

# Identifying and treating chronic kidney disease (CKD)

Information for the public

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## About this information

NICE guidelines provide advice on the care and support that should be offered to people who use health and care services.

This information explains the advice about chronic kidney disease that is set out in NICE guideline 182.

This is an update of advice on chronic kidney disease that NICE produced in 2008.

### *Does this information apply to me?*

Yes, if you are an adult (18 years or older) with or at risk of developing chronic kidney disease (people at risk include those with diabetes, high blood pressure or heart disease, and people recovering after a sudden loss of kidney function called acute kidney injury).

This information may also be useful if you are a family member or carer of a person who has or may have chronic kidney disease.

It does not cover:

- care for people receiving kidney dialysis or who have had a kidney transplant

- treatment of acute kidney injury
- children and young people under 18 years
- pregnant women with chronic kidney disease.

## Chronic kidney disease

The term chronic kidney disease (often shortened to CKD) is used to describe long-term kidney problems that occur either when the kidneys don't work as well as normal or when the kidneys are damaged. Kidney disease is called chronic when the problem is present for longer than 3 months. Chronic kidney disease is common, especially in older people, and people often have the condition without knowing it. Many people have no symptoms and some people may not need any treatment.

People with chronic kidney disease often have other conditions such as diabetes, heart disease and high blood pressure. Kidney disease can get worse over months and years (called progressive disease) in some people, but treatment can often stop or delay this and can help to prevent other conditions developing. Some people may go on to develop kidney failure, but most people with chronic kidney disease will not need to have kidney dialysis or a kidney transplant.

## Your care team

A range of professionals who specialise in different areas of treatment or support may be involved in your care. These should include your GP and, depending on your circumstances, may include hospital doctors (including kidney specialists) and specialist nurses.

## *Working with you*

Your care team should talk with you about chronic kidney disease. They should explain any tests, treatments or support you should be offered so that you can decide together what is best for you. Your family or carer can be involved in helping to make decisions, but only if you agree. There is a [list of questions](#) you can use to help you talk with your care team.

You may also like to read NICE's information for the public on [Patient experience in adult NHS services](#). This sets out what adults should be able to expect when they use the NHS. We also have more information on the NICE website about [using health and social care services](#).

Some treatments or care described here may not be suitable for you. If you think that your treatment does not match this advice, talk to your care team.

## Identification

### *Tests for chronic kidney disease*

Blood and urine tests are used to find out if you have kidney problems.

A blood test is used to find out how well your kidneys are working (your 'kidney function'). The test is used to estimate how much waste fluid your kidneys can remove from your blood in a minute. The result is called your GFR (or glomerular filtration rate) and this value is roughly the same as your percentage of normal kidney function.

A urine test is used to show how much protein is leaking into your urine. A small amount of leaking is normal, but an increase in the amount (called proteinuria) can be a sign that your kidneys are damaged.

You should be offered these tests if you are at risk of having chronic kidney disease. If your GFR test shows that you may have a problem with your kidneys that was not known about already, the test should be repeated within 2 weeks. Further tests after 3 months will confirm whether you have chronic (long-term) kidney disease.

If there is still some uncertainty, your doctor may offer you a different GFR test that can sometimes help to rule out or confirm kidney disease.

For more about what your test results mean, see [After diagnosis](#).

### *People who should be offered tests*

You should be offered tests for chronic kidney disease if you have any of the following:

- diabetes
- high blood pressure
- an episode of acute kidney injury (which is a sudden loss of kidney function)
- disease of the heart and blood vessels (cardiovascular disease)
- kidney stones, other problems with your kidneys called structural renal tract disease, or an enlarged prostate gland

- diseases that can affect the whole body, including the kidneys, such as systemic lupus erythematosus
- someone in your family with advanced chronic kidney disease or an inherited kidney disease (passed on through their family)
- blood in your urine (called haematuria) without a known cause; this might be blood that can be seen or that is discovered in very small amounts by a urine test.

Your doctor should also discuss and agree with you how often you should be checked for chronic kidney disease (see [Checking for worsening disease](#)). For most people who are at risk of chronic kidney disease, but have normal test results, this is often less than once a year.

You should be tested at least once a year if you are being prescribed a medication known to cause kidney problems – these include some drugs used to reduce the activity of the immune system (such as cyclosporin or tacrolimus), lithium (which is used to treat bipolar disorder), and drugs called non-steroidal anti-inflammatory drugs or NSAIDs for short (such as ibuprofen).

