients who need repeated courses of antibiotics are more likely to develop an infection with resistant bacteria. We can stop antimicrobial resistance by only using antibiotics when necessary by using the right antibiotic for the right length of time when treating bacterial infections.


Antibiotics can also have unwanted effects. You may experience side effects such as:

- ★ upset tummy;
- ★ diarrhoea;
- ★ skin rash; and
- ★ clostridium difficile (c-diff infection).

## How are urinary-tract infections treated in adult women?

### Treating lower UTI

Lower UTI is common in women of all ages. The choice of treatment depends on the number of symptoms that you have.



If you have three or more of the symptoms of urine infection listed on page 6 but are otherwise healthy, you should be given a three-day course of antibiotics. Your doctor will not need to ask you for a urine sample. Trimethoprim or nitrofurantoin are the names of the antibiotics which are usually used. A three-day course is just as effective as a longer course and is less likely to give you unwanted side effects.

If you have one or two symptoms of urine infection and are under 65, your doctor may ask you for a urine sample to carry out a dipstick test. This will help them decide if you have bacteria in your urine and need treatment with antibiotics. We explain the dipstick test on page 7.

If you are over 65, your doctor should base your treatment on your signs and symptoms only and they should not use a dipstick test to check for bacteria. This is because as you get older, you are more likely to have bacteria in your urine but it does not necessarily mean that you have a UTI. It is also common for people with urinary catheters to have bacteria in their urine (see page 15).

It is important that you finish the full course of the antibiotic tablets given to treat your UTI. Even if your symptoms go away, you should continue to take all the tablets. If you still have symptoms after you have finished the treatment, you should go back and see your doctor.

## *Treating recurrent UTI*

Some women suffer from repeated UTI (several infections over the course of one year). Sometimes repeated UTI can be related to sexual intercourse and your doctor can advise you on how to help prevent repeated infections. Antibiotics may be used to prevent recurrent UTI but this may increase the chance of having an infection caused by bacteria which are resistant to some antibiotics. Because of this, any treatment should be limited to six to 12 months. If you suffer from frequent infections, you may be given a trial of antibiotics where you take one every day or after sexual intercourse to reduce the number of infections.

Your doctor may advise you to try taking cranberry products (such as juice, tablets or capsules) to reduce the number of infections. Cranberry products help to prevent bacteria from infecting your bladder.

Cranberry capsules may be more convenient than juice and high-strength capsules may be more effective. Cranberry products are available from pharmacies, health-food shops, herbalists and supermarkets.

Cranberry products can interact with warfarin (anti-clotting medication) and prevent it from working properly. If you take warfarin, your doctor will discuss the risks and benefits of taking cranberry products when on warfarin. If you and your doctor do decide that cranberry products would benefit you, your doctor will monitor your blood more regularly to make sure your warfarin is still working.

## *Treating upper urinary-tract infection*

Upper UTIs are less common. They can also be accompanied by bacteraemia (bacteria in your blood), making it a life-threatening condition as it can lead to septicaemia (blood poisoning). If you show signs of septicaemia, you will be admitted to hospital for treatment. Your doctor may also consider admitting you to hospital if you can't take fluids and medication or if you are pregnant.

If you have an upper UTI which does not need a stay in hospital, your doctor will send a sample of urine to the laboratory for a urine culture test and will prescribe a seven-day or 14-day course of antibiotics to take at home. Ciprofloxacin or co-amoxiclav are the names of the antibiotics which are usually used. If there is no response to the antibiotic, your doctor may consider admitting you to hospital for treatment.

## *How are urinary-tract infections treated in pregnant women?*

UTIs can be harmful to your developing baby, for example, they can cause early labour.

If at any time during your pregnancy you have symptoms of a UTI, your doctor will collect a sample of urine to send to the laboratory for a urine culture test and will prescribe a seven-day course of antibiotics.

