

Nephrostomy insertion/exchange – image guided

Information for patients

This leaflet explains nephrostomy insertion. It covers what to expect on the day of the procedure, as well as the benefits, the potential risks and the alternatives.

Before the nephrostomy insertion, a clinical staff member will explain the procedure to you in detail. This leaflet is not meant to replace that discussion. If you have any questions or concerns, please do not hesitate to speak to the doctor who has referred you to the Interventional Radiology Department. It is important that you feel well informed before agreeing to having the nephrostomy insertion and signing the consent form.

Confirming your identity

Before you have a treatment or procedure, our staff will ask you your name and date of birth and check your ID band. If you do not have an ID band we will also ask you to confirm your address. If we do not ask these questions, then please ask us to check. Ensuring your safety is our primary concern.

What is a nephrostomy insertion or exchange?

It involves putting a thin plastic tube into your kidney through your lower back. Your urine will then drain through this tube and into a special bag outside of your body.

Image guided means that we will use images from ultrasound scans and real time x-ray (fluoroscopy) to ensure the tube is put in the correct place.

On the other hand, exchange involves removing the old nephrostomy tube and replacing it with a new one using similar process.

Why do I need this procedure?

Usually you have had ultrasound and Computed Tomography (CT) scans and blood tests which show that your urine is not flowing freely from your kidney to your bladder.

This can be caused by the tube that carries urine from your kidney to your bladder (ureter) becoming blocked (see below for a picture of your urinary system). Urine then builds up in the collecting part of your kidney, which can cause swelling (hydronephrosis). This in turn leads to back pressure which can cause increasing damage to the kidney so it works less and less well.

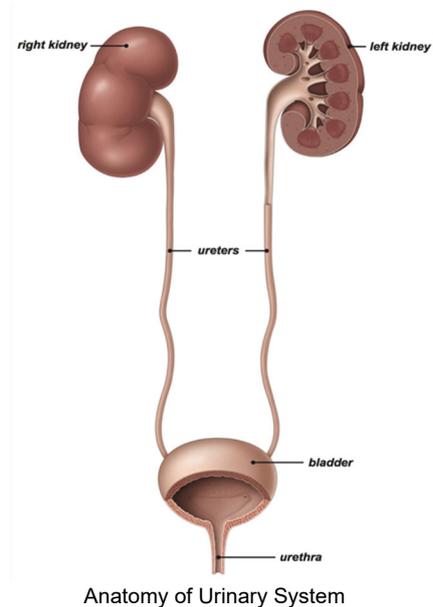
Having the nephrostomy insertion will allow urine to drain from your body and prevent more damage to your kidney.

The doctors in charge of your case and an Interventional Radiologist have discussed your condition and think nephrostomy insertion is your best treatment option.

Urinary system

This is made up of your kidneys and ureters, plus your bladder and urethra (see picture on the right). Your kidneys are just behind the lower part of your rib cage, at the back. Their main job is to produce urine that passes out of your body. They also help to control blood pressure and maintain chemicals in your body, so they are essential to life.

Your kidneys filter out the fluids and chemicals that your body does not need. The urine first collects in a funnel-shaped part of your kidneys called the kidney pelvis. It then enters your ureter, which drains the urine to your bladder. It is stored here until you go to the toilet, when it travels out of your body through your urethra.



What are the risks?

Nephrostomy insertion is relatively safe. However, there are risks and possible complications with all procedures, even though every effort is made to prevent them. These include:

- **Infection (1%):** We will give you antibiotics when you have the procedure to help prevent this.
- **Damage to the kidney:** Damage is rare.
- **Bleeding due to damage to the blood vessels:** This is rare, but if you have severe bleeding you may need more treatment. This usually involves having an angiography, which allows a specialist doctor to block the bleeding blood vessel from the inside (embolisation).

