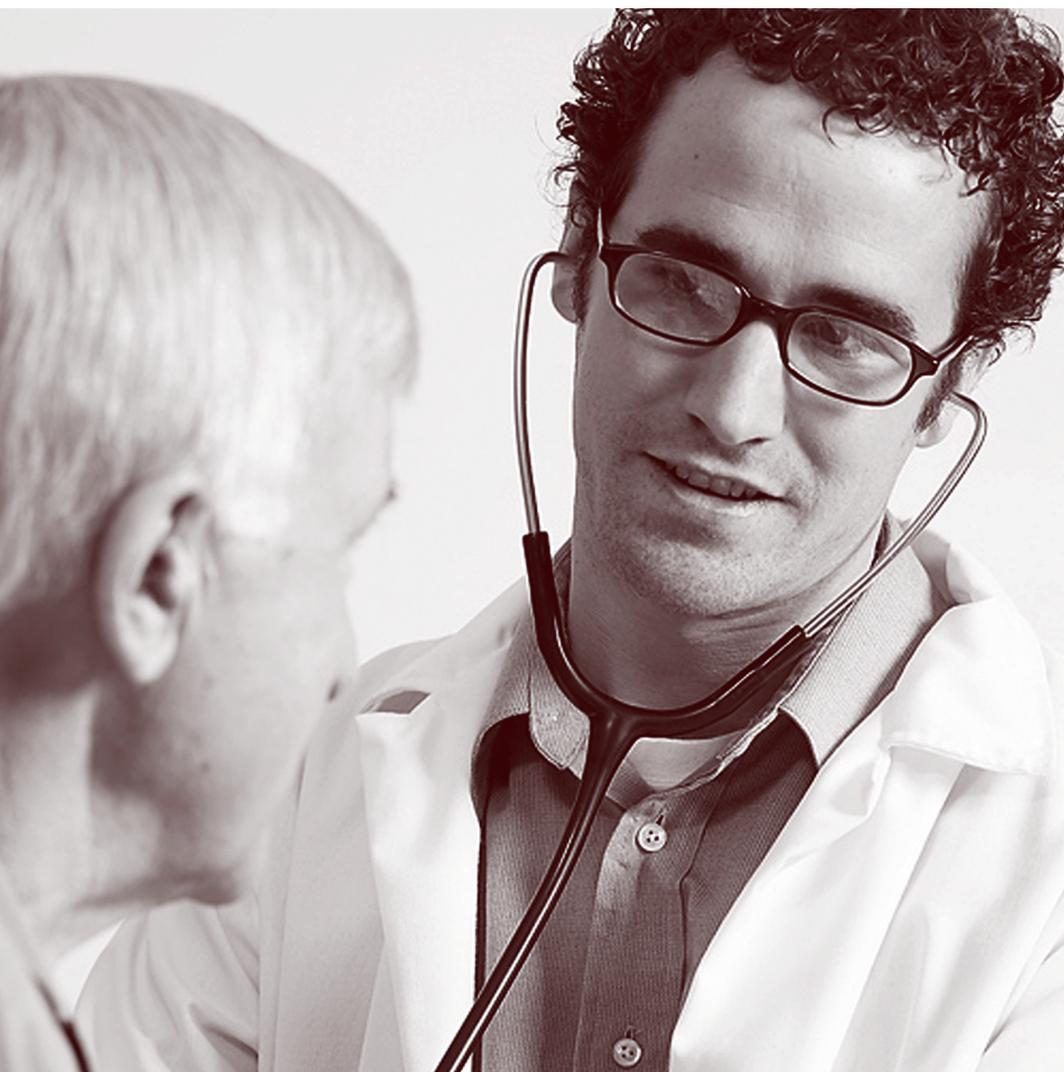


National Kidney
Foundation™

Reducing Cancer Risk After Transplantation





You have received an organ transplant, and you are looking forward to a new, healthier life. As part of your post-transplant care, you need to take medicines called immunosuppressants. These medicines help prevent rejection of your transplanted organ. But, because they make your immune system less active, these medicines may make you more likely to have health problems like infections. In addition—while your risk for cancer is still low—these medicines can increase the risk for certain types of cancer. The likelihood of this occurring can increase with the number of years you are taking immunosuppressants after your transplant. The good news is that you can take steps to help minimize your risk for cancer. This booklet will tell you what you can do to help protect yourself.

Why do I have an increased risk for certain cancers?

Although your risk for developing cancer is still low, taking immunosuppressants increases the possibility of developing certain cancers. This is because these medicines make your body's immune system less active. Your immune system normally protects you from infections and cancers. The immune system recognizes the presence of a "foreign" substance in your body and tries to destroy it. In the same way, immunosuppressant medicines prevent your immune system from destroying your transplanted organ. They may also prevent your body from destroying certain cancers and infections. There are things you can do to minimize this risk.

