About Nasopharyngeal Cancer

Overview and Types

If you have been diagnosed with nasopharyngeal cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- What Is Nasopharyngeal Cancer?

Research and Statistics

See the latest estimates for new cases of nasopharyngeal cancer in the US and what research is currently being done.

- What Are the Key Statistics About Nasopharyngeal Cancer?
- What's New in Nasopharyngeal Cancer Research and Treatment?

What Is Nasopharyngeal Cancer?

Nasopharyngeal cancer is a cancer that starts in the nasopharynx, the upper part of the throat behind the nose and near the base of skull. To understand nasopharyngeal cancer, it helps to know about the structure and function of the nasopharynx.

About the nasopharynx

The nasopharynx is the upper part of the throat (pharynx) that lies behind the nose. It is a box-like chamber about 1½ inches on each edge. It lies just above the soft part of the roof of the mouth (soft palate) and just in back of the nasal passages.
The nasopharynx serves as a passageway for air from the nose to the throat (and eventually to the lungs).

**Nasopharyngeal tumors**

Several types of tumors can develop in the nasopharynx. Some of these tumors are benign (non-cancerous), but others are malignant (cancerous). It is important to discuss what type of tumor you might have with your doctor.
Benign nasopharyngeal tumors

Benign tumors of the nasopharynx are fairly rare and tend to develop in children and young adults. These tumors do not spread to other parts of the body and are usually not life-threatening. They include tumors or malformations of the vascular (blood-carrying) system, such as angiofibromas and hemangiomas, and benign tumors of minor salivary glands within the nasopharynx.

Treatment of these benign tumors (if it is needed) is different from that for cancerous nasopharyngeal tumors and is not covered further in this document. If you have one of these tumors, you and your doctor will talk about what treatments might be appropriate for you.

Nasopharyngeal cancers

These tumors can invade surrounding tissues and spread to other parts of the body.

**Nasopharyngeal carcinoma (NPC):** This is by far the most common malignant tumor of the nasopharynx. A carcinoma is a cancer that starts in epithelial cells – the cells lining the internal and external surfaces of the body. Most of the rest of this document refers to NPC.

There are 3 types of NPC, based on how the cancer cells look under the microscope:

- Keratinizing squamous cell carcinoma
- Non-keratinizing differentiated carcinoma
- Undifferentiated carcinoma

Each of these types is seen more often in some areas of the world than in others. In southern China, where NPC is much more common, nearly all cases are the undifferentiated type. In the United States, where NPC is rare, about 1 out of 5 cases are the keratinizing type.

Even though these types look different when seen under a microscope, studies have shown they start from the same cell type – the epithelial cells that line the surface of the nasopharynx. The treatment is also usually the same for all types of NPC. The stage of the cancer – how far it has grown and spread – is often more important than its type in predicting a person's outlook (prognosis).

Many NPCs also contain lots of immune system cells, especially lymphocytes. The term lymphoepithelioma is sometimes used to describe an undifferentiated NPC with many lymphocytes among the cancer cells. The presence of these cells does not usually
affect the choice of treatment options. But they may be a clue to developing new treatments since they may represent the body's attempt to “reject” the tumor. (For more information, see the section What's New in Nasopharyngeal Cancer Research and Treatment?)

**Other cancers in the nasopharynx:** Other types of cancers can arise in the nasopharynx.

*Lymphomas* can sometimes start in the nasopharynx. They are cancers of immune system cells called *lymphocytes*, which are found throughout the body, including in the nasopharynx. These cancers are discussed in our document [Non-Hodgkin Lymphoma](#).

*Adenocarcinoma* and *adenoid cystic carcinoma* are cancers that can develop in the minor salivary glands in the nasopharynx, but these cancers are more commonly found in the nose (nasal cavity) or mouth (oral cavity). More information on these cancers can be found in our documents [Oral Cavity and Oropharyngeal Cancer](#), [Nasal Cavity and Paranasal Sinuses Cancer](#), and [Salivary Gland Cancer](#).

- References
  See all references for Nasopharyngeal Cancer

Last Medical Review: January 15, 2015 Last Revised: August 8, 2016

---

American Cancer Society medical information is copyrighted material. For reprint requests, please see our [Content Usage Policy](#).

**What Are the Key Statistics About Nasopharyngeal Cancer?**

Nasopharyngeal cancer (NPC) is fairly rare. In most parts of the world (including the United States), there is less than one case for every 100,000 people each year. In 2015, about 3,200 cases will occur in the United States.

