

# Urinary tract infections (UTIs) and dementia

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

## What is a urinary tract infection?

A urinary tract infection is usually caused by bacteria entering the urinary tract via the urethra – the tube that allows the passage of urine from the bladder to outside the body. The bacteria can then move upwards through the urinary tract, infecting the bladder (a condition known as cystitis) and sometimes the kidneys (a condition known as 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 infections and dementia

UTIs can cause sudden confusion (also known as delirium) in older people and people with dementia. If the person has a sudden and

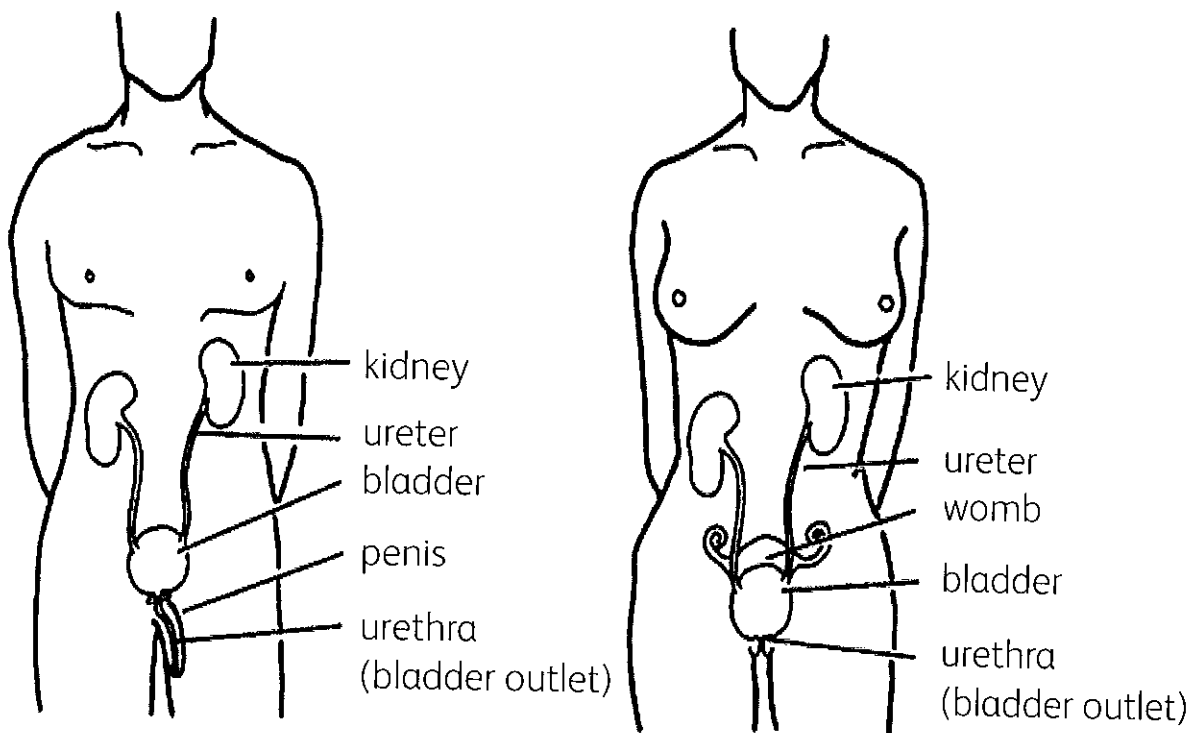
unexplained change in their behaviour, such as increased confusion, agitation, or withdrawal, this may be because of a UTI.

The person may not be able to communicate how they feel, therefore it is helpful to be familiar with the symptoms of UTIs and seek medical help to ensure they get the correct treatment.

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

## The urinary tract

Diagram shows 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 the 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 women than in men.

## **What can cause a urinary tract infection?**

Urine is normally sterile (does not contain bacteria), although in older people it is common to have bacteria in the urine (known as bacteriuria). This is because the flow of their urine is weaker and they are less likely to empty their bladder fully. Using a catheter (a tube placed into the bladder that empties urine into a bag) almost always results in bacteria being present in the urine. This does not usually need treating unless the person starts to show symptoms of a UTI (see 'Types of UTI and how they are treated' below), when prompt treatment with antibiotics is important.

It is more common for women to get UTIs because the urethral opening is close to the vagina and anus. 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 urethral opening to the bladder more easily. Sexual intercourse (and to a lesser extent other sexual activity) can also lead to UTIs in some people, though the risk is much greater for women.

As dementia progresses, it may be harder to maintain personal hygiene (eg washing regularly, changing clothes). This may increase the risk of developing a UTI.

Abnormal changes in the structure of the urinary tract can lead to bladder emptying problems that may contribute to a UTI. These include 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).

Urinary catheters are a common cause of UTIs and must be avoided whenever possible. Urinary tract infections are the most common hospital-acquired infection in the UK. They account for a quarter of all hospital-acquired infections, and the majority of these are

associated with catheters. Therefore, catheters should only be used for incontinence when all other options have been explored (see also 'Catheter-related UTIs' below).

Individuals with a weak immune system, for example people with diabetes or those being treated for cancer with chemotherapy, are at greater risk of getting a urinary tract infection.

