

# Urinary tract infection (UTI) and dementia

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Urinary tract infection (UTI) is a type of infection which is common among older people. Women are more commonly affected than men. If a person with a memory impairment or dementia has a urinary tract infection, this can cause severe confusion known as 'delirium'. This factsheet explains the different types of UTI, the symptoms and treatments, and gives tips on how it may be prevented.

## What is a urinary tract infection?

A urinary tract infection (UTI) is usually caused when bacteria enter the urinary tract via the urethra. The bacteria can then move upwards through the urinary tract, infecting the bladder (a condition known as cystitis) and sometimes the kidneys (a condition called pyelonephritis).

Around half of women will need treatment for at least one UTI during their lifetime. If treated with the right antibiotics, UTIs normally cause no further problems and the infection soon passes. Though complications are uncommon they can be serious and include kidney damage and blood poisoning, which can be fatal.

## Urinary tract infection and dementia

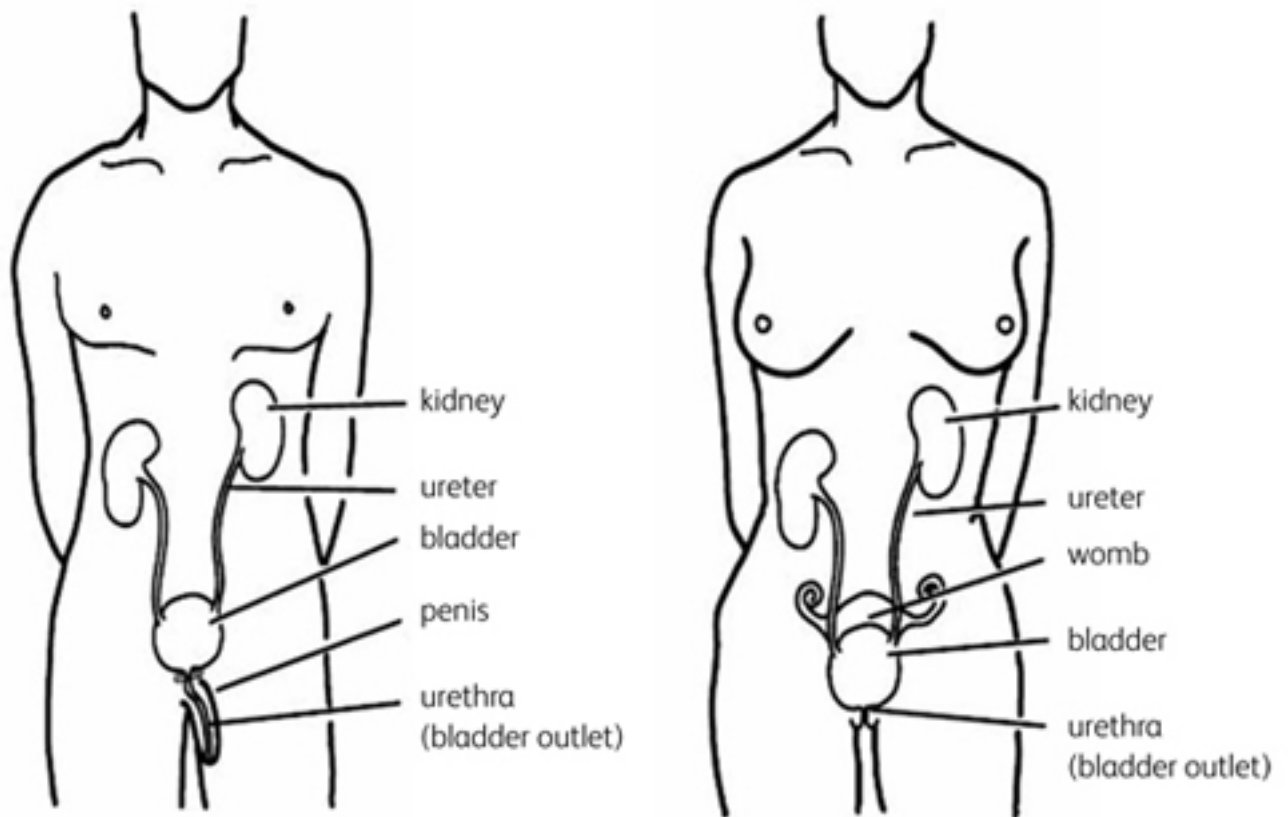
UTI can cause confusion in older people and people with [dementia](#). If the person has a sudden and unexplained change in their behaviour such as increased confusion, agitation, or withdrawal, this may be caused by a UTI.

The person may not be able to communicate how they feel, therefore it is very important to be familiar with the symptoms of UTI and seek medical help to enable appropriate treatment.

It is also important to be aware that any infection could speed up the [progression of dementia](#) and so all infections should be quickly identified and treated.

