Nasal Cavity and Paranasal Sinus Cancer Early Detection, Diagnosis, and Staging

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- Can Nasal Cavity and Paranasal Sinus Cancers Be Found Early?
- Signs and Symptoms of Nasal and Paranasal Sinus Cancers
- How Are Nasal Cavity and Paranasal Sinus Cancers Diagnosed?

Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- How Are Nasal Cavity and Paranasal Sinus Cancers Staged?
- Survival Rates for Nasal Cavity and Paranasal Sinus Cancers, by Stage

Questions to Ask Your Cancer Care Team

Here are some questions you can ask your cancer care team to help you better understand your cancer diagnosis and treatment options.

- What Should You Ask Your Doctor About Nasal Cavity or Paranasal Sinus Cancer?

Can Nasal Cavity and Paranasal Sinus Cancers Be Found Early?

Small cancers of the nasal cavity and paranasal sinuses usually do not cause any
specific symptoms that help doctors find them early. Many of the symptoms of nasal cavity and paranasal sinus cancers can also be caused by benign conditions like infections. Because of this, many of these cancers are not found until they have grown large enough to block the nasal airway or sinuses, or until they have spread to nearby tissues or even to distant areas of the body.

Still, some nasal cavity and paranasal sinus cancers can be found early. Talk to your doctor if you have symptoms such as those described in the section Signs and Symptoms of Nasal Cavity and Paranasal Sinus Cancers. Most of these symptoms are much more likely to be caused by less serious problems. Still, it’s important to see a doctor so that the cause can be found and treated, if needed.

**Screening**

Screening refers to tests and exams used to detect a disease, such as cancer, in people who do not have any symptoms. Screening can find some types of cancer early, when treatment is most likely to be effective. But at this time there is no simple screening test that can routinely find nasal cavity and paranasal sinus cancers early. These cancers are also fairly rare. Because of this, neither the American Cancer Society nor any other group recommends routine screening for these cancers.

- References

See all references for Nasal Cavity and Paranasal Sinus Cancers

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**Signs and Symptoms of Nasal and Paranasal Sinus Cancers**

In most cases, nasal and paranasal sinus cancers are found because of the symptoms they cause. Diagnosis in people without symptoms is rare and usually accidental (because of tests done to check other medical problems). Possible symptoms of these cancers include:
• Nasal congestion and stuffiness that doesn’t get better or even worsens
• Pain above or below the eyes
• Blockage of one side of the nose
• Post-nasal drip (nasal drainage in the back of the nose and throat)
• Nosebleeds
• Pus draining from the nose
• Decreased sense of smell
• Numbness or pain in parts of the face
• Loosening or numbness of the teeth
• Growth or mass of the face, nose, or palate
• Constant watery eyes
• Bulging of one eye
• Loss or change in vision
• Pain or pressure in one of the ears
• Trouble opening the mouth
• Lymph nodes in the neck getting larger (seen or felt as lumps under the skin)

Having one or more of these symptoms does not mean you have nasal cavity or paranasal sinus cancer. In fact, many of these symptoms are more likely to be caused by other conditions (although with cancer they don’t get better over time). Still, if you have any of these symptoms, it is important to have them checked by a doctor so that the cause can be found and treated, if needed.

• References
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How Are Nasal Cavity and Paranasal Sinus Cancers Diagnosed?

Nasal cavity and paranasal sinus cancers are usually found because of signs or symptoms a person is having. The doctor will take a history and examine the patient. If
cancer is suspected, the patient will be referred to a specialist and tests will be done to confirm the diagnosis.

**Medical history and physical exam**

When your doctor takes your medical history, you will be asked a series of questions about your symptoms and possible risk factors. A physical exam will provide other information about signs of nasal cavity and paranasal sinus cancer and other health problems.

During your physical exam, your doctor will pay special attention to the areas of your nose and sinuses that are causing symptoms. He or she will also pay attention to areas of numbness or pain, swelling and firmness in areas of the face or lymph nodes in the neck, changes in the symmetry of your eyes and face, visual changes, and any other problems you may be having.

Your doctor may also examine the nasal cavity with a headlight or even look inside your nose with a special instrument called a nasal endoscope (a thin tube designed to allow the doctor to see into the nasal passages).

