Understanding Kidney Cancer
A guide for people with cancer, their families and friends

Cancer Council Helpline
13 11 20
www.cancercouncil.com.au
Introduction

This booklet has been prepared to help you understand more about the most common type of kidney cancer, renal cell carcinoma.

Many people feel understandably shocked and upset when told they have cancer in one or both kidneys. We hope this booklet will help you understand how kidney cancer is diagnosed and treated. We also include information about support services.

We cannot give advice about the best treatment for you. You need to discuss this with your doctors. However, we hope this information will answer some of your questions and help you think about other questions to ask your treatment team.

This booklet does not need to be read from cover to cover – just read the parts that are useful to you. Some medical terms that may be unfamiliar are explained in the glossary. You may also like to pass this booklet to your family and friends for their information.

How this booklet was developed
This booklet was developed with help from medical experts and people with kidney cancer. It is based on clinical practice guidelines for kidney cancer. Information from Macmillan Cancer Support and the American Cancer Society were used as source material.

Cancer Council Helpline 13 11 20 can arrange telephone support in different languages for non-English speakers. You can also call the Translating and Interpreting Service (TIS) direct on 13 14 50.
# Contents

What is cancer? ................................................................. 4

The kidneys ........................................................................... 6

Key questions ........................................................................ 8
  What is kidney cancer? ................................................................. 8
  What types are there? ................................................................. 8
  What are the symptoms? ......................................................... 9
  What are the causes? ............................................................... 10
  How common is it? ................................................................. 11

Diagnosis .............................................................................. 12
  Blood and urine tests ............................................................... 12
  Internal examination (cystoscopy) .......................................... 13
  Imaging tests ........................................................................... 14
  Tissue sampling ....................................................................... 17
  Staging and grading kidney cancer ....................................... 18
  Prognosis ............................................................................... 20
  Which health professionals will I see? .................................... 20

Treatment ............................................................................. 23
  Active surveillance ................................................................. 23
  Surgery ................................................................................... 24
  Radiofrequency ablation ...................................................... 28
  Cryotherapy ............................................................................ 29
  Arterial embolisation ............................................................ 29
  Targeted therapies ............................................................... 30
  Immunotherapy ...................................................................... 31
Cancer is a disease of the cells, which are the body’s basic building blocks. Our bodies constantly make new cells to help us grow, to replace worn-out cells and to heal damaged cells after an injury.

Normally cells grow and multiply in an orderly way, but sometimes something goes wrong with this process and cells grow in an uncontrolled way. This uncontrolled growth may result in a lump called a tumour or may develop into abnormal blood cells.

A tumour can be benign (not cancer) or malignant (cancer). A benign tumour does not spread to other parts of the body. However, a malignant tumour is made up of cancer cells, which are able to spread. The cancer that first develops in a tissue or organ is called the primary cancer.
When it first develops, a malignant tumour may not have invaded nearby tissue. This is known as a cancer in-situ or carcinoma in-situ. As the tumour grows, it may spread and become what is known as invasive cancer.

Cancer cells can spread to other parts of the body by travelling through the bloodstream or the lymphatic system. They may continue to grow into another tumour at this new site. This is called a secondary cancer or metastasis.

A metastasis keeps the name of the original cancer. For example, kidney cancer that has spread to the lungs is still called kidney cancer, even though the person may be experiencing symptoms caused by problems in the lungs.
The kidneys are two bean-shaped organs, each about the size of a fist. They are positioned near the middle of your back, on either side of the backbone (spine).

The kidneys are part of the body’s urinary system. Their main role is to filter blood, which removes excess water, salts and waste products. These filtered materials are turned into urine. Urine travels from the kidneys into large funnels called the renal pelvis, through tubes called ureters, and into the bladder.

Urine is stored in the bladder until urination, when it leaves the body through a tube called the urethra. In women, the urethra is a short tube in front of the vagina. In men, the tube is longer and passes through the prostate and penis.

The small units of the kidney that filter blood are called nephrons. Each kidney has about one million nephrons. Nephrons regulate blood pressure and volume, the blood’s acid-base balance (pH), and the levels of chemical substances, such as electrolytes.

The kidneys also produce hormones, which trigger the production of red blood cells and control the body’s calcium levels.

An adrenal gland, which produces hormones, sits above each kidney. Although adrenal glands are not part of the urinary system, cancer can spread to them.

The urinary tract is lined with tissue called the urothelium, which is made up of urothelial cells.
The urinary system

Adrenal gland
Kidney
Renal artery and vein
Ureter
Bladder
Urethra

The kidneys

Adrenal gland
Nephrons
Renal artery
Renal vein
Renal pelvis
Ureter
Fat
Q: What is kidney cancer?
A: Kidney cancer is a type of cancer that occurs in the cells of the kidney.

In the early stages, the primary cancer forms a tumour that is confined to the kidney. As the cancer grows, it may invade organs or structures near the kidney, such as the adrenal glands, ureters or liver. It may also spread to other parts of the body, such as the lungs or bones.

Sometimes cancers in the kidney can be a secondary cancer (metastasis) from a primary cancer located in another part of the body.

Q: What types are there?
A: About 90% of all kidney cancers are renal cell carcinoma (RCC). RCC starts in the kidney’s nephrons. Usually only one kidney is affected, but in rare cases, both can be affected.

The most common type of RCC is called clear cell carcinoma, based on the way the cells look under the microscope. Other rarer RCCs include papillary, chromophoblic, oncocytic and sarcomatoid kidney cancers.

“The slightest trace of blood in my urine led to me being diagnosed with kidney cancer.” — George
Q: What are the symptoms?

A: Most people with kidney cancer have no symptoms and are diagnosed with the disease when they see the doctor for another reason. Symptoms can, however, include:

- blood in the urine (haematuria)
- a change in urine colour to a dark, rusty or brown
- pain in the lower back on one side that is not due to an injury
- pain or a lump in the abdomen or side (flank)
- constant tiredness
- unexplained weight loss
- fever (not caused by a cold or flu)
- swelling of the abdomen or extremities, e.g. ankles, feet.
You may also have a low red blood cell count (anaemia) or a high red blood cell count (polycythaemia). These conditions can cause fatigue and dizziness, among other symptoms.

The symptoms listed on the previous page can also occur with other illnesses. Having some of these symptoms doesn’t necessarily mean you have kidney cancer – only tests can confirm the diagnosis. If you are concerned, make an appointment with your general practitioner (GP).

