Kidney Health Australia

Fact sheet

Diagnosis and types of Kidney Cancer

Introduction

Our series of kidney cancer fact sheets have been developed to help you understand more about kidney cancer. This fact sheet provides information about the tests you may have if your doctor thinks you may have kidney cancer. It also gives information about the different types and stages of kidney cancer.

For more information relating to other aspects of kidney cancer please see our other fact sheets:

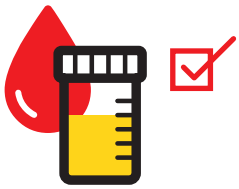
- Kidney Cancer
- Localised Kidney Cancer
- Advanced Kidney Cancer
- Support for Kidney Cancer
- Advanced Kidney Cancer – Dealing with the side effects of medication: targeted therapy
- Kidney Cancer – Make the most of your visit to the doctor

These fact sheets are meant as an introduction only and are not meant to be a substitute for your doctor's or healthcare professional's advice. Always consult your doctor or healthcare professional for more advice.

What tests will I need to have?

Your doctor will use different tests to diagnose and get more information about your kidney cancer. The tests done for kidney cancer can be divided into blood and urine tests, imaging, tissue biopsy and cystoscopy.

The tests you have will depend on your particular situation. You may not necessarily need to have all the tests described below.



1. Blood and urine tests

Blood tests: Chemical tests of the blood can detect findings associated with kidney cancer.

Urine test (urinalysis): A common sign of a kidney cancer is blood in the urine. Remember that blood in the urine can be caused by conditions other than cancer as well. This test can also detect other abnormalities in the urine such as protein.

2. Imaging

Imaging is important for the diagnosis and classification of kidney cancer. The most common imaging techniques used are ultrasound scans, computed tomography (CT) scans and magnetic resonance imaging (MRI) scans. You may have more than one type of scan.

Ultrasound

A type of scan where sound waves are used to produce a picture of the internal organs on a computer screen. Any abnormalities in the kidney and other organs can be seen on the screen.

- An ultrasound takes about 15–20 minutes
- A gel is spread over your back or side and an ultrasound probe is slid over the skin
- It is painless.

CT scan

A CT scan uses x-rays to get detailed pictures of organs in the body. They provide information about:

- Where the tumour is located in the kidney and its size
- Whether a tumour looks like it maybe cancer (malignant) or not cancer (benign)
- Whether there are enlarged lymph nodes or not
- Whether the tumour has spread to other parts of the body (metastasised).

- A CT scan takes about 30–40 minutes
- The CT scanner is like a large round metal doughnut. You lie still on a table that goes through the hole of the scanner
- You may be given contrast
- It is painless.

MRI scan

An MRI scan uses a combination of magnetism and radio waves to get detailed pictures of organs in the body. They provide different details to a CT scan and give information about:

- Whether the tumour has spread into the veins
- Whether the tumour has spread into the spinal cord.

- An MRI takes about 40–60 minutes
- The MRI scanner is a large magnetic metal cylinder open at both ends. You lie still on a table inside the cylinder
- You may be given contrast
- It is painless. However, the scanner can be noisy and some people feel anxious about being in a small space. Talk to you doctor if you think this may be a problem for you.

Bone scan

A bone scan is used to see if cancer has spread to the bones.

- A bone scan takes about 5 hours
- A small and harmless amount of radioactive material is injected into a vein
- The substance slowly moves through your blood into your bones. It particularly goes into the cancer cells
- After 3–4 hours a scan is done that detects radioactivity. If the cancer has spread to the bones it will show up as a large amount of radioactivity
- It is painless.

PET scan

A positron emission tomography (PET) scan is a specialised scan that uses radioactivity to show the chemical function of an organ or tissue. It can detect cancers even before they are 'seen' on other types of scans. PET scans can create an image of the entire body. This means that they can show if (and where) cancer is spreading to other parts of the body. PET scans can also be used to see if tumours, are benign (not cancer) or malignant (cancer) and to tell the difference between tumour or scar tissue.

- A PET scan takes about 2 hours
- You may need to not eat or drink before the scan
- You will be given an injection of radioactive material
- The amount of radiation you receive is small
- It is painless.

Chest x-ray

An x-ray of organs and bones within the chest:

- A chest X-ray takes a few minutes
- It is painless.

Contrast

Most CT and MRI scans are done with contrast (a kind of dye). Contrast is administered through a drip line in one of your veins (intravenous line), usually your arm. The contrast highlights the arteries and veins, giving more information about the tumour. It may make you feel hot and flushed for a few minutes. Some people are allergic to contrast so let the person doing the scan know if you feel unwell.

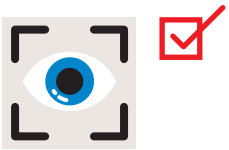
3. Kidney (renal) biopsy

Sometimes your doctor will recommend that you have a kidney biopsy. A kidney biopsy is where samples of tissue are taken from the tumour so that the cells can then be examined under a microscope. This gives the doctors more information about what sort of kidney tumour is present.

