Having a Kidney Biopsy

Information for Patients

This leaflet provides information to patients having a kidney biopsy under the direction of kidney doctors (nephrologists). Please note that there is a *different* leaflet for patients having a biopsy of kidney masses or tumours, under the direction of the urological surgeons (urologists).

This leaflet tells you about your procedure, its potential risks and what to expect afterwards. Your kidney doctor should have discussed this with you; please contact them if you have any questions. You can contact them *via* the kidney secretaries on **0131 242 1231**.

Why might I benefit from a kidney biopsy?

Blood or urine tests have shown that your kidneys are not working properly. To find out more about this, your doctor has suggested that we take a small piece from one of your kidneys. This is called a biopsy. The piece of kidney is about the size of half a matchstick. We can look at it under a microscope to find out why your kidneys aren't working properly. This can often help to decide the best treatment and tell us how likely it is that your kidneys will recover.

How is the biopsy done?

The biopsy is carried out in the Radiology (X-ray) department. It should take about thirty minutes and you will be awake throughout. For a biopsy of your own kidney that you were born with, you will lie face down on the bed. For a biopsy of a transplanted kidney, you will lie on your back and the biopsy will be taken from your transplant kidney at the front.

The doctor doing the biopsy will find your kidney using an ultrasound machine. They will clean your skin and inject local anaesthetic to "freeze" your skin. They will then pass a needle through the numb area and into the kidney. They will ask you to hold your breath for a few seconds to keep the kidney still. You should not be aware of any pain from the biopsy needle, but you may feel pressure and hear a clicking sound when the biopsy sample is taken. This is repeated at least 3 times on the same kidney, because 3 pieces of kidney are needed for a complete result.

How should I prepare for my biopsy?

- The main risk of a kidney biopsy is bleeding. **Therefore, it is vital that you let your doctor know if you take medication to thin the blood** (such as aspirin, clopidogrel, warfarin, apixaban or rivaroxaban). Usually, we will ask you to stop taking aspirin, clopidogrel and warfarin for 7 days before the biopsy; and apixaban and rivaroxaban for 2 days before the biopsy. Do not stop taking these tablets without first discussing with your doctor. We will usually suggest starting them again 3 – 5 days after the biopsy.
- You should eat a light breakfast at 7 a.m. on the morning of the biopsy and then not eat or drink anything until after the procedure. A light breakfast could be a bowl of cereal, two slices of toast or a piece of fruit.
- If you take insulin for diabetes then this period of fasting might interfere with your blood sugar levels. You may need to adjust your insulin dose, following your usual fasting rules. If you require help with this, please ask your kidney doctor or diabetes team.

- On the morning of the biopsy, you will come to the renal unit. We will check your blood pressure and take blood tests to ensure that it is safe to go ahead with the biopsy.

What happens afterwards and what should I avoid?

- We will ask you to rest in bed for 6 hours: 2 hours lying flat then 4 hours sitting up. A nurse will monitor your blood pressure.
- During this time, you can eat and drink. You will usually go home later the same day, but we advise that you do not drive.
- If you have pain or signs of bleeding, you will need to stay in hospital for further treatment.
- **You should not drive for 48 hours after a kidney biopsy and until you can perform an emergency stop.**
- You should avoid sexual intercourse for 48 hours, and avoid strenuous activity, heavy lifting or contact sports for 2 weeks after the biopsy. This reduces the likelihood of bleeding.

What are the risks of a kidney biopsy?

The risks of a kidney biopsy are small. 98 out of 100 patients having a renal biopsy will not have any serious complications. We will only suggest that you have a kidney biopsy if we think that the benefits outweigh the risks. The complication rates quoted here represent those from all kidney biopsies conducted in Scotland from 2014 to 2023.*

They apply to a 'typical' patient; your doctor will be able to let you know if your risks are likely to be higher or lower than average.

In general, risks are higher for biopsies of a "native kidney" present since birth than of a transplanted kidney; higher in biopsies performed in women; and higher in biopsies performed to investigate an abrupt change in kidney function (called an acute kidney injury or "AKI"):

1) Minor bleeding that needs no treatment. It is reasonably common to experience blood in the urine, causing it to turn pink or red. This usually settles by itself. It is also common to feel some pain around the site of the biopsy. You may need to take painkillers for a day or two.

2) Serious bleeding requiring further treatment in hospital. About 1 in 100 patients lose so much blood that they need treatment in the form of a blood transfusion and/or a procedure to stop the bleeding. Usually, that procedure is carried out in the X-ray department: dye is injected into a blood vessel to find the bleeding point and metal coils are then injected to block this off. If there are lots of blood clots in the urine, then a catheter (a soft tube that goes into the bladder) may be needed to stop the clots from causing a blockage to the flow of urine.

3) Delayed bleeding. Sometimes serious bleeding may not become apparent for up to 3 weeks after the biopsy. Signs of serious bleeding include severe pain in the side or your back, blood in the urine, shortness of breath or light-headedness.

If you notice any of these then you should seek urgent medical help:
You should call the kidney ward on **0131 242 2061** and ask to speak to the nurse in charge';
or call the Hospital Switchboard on **0131 536 1000** and ask to speak to the "on-call renal registrar".

<u>If you feel very unwell you should call 999 or go immediately to A&E.</u> Inform the staff there that you have recently had a kidney biopsy and give them this leaflet.

4) Death. Rarely, the bleeding can be so severe that it is life-threatening. Over a ten-year period, there were ten patients throughout Scotland who died after a kidney biopsy (i.e. the patient died within 28 days of a kidney biopsy and the biopsy procedure was thought to contribute to their death). This is a rate of 1 death for every 850 biopsies (or put another way: 12 deaths per 10,000 biopsies). The risk was lower in biopsies of a transplanted kidney, compared to biopsies of "native kidneys" that people are born with. Most patients who died following a kidney biopsy had additional factors that increased their bleeding risk; for example they may have been unwell for other reasons or were unable to avoid blood-thinning medication.

5) No result from the biopsy. In around 1 in 40 biopsies, the kidney sample is not good enough to give useful information. This might be because the sample was too small or because it was taken from the wrong part of the kidney or from the surrounding fat or muscle. It might not be obvious that this has happened until the biopsy sample is analysed several days later. In that event, your doctor might suggest repeating the biopsy procedure.

Further Information

* To see the research study that was used to give the complication rates in this leaflet, see:

SCAN ME

Geddes, C et al, (2025) 'Major complications of percutaneous native and transplant kidney biopsy: a complete 10-year national prospective cohort study', *Clinical Kidney Journal*, 18(7)

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Interpretation and translation

Your GP will inform us of any interpreting requirements you have before your appointment and, if necessary, we will provide an appropriate interpreter. If you are receiving this treatment/procedure as an existing inpatient, staff will arrange interpreting support for you in advance of this treatment/procedure. This leaflet may be made available in a larger print, Braille or your community language.