- **Damage to other organs.** This is rare. Your kidneys lie close to your bowel, spleen, liver and lung so there is a very slight change of damaging them. We use ultrasound imaging to minimise any risk.
- **Urine leak:** Urine can leak into the tissues surrounding the kidney. This is usually resolves by itself but occasionally you may need more treatment.
- **Inability to place the tube satisfactorily in your kidney:** This is unusual but occasionally we may need to try again to successfully place the nephrostomy.
- **Allergic reaction to contrast (dye):** This is rare. Fewer than one in every 1,000 patients has a severe reaction to the dye.
- **Radiation risk:** In order to be performed safely, your procedure requires to be performed under x-ray guidance. X-rays are a type of ionising radiation. Studies have shown that people who have been exposed to high doses of ionising radiation have an increased chance of developing cancer many years or decades after they have been exposed. However, while more complex or difficult cases might require a slightly higher radiation dose, the radiation exposure associated with this procedure is low. It is the assessment of your doctor and the radiology doctor who will be performing the procedure that the benefit of the procedure outweighs the risk from the exposure to radiation. The specialist radiologist and radiographer will ensure that your radiation exposure is kept as low as possible during the procedure. If you have any concerns about the risk of exposure to radiation during this procedure, you can discuss this further during the consent process with the radiologist who will performing your procedure. Please notify the clinical team if you think you may be pregnant.

What are the benefits?

By draining the urine, the nephrostomy tube helps your kidney to work well and protects it from more damage and infection. It also means that we can access your kidney to treat any underlying problem. We may do this when you have the nephrostomy or later.

Are there any alternatives?

You may be offered surgery if you need to have urine drained from your kidney long term. A doctor who specialises in diagnosing and treating urinary system problems (urologist) can place a thin tube (stent) between your bladder and your kidney from below. This is called retrograde ureteric stent insertion and you usually have this done under general anaesthesia.

Consent

We must by law obtain your written consent to any operation and some other procedures, including a nephrostomy insertion beforehand. Staff will explain the risks, benefits and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of this procedure, please do not hesitate to ask to speak with a senior member of staff again. We will inform your GP that you have had this procedure, unless you specifically instruct us not to.

Where will I have the procedure?

You will have it at one of two places:

- Interventional Radiology Department, 1st Floor Denmark Wing, King's College Hospital (KCH), Denmark Hill; or
- Interventional Radiology Department, 1st Floor South Wing, Princess Royal University Hospital (PRUH).

How can I prepare for the procedure?

Not all patients undergoing nephrostomy insertion or exchange require a pre-assessment. You will be notified in advance if one is necessary for you.

Pre-assessment appointment: Your Interventional Radiology nurse will arrange for you to have a pre-assessment appointment. You will have this appointment either in person or by phone. The nurse will ask you questions about yourself, your health and the medications you take. They might take a blood sample to check that you are in good general health and how well your blood clots. But you are more likely to have it done at least a day before your procedure at King's College Hospital or on your local GP.

Drugs and alcohol: Do not use any recreational drugs or drink alcohol for 24 hours before the procedure.

Medications: Please make sure the doctor or nurse knows if you are diabetic and whether you are taking tablets such as metformin or having insulin injections.

Also inform them if you are taking any of the following blood-thinning medications (anticoagulants): aspirin, clopidogrel, warfarin, apixaban, rivaroxaban, edoxaban, ticagrelor, prasugrel, phenprocoumon, acenocoumarol, dagibatran, argatroban, heparins, fondaparinux, enoxaparin.

They will tell you when to stop taking these medications and when it is safe to start them again.

If in doubt, please bring with you all the medications you are taking, whether they have been prescribed for you or you have bought them over the counter at your local chemist store.

Will I be admitted to hospital for the procedure?

Yes, you will be admitted to the hospital for nephrostomy insertion. This procedure is typically performed as an urgent case rather than an elective one. Therefore, you are most likely already admitted to the hospital or at least in the Admission and Emergency (A&E) department when you are informed that this procedure is required. Nevertheless, we will do our best to ensure that you are fully informed and prepared before undergoing the procedure.