**Q: What are the causes?**

**A:** The exact causes of kidney cancer are not known. However, several factors are known to increase the risk of developing kidney cancer:

- **Smoking** – People who smoke have almost twice the risk of developing kidney cancer as non-smokers. Up to one-third of all kidney cancers are thought to be related to smoking.

- **Heavy use of certain medications** – These include diuretics and pain-killers with the ingredient phenacetin. Phenacetin is no longer used, but people who took pain relievers with phenacetin (most likely before 1970) may be at a higher risk.

- **Exposure to certain substances** – People with regular exposure to certain chemicals, such as asbestos, cadmium, lead, herbicides or organic solvents, may have more risk.
• **Family history** – People who have family members with kidney cancer, especially a sibling, are at increased risk. Having an inherited condition such as von Hippel-Lindau disease or Birt-Hogg-Dubé syndrome also increases the risk.

• **Obesity** – Excess body fat may cause changes in certain hormones that can lead to kidney cancer.

• **High blood pressure** – This is often a risk factor in people who are overweight, however other medical conditions can also cause high blood pressure.

• **Kidney disease** – People with advanced kidney disease have a higher risk of developing kidney cancer.

**Q: How common is it?**

**A:** About 2700 people are diagnosed with kidney cancer each year. This accounts for about 2.5% of cancers in Australia.

Kidney cancer is the ninth most common cancer in Australia.

The average age of a person who gets kidney cancer is 63. Men are almost twice as likely to be diagnosed with kidney cancer as women.
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 the Helpline on 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.

You may not need a cystoscopy if you have had an ultrasound that has shown a tumour on your kidney – see page 14.
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.

Before the test, you may be asked to drink plenty of fluids so your bladder is full. While you’re lying down, 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 and takes about 15–20 minutes.

CT scan
A CT (computerised tomography) scan is a procedure that uses x-ray beams 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.
You will have to have an injection of a dye (a contrast medium) into one of your veins before the scan. This injection will help make the scan pictures clearer. It may make you feel flushed and hot for a few minutes. Rarely, more serious reactions occur, such as breathing difficulties or low blood pressure. Talk to the person doing the scan if you feel unwell.

You will need to lie still on a table while the CT scanner, which is large and round like a doughnut, slowly moves around you.

This scan will take about 30–40 minutes. Most people are able to go home as soon as their scan is over.

The dye used in a CT scan usually contains iodine. If you’re allergic to iodine, fish or dyes, let the person performing the scan know in advance. You should also tell the doctor if you are diabetic, have kidney disease or are pregnant.

**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.
As with a CT scan, a contrast medium may be injected into your veins before a scan. Let the doctor know if you have any metallic objects, such as some types of pacemaker, in your body.

During the scan, you will lie on an examination table inside a metal cylinder – a large magnet – that is open at both ends. The scanner can be noisy at times.

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. The x-ray takes only a few minutes and is painless and safe.

**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.

---

**tip**
The MRI scanner sometimes makes people feel anxious or afraid of being in a confined space (claustrophobic). If you feel uncomfortable, tell the person performing the scan. You may be able to have medication to help you relax.
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 3–4 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.

**Exposure to radiation**

The amount of radioactive dye used for a radioisotope bone scan is small. The radiation disappears from your body within a few hours. However, tell your doctor if you are pregnant, as it may not be safe for you to have this scan. After the scan, you should avoid contact with pregnant women and young children for the rest of the day, and drink plenty of fluids.

**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 (see page 23).

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.

**Staging and grading kidney cancer**

The tests used to diagnose kidney cancer also show how far the cancer has spread (the stage) and how the cancer cells appear and are likely to behave (the grade). Grading indicates how abnormal the cancer cells appear, how fast the cells will probably grow and if the cancer is likely to spread.

Knowing the stage and grade of the cancer helps doctors plan the best treatment for you.
**Grading: Fuhrman system**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>The cancer cells look fairly normal, are probably growing slowly and are not likely to spread.</td>
</tr>
<tr>
<td>Grade 2</td>
<td>The cancer cells appear slightly abnormal and might grow more rapidly.</td>
</tr>
<tr>
<td>Grade 3</td>
<td>Most cells appear abnormal and the cancer might grow quickly.</td>
</tr>
<tr>
<td>Grade 4</td>
<td>No cancer cells look normal and they are more likely to grow and spread rapidly.</td>
</tr>
</tbody>
</table>

**Staging: TNM system**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T (Tumour) 1–4</td>
<td>Indicates the size of the tumour and whether it has spread to nearby tissues. A higher number after the T means that it is larger, or has spread to tissues surrounding the kidney.</td>
</tr>
<tr>
<td>N (Nodes) 0–2</td>
<td>Indicates whether the lymph nodes are affected. Higher numbers are used when more than one group of nodes is affected by the cancer.</td>
</tr>
<tr>
<td>M (Metastasis) 0–1</td>
<td>Indicates whether the cancer has spread to more distant parts of the body. The 0 means that the cancer has not spread; 1 means the cancer has spread.</td>
</tr>
</tbody>
</table>

*Diagnosis*
Prognosis

Prognosis means the expected outcome of a disease. You may wish to discuss your prognosis and treatment options with your doctor, but it is not possible for any doctor to predict the exact course of your disease. Instead, your doctor can give you an idea about common issues that affect people with kidney cancer.

In most cases, the earlier kidney cancer is diagnosed, the better your prognosis. If the cancer is found after it has spread to other parts of the body, it will probably be more difficult to successfully treat.

People who are able to have surgery to remove the cancer have a higher survival rate. However, other factors such as your age, general fitness and medical history are also factors.

Which health professionals will I see?

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:

Having cancer has meant I’ve learnt a lot more about my body and about life than a lot of people ever learn.

Petronella
<table>
<thead>
<tr>
<th>Health professional</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>urologist</td>
<td>a doctor who specialises in treating diseases of the urinary system</td>
</tr>
<tr>
<td>nephrologist</td>
<td>a doctor who specialises in caring for people with conditions that cause kidney (renal) impairment or failure</td>
</tr>
<tr>
<td>medical oncologist</td>
<td>prescribes and coordinates targeted therapies and chemotherapy</td>
</tr>
<tr>
<td>radiation oncologist</td>
<td>prescribes and coordinates the course of radiotherapy</td>
</tr>
<tr>
<td>nurses</td>
<td>administer drugs and support you through all stages of treatment</td>
</tr>
<tr>
<td>cancer care coordinator or clinical nurse consultant (CNC)</td>
<td>supports patients and families throughout treatment and liaises with other staff</td>
</tr>
<tr>
<td>dietitian</td>
<td>recommends an eating plan to follow while you’re in treatment and recovery</td>
</tr>
<tr>
<td>social worker, counsellor, physiotherapist and occupational therapist</td>
<td>link you to support services and help with emotional, physical or practical issues</td>
</tr>
</tbody>
</table>
Key points

- Kidney cancer often doesn’t produce any symptoms, but sometimes people have urinary problems or back pain.