## The urinary tract

## Diagram showing the urinary tract in men and women



Source: The Bladder and Bowel Foundation

The urinary tract is made up of two kidneys and their ureters (tubes linking the kidneys with the bladder), the bladder and the urethra. The kidneys are bean-shaped organs that filter waste products from blood and convert them into urine. The ureters are hollow tubes that transport urine from the kidneys to the bladder. The bladder is a muscular sac that has two functions: to store urine and to

pass urine from the body. The urethra is the tube from the bladder that allows the passing of urine. It is much shorter in females than males.

## What can cause urinary tract infection?

Urine is normally sterile (does not contain bacteria) although in older men and women it is common to have bacteria in the urine (known as bacteriuria). It is particularly common for older people living in [care homes](#) or using a urinary catheter (a tube used to draw off urine) to have bacteria in their urine because their flow of urine is weaker and they are less likely to empty their bladder fully. This does not usually need treating unless the person starts to show symptoms of UTI (see 'Types of UTI'), when prompt treatment with antibiotics is important.

It is more common for women to get UTI because the urethral opening is close to the vagina and anus, therefore bacteria can enter the urethral opening to the bladder more easily. Poor hygiene and wiping 'back to front' (rather than front to back) after going to the toilet can enable bacteria from the bowel and vagina to enter the urethra. Sexual intercourse can also trigger UTI in some women.

Urinary tract disorders such as an enlarged prostate in men or a prolapse in women (where the uterus, bladder or bowel descends from the normal position due to a weakness of the supporting structures) may cause bladder emptying problems that may contribute to UTI.

Urinary catheters are a common cause of UTI and must be avoided whenever possible. Urinary tract infection is the most common [hospital](#) acquired infection in the UK, accounting for 23 per cent of all infections, and the majority of these are associated with catheters. About half of patients using a catheter for longer than 7-10 days will have bacteria in their urine. Therefore catheters should only be used for [incontinence](#) as a last resort when all other options have been explored. (See also 'Catheter-related UTI' below.)

Individuals with a weak immune system, for example people with diabetes or people being treated for cancer with chemotherapy, are more susceptible to urinary tract infection.

## Obtaining samples of urine to test for a UTI

If a sample of urine is required to do a routine dip test or to be sent to the laboratory for testing, this should preferably be taken in the morning, the first time urine is passed that day. Obtaining a sample of urine from a person with dementia can be difficult, and the relative or carer closest to them will probably be the best person to assist with this.

If the person is incontinent and wears incontinence pads, a urine collection pack can be used to draw a sample of urine from the pad. These are usually made up of two urine collection pads, a 5ml syringe and a urine specimen container. Contact your local continence service for advice on how to obtain these. The Bladder and Bowel Foundation can help you to find your local continence service (see 'Useful organisations').

## Types of UTI and how they are treated

## Lower urinary tract infection

This is when the infection is only of the urethra and/or bladder, and is also known as cystitis. A diagnosis can be made using a simple urine dip test.

In women, a lower urinary tract infection is sometimes referred to as 'simple' or 'uncomplicated' UTI.

The symptoms of a lower urinary tract infection include:

- pain, or a burning sensation when passing urine (called dysuria)
- the feeling of not being able to urinate fully
- cloudy, bloody or bad-smelling urine
- lower abdominal pain
- mild fever (a high temperature between 37-38°C or 98.6-101.0°F)
- delirium/acute confusion.

### Treatment

Lower UTI is usually treated with a three-day course of antibiotic drugs. Over-the-counter pain relief, such as paracetamol, may also be taken to relieve associated discomfort.

If the infection is not responding to treatment, a urine sample may be taken and sent to a laboratory to identify which bacteria are present. This is called a urine culture.

Lower UTI in men may require further investigation by a urologist. This might include an ultrasound scan of the kidneys and bladder, a rectal examination to assess the prostate gland, blood tests or a cystoscopy to look inside the lower urinary tract with a camera. In some cases, the underlying cause may be due to prostate disease or other urological conditions such as a bladder stone or tumour.

## Upper urinary tract infection

This is when the kidneys and ureters are infected (in addition to the urethra and/or bladder), and is a more serious condition than a lower UTI as it can result in kidney damage if not treated. Upper UTI can be accompanied by bacteria in the blood (bacteraemia), and can be life-threatening if left untreated.

The symptoms of upper UTI may include those of lower UTI (see above), as well as:

- high fever (a high temperature over 38°C or 101.0°F)
- nausea or vomiting
- rigors (shaking or chills)
- loin pain (may only be on one side)
- flank tenderness (on the side of the body between the ribs and hip).

### Treatment

Treatment for people with upper UTI usually includes antibiotic drugs and a urine test may be carried out to decide on a further course of antibiotics.

