How is kidney cancer diagnosed?

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About one in three kidney cancers are advanced at the time of diagnosis. This is because people usually don’t have noticeable symptoms even though the cancer has been present for some time.

If your doctor suspects you have kidney cancer, you will have some of the following tests to confirm the diagnosis and show if cancer has spread to other parts of the body. You are unlikely to need all of these tests.

There are four categories of tests: blood and urine tests, internal examination (cystoscopy), imaging (such as an ultrasound) and tissue sampling (biopsy).

It may take up to a week to receive your test results. You may feel anxious during this time. It may be helpful to discuss your feelings with someone such as a close friend or relative.

You can also speak to a nurse or call Cancer Council 13 11 20.

Blood and urine tests

Urine test

The most common sign of kidney cancer is blood in the urine (haematuria). Doctors will sometimes request a urine test so they can look for traces of blood and other abnormalities, such as proteins, that can't be seen with the naked eye.

A urine test can also look for cancer cells in the urine. This could be a symptom of urothelial carcinoma, a rare type of kidney cancer.

Blood tests

The doctor will ask for a blood sample to check for changes that could be caused by kidney cancer. In most cases blood test results are normal and the doctor will do further tests.

A blood count identifies the number of different types of blood cells present. Too few or too many red blood cells can be a sign of kidney cancer. High calcium levels, high levels of certain enzymes and changes in salt levels may also be found in people with kidney cancer.
Internal examination (cystoscopy)

If you have blood in your urine your doctor may want to look inside your bladder to see where the blood is coming from. This procedure is called a cystoscopy. If necessary the urologist can also examine the ureters by extending the tip of the cystoscope. This is called a ureteroscopy.

Before the test you will be asked to urinate. You will also be given a general or local anaesthetic so you are not in pain. The doctor will pass a tiny telescope (cystoscope) through the urethra and into the bladder to check for bleeding, tumours or other abnormalities.

Imaging tests

You will usually have at least one of the tests described below. If the doctor needs further information to make a diagnosis or to see if the cancer has spread you may have more than one scan.

Ultrasound

In an ultrasound soundwaves are used to produce pictures of your internal organs. This may show if a tumour is present. A gel is spread over your abdomen or back and a small device called a transducer is passed over the area. The device sends out soundwaves that echo when they encounter something dense like an organ or tumour. A computer creates a picture from these echoes. The ultrasound is painless.

CT scan

A CT (computerised tomography) scan is a procedure that uses x-rays to take pictures of the inside of your body. Unlike a standard x-ray, which takes a single picture, a CT scan compiles many pictures into one complete picture of an area of your body.

CT scans are useful for identifying a tumour in the kidney and checking whether cancer has spread to other organs and tissues. The scan can provide information about the size, shape and position of a tumour. It also helps identify enlarged lymph nodes that might contain cancer and secondary cancer sites.

MRI scan

The MRI (magnetic resonance imaging) scan uses a combination of magnetism and radio waves to build up detailed cross-section pictures of your body.

Sometimes an MRI scan is ordered because it can provide different details than a CT scan but only a small percentage of people with kidney cancer need this test. You may have an MRI if the doctor wants to check if the cancer has gone into the renal vein or spread to the spinal cord. The MRI scan may take up to an hour. You will probably be able to go home as soon as it is done.

Chest x-ray

A chest x-ray is used to check for problems in the organs and bones of the chest. If cancer has already been diagnosed a chest x-ray can show whether the cancer has spread to your lungs or ribs.

Radioisotope bone scan

A radioisotope scan is another way to see if any cancer cells have spread to the bones. You may have this test if you have a very large tumour or advanced cancer. The scan can also help the doctor determine how well you are responding to treatment.
A small amount of radioactive dye is injected into a vein, usually in your arm. You will need to wait while the dye moves through your bloodstream to your bones, which can take about three to four hours.

Your body will be scanned with a machine that detects radioactivity. A larger amount of radioactivity will show up in any areas of bone affected by cancer cells.

**Tissue sampling**

A biopsy is when doctors remove fluid or cells from the body so that the tissue can be examined under a microscope to see if there have been any changes in the cells.

For kidney cancer a tissue biopsy is not often used for diagnosis. This is because other tests will usually give the doctor enough information to recommend a type of treatment.

However a biopsy may be recommended:

- if there is a possibility that the tumour in the kidney may be cancer that has spread from elsewhere in the body (metastasis)
- when the doctor suspects the tumour is not cancer (benign) and could be suitable for surveillance rather than treatment.

A tissue sample can usually identify the type of cancer cells in the body. You will have either a needle core biopsy or a fine needle aspiration.

- **Needle core biopsy**—a sample of tissue is removed from the kidney with a needle. Local anaesthetic is used to numb the area. It usually takes about 30 minutes to perform.

- **Fine needle aspiration biopsy**—a thin needle is inserted through the skin into the kidney to remove either fluid or cells. It is a quick procedure that is usually done without anaesthetic.

**Health professionals**

Your GP will arrange the first tests to assess your symptoms. If these tests do not rule out cancer you will usually be referred to a specialist, such as a urologist or nephrologist, who will arrange further tests and advise you about treatment options.

You will also be cared for by a range of other health professionals who specialise in different aspects of your treatment. This multidisciplinary team will probably include many of the below professionals:

- **Urologist** a doctor who specialises in treating diseases of the urinary system.

- **Nephrologist** a doctor who specialises in caring for people with conditions that cause kidney (renal) impairment or failure.

- **Medical oncologist** prescribes and coordinates targeted therapies and chemotherapy.

- **Radiation oncologist** prescribes and coordinates the course of radiotherapy.

- **Nurses** administer drugs and support you through all stages of treatment.

- **Cancer care coordinator or clinical nurse consultant (CNC)** supports patients and families throughout treatment and liaises with other staff.

- **Dietitian** recommends an eating plan to follow while you’re in treatment and recovery.

- **Social worker, counsellor, physiotherapist and occupational therapist** link you to support services and help with emotional, physical or practical issues.