- Cancer may be present for some time before diagnosis. Some kidney cancers have already advanced by the time they are diagnosed.

- Several types of tests are used to diagnose kidney cancer and to see if it has spread. These include blood and urine tests, internal examination, imaging tests and, sometimes, tissue examination (biopsy).

- Tests show what type of kidney cancer you have, as well as its stage and grade.

- The stage of the cancer shows how far the cancer has spread in the body. The TNM system is used for staging. This stands for Tumour, Nodes, Metastasis.

- The grade of the cancer shows how abnormal the cancer cells appear. The Fuhrman system is used for grading (from grade 1–4).

- Knowing the stage and the grade helps doctors plan the best treatment for the cancer.

- Your prognosis is the expected outcome of the disease, based on the type of cancer you have, your treatment options and other factors such as your age, medical history and fitness. Your doctor can discuss your prognosis with you.

- You will be cared for by various health professionals who work together as a team. This will probably include a urologist or nephrologist, nurses and other allied health professionals.
Treatments for kidney cancer include surgery, radiofrequency ablation and drug treatment. In some cases, your doctor may recommend active surveillance (see below). Radiotherapy may be used for advanced cancer.

You need to talk to your doctor about the treatment options that are best for you. *Making treatment decisions* on page 35 has information about weighing up your different options.

**Active surveillance**

When small tumours (less than 4cm) are found in the kidney, they are unlikely to be aggressive. Sometimes, a smaller tumour is benign (not cancer). Even if a small tumour is cancerous, it may not grow during a person’s lifetime and poses little risk to health.

Doctors may suggest it is better to keep a watch on some small tumours (using regular ultrasounds or CT scans – see page 14) than to treat them immediately. This is called active surveillance. If the tumour appears to grow at any time, based on the imaging tests, you will be given treatment (usually surgery).

Using the active surveillance method may help to avoid the loss of kidney function and other side effects associated with different types of treatment. This is particularly important if the tumour is unlikely to be cancerous.

You may feel anxious about not treating tumours in your body right away, even if they are benign. However, this is a common
approach and will only be recommended if the doctor thinks it is the best thing to do. If you are worried, discuss this with your urologist or a counsellor.

Surgery
Surgery is the main treatment for people with kidney cancer, but it is not possible for all patients. You may not have an operation if the cancer has spread or if you are not fit for an anaesthetic.

If surgery is an option, the operation your doctor recommends will depend on the type of kidney cancer you have, your general health and the stage and grade of the cancer (see pages 18–19).

Types of surgery
You may have one of the following operations:

• **Radical nephrectomy** – For large renal cell carcinoma tumours, removal of the whole affected kidney is the most common type of operation. The adrenal gland above the kidney, surrounding fatty tissue and nearby lymph nodes may also be removed during surgery. However, sometimes it is not possible to remove all the tissue affected by the cancer.

Even if a whole kidney or part of your kidney is removed, the remaining kidney can usually carry out the work of two kidneys without any problems.
• **Partial nephrectomy** – Removing the cancer along with a small part of the kidney is another type of surgery for renal cell carcinoma. This is commonly performed for small tumours (less than 4cm) that are easily accessible. An advantage of this operation is that more of the kidney is preserved, but it is a more complex procedure. It is also used for people with cancer in both kidneys or only one working kidney.

• **Surgery for advanced cancer** – In some cases, surgery may be an option to remove secondary tumours that have spread to other parts of the body. Generally, however, surgery is not recommended if the cancer has spread to several places in the body. The surgeon may also recommend that the kidney be removed to help with disease and symptom control (cytoreductive nephrectomy).

**The procedure**

Surgery is usually carried out under a general anaesthetic. Usually, a cut (incision) is made at the side of your abdomen where the affected kidney is located. In some cases, the cut is made in the front of the abdomen or in another area of the body where the cancer has spread.

If you are having a radical nephrectomy, the surgeon will clamp off the major blood vessels and tubes in the affected kidney before removing it.

For all types of surgery, the surgeon will aim to remove all of the cancer.
You might be able to have keyhole surgery (laparoscopy). The surgeon will make several small incisions and insert a tiny telescope (laparoscope) into one of the incisions. The laparoscope takes pictures of your body and projects them onto a TV screen. The surgeon inserts tools into the other incisions and does the surgery using the images on the screen for guidance.

People who have laparoscopic surgery usually have a shorter hospital stay, less pain and a faster recovery time. However, laparoscopic surgery is not the best approach for everyone. Talk to your doctor about your options.

**Taking care of yourself after surgery**
After surgery, you will be in hospital for about 3–7 days.

**Drips and tubes** – When you are in hospital, you will be given fluids and medication through a tube inserted into a vein (intravenous drip). You will also have other temporary tubes in place to help drain waste fluids away from the site of the operation.

For a few days, you will most likely have a thin tube inserted in your urethra and attached to a bag that collects urine. This
is called a urinary catheter, and it helps monitor the remaining kidney. When the catheter is removed, you will be able to urinate normally again.

**Pain relief** – You will have some pain in the areas where the incisions were made and where the kidney (or part of the kidney) was removed.

If you are in pain, ask for medication to help control it. You may have an anaesthetic injected into the area around your spine (called an epidural), pain-killers injected into a vein or muscle, or a patient-controlled analgesic system, called a PCA system. The PCA system delivers a dose of pain relief medication when you push a button.

**Movement** – It is a good idea to see a physiotherapist during your time in hospital. This person can explain the safest way to move after your surgery and show you exercises to do while you are recovering. This may include breathing exercises, to ensure you don’t develop a chest infection.

It will be a while before you can lift things, drive, or return to work. Ask your doctor how long you should wait to do these activities.

*tip*

When your doctor advises you to resume exercise, start by walking a short distance, then going a little further each day. If you want to do vigorous exercise, talk to your doctor first.
Returning home – When you get home, you will need to take things easy and only do what is comfortable. Let your family and friends know that you need to rest a lot and may need some help around the house.

Check-ups – You will need to return to hospital for a check-up some weeks after you’ve returned home. You can do this on an outpatient basis – you do not need to stay in hospital.