## **Obtaining samples of urine to test for a UTI**

If a urine sample is required, either 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 urine samples 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 GP or local NHS continence service for advice on how to obtain these. The Bladder and Bowel Foundation and PromoCon can both help you to find your local continence service (see 'Other useful organisations').

## **Types of UTI and how they are treated**

### **Lower urinary tract infection**

This is when only the urethra and/or bladder is infected. A diagnosis of lower urinary tract infection can be made using a simple urine dip test.

The symptoms of a lower urinary tract infection include at least one of the following:

- pain, or a burning sensation when passing urine (called dysuria)
- the need to pass urine immediately (called urgency)

- the feeling of not being able to urinate fully
- cloudy, bloody or bad-smelling urine
- lower abdominal pain
- urinary incontinence – the involuntary leakage of urine
- mild fever (a high temperature between 37–38°C or 98.6–101.0°F)
- delirium/acute confusion (sudden onset confusion developing within one to two days) – this is more common in the elderly.

## **Treatment**

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

A urine sample should be taken and sent to a laboratory to identify which bacteria are present. This is called a urine culture. A doctor may request a urine culture for a number of reasons:

- if a person has had two or more UTIs in the past three months
- if there are traces of either blood, white blood cells (immune cells produced in response to infection) or nitrites (a substance produced by bacteria) in the urine when the dip test is performed
- if a person has any abnormalities of the urinary tract (eg problems with bladder function).

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

## Upper urinary tract infections

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

The symptoms of an upper UTI may include those of a 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 UTIs usually includes a 7- or 14-day course of antibiotic drugs. For serious upper UTIs, people will need to go to a hospital for further testing and antibiotics that are given intravenously (directly into the veins, via a needle attached to a drip).

Men are usually referred to a urologist for investigations if they have symptoms of an upper UTI.

### Catheter-related UTIs

Urinary catheters that stay in the bladder (known as 'indwelling' catheters) are a major cause of UTIs and should be avoided wherever possible. Even with the most careful hygiene, people using 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 with dementia who are unaware or have difficulty understanding the procedure, so must be avoided where possible.

It may be necessary for a person to use an indwelling urinary catheter after surgery, for example, but the catheter should be removed as soon as possible so the person can regain their usual bladder function. This will 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, or other symptoms of a UTI, then a urine sample ought to be sent to the laboratory for a test to determine the type of bacteria involved.

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

## **Recurrent UTIs**

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.

## **Delirium**

UTIs can cause a significant and distressing change in someone's behaviour that is commonly referred to as 'acute confusional state' or 'delirium'. Delirium is a change in someone's mental state and usually develops over one or two days. There are different types of delirium and symptoms may include agitation or restlessness, increased

difficulty concentrating, hallucinations or delusions, or becoming unusually sleepy or withdrawn. Symptoms of delirium vary in severity (fluctuate) over the course of the day.

It is important that family 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 a UTI, treatment with an appropriate course of antibiotics may help to lessen the symptoms of confusion.

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 UTIs

The following tips can help to reduce the risk of a UTI.

- Adults should drink between six and eight glasses of fluid a day and drink alcohol only in moderation. 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.
- 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. Dehydration may cause the person to pass darker, more concentrated urine which may also cause pain on urination.
- 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 with a white pan can make it easier to see.



- Empty the bladder following sexual intercourse.
- If you are a woman using a diaphragm, consider an alternative form of contraception. Diaphragms may obstruct full emptying of the bladder.
- If you are man using a condom, consider using condoms without a spermicidal lubricant.
- Try to avoid becoming constipated as this can prevent the bladder from emptying properly, which in turn can cause a 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 – your healthcare professional will be able to advise.

## **Other useful organisations**

### **Bladder and Bowel Foundation**

SATRA Innovation Park  
 Rockingham Road  
 Kettering  
 Northamptonshire NN16 9JH

T 0845 345 0165 (helpline)  
 01536 533255 (general enquiries)  
 E [info@bladderandbowelfoundation.org](mailto:info@bladderandbowelfoundation.org)  
 W [www.bladderandbowelfoundation.org](http://www.bladderandbowelfoundation.org)

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

## PromoCon

Disabled Living  
Burrows House  
10 Priestly Road  
Wardley Industrial Estate  
Worsley  
Manchester M28 2LY

T 0161 607 8219 (helpline)  
E [promocon@disabledliving.co.uk](mailto:promocon@disabledliving.co.uk)  
W [www.disabledliving.co.uk](http://www.disabledliving.co.uk)

Charity providing practical advice and product information for those with bladder and bowel problems.

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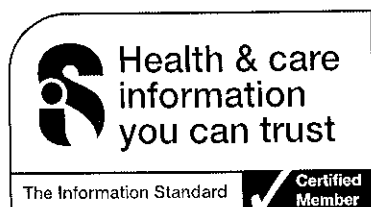
Factsheet 528LP

Last reviewed: April 2015

Next review due: April 2018

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This factsheet has also been reviewed  
by people affected by dementia. A list of  
sources is available on request.



Alzheimer's Society National  
Dementia Helpline

England, Wales and Northern Ireland:  
**0300 222 1122**

9am–8pm Monday–Wednesday

9am–5pm Thursday–Friday

10am–4pm Saturday–Sunday

**alzheimers.org.uk**

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leading support and research charity  
for people with dementia, their  
families and carers.

**Alzheimer's  
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Leading the  
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