This cancer is, however, much more common in certain parts of Asia and North Africa, particularly in southern China. It is also more common among Inuits of Alaska and Canada, and among some immigrant groups in the United States, such as recent Chinese and Hmong immigrants.
The risk of NPC increases slowly throughout life, but it can occur in people of any age, including children. About half of the people with NPC in the United States are younger than 55 years old.

- References
See all references for Nasopharyngeal Cancer

What's New in Nasopharyngeal Cancer Research and Treatment?

Research into the causes, prevention, and treatment of nasopharyngeal cancer (NPC) is being done in many university hospitals, medical centers, and other institutions around the world.

Causes, prevention, and early detection

Many studies are looking at how Epstein-Barr virus (EBV) infection and other risk factors cause cells of the nasopharynx to become cancerous. Researchers hope these studies may eventually lead to vaccines to help prevent some cases of NPC by avoiding EBV infection.

Recent discoveries about EBV, its interaction with nasopharyngeal cells, and the immune system’s reaction to EBV have led to new blood tests that may help detect NPC early and better predict the response to treatment. These tests are now being studied in areas of the world where this cancer is common.

Treatment

New surgical techniques
Advances in the field of skull base surgery such as the use of endoscopes in the nose now allow doctors to remove some tumors from hard to reach areas like the nasopharynx. This type of surgery requires a specialized team that has expertise in this field. It may offer hope for some patients with recurrent NPC and patients with the keratinizing type of NPC, which often doesn’t respond to radiation therapy.

**New radiation therapy techniques**

Most types of radiation therapy use radiation in the form of x-rays. Another type of radiation uses protons to kill cancer cells, instead. Unlike x-rays, which release energy both before and after they hit their target, protons cause little damage to tissues they pass through and then release their energy after traveling a certain distance. This means that proton beam radiation may be able to deliver more radiation to the tumor and do less damage to nearby normal tissues. Although this approach is promising in theory, it hasn’t been proven to be better than x-ray techniques like IMRT. Also, the machines needed for proton therapy are very expensive, and so this treatment is not widely available.

Doctors are also studying the best schedule for giving radiation therapy. External beam radiation treatments are usually given once a day, 5 days a week, for many weeks in a row. Studies are now under way to see if schedules that either give the doses over fewer days or give smaller doses twice a day might be more effective.

**Chemotherapy**

Researchers continue to develop new chemotherapy drugs, new drug combinations, and new ways to give drugs that might be more effective against advanced NPC. Several drugs that are already used to treat other cancers, such as capecitabine, oxaliplatin, and gemcitabine, have been studied for use against NPC as well.

Clinical trials are also testing ways to best combine chemotherapy with radiation therapy. For example, studies are comparing the effectiveness of chemotherapy given before, during, or after radiation therapy.

**Targeted therapy**

Drugs that target specific parts of cancer cells may prove to be useful against NPC and have fewer side effects than standard chemotherapy drugs.

The drug cetuximab (Erbitux), which targets the epidermal growth factor receptor
(EGFR), a protein found on the surface of cells, is already being used in some cases of NPC that recur or keep growing after treatment with chemotherapy. Other drugs that target EGFR are also being studied for use against NPC, including nimotuzumab and icotinib.

Other newer drugs target a tumor’s ability to develop new blood vessels, which they need in order to grow larger. These drugs are called angiogenesis inhibitors. Several of these drugs are now being tested for use against NPC, including bevacizumab (Avastin®), sorafenib (Nexavar®), and pazopanib (Votrient®).

**Immunotherapy**

NPC seems to be caused at least in part by infection with the Epstein-Barr virus (EBV). Although patients’ immune systems can be shown to have reacted against EBV, this doesn’t seem to be enough to kill the cancer. Researchers are trying to use different ways to boost the immune system or help it better target EBV-infected cells.

One way to do this is to remove T lymphocytes (immune system cells) from the blood of patients with NPC and alter them in the lab to increase their numbers and their power to kill EBV. The cells are then injected back into the patients. Early results with small numbers of patients have been promising, and larger studies of this technique are now under way.

**Gene therapy**

Scientists have recently discovered how certain gene mutations (changes) in nasopharyngeal cells may cause them to become cancerous. A clinical trial using a virus to replace the damaged tumor suppressor gene p53 in the cancer cells had some promising results. This approach is still being studied.

- **References**
  
  See all references for Nasopharyngeal Cancer

Last Medical Review: January 15, 2015 Last Revised: August 8, 2016

American Cancer Society medical information is copyrighted material. For reprint requests, please see our [Content Usage Policy](#).