Radiofrequency ablation
Radiofrequency ablation (RFA) is a minimally invasive treatment that is still being assessed in clinical trials (see page 37). RFA uses a probe that generates heat to kill cancer cells in a specific area of the body and form internal scar tissue.

Although it is not as effective as surgery, RFA is sometimes used for patients who have a renal cell carcinoma less than 4cm that is located near the edge of the kidney. These patients are unable to have an operation.

You may be given an anaesthetic, then a specialist inserts a needle into the tumour under the guidance of a CT scan. An electrical current passes into the tumour from the needle.

Most people only need to have this treatment once. It takes about 15 minutes and you can usually go home a few hours afterwards. Side effects, including pain or fever, can be managed with medication.
Cryotherapy
Cryotherapy (or cryosurgery) is a type of treatment that freezes and kills cancer cells. It is an emerging treatment that is still being evaluated. Trials have shown that cryotherapy is not as effective as surgery, and is not suitable for kidney tumours over 4cm.

Few hospitals are equipped to perform cryotherapy, so if it is recommended, ask your doctor where it is administered and how much it costs.

You will be given an anaesthetic and a probe will be inserted into the tumour (either with surgery or under CT scan guidance). Liquid nitrogen is injected, which freezes the surrounding area and destroys the cancer cells. Afterwards, the frozen tissue thaws and is absorbed by the body.

The procedure typically takes about an hour. You may have to stay in hospital overnight.

Arterial embolisation
Arterial embolisation is when the doctor blocks the artery providing blood to the kidney, to reduce the tumour size. You may have this procedure if you are unable to have surgery, but it can not cure the cancer.

A risk of this treatment is the cancer cells breaking off and spreading to other parts of the body. Discuss this with your doctor.
During treatment, a tube called a catheter is inserted into the artery using an x-ray for guidance. A substance is then injected into the catheter to block the blood flow.

Without blood flow, the tissue can’t get the food and oxygen it needs to survive, so the kidney and the tumour inside it shrink and die.

**Targeted therapies**

Some newer types of treatment called targeted therapies attack specific cancer cells or blood vessels, to stop or slow down their growth or reduce the size of the tumour.

Two classes of drugs, called tyrosine kinase inhibitors (TKIs) and mTOR inhibitors, have recently been trialled in people with advanced kidney cancer. Both drugs block the message received by cancer cells to grow and divide, which is controlled by chemical messengers called enzymes. Treatment – given in tablet form – has been shown to make both primary and secondary cancers shrink or stop growing.

For renal cell carcinoma that has spread beyond the kidney, TKIs (and sometimes mTOR inhibitors) are the most common treatment offered. These therapies are generally used instead of conventional chemotherapy, and they typically have fewer side effects than chemotherapy or immunotherapy (see opposite).

However, the targeted therapy drug you are given may stop working after some time. In this case, your doctor may prescribe
another drug. It is common to change drugs as they stop working. Clinical trials of newer, more powerful drugs may also be available – ask your medical oncologist if you are eligible.

**Immunotherapy**

Immunotherapy (also called biological therapy) has been used to treat advanced kidney cancer, but it is not standard treatment for other types of kidney cancer. Targeted therapies are used in place of immunotherapy. However, immunotherapy is still a topic of research and clinical trials, and it is used in other countries without access to targeted therapies.

The aim of immunotherapy is to boost the body’s immune system to help it fight off disease and shrink the tumour. The drugs that are used have been developed from cytokines, which are proteins that naturally occur in the body and stimulate the immune system. Drugs may include interleukin-2 and interferon-alpha 2a. Treatment is given intravenously or orally.

Although the drugs are made from natural substances, they can sometimes cause severe side effects. Tell your doctor if you experience side effects such as fever, chills, muscle aches, fatigue and soreness at the injection site.

**Immunotherapy often works better if the kidney with the tumour is removed, so your surgeon may first do an operation.**
Radiotherapy

Radiotherapy is a type of therapy that uses high-energy radiation to kill or damage cancer cells. This treatment is not effective in treating primary kidney cancer. However, radiotherapy may be used as palliative treatment (see below).

If you have radiotherapy, the total number of treatments and their duration depends on your situation. You may have some side effects, such as nausea, appetite loss, diarrhoea, tiredness and skin irritation.

Talk to your doctor and nurses about any side effects, so you can get advice about managing them. You can also read the Understanding Radiotherapy booklet – call Cancer Council Helpline 13 11 20 for a free copy.

Palliative treatment

Palliative treatment helps to improve people’s quality of life by alleviating symptoms of cancer without trying to cure the disease.

Palliative care is particularly important for people with advanced cancer. However, it is not just for people who need end-of-life care; it can be used at all stages of cancer when required.
Often treatment is concerned with pain relief and controlling the spread of cancer, but it can also involve the management of other physical and emotional symptoms, such as bleeding, bowel problems, mobility issues, or stress and anxiety. Treatment may include radiotherapy, arterial embolisation, chemotherapy or other types of medication.

For more information on palliative treatment or advanced cancer, call the Helpline for free copies of *Understanding Palliative Care* or *Living with Advanced Cancer*, or view them online.

“I’ve been having palliative treatment for five years. I’m not trying to get rid of the disease, just keeping it under control. My quality of life is excellent.” *Sean*
Key points

• If you have a small tumour (less than 4cm) or a tumour that is benign (not cancer), your doctor may recommend active surveillance rather than treatment. This means that instead of having treatment, you will be monitored with regular check-ups. If the tumour changes, treatment may be offered.

• The most common treatment type for kidney cancer is surgery, and the most common operations are radical and partial nephrectomies.

• Surgery may also be performed if the cancer has spread a little but not extensively.

• If surgery is not possible, you may have another form of treatment, such as arterial embolisation, radiofrequency ablation and cryotherapy.

• People with more advanced cancer may be offered palliative treatment, such as radiotherapy and arterial embolisation. Palliative treatment is given to ease the symptoms of the cancer, rather than try to cure the disease.

• All of the treatments can cause side effects, such as pain or fatigue. The side effects you experience will depend on your situation. You will also need time to recover from different treatments. Talk to your doctor about how to manage any side effects and your recovery.
Sometimes it is difficult to decide on the right treatment. You may feel that everything is happening so fast you don’t have time to think things through. If you are feeling unsure about your options, check with your doctor how soon your treatment should start, and take as much time as you can before making a decision.

Understanding details about the disease, the available treatments and their possible side effects will help you make a well-informed decision. This decision will also take into account your personal values and the things that are important to you and your family. It is common to feel overwhelmed by information, so it may help if you read and talk about the cancer gradually.