In the majority of cases of kidney cancer a biopsy is not necessary. This is because the CT or MRI scan has already given enough information for your doctor to recommend surgery or other treatments for your kidney cancer. However, a biopsy may be recommended if:

- The results of your scan suggest that the tumour is benign
- The tumour is small and can be treated with active surveillance, radiotherapy ablation or cryotherapy (see later in the treatment section).

- A kidney biopsy takes about an hour and is done as an outpatient
- Local anaesthetic is given to numb the area
- The biopsy is taken whilst a scan is being done so the tumour can be found
- A fine needle is used to get one or two samples of the tumour
- Biopsies may cause a small amount of blood in the urine, which is normal.
- You will have to lie flat for 4 hours after the biopsy
- Then you should expect to take it easy for the rest of the day
- Rarely a biopsy can cause more severe bleeding and if this happens when you are home you should go straight back to the hospital.



4. Cystoscopy

If you have blood in your urine you may have a cystoscopy. This is a test that lets your doctor look into your bladder and urethra using a telescope with a lens and a light. It is used to see if the blood in your urine is coming from your bladder or urethra.

- A cystoscopy takes about an hour and is done as an outpatient (you will not need to stay overnight in the hospital)
- You will be given either a local or general anaesthetic
- A telescope is passed into your bladder through the urethra
- You should take it easy for the rest of the day
- You may feel a burning sensation when having a wee or notice blood in your urine. This is normal but let your doctor know if it lasts more than a few days.

What are the different types of kidney cancer?

Not all kidney cancers are the same. The results of the tests you have had give information about:

1. **The exact subtype of kidney cancer** – how the cancer cells look under a microscope and other features. Different subtypes come from different cells in the kidney.
2. **The grade of kidney cancer** – how abnormal the cells are and how fast they'll probably grow.
3. **The stage of kidney cancer** – how large the cancer is and how far it has spread.

This information can be used by your doctor to guide treatment and help plan long-term follow-up care.

1. Different subtypes of kidney cancer

There are different types of kidney cancer based on what the cancer cells look like under a microscope and other factors. Renal cell carcinoma (RCC) is the most common type of kidney cancer and the second most common type is urothelial carcinoma. This series of fact sheets mainly gives information about RCC.

The type of kidney cancer is not usually important for surgery, but it can be very important if more treatment is needed. If more treatment is needed, knowing the type of kidney cancer helps your doctor to talk with you about the best treatment options.

Renal cell carcinoma (RCC)	Urothelial carcinoma
• 9 out of 10 kidney cancers	• 1 out of 10 kidney cancers
• Comes from the cells of the kidney's nephrons	• Comes from the cells of the drainage system of the kidney (the renal pelvis or ureters)
Subtypes: • Clear cell – about 75 out of 100 RCC are this type • Papillary cell – about 10 out of 100 RCC are this type • Chromophobe – about 5 out of 100 RCC are this type • Others	• Behaves like bladder cancer and so is treated differently to RCC • Also known as transitional cell carcinoma (TCC)

2. The grades of kidney cancer

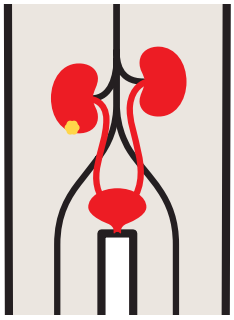
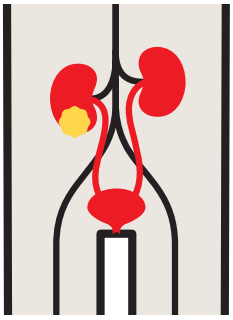
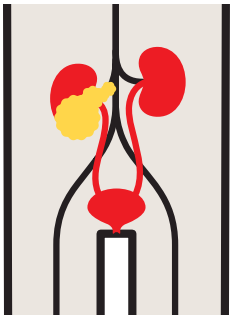
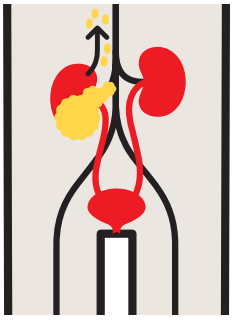
Kidney cancer can also be described as *aggressive* (quickly growing) or *non-aggressive* (slowly growing).

3. Stage of kidney cancer

What is a staging system for kidney cancer?
A staging system is a standard way for your healthcare team to describe how large the cancer is and how far it has spread. There are a number of ways to stage kidney cancer. The most common one is known as the TNM system.

What are the stages of kidney cancer?
Once the T, N, and M scores are known they can be used to give the kidney cancer overall stage of I, II, III, or IV. Each different stage groups cancers together that have a similar outcome (prognosis) and are treated in a similar way.