However, there may be instances where you need to have the nephrostomy in place for a longer period. In such cases, you will be scheduled for an elective nephrostomy tube change approximately every three months wherein you will have your procedure

as a day case patient or a TCI patient. We explain what this means below. We will let you know which one applies to you:

Day case patient: You will usually have the procedure in the morning and, if everything is normal and you are stable, you will be discharged home later in the day. Please arrive at Interventional Radiology at 8am so you can be admitted to the unit.

To come in (TCI) patient: You will often be admitted to the hospital the day before your procedure and stay overnight before your procedure. Occasionally, you may be admitted on the morning of your procedure. The bed manager will call you to let you know when to arrive and which ward to go to.

What happens on the day of the procedure?

Eating and drinking: You must **not** eat anything for at least **six hours** before your nephrostomy insertion. You can have clear fluids up to **two hours** before your procedure. It is very important that you follow these instructions because you will be lying flat on your stomach during the procedure.

Medications: Keep taking your regular medications, except for any blood-thinning ones. If you take blood pressure medication tablets, please continue taking them.

What to bring with you: Please bring a small overnight bag, all your medications and something to read.

What not to bring with you: Do not bring valuables, jewellery or large sums of money. If this is unavoidable, please ask a relative or friend to take them home for you. The hospital cannot accept liability for the loss of items that are not handed in for safekeeping.

What happens before the procedure?

A small, thin tube called a cannula will be put into a vein in your hand or arm so we can give you medications if you need them during or after the nephrostomy insertion.

If you have diabetes and on insulin injections, you may also need a fluid drip in your vein to control your blood sugar once you start fasting.

What happens during the procedure?

An Interventional Radiologist – a specialist doctor trained in image-guided procedures who will carry out your nephrostomy insertion – will explain the procedure to you and ask for your consent. They will be assisted by interventional radiology nurse(s) and a radiographer who operates the special x-ray machine inside the procedure room.

You will be taken to the Interventional Radiology procedure room and asked to lie on your stomach or slightly on your side on a special x-ray bed.

We will attach you to a monitoring device to check your heart rate, breathing, oxygen level and blood pressure. If you have sedation, we will give you oxygen through a face mask.

We will ask you to confirm your details before the start of the procedure and the doctor doing the procedure will confirm the procedure plan with the specialist team.

The skin in the area of your back where the tube is going to be put in will be cleaned with disinfectant and a sterile cover placed around it. We will give you sedation and pain relief through the line in your hand or arm.

The doctor will use an ultrasound machine to decide the best place to insert the nephrostomy tube, usually in your back, and give you a local anaesthetic injection to numb the area.

They will then put a fine needle into your skin and down to your kidney. They inject a dye (contrast) that shows up on the x-ray, to confirm they have the correct position. You may feel the need to pass urine at this point, but this is normal.

They place a wire through the needle and into the kidney, then insert the nephrostomy tube over the wire. Once the tube is in, they take out the wire and your urine can drain out through the newly-inserted nephrostomy tube.

The tube is 'locked' in position by pulling and fastening a string that causes the end to curl into what is called a 'pig-tail'. It is then fixed to your skin by a stitch and a special plaster is put over the area. A drain bag is then attached to the tube to collect your urine.

If you need a nephrostomy on your other kidney, you can have this done at the same time or at a later stage.

Will the procedure hurt?

You have the procedure under local anaesthesia. To make you comfortable, we usually give you sedation when the procedure starts, as long as you have passed the STOP-BANG and Conscious Sedation Assessment which you will have when you arrive at the IR department. You might feel some pushing and mild discomfort when the nephrostomy tube is being passed into your kidney(s). We will give you pain relief through the cannula in your vein if you need it.

How long does the procedure take?

It usually takes about 30 to 60 minutes. Very occasionally it can take longer than an hour. As a guide, expect to be in the Interventional Radiology procedure room for about an hour altogether.

What happens after the procedure?