- Weigh up the advantages and disadvantages of different treatments, including the impact of any side effects.

- If only one type of treatment is recommended, ask your doctor why other choices have not been offered.

- If you have a partner, you may want to discuss the treatment options together. You can also talk to friends and family.

You have the right to accept or refuse any treatment offered by your doctors and other health care professionals. Some people with advanced cancer choose treatment even if it only offers a small benefit for a short period of time. Others want to make sure the benefits outweigh the side effects so that they have the best possible quality of life. Some people choose options that focus on reducing symptoms and make them feel as well as possible.
Talking with doctors

When your doctor first tells you that you have cancer you may not remember all the details about what you are told. You may want to see the doctor again before deciding on treatment. Ask for the time and support to make your decision.

If you have questions, it may help to write them down before you see the doctor. You can also check the list of suggested questions on page 51. Taking notes or recording the discussion can help too. Many people like to have a family member or friend go with them to take part in the discussion, take notes or simply listen.

If your doctor uses medical terms you don’t understand, ask for an explanation in everyday language. You can also check a word’s meaning in the glossary (see page 52).

A second opinion

Getting a second opinion from another specialist may be a valuable part of your decision-making process. It can confirm or clarify your doctor’s recommendations and reassure you that you have explored all of your options.

Some people feel uncomfortable asking their doctor for a second opinion, but specialists are used to people doing this.
Your doctor can refer you to another specialist and send your initial results to that person. You can get a second opinion even if you have started treatment or still want to be treated by your first doctor. Alternatively, you may decide you would prefer to be treated by the doctor who provided the second opinion.

**Taking part in a clinical trial**

Your doctor may suggest you consider taking part in a clinical trial. Doctors run clinical trials to test new or modified treatments and ways of diagnosing disease to see if they are better than current methods. Over the years, trials have improved treatments and led to better outcomes for people diagnosed with cancer.

If you join what is called a randomised trial for a new treatment, you will be chosen at random to receive either the best existing treatment or the promising new treatment.

To help you decide whether or not to participate, you can talk to your specialist or the clinical trials nurse. If you’re still unsure, you can also ask for a second opinion from an independent specialist. If you do decide to take part, you have the right to withdraw from the trial at any time; doing so will not jeopardise your ongoing treatment for cancer.

For more information about clinical trials and other research, including questions to ask your doctor and how to find a suitable study, call Cancer Council Helpline 13 11 20. You can also find trials on the website www.australiancancertrials.gov.au.
Cancer can cause physical and emotional strain. It can also impact on your body image, relationships and outlook for the future. It’s important to take time to look after yourself by eating well, exercising, reducing stress and improving your wellbeing.

**Healthy eating**
Eating nutritious food will help you keep as well as possible and cope with cancer and treatment side effects. Depending on your treatment, you may have special dietary needs. A dietitian can help you manage any eating difficulties and choose the best foods and meals for your situation.

Cancer Council Helpline can send you free information about nutrition and cancer.

**Staying active**
Research shows it is helpful to stay active and exercise regularly if you can. Physical activity, even if gentle or for a short duration, helps to improve circulation, reduce tiredness and elevate mood. The amount and type of exercise you do will depend on what you are used to, how well you feel and what your doctor advises.

If you aren’t used to exercise or haven’t exercised for a while, make small changes to your daily activities. You could walk to the shops, take the stairs, do some gardening or join a gentle exercise class. If you want to do more vigorous or weight-bearing exercise, ask your medical team what is best for you.
Complementary therapies

Complementary therapies are treatments that may help you cope better with side effects such as pain. They may also increase your sense of control over what is happening to you, decrease your stress and anxiety, and improve your mood.

There are many types of complementary therapies, such as herbal medicine, acupuncture, massage, relaxation and meditation. Some cancer treatment centres offer these therapies as part of their services, but you may have to go to a private practitioner. Self-help CDs and DVDs can also guide you through different techniques.

Let your doctor know about any complementary therapies you are using or thinking about trying. Some therapies may not be appropriate, depending on your medical treatment. For example, herbs and nutritional supplements may interact with your medication or surgery, resulting in harmful side effects. Massage, acupuncture and exercise therapies should also be modified if you have lowered immunity, low platelets or fragile bones.

Call Cancer Council Helpline 13 11 20 for more information about complementary therapies and alternative therapies.

Alternative therapies are often defined as those used instead of conventional medical treatments. These therapies may be harmful if people with cancer delay or stop using medical treatment in favour of them. Examples are coffee enemas and magnet therapy.
Relationships with others

For many people, the experience of having cancer and any ongoing challenges causes them to make some changes in their life. You may also have a new outlook on your values, priorities, or life in general. Some people find that these changes can affect their relationships. However, sharing your thoughts and feelings with family, friends and colleagues may help to strengthen your relationships with them.

If you feel uncomfortable talking about your feelings, take your time and approach others when you are ready. People usually appreciate insight into how you are feeling and guidance on providing support during and after treatment. Calling Cancer Council Helpline may help you build your confidence to discuss your feelings with others.

Give yourself time to adjust to your cancer diagnosis, and do the same for friends and family. People often react in different ways, for example being overly positive, playing down fears, or keeping a distance. They are also dealing with the diagnosis and the changes.

If someone’s behaviour upsets you, it might help to discuss how you both feel about the situation.

---

“At the time I had surgery, they said I had three months to live. It was a very traumatic period. When I was told there weren’t many options, complementary therapies took on a new meaning for me. That was four years ago.”

Richard
Sexuality, intimacy and cancer

Having cancer can affect your sexuality in both physical and emotional ways. The impact of these changes depends on many factors, such as treatment and side effects, the way you and your partner communicate, the way you see your changed body, and your self-confidence. Knowing the potential challenges and addressing them will help you adjust to these changes.

Some people with cancer have the support of a partner, while others do not. If you meet a new partner during or after treatment, it can be difficult to talk about your experiences, particularly if the cancer has had an impact on your sexuality.

While sexual intercourse may not always be possible during and immediately after treatment, closeness and sharing can still be part of your relationship. Call Cancer Council Helpline 13 11 20 for more information on sexuality and cancer.

Some treatments may also permanently or temporarily affect your fertility. If having children is important to you, talk to your doctor before you start treatment.

Contraception

Depending on the type of cancer and treatment you have, your doctors may advise you to use certain types of contraception, such as condoms, for some time during and after treatment. This is to protect your partner and to avoid pregnancy, as some treatments, such as chemotherapy, can be toxic to your partner or harm a developing baby. Ask your doctors what precautions to take.
Changing body image
Cancer treatment can change the way you feel about yourself (your self-esteem). You may feel less confident about who you are and what you can do. This is common whether your body has changed physically or not.