At your first antenatal visit, your doctor or midwife will collect a sample of urine to send to the laboratory for a urine culture test. If this test shows you have bacteria in your urine, your doctor or midwife will collect another sample of urine to send to the laboratory for a repeat urine culture test. If this second test also shows you have bacteria in your urine you will be given a seven-day course of antibiotics even if you do not have any symptoms of a UTI.

It is important that you finish the full course of antibiotics by taking all the tablets you have been given. This will make sure the infection has completely cleared up. **The antibiotics used to treat UTIs in pregnant women are safe to take during pregnancy and will not harm your baby.**

Once you have completed your course of antibiotics, your doctor or midwife will want to send another sample of urine to the laboratory for another urine culture test. This is to make sure that your urine infection has completely cleared up.

If your midwife or doctor thinks that it is necessary, they may repeat a urine culture test at each antenatal visit until your baby is born



## *How are urinary-tract infections treated in adult men?*

UTIs are less common in men than in women. If you have symptoms of a UTI, your doctor should ask you for a sample of urine to send for a urine culture test.

Your doctor may give you a seven-day course of antibiotics (trimethoprim or nitrofurantoin) to start immediately rather than waiting for the test result. It is important that you complete the full course of antibiotics.

Even if your symptoms disappear sooner, you should still take all the tablets you have been given.

Sometimes in men, a UTI can happen as a result of an infection within the prostate rather than in the bladder.

If you have symptoms of pain or fever (or both), your doctor may suggest a four-week course of antibiotics to make sure that any infection within the prostate is treated effectively. The antibiotics usually used are ciprofloxacin, ofloxacin or trimethoprim.

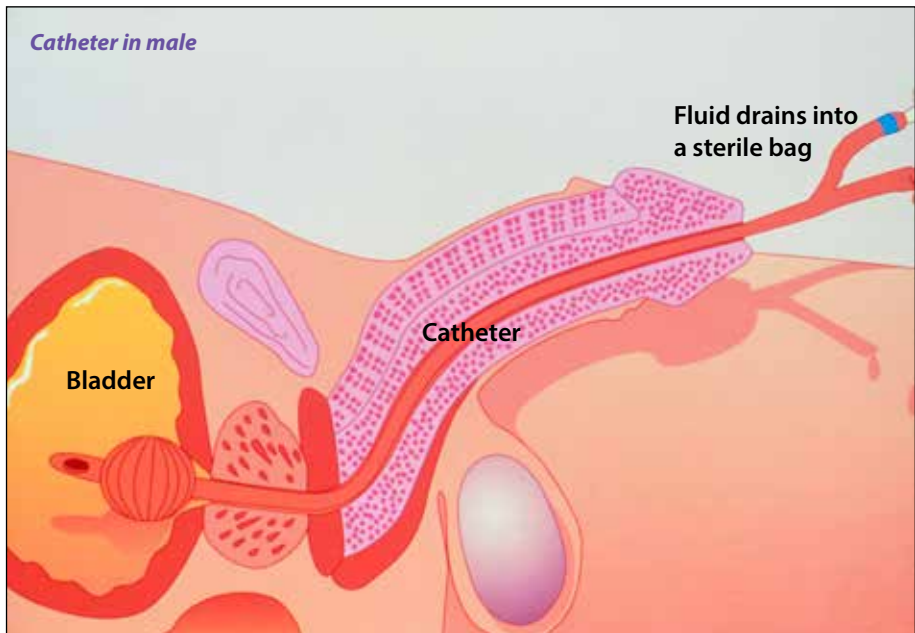
If you suffer from repeated UTI, this may suggest an infection within the prostate which is not responding to the antibiotics and your doctor should refer you to a hospital specialist for investigation.





## *How will a urinary-tract infection be treated if I have a catheter?*

Some men and women need to have a urinary catheter to drain and collect urine from their bladder. Having a catheter in your urinary tract increases your chances of getting a UTI. The catheter can let bacteria enter your body and cause infection in your urethra, bladder or kidneys. It is normal for people with catheters to have bacteria in their urine but you will not necessarily have symptoms of a UTI and it does not mean that you have an infection.



