

What is kidney cancer?

Renal cell carcinoma (RCC) is the most common kind of kidney cancer.¹ Normally, your kidneys filter your blood and excrete waste in urine. Although our kidneys are important, we actually need less than one complete kidney to function.¹

RCC starts when a single cell in the kidney undergoes a change in its genetic program that tells the cell to grow and divide when it shouldn't. Once enough cancer cells are created, a tumour will form inside the kidney.¹

As the tumour gets larger, some of the cancer cells may enter the bloodstream and spread from the kidneys to another part of the body. New tumours may then develop in other organs. This is called advanced or metastatic RCC (mRCC). But this is still RCC. So even if cancer from your kidney spreads to your lungs, it is still called RCC (metastatic RCC) and not lung cancer.¹

RCC often grows as a single tumour within one kidney. Sometimes more than one tumour can grow in one kidney. Less often, tumours may grow in both kidneys at the same time.¹

How common is kidney cancer?

In 2009, an estimated 4,600 Canadians will have been diagnosed with kidney cancer. About twice as many men will be diagnosed with this disease as women. Approximately 3% of all malignant tumours in adults develop in the kidney.²

The average age of people who develop kidney cancer is 65. It is uncommon in people under the age of 45, and occurs most often in people between the ages of 55 and 84. Kidney cancer is among the 10 most common cancers for both men and women.¹

What increases your risk of kidney cancer?

There are many risk factors for developing renal cell carcinoma (RCC) that include age (over 60 years old), genetics, lifestyle and other medical conditions.³

Genetics

- Gender plays a role in kidney cancer, as men are twice as likely as women to develop RCC¹
- A strong family history of RCC puts family members at higher risk of developing RCC, especially among siblings¹
- Von-Hippel Lindau (VHL) disease is a genetic condition that causes people to develop several types of tumours and cysts (fluid-filled sacs) in different parts of the body. They also have an increased risk of developing RCC, especially at a younger age¹
- A condition called hereditary papillary renal cell carcinoma means people have inherited a tendency to develop one or more papillary RCCs, but they do not have tumours in other parts of the body, as with VHL disease¹

Lifestyle³

- Smoking increases your risk of RCC. The longer you smoke, the greater the risk, with the risk decreasing after you quit
- Obesity increases RCC risk compared to being average weight
- High blood pressure, or hypertension, is a risk factor, but we're not sure if it's due to the condition, the medications to treat it, or some combination¹

Environment³

- Exposure to chemicals in your workplace such as asbestos, cadmium, and trichloroethylene may increase your risk of RCC
- Treatment for kidney failure, including long-term dialysis or a kidney transplant followed by immunosuppressive drugs, increase your risk

What are the symptoms of kidney cancer?¹

Early RCC often does not cause any signs or symptoms. If the cancer has grown quite a bit, however, it may cause one or more of the following:

- Blood in the urine (hematuria)
- Lower back pain on one side, not caused by injury
- A lump or mass on the side or the lower back
- Fatigue
- Weight loss for no apparent reason
- Fever that doesn't go away for a few weeks, and doesn't seem related to a cold or other infection
- Swelling in the ankles or legs (edema)

Of course, these signs and symptoms are not unique to RCC, and are more often caused by non-cancerous diseases. Still, you should consult your doctor if you have any of these symptoms.

How is kidney cancer diagnosed?

RCC is often found on a scan of the abdomen, such as an ultrasound or CT scan, that is being done for a concern other than kidney cancer.¹ However, if your doctor has performed a physical examination, including your stomach area, and suspects RCC, you may be asked to give a urine and blood sample to check how well your kidneys are working, along with one or more of the following tests to help confirm the diagnosis:⁴

- Imaging studies to show your tissues, organs and bones in more detail. These can include x-rays, ultrasounds, CT scans, MRIs or bone scans, to check for a tumour and to see if it has spread⁴
- An intravenous pyelogram (IVP), which is a special x-ray procedure for suspected kidney cancer, involving the injection of a dye into a vein that shows up on the x-ray as it passes through the kidneys and urinary system to reveal any problems⁴
- Though a biopsy is not usually used to diagnose RCC, it can be useful in identifying the type of cancer. This procedure involves removing a small amount of tissue from the abnormal area with a thin needle, and then inspecting this tissue under a microscope⁴

How is kidney cancer staged?⁵

When the diagnosis is confirmed, your healthcare team will give the cancer a state and a grade to describe the tumour size and whether it has spread beyond your kidneys.