Stage of kidney cancer: TNM staging system	
T (tumour) 1-4	Indicates the size of the primary kidney tumour and whether it has spread into nearby areas. A higher number of T means that the tumour is larger, or has spread to areas around the kidney.
Tx	Indicates the tumour cannot be assessed.
N (nodes) 0-1	Indicates whether the cancer has spread to nearby lymph nodes (part of the immune system). 0 means the cancer has not spread, 1 means the cancer has spread.
Nx	Indicates lymph nodes can not be assessed.
M (metastasis) 0-1	Indicates whether the cancer has spread (metastasised) to distant parts of the body. 0 means the cancer has not spread; 1 means the cancer has spread.

STAGE	**Stage I** Localised	**Stage II** Localised	**Stage III** Locally advanced	**Stage IV** Advanced
				
SIZE	Less than 7cm	Larger than 7cm	Any size	Any size
LOCATION	Only in the kidney	Only in the kidney	Spread to local lymph nodes, blood vessels and tissues	Spread beyond the kidney – metastasised
TREATMENT	If the cancer can be removed, surgery is a good treatment option	If the cancer can be removed, surgery is a good treatment option	The chance of being cured by surgery is lower but not zero; medication may be used	Unlikely to be cured but various treatment options can slow growth
SURVIVAL				

Survival decreases as stage increases

A note on *5 year survival* rates
Survival rates are often used by doctors as a way of discussing how long a person will live after a diagnosis of cancer – their prognosis. The 5 year survival rate refers to the percentage of patients who live at least 5 years after their cancer is diagnosed. Of course, many people live much longer than 5 years, many are cured, and some people die from causes other than their cancer.

5 year survival rates only give a general idea, they cannot predict what will happen in any individual person's case. Many things can affect a person's prognosis, such as the grade of the cancer, the treatment received, age and overall health. If you want to know your prognosis, your doctor can give you a general idea.

Survival from kidney cancer has improved. In the 1980s, only 45 out of every 100 people with kidney cancer survived at least five years. Now about 73 out of every 100 people with kidney cancer survive at least 5 years. This improvement in survival from kidney cancer is due to kidney cancer being diagnosed earlier and better treatments.

Who can I contact for more support & information?

Both Kidney Health Australia and the Cancer Council offer a free and confidential service for further support and information.

Kidney Health Australia Cancer Support & Information Service
Kidney Health Australia provides support and information for kidney cancer patients, their families and carers in a variety of different ways.

Free call: **1800 454 363**
kidneycancer@kidney.org.au
kidneycancer.org.au
forum.kidney.org.au

Kidney® Health
Cancer Support & Information Service

Cancer Council offers reliable cancer information and support to anyone affected by cancer, including patients, carers, families, friends, and healthcare professionals. They can connect you with others who have been through a similar experience and link you to practical, emotional and financial support in your area.

Free call: **13 11 20**
cancer.org.au

Cancer Council 13 11 20

For more information about kidney or urinary health, please contact our free call Kidney Health Information Service (KHIS) on 1800 454 363.

Or visit our website **kidney.org.au** to access free health literature.

If you have a **hearing or speech impairment,** contact the National Relay Service on **1800 555 677** or **relayservice.com.au**

For all types of services ask for 1800 454 363

What does that word mean?

Anaesthetic – A drug that stops a person feeling pain during a medical procedure. A general anaesthetic affects the whole of your body by making you temporarily unconscious. A local anaesthetic affects only part of your body by making that area numb.

Biopsy – Removal of a small sample of tissue from the body to be examined under the microscope to help diagnose a disease.

Bone scan – A scan using small amounts of radioactive material to see if the cancer has spread to the bones.

Computed tomography scan (CT) – A scan using X-rays to produce detailed pictures of the body.

Contrast medium/agent/dye – A substance injected into a vein before a scan that gives more information about the tumour.

Cystoscopy – A test using a special telescope to look into the bladder.

Grade – A description of a tumour based on how abnormal the cancer cells look under a microscope and how quickly it is likely to grow and spread.

Grading – A score that is used to describe how quickly a tumour is likely to grow and how likely it is to spread.

Intravenous line (iv line) – A small plastic tube inserted into a vein (blood vessel) using a needle. Once in place, the needle is removed. It is used to give fluids and medications.

Magnetic resonance imaging scan (MRI) - A scan using magnetic and radio waves to produce detailed pictures of the body.

Positron emission tomography scan (PET) – A scan using radioactivity to produce detailed pictures of the body.

Prognosis – The likely outcome or course of a disease, the chance of recovery or recurrence.

Stage – The extent of the cancer in the body (how large it is, whether it has spread to lymph nodes, and whether the cancer has spread to other parts of the body).

Staging – Performing physical examinations and diagnostic tests to determine the extent of the cancer in the body (the stage).

Ultrasound – A scan that uses soundwaves to generate a picture of parts of the body.

Urinanalysis – A test of the urine.