If your doctor suspects you might have cancer of the nasal cavity or paranasal sinuses, you will be referred to an otolaryngologist (a doctor who specializes in diseases of the ear, nose, and throat; also known as an ENT doctor), who will more thoroughly examine your nasal passages and the rest of your head and neck area. This might include an exam of your throat, which can be done with small mirrors or with a fiber-optic scope – a thin, flexible, lighted tube that is passed down through the mouth or nose.

**Imaging tests**

Imaging tests use x-rays, magnetic fields, or other means to create pictures of the inside of your body. Imaging tests are not used to diagnose nasal cavity or paranasal sinus cancers, but they may be done for a number of reasons both before and after a cancer diagnosis, including:

- To help look for a tumor if one is suspected
- To learn how far cancer may have spread
- To help determine if treatment has been effective
- To look for possible signs of cancer recurrence after treatment
**X-rays of the sinuses**

X-rays can show if the sinuses are not filled by air as they should be. This would suggest that something is wrong, but it may not be a tumor. Most of the time, an abnormal-looking sinus x-ray means there is an infection. If treatment for infection doesn’t work, then other more specialized x-ray tests may be done. Sinus x-rays are not done often any more, as many doctors prefer to order a computed tomography (CT) scan instead. A CT scan provides much more detail about the anatomy of the sinuses.

**Computed tomography (CT) scan**

The CT scan uses x-rays to produce detailed cross-sectional images of your body. This test is very useful in identifying cancers of the nasal cavity and paranasal sinuses. It may also be done to see if the cancer has spread to the lungs.

A CT scanner has been described as a large donut, with a narrow table in the middle opening. You will need to lie still on the table while the scan is being done. CT scans take longer than regular x-rays, and you might feel a bit confined by the ring while the pictures are being taken.

Instead of taking one picture like a standard x-ray, a CT scanner takes many pictures of the part of your body being studied as it rotates around you. A computer then combines these pictures into an image of a slice of your body. Unlike a regular x-ray, a CT scan creates detailed images of the soft tissues and organs in the body.

Often after the first set of pictures is taken, you may receive an injection of a “dye” or radiocontrast agent into an intravenous (IV) line. This dye helps to better outline structures in your body. A second set of pictures is then taken. Some people are allergic to the dye and get hives, a flushed feeling, or, rarely, more serious reactions like trouble breathing and low blood pressure. Be sure to tell your doctor if you have any allergies or have ever had a reaction to any contrast material used for x-rays.

**Magnetic resonance imaging (MRI) scan**

MRI scans use radio waves and strong magnets instead of x-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of tissue and by certain diseases. A computer translates the pattern of radio waves given off by the tissues into a very detailed image of parts of the body. A contrast material might be injected, but this is different from the one used for CT scans, so being allergic to one doesn’t mean you are allergic to the other.
MRI scans are very helpful in looking at cancers of the nasal cavities and paranasal sinuses. They are better than CT scans in distinguishing fluid from tumor, and sometimes they can help the doctor tell the difference between a benign tumor and a cancerous one.

MRI scans are a little more uncomfortable than CT scans. First, they take longer – often up to an hour. Second, you have to lie inside a narrow tube, which is confining and can upset people with claustrophobia (a fear of enclosed spaces). Special, more open MRI machines can sometimes help with this if needed, although the images may not be as sharp in some cases. MRI machines make buzzing and clicking noises that you may find disturbing. Some centers provide earplugs to help block this noise out.

Both CT and MRI help identify cancers of the nasal cavities and paranasal sinuses and their characteristics. The CT scan can tell if the cancer is growing into bone, but the MRI is better at evaluating the kind and size of the cancer. Both can tell if it has spread to lymph nodes in the neck.

**Chest x-ray**

If you have been diagnosed with nasal cavity or paranasal sinus cancer, this test might be done to find out if the cancer has spread to your lungs, which is the most common site of spread other than lymph nodes.

**Biopsy**

A biopsy is a procedure in which a doctor removes a sample of tissue to be looked at under a microscope. It is the only way to confirm the diagnosis of nasal cavity or paranasal sinus cancer. If cancer is found, the biopsy can also help the doctor tell what type of cancer it is and how aggressive it is. This is important to help plan the most effective treatment.