Men are usually referred to a urologist for investigations if they have symptoms of upper urinary tract infection.

## **Recurrent UTI**

If a person has more than two episodes of urinary tract infection in three months, this is described as recurrent.

### **Treatment**

Referral to a urologist for further investigations is recommended. Sometimes recurrent urinary tract infections are managed with low-dose, long-term antibiotics.

## **Catheter-related UTI**

Urinary catheters that stay in the bladder (known as an 'indwelling' catheter) are a major cause of UTI and should be avoided wherever possible. Even with the most careful hygiene, individuals with an indwelling catheter are very likely to develop bacteria in the urine at some point. Intermittent catheterisation, where a catheter is inserted to drain the urine once or several times a day and then removed, carries less risk of infection. However, repeated catheterisation is likely to be extremely distressing for people who have difficulty with understanding, so must be avoided where possible.

It may be necessary for a person to have a urinary catheter after surgery, for example, but the catheter should be removed as soon as possible so that they can regain their usual bladder function and minimise the risk of infection. The longer an indwelling catheter is in place, the higher the risk of infection.

### **Treatment**

If people using a catheter have a fever, associated loin (kidney) or bladder (suprapubic) pain, then a urine sample may be sent to the laboratory for a test to determine the type of bacteria involved.

These people may be started immediately on a course of antibiotics depending on the severity of the symptoms.

## **Delirium**

UTIs can cause a significant and distressing change in someone's behaviour which is commonly referred to as 'acute confusional state' or 'delirium'. Delirium is described as a change in someone's mental state or consciousness and usually develops over one or two days. There are different types of delirium and symptoms may include agitation or restlessness, increased difficulty with concentrating, hallucinations or delusions, or becoming unusually sleepy or withdrawn.

It is important that families and friends who know the person well seek medical help if they see a sudden change in behaviour, to ensure that an assessment takes place. If the delirium is due to UTI, treatment with an appropriate course of antibiotics may help to alleviate the symptoms.

It is important that if someone is very distressed or agitated they are offered support and reassurance to keep them safe. In some cases, a short-term treatment with antipsychotic drugs may be considered if non-drug approaches have been unsuccessful. For more information, see factsheet 408, [Drugs used to relieve behavioural and psychological symptoms in dementia](#).

## Tips to prevent UTI

The following tips can help to reduce or prevent the onset of UTI.

- It is recommended that adults should drink between six and eight glasses of fluid a day. Encourage the person with dementia to drink by finding out their preferences and making drinks readily available and visible. Using a brightly coloured glass or cup can help with this. It is important to monitor fluid intake for people who are less mobile and at risk of dehydration. If someone is not drinking enough and/or has difficulty with swallowing, consider asking for an assessment by a speech and language therapist.
- Do not hold urine in the bladder for too long. People with dementia should be prompted to use the toilet on a regular basis. Make sure the location of the toilet is clear. A sign on the door, with a picture, may help. Consider changing the colour of the toilet seat - a black or red seat and a white pan can make it easier to see.
- Empty the bladder following sexual intercourse.
- Try to avoid constipation as this can prevent the bladder from emptying properly, which in turn can cause UTI. Eating foods high in fibre, drinking plenty of liquids and exercising can help to prevent constipation.
- Maintain good hygiene - wash the genitals at least once a day using unperfumed soap and do not use talcum powder.
- Women should wipe 'front to back' after using the toilet. The availability of easily accessible wet wipes in the bathroom may help to promote good hygiene.
- When a urinary catheter is being used, follow good infection prevention measures as advised by your healthcare professional.
- There is some evidence to demonstrate that drinking cranberry juice or taking cranberry capsules can help to prevent the recurrence of urinary tract infections, but further research is needed to prove this. It is advisable to check that there are no potential interactions with cranberries and any medication being taken, eg Warfarin.

For details of Alzheimer's Society services in your area, visit [alzheimers.org.uk/localinfo](https://www.alzheimers.org.uk/localinfo)

For information about a wide range of dementia-related topics, visit [alzheimers.org.uk/factsheets](https://www.alzheimers.org.uk/factsheets)

## Useful organisations

### Bladder and Bowel Foundation

SATRA Innovation Park  
Rockingham Road  
Kettering  
Northants NN16 9JH  
T 0845 345 0165 (helpline)  
01536 533255 (general enquiries)  
E [info@bladderandbowelfoundation.org](mailto:info@bladderandbowelfoundation.org)  
W [www.bladderandbowelfoundation.org](https://www.bladderandbowelfoundation.org)

Charity providing help, information and support for all types of bladder and bowel related problems.

### Factsheet 528

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Alzheimer's Society National Dementia Helpline

England, Wales and Northern Ireland: 0300 222 11 22

9.00am-5.00pm Monday-Friday

10.00am-4.00pm Saturday-Sunday

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