Give yourself time to adapt to any changes. Try to see yourself as a whole person (body, mind and personality) instead of focusing only on the parts of you that have changed.

For practical suggestions about hair loss, weight changes and other physical changes, call Cancer Council Helpline.

Look Good...Feel Better program
Cancer treatments, such as chemotherapy and radiotherapy, can sometimes cause side effects, such as hair loss and skin irritation. These changes can make you feel self-conscious.

Look Good...Feel Better is a free two-hour program for both men and women to teach them techniques using skin care, hats and wigs to help restore appearance and self-esteem during and after treatment.

Call 1800 650 960 or visit www/lgfb.org.au for more information and to book into a workshop.

I did the Look Good...Feel Better program before treatment. It helped me prepare mentally for losing my hair during chemotherapy.  

Ann
Life after treatment

Life after cancer treatment can present its own challenges. You may need to take some time to adjust to any physical and emotional changes.

You may have mixed emotions. Beforehand, you may have been busy with appointments and focused on treatment, but afterwards you may feel anxious or vulnerable. You might worry about every ache and pain and wonder if the cancer is coming back.

Some people say that after cancer they have changed priorities and see life in a new way. For example, you may decide to travel, spend more time with family, or do volunteer work.

Although you might feel pressure to return to normal life, you may find that you don’t want your life to return to how it was before cancer.

You might find it helpful to:
- take time to adjust to physical and emotional changes
- re-establish a new daily routine at your own pace
- spend time on a leisure activity you enjoy
- maintain a healthy diet and lifestyle
- schedule regular check-ups with your doctor
- share your concerns with family and friends and tell them how they can support you
- call Cancer Council Helpline 13 11 20 to connect with other people who have had cancer or to request a free booklet about life after cancer.
If you have continued feelings of sadness, have trouble getting up in the morning or have lost motivation to do things that previously gave you pleasure, you may be experiencing depression. This is quite common among people who have had cancer.

Talk to your GP, as counselling or medication – even for a short time – may help. Some people are able to get a Medicare rebate for sessions with a psychologist. Ask your doctor if you are eligible. Your local Cancer Council may also run a counselling program.

The organisation beyondblue has information about coping with depression and anxiety. Go to www.beyondblue.org.au or call 1300 224 636 to order a fact sheet.

**After treatment: follow-up**

After your treatment, you will need regular check-ups to confirm that the cancer hasn’t come back. Your doctor will talk to you about the follow-up schedule.

During the check-ups, you may have blood tests, cystoscopies, x-rays or ultrasounds. If these tests show that there are no further problems, your appointments will become less frequent. Tell your doctor immediately if you have any health problems between check-ups.

*If your doctor has recommended active surveillance, you will also continue having regular check-ups.*
What if the cancer returns?
For some people, kidney cancer does come back after treatment, which is known as a relapse. This is why it is important to have regular check-ups.

Kidney cancer may have spread beyond the kidney. If it has spread, you may be offered other treatment, such as immunotherapy, chemotherapy or radiotherapy.

I tried to stay positive, and knowing that other people had recovered from the same type of cancer has helped me.  

Amy
When you are first diagnosed with cancer, and during different stages of treatment and recovery, you may experience a range of emotions, such as fear, sadness, anxiety, anger or frustration. If sadness or anxiety is ongoing or severe, talk to your doctor.

It may help to talk about your feelings. Your partner, family members and friends can be a good source of support, or you might prefer to talk to:

- your treatment team
- a counsellor, social worker or psychologist
- your religious or spiritual adviser
- a support group or someone who has had a similar experience to you – see page 48
- Cancer Council Helpline.

If you need practical assistance, such as help around the house, it may be hard to tell people what would be useful. You might prefer to ask a family member or friend to coordinate offers of help.

You may find that while some people you know are supportive, others struggle to know what to say to you. If you have children, the prospect of telling them you have cancer can be unsettling. Cancer Council has a range of free resources to help people talk about cancer and deal with the emotions that cancer may bring up. Publications are available for people with cancer, partners, carers, children, friends and colleagues.

Call 13 11 20 for resources and support. You can also download booklets from the Cancer Council website.
Practical and financial help
A serious illness can cause practical and financial difficulties. Many services are available so you don’t have to face these problems alone:

- Financial or legal assistance – through benefits, pensions and programs – may help pay for prescription medicines, transport costs to medical appointments, utility bills or basic legal advice.

- Meals on Wheels, home care services, aids and appliances can be arranged to help make life easier at home.

- Subsidised travel and accommodation may be available if you need to travel long distances for treatment.

- Home nursing care may be available through community nursing services or local palliative care services.

Ask Cancer Council Helpline 13 11 20 or your hospital social worker, occupational therapist or physiotherapist which services are available in your area and if you are eligible to receive them.

Cancer Council library*
Following a cancer diagnosis many people look for information about new types of treatment, the latest research findings and stories about how other people have coped. Cancer Council has a range of books, CDs, DVDs and medical journals that may be helpful for you. Call the Helpline for more information.

* Not available in Victoria and Queensland
Talk to someone who’s been there

Coming into contact with other people who have had similar experiences to you can be beneficial. You may feel supported and relieved to know that others understand what you are going through and that you are not alone. There are many ways for you and your family members to connect with others for mutual support and to share information.

In these support settings, people often feel they can speak openly and share tips with others. You may find that you are comfortable talking about your diagnosis and treatment, your relationships with friends and family, and your hopes and fears for the future.

Ask your nurse, social worker or Cancer Council Helpline about suitable support groups and peer support programs in your area.

Types of support services*

Face-to-face support groups – often held in community centres or hospitals

Online discussion forums – where people can connect with each other at any time – see www.cancerconnections.com.au

Telephone support groups – for certain situations or types of cancer, which trained counsellors facilitate

Peer support programs – match you with a trained volunteer who has had a similar cancer experience, e.g. Cancer Connect.

* Not available in all areas
You may be reading this booklet because you are caring for someone with cancer. Being a carer can be stressful and cause you much anxiety. Try to look after yourself – give yourself some time out and share your worries and concerns with somebody neutral such as a counsellor or your doctor.

Many cancer support groups and cancer education programs are open to carers, as well as people with cancer. Support groups and some types of programs can offer valuable opportunities to share experiences and ways of coping.