Often, biopsies are done in the doctor’s office or clinic. If the tumor is in a hard-to-reach area, the biopsy will be done in the operating room. Several types of biopsies can be used to diagnose nasal cavity or paranasal sinus cancer.

**Fine needle aspiration (FNA) biopsy**

In this type of biopsy, the doctor places a thin, hollow needle directly into a tumor or lymph node to take out cells and a few drops of fluid. The doctor may repeat this procedure 2 or 3 times during the same appointment to take several samples. The cells
can then be viewed under a microscope to see if they look cancerous or benign.

This type of biopsy is often used in patients with enlarged lymph nodes in the neck. In these patients, fine needle biopsy can be useful in deciding if the lymph node swelling is from cancer or if it is a response to an infection. If someone who has already been diagnosed with nasal cavity or paranasal sinus cancer has enlarged neck lymph nodes, a fine needle biopsy can help determine if the lymph node swelling is caused by the spread of cancer.

**Incisional and excisional biopsies**

These types of biopsies remove more of the tumor using a minor surgical procedure. They are the more common types of biopsies for nasal and paranasal sinus tumors. Biopsies of tumors in the nose may be done using special instruments placed into the nose. Biopsies of tumors that are deeper within the skull may require a more involved procedure (see below).

For an *incisional* biopsy, the surgeon cuts out a small piece of the tumor. For an *excisional* biopsy, the entire tumor is removed. In either case, the biopsy sample is then sent to the lab for analysis.

**Endoscopic versus open biopsy**

For tumors deeper within the skull, how the biopsy is obtained depends on where it is and how large it is.

**Endoscopic biopsy:** Some tumors that are deep in the nasal passages may be reached using an endoscope – a thin, flexible lighted tube. Long, thin surgical instruments can be passed down the endoscope to get a biopsy sample.

**Open (surgical) biopsy:** Fortumors inside the sinuses, it may be necessary to cut through the skin next to the nose and through the underlying bones to reach them. These operations are discussed in greater detail in the section [Surgery for Nasal Cavity and Paranasal Sinus Cancer](#).

**Anesthesia for biopsies**

The type of anesthesia used depends on which biopsy method is used.

Local anesthesia (numbing medicine) is often used for an incisional biopsy or needle
biopsy. The anesthetic can be injected into the skin and nearby tissues or even applied directly on the inside of the nose to numb the area for the biopsy.

Sedation (where you are made very drowsy) or general anesthesia (where you are asleep) may be required for endoscopic biopsies. General anesthesia is needed for procedures that cut through the sinus bones.

See Testing Biopsy and Cytology Specimens for Cancer to learn more about different types of biopsies, how the tissue is used in the lab for disease diagnosis, and what the results will tell you.

- References

See all references for Nasal Cavity and Paranasal Sinus Cancers

How Are Nasal Cavity and Paranasal Sinus Cancers Staged?

Staging is a process that tells the doctor how widespread a cancer may be. It will show if the cancer has spread and how far. The stage (extent) of the cancer is a main factor in determining the treatment and prognosis (outlook) for people with nasal cavity or paranasal sinus cancers. Other important factors include the type of cancer and a person’s general health.

Cancers of the nasal cavity and paranasal sinuses first grow and spread into nearby areas and then may spread to nearby lymph nodes. Lymph nodes are bean-sized collections of immune cells scattered throughout the head and neck (and the rest of the body). Cancers that continue to grow may then spread to other parts of the body, such as the lungs.

The most common system used to describe the stages of cancers is the American Joint Committee on Cancer (AJCC) TNM system. For nasal and paranasal sinus cancers, the TNM system is based on 3 key pieces of information:
• **T** stands for **tumor** (how far it has grown into nearby skull bones or other structures).
• **N** stands for spread to nearby lymph **nodes** in the head and neck.
• **M** is for **metastasis** (spread to distant organs). The most common site of spread for these cancers is to the lungs, although they may also spread to distant bones.

## T categories

The **T** group of nasal cavity and paranasal sinus cancers is based on the results of head and neck exams and on any imaging tests of the area, such as CT or MRI scans. Higher **T** group numbers indicate more growth within the nasal cavity or paranasal sinuses or spread to other nearby areas. The **T** groups for cancers that start in the maxillary sinuses differ from those for cancers that start in the nasal cavity or ethmoid sinuses.