Stage	Tumour Description
1	Only in the kidney and less than 7 cm in size
2	Only in the kidney and more than 7 cm in size
3	Spread outside the kidney to the main blood vessels close to the kidney, to the layer of fatty tissue around the kidney or to the adrenal gland, but not beyond the renal fascia (fibrous tissue surrounding the kidney) OR Spread to one nearby lymph node
4	Spread beyond the renal fascia or to nearby lymph nodes or to other parts of the body, such as the lungs or the brain

The grade of a tumour is determined by a biopsy sample, and gives your healthcare team an idea of how quickly the cancer may be growing.

Grade	Description
1	Slow growing, less likely to spread
2	Slow growing, but faster than grade 1
3	Growing quickly
4	Growing very quickly

Knowing the stage and grade of the cancer helps you and your healthcare team choose the best treatment for you.

How is kidney cancer treated?

The type of treatment(s) your healthcare team recommends will depend on the stage of your cancer and your overall health.¹

Surgery⁶

This is the most common treatment for renal cancer. During the operation, all or part of the tumour and some of the surrounding tissue will be removed. An operation to remove all of a kidney is called a nephrectomy—the remaining kidney is usually able to take over the job of both kidneys. The three types of kidney cancer surgery are:

- Partial nephrectomy, during which the surgeon removes only the tumour and some of the tissue around it. This type of surgery is done to spare some of the kidney, and can be used when cancer affects both kidneys, or if you only have one kidney because of a previous surgery

- Simple nephrectomy, which involves removing only the kidney. This may be done when treating an early stage (stage 1) kidney cancer
- Radical nephrectomy, during which the surgeon removes the entire kidney, along with the adrenal gland and some tissue around the kidney, including some of the nearby lymph nodes if necessary. This is the usual treatment for kidney cancer

Arterial embolization⁶

This treatment helps shrink the tumour by blocking the flow of blood to the kidney, which stops the tumour from getting oxygen and other nutrients it needs to grow. The procedure involves injecting small pieces of a special gelatin sponge into the main blood vessel (renal artery) of the kidney to block it. Arterial embolization is sometimes done before a nephrectomy to help make surgery a little easier.

Cryoablation or Radiofrequency ablation¹

These procedures use cold (cryoablation) or heat (radiofrequency) to destroy tumour tissue without actually removing it. Both use thin, needle-like probes to reach the tumour, which is then frozen or heated to damage the tumour while being careful not to damage nearby tissues. These are newer techniques, and many doctors consider them to still be experimental in nature.

Radiation¹

Though kidney cancers are not very sensitive to radiation, it can still be an option if a person's general health is too poor for surgery, or to help ease symptoms of kidney cancer such as pain or bleeding. It may also be useful to treat cancer if it has spread to other areas, especially the brain or bones.

Biologics^{6, 1}

Also called immunotherapies, biological therapy uses natural body substances, or drugs made from these substances, to boost the body's own immune defences. The main biologics used for kidney cancer are called cytokines, which were the most commonly used first-choice therapy for advanced kidney cancer. Because they can be difficult to give to patients, and may cause serious side effects, some doctors only use them for cancers that don't respond to targeted therapy (see below).

Targeted Therapies^{6, 1}

Targeted therapies provide renal cell carcinoma patients with alternative treatment options. These therapies use drugs or other substances to find and attack specific types of cancer cells without damaging healthy cells. Some targeted therapies, called **tyrosine kinase (TK) inhibitors**, help block the cellular enzymes that are important for cell growth and survival, including the formation of blood vessels that feed the tumour. Others block a cell protein called mTOR that promotes cell growth and division. These therapies are generally used in patients with advanced kidney cancer.

Speak to your healthcare provider to find out more about which treatments are available in Canada and how they may help you.

Clinical trials¹

Your doctor may ask you if you would like to participate in a clinical trial. Therapy for cancer is constantly evolving as the medical profession continues to look for better treatments. Clinical trials are studies that are done to determine whether a new therapy improves outcomes.