Due to the risks of becoming resistant to antibiotics and side effects, your doctor will not give you antibiotics if you don't have symptoms of a UTI even though you may have bacteria in your urine. You can read more about this on page 16.

## *Symptoms of UTI in patients with catheters*

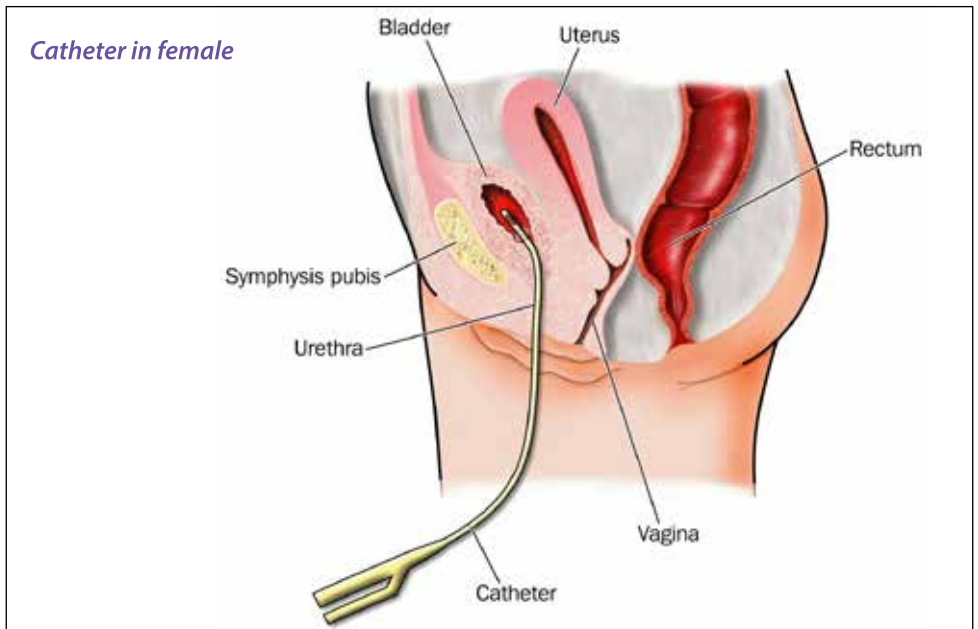
You may have some or all of the following symptoms.

- ★ Tenderness in your lower back around your kidney area
- ★ Shivering and chills
- ★ Starting to feel confused or increased confusion
- ★ Repeated episodes of fever
- ★ Change in behaviour

If you become unwell, with severe symptoms, you may be admitted to hospital for treatment.

## *Antibiotic treatment*

If you have symptoms of a UTI, your doctor should send a sample of your urine to the laboratory for a urine culture test. Your doctor should start treating you before the test results are back to help clear up the infection sooner. The urine culture test will show the type of bacteria in your urine. Your doctor may need to change your treatment depending on the results.



If you are a woman under 65 years old and you have a catheter, your doctor may give you a three-day course of antibiotics to clear your infection. If you are over 65 (male or female) and you have a catheter, you should be given a seven-day course of antibiotics.

If you have a long-term catheter (inserted for several weeks or months), it should be changed before starting antibiotic treatment. This increases the chance of the infection clearing sooner and reduces the chances of it returning. If you still have symptoms after treatment with antibiotics, you should go back and see your doctor, as the bacteria causing your infection may be resistant to the antibiotic you were given.

If you suffer from repeated UTIs, you may be given a single dose of antibiotics (not a full course) each time your catheter is changed.

## *Where can I find out more information?*

We hope you have found this booklet helpful. If you need more information, we have listed some national organisations that can offer information and support.

### **Age Scotland Helpline**

Phone: Silver Line Scotland 0800 4 70 80 90

Website: [www.ageuk.org.uk/scotland/](http://www.ageuk.org.uk/scotland/)

### **Association for Continence Advice – for professionals**

Phone: 01506 811077

Website: [www.aca.uk.com/](http://www.aca.uk.com/)

### **Bladder and bowel foundation**

Phone: 0845 345 0165

Website: [www.bladderandbowelfoundation.org/](http://www.bladderandbowelfoundation.org/)

The foundation provide information and support to adults over 18 years who experience bladder and bowel problems.