### T categories for maxillary sinus cancer

**TX**: Primary (main) tumor cannot be assessed.

**T0**: No evidence of primary tumor.

**Tis**: Cancer cells are limited to the innermost layer of the mucosa (epithelium). These cancers are known as *carcinoma in situ*.

**T1**: Tumor is only in the tissue lining the sinus (the mucosa) and does not invade bone.

**T2**: Tumor has begun to grow into some of the bones of the sinus, other than into the bone of the back part of the sinus.

**T3**: Tumor has begun to grow into the bone at the back of the sinus (called the *posterior wall*) or the tumor has grown into the ethmoid sinus, the tissues under the skin, or the side or bottom of the eye socket.

**T4a**: Tumor is growing into other structures such as the skin of the cheek, the front part of the eye socket, the bone at the top of the nose (cribriform plate), the sphenoid sinus, the frontal sinus, or certain parts of the face (the pterygoid plates or the infratemporal fossa). This is also known as *moderately advanced local disease*.

**T4b**: Tumor has grown into the throat behind the nasal cavity (called the *nasopharynx*), the back of the eye socket, the brain, the tissue covering the brain (the dura), some
parts of the base of the skull (middle cranial fossa or clivus), or certain nerves. This is also known as *very advanced local disease*.

**T categories for nasal cavity and ethmoid sinus cancer**

**TX:** Primary (main) tumor cannot be assessed.

**T0:** No evidence of primary tumor.

**Tis:** Cancer cells are only in the innermost layer of the mucosa (epithelium). These cancers are known as *carcinoma in situ*.

**T1:** Tumor is only in the nasal cavity or one of the ethmoid sinuses, although it may have grown into the bones of the sinus.

**T2:** Tumor has grown into other nasal or paranasal cavities, and may or may not have grown into nearby bones.

**T3:** Tumor has grown into the side or bottom of the eye socket, the roof of the mouth (palate), the cribriform plate (the bone that separates the nose from the brain), and/or the maxillary sinus.

**T4a:** Tumor has grown into other structures such as the front part of the eye socket, the skin of the nose or cheek, the sphenoid sinus, the frontal sinus, or certain bones in the face (pterygoid plates). This is also known as *moderately advanced local disease*. Cancers that are T4a are usually resectable (meaning they can be removed with surgery).

**T4b:** Tumor is growing into the back of the eye socket, the brain, the dura (the tissue covering the brain), some parts of the skull (the clivus or the middle cranial fossa), certain nerves, or the nasopharynx (throat behind the nasal cavity). This is also known as *very advanced local disease*. These tumors are not resectable (they cannot be removed with surgery).

**N categories**

The N groups are based on spread of the cancer to nearby (regional) lymph nodes and on the size of the nodes. These groups are the same for all nasal cavity and paranasal sinus cancers:
**NX:** Nearby (regional) lymph nodes cannot be assessed.

**N0:** Cancer has not spread into the lymph nodes.

**N1:** Cancer has spread to a single lymph node that is on the same side as the tumor and is no larger than 3 centimeters (cm) across (slightly larger than 1 inch).

**N2:** Cancer has spread to a single lymph node on the same side as the tumor that is larger than 3 cm but no larger than 6 cm (slightly larger than 2 inches) across; or cancer has spread to more than one lymph node on the same side as the tumor, all of which are no larger than 6 cm across; or cancer is in at least one lymph node that is not on the same side as the tumor (but none are larger than 6 cm across).

**N3:** Cancer has spread to at least one nearby lymph node that is larger than 6 cm across.

**M categories**

The M groups for all nasal cavity and paranasal sinus cancers are the same:

**M0:** No cancer spread (metastasis) distant organs or tissues

**M1:** The cancer has spread to distant organs such as the lung or distant bones.

**Stage groupings**

Once the T, N, and M groups have been assigned, this information is combined to assign an overall stage for the cancer. This process is called stage grouping. Stage grouping rules are the same for all cancers of the nasal cavity and paranasal sinuses.