Support services such as Home Help, Meals on Wheels or visiting nurses can help you in your caring role. There are also many groups and organisations that can provide you with information and support, such as Carers Australia, the national body representing carers in Australia. Carers Australia works with the Carers Associations in each of the states and territories. Phone 1800 242 636 or visit www.carersaustralia.com.au for more information and resources.

You can also call Cancer Council Helpline 13 11 20 to find out more about different services and to request free information for carers and families looking after someone with cancer.
The internet has many useful resources, although not all websites are reliable. The websites below are good sources of information.

**Australian**

Cancer Council Australia................................. www.cancer.org.au
Cancer Australia.................................www.canceraustralia.gov.au
Cancer Connections.................. www.cancerconnections.com.au
Carers Australia.......................... www.carersaustralia.com.au
Department of Health and Ageing............... www.health.gov.au
HealthInsite................................. www.healthinsite.gov.au
Kidney Health Australia............... www.kidney.org.au
Virtual Cancer Centre .................. www.virtualcancercentre.com

**International**

American Cancer Society............................ www.cancer.org
Macmillan Cancer Support........................ www.macmillan.org.uk
National Cancer Institute........................ www.cancer.gov
Kidney Cancer Association .................. www.kidneycancer.org
You may find this checklist helpful when thinking about the questions you want to ask your doctor about your disease and treatment. If your doctor gives you answers that you don’t understand, ask for clarification.

- What type of kidney cancer do I have?
- How far has the cancer spread? How fast is it growing?
- What treatment do you recommend and why?
- Are there other treatment choices for me? If not, why not?
- What are the risks and possible side effects of each treatment?
- How long will treatment take? Will I have to stay in hospital?
- How much will treatment cost? How can the cost be reduced?
- Will I have a lot of pain with the treatment? What will be done about this?
- Are the latest tests and treatments for this type of cancer available in this hospital?
- Are there any clinical trials or research studies I could join?
- How frequently will I need check-ups after treatment?
- Who should I go to for my check-up appointments?
- Are there any complementary therapies that might help me?
- Should I change my diet during or after treatment?
- If the cancer comes back, how will I know?
You may come across new terms when reading this booklet or talking to health professionals. You can check the meaning of other health-related words at www.cancercouncil.com.au/words or www.cancervic.org.au/glossary.

**abdomen**
The part of the body between the chest and hips, which contains the stomach, spleen, pancreas, liver, gall bladder, bowel, bladder and kidneys.

**active surveillance**
When a person does not receive immediate treatment, but instead has their health monitored regularly. Formerly called watchful waiting.

**adjuvant therapy**
A treatment given with or shortly after another treatment to enhance its effectiveness.

**adrenal glands**
Triangular glands resting on top of each kidney that produce adrenaline and other hormones.

**anaemia**
A reduction in the number or quality of red blood cells in the body.

**anaesthetic**
A drug that stops a person feeling pain during a medical procedure. A local anaesthetic numbs part of the body; a general anaesthetic causes a temporary loss of consciousness.

**angiogenesis**
The formation of new blood vessels. This enables tumours to develop their own blood supply, which helps them grow.

**arterial embolisation**
A treatment for kidney cancer in which the artery that feeds the diseased kidney is deliberately blocked. This causes the kidney and the tumour inside it to die.

**artery**
A blood vessel that carries blood away from the heart.

**benign**
Not cancerous or malignant.
**bladder**
The hollow muscular organ that stores urine.

**biological therapy**
A range of medicines made from purified versions of chemicals that are naturally made in the body. They include monoclonal antibodies and immunotherapy. Also called biotherapies.

**biopsy**
The removal of a small sample of tissue from the body, for examination under a microscope, to help diagnose a disease.

**Birt-Hogg-Dubé (BHD) syndrome**
A rare disorder that causes benign tumours of the hair follicles and may increase the risk of kidney tumours.

**catheter**
A hollow, flexible tube through which fluids can be passed into the body or drained from it.

**cells**
The basic building blocks of the body. A human is made of billions of cells that are adapted for different functions.

**chemotherapy**
The use of cytotoxic drugs to treat cancer by killing cancer cells or slowing their growth.

**complementary therapies**
Supportive treatments that are used in conjunction with conventional treatment. They may improve general health, wellbeing and quality of life, and help people cope with side effects of cancer.

**contrast medium**
A substance injected into the vein or taken orally before a scan (such as a CT or MRI scan), which help make pictures clearer. Also called a contrast agent or dye.

**cryotherapy**
The process of inserting a probe into a cancerous tumour to freeze and destroy cancer cells. Sometimes called cryosurgery.

**CT scan**
A computerised tomography scan. This scan uses x-rays to
create a picture of the body.

cystoscope
A thin, viewing instrument with a light that is inserted into the urethra and advanced into the bladder.

cystoscopy
A test using a cystoscope to examine the vagina, cervix, bladder and rectum. It is performed under a general anaesthetic.

grading
A score that describes how aggressive a tumour is (how fast it is likely to grow).

haematuria
Blood in the urine.

hormones
Chemical messengers in the body that send information between cells.

immune system
A network of cells and organs that defends the body against attacks by foreign invaders, such as bacteria and viruses.

immunotherapy
The prevention or treatment of disease using substances that alter the immune system’s response. This is a type of biological therapy.

intravenous
Administered (injected) into a vein.

kidneys
A pair of organs in the abdomen that remove waste from the blood and make urine. The kidneys also produce hormones that control red blood cell production and regulate calcium levels.

laparoscope
A tiny telescope through which structures within the abdomen and pelvis can be seen.

laparoscopy
Surgery done through small cuts in the abdomen using a laparoscope for viewing. Also called keyhole surgery.

lymph nodes
Small, bean-shaped structures
that form part of the lymphatic system. Also called lymph glands. **lymphatic system**
A network of tissues, capillaries, vessels, ducts and nodes that remove excess fluid from tissues, absorb fatty acids and transport fat, and produce immune cells.

**malignant**
Cancer. Malignant cells can spread (metastasise) and can eventually cause death if they cannot be treated. **metastasis**
A cancer that has spread from another part of the body. Also known as secondary cancer. **MRI scan**
A magnetic resonance imaging scan. The scan uses magnetism and radio waves to take detailed cross-sectional pictures of the body. **mTOR inhibitors**
Drugs that block enzymes in the body, which are connected with cell growth and survival.