If you have had acute kidney injury, you should be told that there is an increased risk of developing chronic kidney disease, or of it worsening if you already have chronic kidney disease. You should continue to have tests for chronic kidney disease for at least 2 or 3 years after an acute kidney injury.

See the section on [Other NICE guidance](#) for details of our guidance on acute kidney injury, which includes further advice on what should happen after acute kidney injury.

## After diagnosis

If your results show that you have chronic kidney disease, your doctor should discuss the possible causes with you and agree a plan to find out the cause. This is especially important if the cause is likely to be treatable.

## *Categories of chronic kidney disease*

Your doctor should use your test results to find out how serious your chronic kidney disease is and what this means for you.

Your doctor should work out your chronic kidney disease 'category' based on how well your kidneys are functioning (your 'G' category) and how much protein they are leaking into your urine

(your 'A' category). The combination of these 2 categories will tell your doctor how severe your kidney disease is.

The G categories compare how well your kidneys are functioning with how well normal adult kidneys function. They roughly correspond to percentages, so, for example, G1 means your kidneys are functioning 90% or more as well as normal kidneys. The categories are as follows:

- G1 – your kidneys are functioning normally (90% or more)
- G2 – your kidneys are functioning slightly worse than normal (60–89%)
- G3a – your kidneys are functioning slightly to moderately worse than normal (45–59%)
- G3b – your kidneys are functioning moderately to much worse than normal (30–44%)
- G4 – your kidneys are functioning much worse than normal (15–29%)
- G5 – your kidneys are at risk of failing or have failed (less than 15%).

The A categories show how much protein is leaking from your kidneys into your urine. If there is more protein than normal in your urine, it can indicate damage to your kidneys:

- A1 – your kidneys leak a normal or slightly increased amount of protein
- A2 – your kidneys leak a moderately increased amount of protein
- A3 – your kidneys leak a severely increased amount of protein.

The G category and A category are then combined to describe your kidney disease (for example, G2A3 or G4A1).

In both G and A categories, the higher the number, the worse your kidney disease is. For example, if your kidneys are functioning much worse than normal and leak a moderate amount of protein (category G4A2), you are at a higher risk of worsening disease and other related medical problems (particularly heart disease) than if your kidneys are functioning moderately worse than normal and leak a small amount of protein (category G3A1).

If your category is G1A1 or G2A1, then you do not have chronic kidney disease unless you have another problem that indicates kidney damage (such as kidney stones or blood in your urine). Categories G4 and G5 may sometimes be described as advanced chronic kidney disease; G5 is also known as kidney failure.

Your doctor should discuss your category and the related risks with you.

If your kidney disease is described using the old system of stages 1 to 5, these are the same as the 'G' categories G1 to G5.

Your doctor should discuss and agree with you how often you should have tests to check your kidneys depending on your chronic kidney disease category (see [Checking for worsening disease](#)).

## *Ultrasound scans*

If you have been diagnosed with chronic kidney disease, you may be offered an ultrasound scan to help your doctor look for any problems with your kidneys. You should be offered an ultrasound scan only if:

- your blood tests show that your kidney disease is worsening (progressing)
- you have blood in your urine (visible or detected by a urine test)
- you have symptoms of a urinary blockage (called a urinary tract obstruction)
- you are aged over 20 years and have a family history of a kidney condition called polycystic kidney disease
- you have advanced chronic kidney disease
- your specialist thinks that you need a procedure called a kidney biopsy to further investigate your condition.

If someone in your family has kidney disease that may be hereditary (passed on through their family), your doctor should talk with you before the scan about what it might mean if you have an abnormal result.

## **Checking for worsening disease**

Kidney disease can continue to get worse over time (usually over months or years). This is called progression or progressive kidney disease.

Your doctor should discuss and agree with you how often you should be checked for progressive disease (usually once or twice a year, but it may be more often for people with advanced kidney disease [category G4 or G5] or other related health problems).

Your healthcare professional should help and support you to understand how to stay as healthy as possible to slow down the progression of your kidney disease if you:

- have a disease of the heart or blood vessels (cardiovascular disease)
- have a moderate to severe amount of protein leaking into your urine (significant proteinuria)
- have had acute kidney injury (a sudden loss of kidney function)
- have high blood pressure
- have diabetes
- smoke
- are of African, African-Caribbean or Asian family origin
- regularly use ibuprofen or a similar type of medication (these are called non-steroidal anti-inflammatory drugs or NSAIDs for short) for a long time (for example, to manage pain from a long-term condition such as arthritis)
- have an untreated urinary blockage (called a urinary tract obstruction).