What types of cancer are most common in transplant recipients?

The types of cancer most common in transplant recipients are cancers of the skin and lips. These are related to sun exposure. (See "What can I do to prevent problems?" on pages 4–5).

Lymphomas (cancers of the lymph glands) are another of the more common types of cancer that occur after transplants. These may be caused by a virus called the Epstein-Barr virus (EBV), which is present in the body but may be activated when the immune system is low.

Cancers of the cervix, breast, and colon (large bowel) are some other cancers seen in people who have had a transplant.

Do all immunosuppressants increase the likelihood of cancer in transplant recipients?

All types of immunosuppressant medications can increase the risk for certain types of cancer. Most transplant patients are treated with a combination of immunosuppressant medicines. Research is being done to find out if some immunosuppressants may be less likely to increase the risk of cancer after a transplant. Some promising results have been found for a group of medicines called TOR inhibitors. If you have concerns about which immunosuppressants are best for you, speak to your doctor.

**Table 1:
Signs and Symptoms of Common Post-Transplant Cancers**

Breast Cancer	Lump, thickening and/or other physical changes in the breast; soreness of the nipples (not associated with breast feeding or monthly periods)
Cervical or Uterine Cancer	Bleeding between monthly periods; unusual discharge; painful or heavy periods
Colorectal Cancer	Rectal bleeding, blood in stool; changes in bowel habits (such as continuing diarrhea or constipation)
Lymphoma	Enlarged, rubbery lymph nodes; itching; night sweats; unexplained fever or weight loss
Prostate Cancer	Weak and interrupted urine flow; continuous pain in lower back, pelvis and/or upper thighs
Skin Cancer	Persistent bump on the skin, resembling a wart or pimple that never completely heals and may bleed or develop an open sore; moles that change color or size, bleed or become itchy

Are there symptoms I should watch for?

Learn the signs and symptoms of different types of cancer (See Table 1). Visit your doctor as soon as possible if you notice any of them. Early detection and treatment save lives.

What can I do to prevent problems?

Make sure to keep all your follow-up visits with your doctor and get all the screening tests that are recommended for you (see Table 2). You can do some other things to help lower your risk for cancer. These include:

- Protect yourself from sun exposure year-round. When you go outdoors, even on a cloudy day, be sure to apply a sunscreen with a high sun protection factor number (SPF of 30 or greater) blocking UVA and UVB rays. Cover up with protective clothing, including a broad-brimmed hat and UV-blocking sunglasses and try to avoid the midday sun.
- Stop smoking if you are a smoker.

- Follow a balanced diet with the right amount of calories to stay at a healthy weight. Speak to your doctor and a registered dietitian if you need help in planning healthful meals. Adding more fruits and vegetables to your diet is a good way to start.
- Get enough exercise. Ask your doctor about an exercise program that's right for you.
- Tell your doctor about all the medicines you take, including over-the-counter drugs, vitamins, minerals and herbal supplements.
- Tell your doctor about family members who have had cancer.
- Many transplant recipients take medicine that helps to prevent serious virus infections like cytomegalovirus (CMV). Studies suggest that these medicines may help to lower your risk for post-transplant cancers. Check with your doctor if you're not sure if you are taking one of these medicines



Having a positive attitude can help you cope with concerns about possible cancer risk. Here are some tips from other transplant recipients:

“You can’t live life fearing what might happen tomorrow.”

“Always remember that although it won’t always be smooth sailing, there is life after transplant.”

“Try to stay in touch with other transplant recipients. Support is good.”

What screening tests should I have? How often do they need to be done?

Make sure to have all the screening tests recommended by your doctor. See Table 2 for some suggestions.

Table 2: Recommended Screening Tests

<i>Type of Cancer</i>	<i>Screening Test</i>	<i>How Often</i>
Skin or Lip Cancer	Self-exam of skin and lips	Monthly
	Exam by doctor	Yearly
Cervical Cancer	Pelvic exam	Yearly
	Pap test	Yearly
Breast Cancer	Mammogram	Every 1-2 years in women aged 50 to 70 (may be recommended at an earlier age for women with other risk factors)
Prostate Cancer	Digital rectal exam of the prostate gland Possible prostate-specific antigen test (PSA) for men over 50	Yearly for men over 50
Colorectal Cancer	Stool test for occult blood	Yearly in people over 50
	Colonoscopy exam	Every 1–5 years depending on your risk factors



What happens if I develop a post-transplant cancer?

If cancer is suspected, you may be referred to a specialist for evaluation and treatment.