It is entirely your choice whether or not you wish to participate in a clinical trial. By participating, you may receive a new drug that is not yet available in Canada; you will also be contributing to the development of better cancer treatments for many patients. If you decide not to participate in a clinical trial, you will continue to receive the best treatment your doctor decides is appropriate for you.

For information about ongoing clinical trials speak to your doctor and/or refer to the following resources:

Canadian Cancer Society Research Institute

www.cancer.ca/research/

The Canadian Cancer Society also provides information about specific clinical trials. Call the national, bilingual toll-free **Cancer Information Service** at **1-888-939-3333**.

United States National Cancer Institute

www.cancer.gov/CLINICALTRIALS

(Provides helpful information about international clinical trials, including some being conducted in Canada)

Living with kidney cancer

Having renal cell carcinoma affects many aspects of a person's life. Although every person is different, people often experience shock, denial, distress and similar feelings when they are told that they have cancer.

While dealing with RCC is difficult, no one has to do it alone. Family, friends and healthcare providers can all get involved.

Caring for someone with RCC goes beyond treating the cancer. The entire person needs care and attention. Talking about your feelings is difficult, but it can give you the support you may need, and help nurture a close and loving bond among friends and family members.

Telling people⁷

Telling others about your situation can be one of the most difficult parts of a cancer diagnosis. Do your best to have a private, quiet conversation free from distractions. Try to ease into the conversation slowly, and give the information in small chunks. And remember to be honest about your own feelings. You will get different reactions from different people, with some people even withdrawing from you over time because of their discomfort in dealing with your situation. Don't take it personally, and surround yourself with people who listen well, make you feel comfortable and respond supportively.

If you need to tell a child about someone having cancer, take care to make the information understandable to the child and be prepared to have to repeat things more than once. It's important to make sure that the child doesn't assume blame for what has happened. If you are worried about talking to a child about these issues, consider asking a healthcare professional to be present.

Sexual relationships⁸

Almost all cancer patients experience some sexual problems at some time during the course of their illness, due to stress, physical problems or interpersonal problems. However, sexual activity is an important part of normal life, and people with RCC can remain sexually active.

It often helps if you and your partner discuss the issue of sexuality and any fears around it that either person might have. Take it slowly and make plans based on what you can do and what feels comfortable. If discussion is difficult, a sexual counsellor can be helpful.

Returning to work and activities¹

Cancer and its treatment can make you feel very tired. If you do feel tired, returning to work may be difficult. Take one step at a time and start with just an hour or two of work per day.



Pay attention to difficult emotions⁹

People affected by cancer may feel confused, angry, or depressed. You may find that you are unable to take pleasure in the things that normally make you happy. Fortunately, this condition is treatable. If you are unable to get back into your normal activities, even though you are physically capable of doing so, consider the possibility that you may be experiencing depression and inform your healthcare team.

Get help from others

There are many ways family and friends can help a loved one who has RCC: going along on doctor visits, taking care of chores, sharing a cup of tea and some laughs. The important thing is to be there for each other.

Patient Resources

These groups can offer you support and information about cancer. Learning more about your disease and treatment, or talking with other people affected, may help you to cope with your illness

The Canadian Cancer Society (CCS)

1-888-939-3333, www.cancer.ca

The CCS is a resource for patients and healthcare professionals alike. The CCS website has news, facts and useful tips for you and your family, including:

- current news stories about cancer studies
- information on many types of cancer
- new clinical trials in Canada
- stories about cancer survivors
- tips for coping with cancer
- links to support groups

National Cancer Institute of Canada (NCIC)

(416) 961-7223, www.ncic.cancer.ca

A resource for Canadian-based clinical trials

VHL Family Alliance (American)

1-800-850-9132, www.curekidneycancer.org

The organization of patients, families, doctors and health professionals involved in kidney cancer.

The National Cancer Institute (NCI)

1-800-422-6237, www.cancer.gov

The NCI website is a large source of facts about cancer, treatments and clinical trials.

Kidney Cancer Canada (KCC)

1-866-598-7166, www.kidneycancercanada.org

This is a patient-led support organization established to improve the quality of life for patients and their families living with kidney cancer.

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