If your test results show that your kidney disease is getting worse, your doctor will be able to tell whether you have progressive kidney disease by taking further blood tests over the next few months to check for changes in how well your kidneys work (your kidney function) over this period.

## Information, advice and support

You should be offered information and education programmes that are relevant to the cause of your kidney disease, how advanced it is, any complications you may have and the chances of it getting worse. These should be offered to you at different times during your treatment to help you to fully understand and make informed choices about it.

See also [Sources of advice and support](#) for details of organisations that can provide further help.

You should be involved in decisions about your care and have access to your medical information (for example, test results and treatments) to help you to understand and manage your condition.

You should also be able to get psychological support if you need it – for example, support groups, counselling or support from a specialist nurse.

## *Diet and lifestyle advice*

You should be offered advice on diet that is tailored to the severity of your kidney disease and be encouraged to take exercise, achieve a healthy weight and stop smoking. This is important because people with kidney disease are also at a higher risk of heart disease (see [Cardiovascular disease](#)). A healthcare professional should take a detailed look at what you eat and help you to understand and make any changes needed. You should not normally be offered a special diet called a 'low-protein diet' because of the risks of malnutrition.

## **Referral to a specialist**

Many people with chronic kidney disease can be treated by their GP. When considering whether to refer you to a specialist, your GP should take into account whether you want to be referred and also any other illnesses you might have. They may sometimes discuss your case with a specialist by phone, letter or email and you may not need to see a specialist.

However, you may need to see a kidney specialist in some situations. Your GP should refer you to a specialist if you have any of the following:

- advanced chronic kidney disease (category G4 or G5)
- a large amount of protein in your urine (unless you have diabetes and are already being treated for this)
- both protein and blood in your urine
- kidney function that is rapidly getting worse
- high blood pressure that remains high even though you are taking 4 or more different types of medicines to control it
- a suspected or known rare or genetic cause of chronic kidney disease
- suspected narrowing of the arteries to your kidneys (called renal artery stenosis)
- a urinary blockage (called urinary tract obstruction).

After you have seen a specialist and you have agreed on a plan to manage your kidney disease, your GP may be able to do your regular check-ups, and you may not need to continue seeing the specialist.



## High blood pressure

People with chronic kidney disease often have high blood pressure, and this can damage your kidneys further.

Your doctor may offer you medicine to help control your blood pressure. The type of medicine will depend on your circumstances. Even if you don't have high blood pressure, you may be offered certain types of these medicines to help prevent your kidney disease from getting worse, especially if you have high levels of protein in your urine or if you also have diabetes.

Your doctor will look at your blood pressure and the levels of protein in your urine before deciding whether to do this and will discuss it with you.

If you are offered medicine for high blood pressure, you may need to try different doses to find the right dose for you. To make sure this is done safely, you should have blood tests to monitor how well your kidneys are working (called a GFR test) and your blood potassium levels. This should happen before you start taking the medicine, 1 or 2 weeks after you start, and each time the dose is increased.

If your blood potassium levels are high (called hyperkalaemia), your doctor will want to carry out other checks and tests, and you may be offered treatment for this. You may not be able to start or continue treatment for high blood pressure until your potassium levels are lowered.

See also [Other NICE guidance](#) for details of our guidance on hypertension, which includes further advice on treating high blood pressure.

## Cardiovascular disease

Cardiovascular disease means disease of the heart or blood vessels. Because chronic kidney disease puts you at a higher risk of heart attacks and strokes, your doctor will want to make sure that your risk is reduced. You may be offered medicines called statins, which lower the level of cholesterol (sometimes called lipids) in the blood and reduce the risk of cardiovascular disease.

See [Other NICE guidance](#) for details of our guidance on lipid modification, which includes advice on the use of statins in people with chronic kidney disease.

If you already have cardiovascular disease, you should also be offered an antiplatelet drug (such as aspirin). You may also be offered an anticlotting drug to help further if you are at particular risk.

Antiplatelet and anticlotting drugs work in different ways to help thin the blood and prevent blood clots forming, but they can also increase the risk of bleeding.