### **Bladder Pain Syndrome Association**

Phone: 020 8310 8729

Website: [www.self-help.org.uk/directory/incontinence/?entryid54=30294](http://www.self-help.org.uk/directory/incontinence/?entryid54=30294)

The association provide information and support to sufferers of bladder-pain syndromes (including interstitial cystitis and other related disorders and syndromes).

### **Continence Foundation**

email: [info@continence-foundation.org.uk](mailto:info@continence-foundation.org.uk)

The foundation offer expert advice to people with bladder and bowel problems, their carers and professionals in the field. The nurses who run the helpline also have details of all incontinence advice services and of all products on the UK market.

## **Cystitis and Overactive Bladder Foundation**

Phone: 0121 702 0820

Website: [www.cobfoundation.org](http://www.cobfoundation.org)

The foundation provide information, leaflets and support to people with all forms of lower urinary-tract infection and overactive bladders.

**Family Planning Association** (England and Northern Ireland helpline only but information contained on website [www.fpa.org.uk/](http://www.fpa.org.uk/))

## **National Childbirth Trust**

Phone: 0300 330 0770

Website: [www.nctpregnancyandbabycare.com/contact-us](http://www.nctpregnancyandbabycare.com/contact-us)

The phone line is available from 9am to 5pm, Monday to Friday.

## **National Kidney Federation**

Phone: 0845 601 02 09

Website: [www.kidney.org.uk/](http://www.kidney.org.uk/)

A charity run by kidney patients for kidney patients. They provide patient support services to patients and their families.

## **NHS 24**

Phone: 111 • Textphone: 18001 111

Website: [www.nhs24.com](http://www.nhs24.com)

NHS 24 is a nurse-led helpline providing confidential health-care advice and information.

## **NHS Inform**

Website: [www.nhsinform.co.uk/](http://www.nhsinform.co.uk/)

The organisation provide quality-assured health information for the public.

## **Urostomy Association**

Phone: 01889 563191

Website: [www.urostomyassociation.org.uk/home.php](http://www.urostomyassociation.org.uk/home.php)

## *List of useful terms*

**Antibiotics** - a group of medicines used to treat infections caused by bacteria.

**Antimicrobial resistance** - when bacteria become resistant to antibiotics so the antibiotics are no longer effective in treating infections.

**Bladder** - an organ that stores urine.

**Catheter** - a thin tube used to drain and collect urine from the bladder. It can be inserted into your body via your urethra or through a hole in your abdomen (tummy) (supra-pubic catheter).

**Clostridium difficile (c-diff)** - a harmless bacteria that lives in your intestine. When certain antibiotics disturb the balance of bacteria in the intestine, clostridium difficile can multiply rapidly and produce toxins which cause diarrhoea and sometimes more severe illness.

**Dipstick test** - a test to help doctors decide if you have bacteria in your urine that needs to be treated with an antibiotic. A dipstick test is done by dipping a small plastic strip into your urine sample, taking it out again and comparing its colour against a chart.

**Intravenous drip** - a tube placed directly into a blood vessel. It is used for giving you fluids, antibiotics or other medicines.

**Prostate** - a small gland in men. It is between the penis and the bladder and it surrounds the urethra.

**Toxin** - a poison.

**Ureter** - a tube which carries urine from your kidneys to your bladder.

**Urethra** - a tube from your bladder that passes out urine.

**Urine culture test** - a test carried out in the laboratory to find out if you have bacteria in your urine and to identify the type of bacteria. This helps to confirm which antibiotics are suitable for treating it.



[www.healthcareimprovementscotland.org](http://www.healthcareimprovementscotland.org)

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The Healthcare Environment Inspectorate, the Scottish Health Council, the Scottish Health Technologies Group, the Scottish Intercollegiate Guidelines Network (SIGN) and the Scottish Medicines Consortium are key components of our organisation.