You will be taken to the recovery area, where the nursing staff will monitor you. If there are no signs of complications, you will be taken back to your ward.

You can eat and drink normally once you recover from the sedation. You will need to stay in bed for a few hours. Your movement may be restricted but this is normal.

The tube will stay in your body for the time being. It will drain into a collection bag, which will be emptied fairly frequently so it does not become too heavy. The nurses will measure the amount of the urine each time they empty the bag. Your doctor on the ward will explain what further treatment you need.

When will I have the tube taken out?

A nephrostomy tube is usually temporary and is taken out when the cause of the blockage has been treated which has no set time but could roughly at least a week. You will need regular blood tests and possibly more scans (ultrasound/CT) to help the doctor who is looking after you decide when it can be taken out.

What happens if I need a long-term nephrostomy?

If you need the nephrostomy for a longer time, we will discharge you from hospital with the tube in place and change it about every three months. This is to prevent blockages and to reduce infection risk. We will give you information about how to care for a long-term nephrostomy and refer you to your local district nurse for support.

What can I expect after the procedure?

You may feel some pain and/or discomfort where the tube was put in. It is normal for you to need more pain relief for a day or two. You may also see blood in your urine for a few days (transient haematuria) for a day or two and this should clear.

Will I pass urine in the normal way?

You may pass some urine if you have two kidneys because the other one will work as normal or if the blockage is only partial.

What should I do if I cannot come for my procedure?

Please let us know as soon as possible by contacting the Interventional Radiology Department, so we can arrange another date and time. This also enables us to offer your appointment time to someone else.

King's College Hospital, Denmark Hill, tel: **020 3299 3490, 020 3299 6730 or 020 3299 3280**

Princess Royal University Hospital: **01689 863671**, Monday to Friday, 9am – 5pm

Who can I contact with queries or concerns?

If you have any questions about your procedure, please contact the Interventional Radiology Nurses:

King's College Hospital, Denmark Hill, tel: **020 3299 3490** or **020 3299 2060**, Monday to Friday, 9am – 5pm

Princess Royal University Hospital: **01689 863671**, Monday to Friday, 9am – 5pm

More information and support

- King's College Hospital: www.kch.nhs.uk
- NHS: www.nhs.uk, tel 111
- British Society of Interventional Radiology: www.bsir.org (click on Patients, click on patient information leaflets, select leaflet)
- Macmillan: www.macmillan.org.uk/cancer-information-and-support/treatments-and-drugs/nephrostomy

Care provided by students

We provide clinical training where our students get practical experience by treating patients. Please tell your doctor or nurse if you do not want students to be involved in your care. Your treatment will not be affected by your decision.

MyChart

Our MyChart app and website lets you securely access parts of your health record with us, giving you more control over your care. Visit www.kch.nhs.uk/mychart to find out more.

Sharing your information

King's College Hospital NHS Foundation Trust has partnered with Guy's and St Thomas' NHS Foundation Trust through the King's Health Partners Academic Health Sciences Centre. We are working together to give our patients the best possible care, so you might find we invite you for appointments at Guy's or St Thomas' hospitals. King's College Hospital and Guy's and St Thomas' NHS Foundation Trusts share an electronic patient record system, which means information about your health record can be accessed safely and securely by health and care staff at both Trusts. For more information visit www.kch.nhs.uk.

Care provided by students

We provide clinical training where our students get practical experience by treating patients. Please tell your doctor or nurse if you do not want students to be involved in your care. Your treatment will not be affected by your decision.

PALS

The Patient Advice and Liaison Service (PALS) is a service that offers support, information and assistance to patients, relatives and visitors. They can also provide help and advice if you have a concern or complaint that staff have not been able to resolve for you. They can also pass on praise or thanks to our teams.

Tel: **020 3299 4618**

Email: **kings.pals@nhs.net**

If you would like the information in this leaflet in a different language or format, please contact our Interpreting and Accessible Communication Support on 020 3299 4618 or email kings.access@nhs.net

www.kch.nhs.uk

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