

What are urinary tract infections?

The urinary tract consists of the kidneys, the [ureters](#) which drains urine and the bladder. This is usually a clean, bacteria free area of the body. If bacteria or germs get in from the outside it can lead to an infection. A urinary tract infection can affect the bladder alone or may reach the kidneys. If the infection is in the kidneys people are usually more unwell, with a fever and back pain. This is often called [pyelonephritis](#).

How can I tell if my child has a urinary tract infection?

The symptoms of urinary tract infections may include pain, a burning feeling when passing urine, passing small amounts of urine more frequently, smelly or cloudy urine, and pain over the bladder or round the back and fever. Small children may appear more irritable, not feed well or have diarrhoea and vomiting. Older children who have previously been dry may start to wet again.

If this happens your child needs a urine check. A simple, quick urine test (dipstick) can check for white cells and red cells. These cells show that the urinary tract is irritated but does not prove that there is an infection. This is best done by a urine culture which grows bacteria and checks which antibiotics are best to treat it.

Urine samples need to be collected in a clean way to make sure that the germs that live on the skin don't get into the urine sample. The best way to do this is by a clean catch, or sometimes a catheter specimen. Bag specimens can appear to be easier to collect but they can easily become contaminated with bugs from the skin, leading to confusion as to whether there was infection there or not and so we do not recommend them.

Why do they happen?

For a urine infection to happen germs have to get from the outside of the body into the urinary tract. This can happen in several different ways. A lot of germs live around a child's [perineum](#) and it is very easy for infections to occur – that is why urine infections are one of the most common infections in childhood.

One way to get an infection is if the skin around the bottom is irritated, like nappy rash. This might be called [vulvovaginitis](#) in girls or [balanitis](#) in boys. Some children are more prone to constipation and get infections. Some children have structural abnormalities of their urinary tract that can make them more prone to infection.

One of the most common causes of infection is dysfunctional voiding. [Dysfunctional voiding](#) means that the child's bladder doesn't empty properly and there is often urine left in the bladder. This can lead to urine infections as the germs like to grow in the urine that is left behind. Other problems associated with dysfunctional voiding include wetting. Children with dysfunctional voiding may "hold on" to go to the toilet and have to run to get there in time. It is a common problem in childhood but most children gain control over their bladder with time and training.

What is the treatment for urine infections?

Most infections will be cured with an oral antibiotic treatment. In young babies, or in very sick children they might need to come into hospital to have the medicine.

How do I prevent further infections?

Making sure that your child drinks well and goes to the toilet regularly is important. This can help to wash away any germs that have got into the bladder, before they lead to infection. Children should go to the toilet every 2-3 hours, and you may be asked to remind them to go. To completely empty the bladder it can help to stay on the toilet and go again a few minutes later. Controlling constipation can also help. If your child gets rashes around their bottom then using a barrier cream (like one for nappy rash) can also help as it is less sore for them to empty their bladder. Making sure that they wipe their bottom properly is important too.

What investigations might my child have?

The investigations depend on how old the child is, how many infections they are getting and how severe the infections are. Many children, (if they are older and the infection was not too severe), just need an [ultrasound scan](#). This will look at the kidneys, ureters and bladder. They can also look to see if older children empty their bladder fully.

If your child is very young or if there were abnormalities seen on the ultrasound scan they need more detailed scans. These can include one called an [MCU](#) in which a catheter is put into the bladder and x-rays are taken of the outline of the bladder and ureters to look for blockages or reflux. Other types of scans include [nuclear medicines scans](#) which look for signs of damaged kidneys or kidneys that aren't draining properly. Once your child is old enough they can have the test to look for reflux by nuclear medicine scan rather than an MCU.

What does this mean long term for my child?

Most children have no long term problems from having had infections. Some children who have recurrent infections or bladder problems may be sent to see a Paediatrician (doctor who looks after children at the hospital) or a Urologist (a surgeon who specialises in problems of the urinary tract).

In most children the tendency for urine infections gets better as they get better bladder control. Some children are helped by long term antibiotics or other medications to stabilise the bladder. A small number of children with reflux may require surgery. This doesn't prevent infections in itself but can make them less severe as the infection is less likely to reach the kidneys.

Sometimes abnormal kidneys are found when investigations are done for urinary tract infections. Sometimes the abnormalities are seen for the first time after [pyelonephritis](#) but often the kidneys were originally formed this way, and it does not mean that your child has had missed or silent infections. If children are found to have abnormal ([dysplastic kidneys](#)) then they will need to have regular checks of their blood pressure and their urine for protein. It is especially important for girls to know about any kidney abnormalities as they need to tell their GP or midwife about this should they get pregnant later in life.

Glossary

◀ **Balanitis**

An inflammation of the head and foreskin of the penis.

◀ **Dysplastic kidneys**

Malformed or “scarred” kidneys.

◀ **Dysfunctional voiding**

Bladder dysfunction, also known as voiding dysfunction, is an abnormality of the filling or emptying of the bladder.

It may be caused by inappropriate muscular activity in the muscles of the bladder wall, the muscles that control the starting or stoppage of the flow of urine out of the body (sphincters), or the muscles of the pelvic floor. Neurological impairment and certain medications can also contribute to bladder dysfunction.

◀ **MCU** (micturating cystourethrogram)

An X-ray test to examine the bladder and urethra during the voiding of water-soluble contrast material that has been previously inserted into the bladder. It demonstrates disorders of micturition and can detect vesicoureteric reflux (VUR).

◀ **Nuclear medicine scan**

To perform a nuclear medicine scan, a radioactive pharmaceutical is first administered to the patient, usually intravenously. Depending on the type of scan, the pictures may be taken immediately and/or after a period of time during which the pharmaceutical localises in the target organ/system.

◀ **Pyelonephritis**

An infection of one or both kidneys.

◀ **Perineum**

The area between the anus and the scrotum in the male and between the anus and the vulva (the labial opening to the vagina) in the female.

◀ **Ultrasound scan**

An ultrasound scan is a painless test that uses sound waves to create images of organs and structures inside your body. It is a very commonly used test. As it uses sound waves and not radiation, it is thought to be harmless.”

◀ **Ureters**

Muscular tubes that propel urine from the kidneys to the urinary bladder.

◀ **Vesicoureteric reflux or reflux**

Vesicoureteric (or vesicoureteral) reflux (VUR) refers to a condition in which urine flows from the bladder, back up the ureter, and back into the kidneys.

◀ **Vulvovaginitis**

Inflammation of the vagina and vulva most often caused by a bacterial, fungal, or parasitic infection.