## Other complications

### *Bone disease*

Kidneys play an important role in keeping your bones healthy. If you have advanced chronic kidney disease (category G4 or G5), you might develop problems with your bones over the long term. This is called renal bone disease.

Your healthcare professionals should carry out tests for bone disease and discuss the results with you if you need treatment or further checks.

### *Anaemia*

Kidneys have an important role in keeping your blood healthy. People with chronic kidney disease may develop anaemia. This happens when you don't have enough red cells (which carry oxygen around your body) in your blood.

If you have category G3b, G4 or G5 chronic kidney disease, you should be offered a blood test to see if you have anaemia. If you have anaemia, it might not be caused by the kidney disease – there are many other possible causes of anaemia.

See [Other NICE guidance](#) for details of our guidance on treating anaemia in people with chronic kidney disease.

## Questions to ask about chronic kidney disease

These questions may help you discuss your condition or the treatments you have been offered with your healthcare team.

### *About your chronic kidney disease*

- Can you tell me more about chronic kidney disease?
- Why is chronic kidney disease important? How important is it for me?
- How might having chronic kidney disease affect my life?

- Are there any support organisations in my local area?
- Can you provide any information for my family/carers?

### *Finding out what's wrong (diagnosis)*

- Can you tell me more about the tests/investigations you've offered me?
- What do these tests involve?
- Where will these be carried out? Will I need to have them in hospital?
- How long will I have to wait until I have these tests?
- How will I get the results of my blood tests and how long will it take to get them?
- What do my test results mean?
- What is the cause of my chronic kidney disease?
- What does my category of chronic kidney disease mean for me?
- Why do I need a scan? What will happen if I decide not to have a scan?

### *Management, treatment and support*

- What treatments are available for chronic kidney disease?
- Can you tell me why you have decided to offer me this particular type of treatment?
- What are the pros and cons of this treatment?
- What will it involve?
- How will it help me? What effect will it have on my symptoms and everyday life? What sort of improvements might I expect?
- How long will it take to have an effect?
- Are there any risks or side effects associated with this treatment?
- What are my options for taking treatments other than the one you have offered me?
- Do I need to have treatment? What will happen if I don't?

- Is there some other information (like a leaflet, DVD or a website I can go to) about the treatment that I can have?
- What can I do to help manage my chronic kidney disease?
- Are there changes I can make to my lifestyle that will help?
- What support is available to help me cope with and adjust to having chronic kidney disease?
- Will my kidney disease affect treatments for other conditions I have?
- Are there any medications I should avoid?
- What should I tell the pharmacist if I am buying non-prescription (over-the-counter) medications?

### *Checking for worsening disease (progression)*

- What might happen if my chronic kidney disease gets worse?
- Am I likely to need dialysis treatment or a kidney transplant?
- How will I know if my kidney disease is getting worse?
- Can you give me more details about the tests I should have?
- My category of chronic kidney disease has changed, what does this mean?

### *For family members, friends or carers*

- What can I/we do to help and support the person with chronic kidney disease?
- Is there any additional support that I/we as carer(s) might benefit from or be entitled to?
- What should I/we do if the person with chronic kidney disease is unwell? Do I/we need to be aware of the medications they are taking?

### **Sources of advice and support**

- British Kidney Patient Association (BKPA), 01420 541424  
[www.britishkidney-pa.co.uk](http://www.britishkidney-pa.co.uk)
- Kidney Research UK, 0845 300 1499  
[www.kidneyresearchuk.org](http://www.kidneyresearchuk.org)

- National Kidney Federation (NKF), 0845 601 0209  
[www.kidney.org.uk](http://www.kidney.org.uk)
- Polycystic Kidney Disease (PKD) Charity UK, 0300 111 1234  
[www.pkdcharity.org.uk](http://www.pkdcharity.org.uk)
- Welsh Kidney Patients' Association  
[www.wkpa.org.uk](http://www.wkpa.org.uk)

You can also go to [NHS Choices](#) for more information.

NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

## Other NICE guidance

- [Lipid modification](#). NICE clinical guideline 181 (2014).
- [Acute kidney injury](#). NICE clinical guideline 169 (2013).
- [Anaemia management in people with chronic kidney disease](#). NICE clinical guideline 114 (2011).
- [Hypertension](#). NICE clinical guideline 127 (2011).

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## Accreditation