Your treatment would depend on the type of cancer. Usually, treatment is the same as for people who do not have a transplant. However, the dose and/or type of immunosuppressant medicines you are taking may be changed.

Skin cancers can sometimes be treated with a fairly simple procedure in the dermatologist's office. However, many skin cancers require more extensive treatment with surgical removal or a method called Mohs surgery. Other types of cancer are treated with surgery, chemotherapy or radiation. Sometimes, a combination of these methods is used.

Hopefully, you will not develop a post-transplant cancer. If you do, your doctor will discuss your treatment plan with you.

Learn all you can about how to help prevent cancer and stay healthy after your transplant. One transplant recipient advises:

"You have to take an aggressive stance about your own health. You don't just agree to everything everyone tells you. You have to ask questions and become knowledgeable."



Key Points to Remember

- Transplant recipients may have an increased chance of developing infections and certain types of cancer.
- Cancers of the skin and lips are the most common types of cancer that may occur after a transplant. This is related to sun exposure.
- To help lower your risk for skin and lip cancer, protect yourself from sun exposure. When outdoors, wear protective clothing including a broad-brimmed hat and UV-blocking sunglasses, and apply a sun-screen with SPF of 30 or greater.
- Take other steps to help prevent cancer such as:
 - Stop smoking if you are a smoker.
 - Follow a healthful diet; include more fruits and vegetables.
 - Get enough exercise.
 - Ask your doctor about medicines to prevent virus infections.
 - Tell your doctor about all the medicines you are taking; include over-the-counter drugs, vitamins, minerals and herbal supplements.
- Learn the signs and symptoms of the cancers that are most commonly seen after a transplant (see Table 1 on page 4).
- Make sure to get all the screening tests recommended for you (see Table 2 on page 6). Early detection and treatment save lives.
- Ask your doctor about what immunosuppressant medicines may lower your risk for developing cancer.

Where can I get more information?

Your doctor and the health care team at your transplant center are a great source of information. You may also want to check out the following resources from the National Kidney Foundation:

- *From Illness to Wellness: Life After Transplant* (1 1-70-0657)
- *New Onset Diabetes: A Guide for Kidney Transplant Recipients* (11-70-0658)
- *People Like Us: Transplantation* (01-40-3030/
in Spanish: 01-40-3062)
- *Nutrition and Transplantation* (1 1-10-0404)
- *Bone Health and Kidney Transplant* (11-50-2208/
in Spanish: 11-50-2292)
- *Heart Health and Kidney Transplant: What You Need to Know About Lipids* (11-50-2108/in Spanish: 11-50-2191)
- *Bill of Rights and Responsibilities for Transplant Recipients* (11-70-0654)
- *Transplant Chronicles* (a quarterly newsletter for transplant recipients and their families and friends)

You can also find additional information by visiting NKF's Web site at www.kidney.org

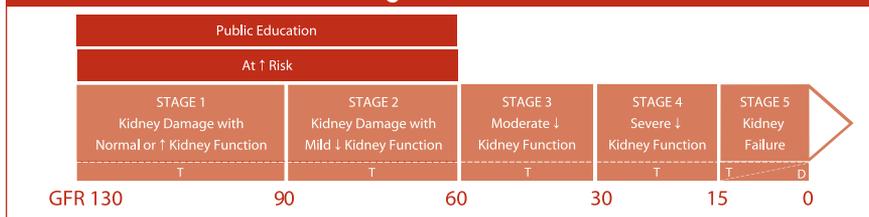
Other helpful Web sites:

- National Cancer Institute: www.cancer.gov
Includes in-depth information about all types of cancer.
- Skin Cancer Foundation: www.skincancer.org
Features information about different types of skin cancer, signs and symptoms, treatments, how to do self-examination for skin cancer, how to prevent skin cancer and how to protect yourself against sun exposure.
- Leukemia and Lymphoma Society: www.lymphoma.org
Includes information about signs and symptoms, diagnosis and treatment of lymphoma.

Questions For My Doctor

More than 20 million Americans—one in nine adults—have chronic kidney disease, and most don't even know it. More than 20 million others are at increased risk. The National Kidney Foundation, a major voluntary health organization, seeks to prevent kidney and urinary tract diseases, improve the health and well-being of individuals and families affected by these diseases, and increase the availability of all organs for transplantation. Through its 47 affiliates nationwide, the foundation conducts programs in research, professional education, patient and community services, public education and organ donation. The work of the National Kidney Foundation is funded by public donations.

Education Along the Continuum of Care



This arrow illustrates the potential scope of content for KLS resources.
Lightshaded boxes indicate the scope of content targeted in this resource.

GFR = Glomerular Filtration Rate; T = Kidney Transplant; D = Dialysis

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