**nephrologist**
A doctor who specialises in nephrology. **nephrology**
The branch of medicine relating to the function and diseases of the kidneys. **nephrons**
The basic units of the kidney that filter the blood. Nephrons also regulate blood volume, pressure and pH, levels of electrolytes and metabolites. **nephrectomy**
An operation to remove part of the kidney (partial nephrectomy) or all of it (radical nephrectomy). **oncologist**
A doctor who specialises in the study and treatment of cancer. **palliative treatment**
Medical treatment to help people manage pain and other physical and emotional symptoms. **partial nephrectomy**
The surgical removal of part of a kidney.
patient-controlled analgesic (PCA) system
An intravenous system that allows a person to administer a dose of pain relief by pressing a button.

phenacetin
A pain-relieving drug that has not been used since the 1970s, as it has been linked to kidney damage and cancer.

polycythaemia
A condition in which red blood cell levels are higher than normal.

primary cancer
The original cancer. Cells from the primary cancer may break away and be carried to other parts of the body, where secondary cancers may form.

prognosis
The predicted outcome of a person’s disease.

prostate
A gland in the male reproductive system that produces most of the fluid that makes up semen.

radiation
Energy in the form of waves or particles, including gamma rays, x-rays and ultraviolet (UV) rays. This energy is harmful to cells and is used in radiotherapy to destroy cancer cells.

radical nephrectomy
The surgical removal of the whole of the diseased kidney. If diseased, the adrenal gland, surrounding fatty tissue and nearby lymph nodes are also sometimes removed.

radiofrequency ablation
A treatment that uses radio waves to heat and destroy cancer cells.

radiotherapy
The use of radiation, usually x-rays or gamma rays, to kill cancer cells or injure them so they cannot grow and multiply.

renal cell carcinoma (RCC)
The most common form of kidney cancer. Cancerous cells develop in the kidney’s nephrons. Types of RCC include papillary, chromophobc, oncocytc and
sarcomatoid kidney cancers.

**renal pelvis**
A funnel-shaped structure where the kidney and ureter meet.

**renal sarcoma**
A rare cancer that affects the connective tissues of the kidney.

**staging**
Performing tests to determine how far a cancer has spread.

**targeted therapies**
Treatments that attack specific weaknesses of cancer cells while sparing healthy cells. Two types of targeted therapies are drug therapies and immunotherapies.

**tumour**
A new or abnormal growth of tissue on or in the body. A tumour may be benign or malignant.

**tyrosine kinase inhibitors (TKIs)**
Targeted drugs that block the enzyme tyrosine kinase, which is a chemical messenger that tells cells when to divide and grow.

**ultrasound**
A scan that uses soundwaves to create a picture of part of the body. It is used to measure the size and position of a tumour.

**ureters**
The tubes that carry urine from each kidney to the bladder.

**urethra**
The tube that carries urine from the bladder to the outside of the body. For men, the urethra also carries semen.

**urinary system**
Removes wastes from the blood and expels them from the body in urine. Includes the kidneys, ureters, bladder and urethra.

**urologist**
A surgeon who specialises in treating diseases of the urinary tract and sex organs in males, and the urinary organs in females.

**urothelial carcinoma**
Cancer that occurs in urothelial cells. It can start in the renal pelvis of the kidney, the ureter or bladder. Also sometimes called transitional cell carcinoma (TCC).
urothelium
The membrane lining the bladder and the urinary system.

urothelial cells
Cells that line parts of the urinary tract, such as where the kidney joins the ureter, in the ureter itself, in the bladder and in some parts of the urethra. This forms a watertight lining. Also called transitional cells.

von Hippel-Lindau disease (VHL)
A rare genetic condition that increases the risk of developing kidney cancer.

Wilms’ tumour
A rare kidney cancer that mainly affects children.
How you can help

At Cancer Council we’re dedicated to improving cancer control. As well as funding millions of dollars in cancer research every year, we advocate for the highest quality care for cancer patients and their families. We create cancer-smart communities by educating people about cancer, its prevention and early detection. We offer a range of practical and support services for people and families affected by cancer. All these programs would not be possible without community support, great and small.

**Join a Cancer Council event:** Join one of our community fundraising events such as Daffodil Day, Australia’s Biggest Morning Tea, Relay For Life, Girls Night In and Pink Ribbon Day, or hold your own fundraiser or become a volunteer.

**Make a donation:** Any gift, large or small, makes a meaningful contribution to our work in supporting people with cancer and their families now and in the future.

**Buy Cancer Council sun protection products:** Every purchase helps you prevent cancer and contribute financially to our goals.

**Help us speak out for a cancer-smart community:** We are a leading advocate for cancer prevention and improved patient services. You can help us speak out on important cancer issues and help us improve cancer awareness by living and promoting a cancer-smart lifestyle.

**Join a research study:** Cancer Council funds and carries out research investigating the causes, management, outcomes and impacts of different cancers. You may be able to join a study.

To find out more about how you, your family and friends can help, please call your local Cancer Council.
Cancer Council Helpline is a telephone information service provided by Cancer Council NSW for people affected by cancer.

For the cost of a local call (except from mobiles), you can talk about any concerns confidentially with oncology health professionals. Helpline consultants can send you information and put you in touch with services in your area. If you need information in a language other than English, an interpreting service is available.

You can call the Helpline, Monday to Friday, 9am to 5pm.

If you have difficulty communicating over the phone, contact the National Relay Service (www.relayservice.com.au) to help you communicate with a Cancer Council Helpline consultant.

For more information, go to www.cancercouncil.com.au.

### Regional offices

<table>
<thead>
<tr>
<th>Northern</th>
<th>Southern</th>
<th>Central and Southern Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamworth</td>
<td>North Wollongong</td>
<td>Woolloomooloo</td>
</tr>
<tr>
<td>Ph: 02 6763 0900</td>
<td>Ph: 02 4223 0200</td>
<td>Ph: 02 9334 1900</td>
</tr>
<tr>
<td>Alstonville</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph: 02 6627 0300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffs Harbour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph: 02 6659 8400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western</td>
<td></td>
<td>Western Sydney</td>
</tr>
<tr>
<td>Orange</td>
<td></td>
<td>Woolloomooloo</td>
</tr>
<tr>
<td>Ph: 02 6392 0800</td>
<td></td>
<td>Ph: 02 9354 2000</td>
</tr>
<tr>
<td>Wagga Wagga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph: 02 6937 2600</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hunter and Central Coast</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Broadmeadow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph: 02 4923 0700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erina</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph: 02 4336 4500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>North Sydney</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crows Nest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph: 02 9334 1600</td>
<td></td>
</tr>
</tbody>
</table>
For support and information on cancer and cancer-related issues, call Cancer Council Helpline. This is a confidential service.

For further information and details please visit our website: www.cancercouncil.com.au