- **Stage 0**
  - Tis
  - **Stage I**
    - T1
    - T2
    - T3
  - **Stage II**
    - T1, T2, or T3
- **Stage III**
  - T1, T2, or T3
- **Stage IV A**
  - T4a

- **N**
  - N0
  - N0
  - N0
  - N0
- **N1**
  - N1
- **N2**
  - N2
  - N0, N1, or
- **N M**
  - M0
  - M0
  - M0
  - M0
  - M0
  - M0

- **M**
  - M0
  - M0
  - M0
  - M0
  - M0
In general, patients with lower stage cancers tend to have a better outlook for a cure or long-term survival.

- References

See all references for Nasal Cavity and Paranasal Sinus Cancers

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Survival Rates for Nasal Cavity and Paranasal Sinus Cancers, by Stage

Doctors often use survival rates as a standard way of discussing a person’s prognosis (outlook). Some patients with cancer may want to know the survival statistics for people in similar situations, while others may not find the numbers helpful, or may even not want to know them. If you do not want to know the survival statistics for nasal and paranasal sinus cancers, stop reading here and skip to the next section.

The rates below are based on the stage of the cancer when it is first diagnosed. When looking at survival rates, it’s important to understand that the stage of a cancer does not change over time, even if the cancer progresses. A cancer that comes back or spreads is still referred to by the stage it was given when it was first found and diagnosed, but more information is added to explain the current extent of the cancer. (And of course, the treatment plan is adjusted based on the change in cancer status.)

The 5-year survival rate refers to the percentage of patients who live at least 5 years after their cancer is diagnosed. Of course, many of these people live much longer than 5 years.
Five-year relative survival rates, such as the numbers below, assume that some people will die of other causes and compare the observed survival with that expected for people without the cancer. This is a better way to describe the impact on survival for a particular type and stage of cancer.

To get 5-year survival rates, doctors have to look at people who were treated at least 5 years ago. Improvements in treatment since then may result in a more favorable outlook for people now being diagnosed with these cancers.

The following statistics were published in 2010 in the 7th edition of the AJCC Staging Manual. They come from the National Cancer Data Base and are based on nasal and paranasal sinus cancers diagnosed between 1998 and 1999. They include people with all types of nasal and paranasal sinus cancers.

<table>
<thead>
<tr>
<th>Stage</th>
<th>5-year relative survival rate</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>63%</td>
</tr>
<tr>
<td>II</td>
<td>61%</td>
</tr>
<tr>
<td>III</td>
<td>50%</td>
</tr>
<tr>
<td>IV</td>
<td>35%</td>
</tr>
</tbody>
</table>

Survival rates are often based on previous outcomes of large numbers of people who had the disease, but they cannot predict what will happen in any particular person’s case. Many other factors may affect a person’s outlook, such as their general state of health, the exact type and location of the cancer, the treatment received, and how well the cancer responds to treatment. Your doctor can tell you how the numbers above may apply to the aspects of your particular situation.

- References

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What Should You Ask Your Doctor About Nasal Cavity or Paranasal Sinus
Cancer?

As you cope with cancer and cancer treatment, we encourage you to have honest, open discussions with your doctor. Ask any question on your mind, no matter how small it might seem. Here are some questions you might want to ask. Nurses, social workers, and other members of the treatment team may also be able to answer many of your questions.

- What kind of nasal cavity or paranasal sinus cancer do I have?
- Where is my cancer located?
- Has my cancer spread beyond the primary site?
- What is the stage of my cancer, and what does that mean?
- Do I need to have other tests before we can decide on treatment?
- Are there other doctors I need to see?
- How much experience do you have treating this type of cancer?
- What treatment choices do I have?
- What do you recommend and why?
- What is the goal of the treatment?
- What are the chances my cancer can be cured with treatment?
- How quickly do we need to decide on treatment?
- What should I do to be ready for treatment?
- How long will treatment last? What will be done? Where will it be done?
- How would treatment affect my daily activities?
- What risks or side effects should I expect? How long are they likely to last?
- How will this treatment affect my appearance?
- What options for reconstruction of the defects do I have?
- What if the treatment doesn’t work or if the cancer recurs?
- What type of follow-up will I need after treatment?
- Where can I find more information and support?

In addition to these sample questions, be sure to write down some of your own. For instance, you might want more information about recovery times so you can plan your work or activity schedule. Or you may want to ask about second opinions or about clinical trials for which you may qualify.

- References
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