How are nasal cavity and paranasal sinus cancers treated?

Treatment for nasal cavity or paranasal sinus cancer may include:

- Surgery for Nasal Cavity and Paranasal Sinus Cancers
- Radiation Therapy for Nasal Cavity and Paranasal Sinus Cancers
- Chemotherapy for Nasal Cavity and Paranasal Sinus Cancers
- Targeted Drug Therapy for Nasal Cavity and Paranasal Sinus Cancers
- Immunotherapy for Nasal Cavity and Paranasal Sinus Cancers
- Supportive Treatment for Nasal Cavity and Paranasal Sinus Cancers

Common treatment approaches

Depending on the stage of the cancer and your general health, different treatment options may be used alone or in combination. In general, surgery is the first treatment for cancers of the nasal cavity and paranasal sinuses. For bigger cancers that cannot be removed with surgery alone, radiation might be added or be the main treatment. Chemotherapy given with radiation might also be used.

- Treatment of Nasal Cavity and Paranasal Sinus Cancers, by Type and Stage

Who treats nasal cavity and paranasal sinus cancers?

Based on the treatment options, you may have different kinds of doctors on your treatment team. These doctors may include:
• An **otolaryngologist**: a doctor who specializes in certain diseases of the head and neck (also known as an ear, nose, and throat, or ENT doctor)
• A **neurosurgeon**: a doctor who specializes in surgery on the brain, spine, and other parts of the nervous system.
• A **radiation oncologist**: a doctor who treats cancer with radiation therapy.
• A **medical oncologist**: a doctor who treats cancer with medicines such as chemotherapy, immunotherapy, or targeted therapy.
• A **plastic surgeon**: a doctor who specializes in reconstructing or repairing parts of the body

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, nutrition specialists, social workers, and other health professionals. Treating cancers in the nasal cavity and sinuses can affect how you eat, look, and breathe. A cancer care team will work with you to limit changes to your body and help you adjust to the changes that have taken place while using the best treatments available.

• **Health Professionals Associated with Cancer Care**

**Making treatment decisions**

It’s important to discuss all treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. You may feel that you need to make a decision quickly, but it’s important to give yourself time to absorb the information you have learned. Ask your cancer care team questions.

If the cancer is too advanced to be cured, the goal may be to remove or destroy as much of the cancer as reasonable to help keep the tumor from growing or spreading for as long as possible. Some of the treatments above can also be used as palliative treatment if all the cancer cannot be removed. Palliative treatment is used to relieve symptoms such as pain, but it's not expected to cure the cancer.

These are rare cancers, and not all hospitals and doctors have a lot of experience in treating them. If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

• **Questions To Ask About Nasal Cavity or Paranasal Sinus Cancer**
• **Seeking a Second Opinion**
Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they’re not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- Clinical Trials

Considering complementary and alternative methods

You may hear about alternative or complementary methods that your doctor hasn’t mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor’s medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- Complementary and Integrative Medicine

Help getting through cancer treatment

People with cancer need support and information, no matter what stage of illness they may be in. Knowing all of your options and finding the resources you need will help you make informed decisions about your care.

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what
treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- Palliative Care
- Find Support Programs and Services in Your Area

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it’s important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- If Cancer Treatments Stop Working

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don’t hesitate to ask your cancer care team any questions you may have about your treatment options.
Surgery for Nasal Cavity and Paranasal Sinus Cancers

Studies have shown that people who are treated at centers that treat a lot of head and neck cancers with surgery, tend to live longer. And because of the complicated types of surgeries, along with the need for coordination between cancer specialists to make a complete treatment plan, it’s very important to have treatment at cancer centers by surgeons who have experience in these cancers.

Quit smoking before nasal cavity and paranasal sinus cancer surgery

If you smoke, you should quit. Smoking during cancer treatment is linked to poor wound healing, more side effects, and less benefit from treatment which can raise your risk of the cancer coming back (recurrence). Smoking after treatment can also increase the chance of getting another new cancer. Quitting smoking for good (before treatment starts, if possible) is the best way to improve your chances of survival. It is never too late to quit. For help, see How To Quit Using Tobacco.

What kind of surgery is done to treat nasal cavity or paranasal sinus cancer?

For most nasal cavity or paranasal sinus cancers, surgery to remove the cancer (and some of the surrounding bone or other nearby tissues) is a key part of treatment. Often, surgery is used with other treatments, like radiation therapy and/or chemotherapy to get the best results.

The nasal cavity and paranasal sinuses are close to many important nerves, blood vessels, and other structures. The brain, eyes, mouth, and carotid arteries (arteries that supply blood to the brain) are also close by, making surgical planning and surgery itself difficult. The goal of surgery in these areas is to take out the entire tumor and a small amount of normal tissue around it while keeping appearance and function (such as breathing, speech, chewing, and swallowing) as normal as possible. Rebuilding and/or repairing the area around the tumor is an important part of the surgery plan and may require the help of a plastic surgeon.

Surgical margins: When removing the cancer, the surgeon also tries to take out a border (margin) of surrounding normal tissue. The tissue that’s removed will be checked in the lab to see if there are cancer cells at the edges. If the edges don’t have cancer
cells, the cancer is said to have been removed with negative or clear margins. Negative margins mean that it's less likely that any cancer was left behind. If the edges do have cancer cells, the margins are said to be positive. Positive margins mean that it's more likely that some cancer was left behind. Often this means more treatment, such as more surgery or radiation.

**Surgery for nasal cavity cancers**

Nasal cavity cancers are often removed in a procedure called **wide local excision**. This means removing the tumor plus an edge of normal tissue around it. The goal is to remove enough tissue so that no cancer cells remain.

If the tumor is in the middle dividing wall of the nasal cavity (the nasal septum), sometimes the entire septum or a large portion of it will be taken out.

If the tumor is in the lateral (side) wall of the nasal cavity, this wall may need to be removed by a procedure called an **open medial maxillectomy**. To do this, the surgeon will usually cut through the skin along the side or edge of the nose and fold the external nose toward the opposite side to see and work on the tumor. Then the side of the nasal cavity can be removed by cutting the bone and soft tissue as needed. Sometimes, if the cancer is in a certain spot, the surgeon can reach the tumor by cutting under the upper lip instead. This approach has the advantage of avoiding any cuts, and maybe scars, on the skin. Ask your head and neck surgeon how your surgery will be done.

**Reconstructive surgery:** If the cancer has reached the skin or deeply invades the tissue of the external nose, part (or all) of the nose may need to be removed. There are many ways to rebuild a nose using tissue from the face or other areas. In some cases, a cosmetic **prosthesis** (made of artificial materials) may be used to make a new nose.

**Surgery for paranasal sinus cancers**

Operations for paranasal sinus tumors vary, depending on the tumor type, location, size, and growth into other parts of the head and neck.

If the tumor is small and/or it's not cancer (benign) and is only in the ethmoid sinuses, an **open external ethmoidectomy** may be done. The surgeon will cut through the skin on the upper side of the nose next to the upper eyelid. Bone on the inner side of the orbit (eye socket) and nose will be removed to reach tumors inside the ethmoid sinuses.

If the tumor also has grown into the maxillary sinus, an **open maxillectomy** may be done. The type of maxillectomy depends on where the tumor is and whether it has
grown into nearby tissues. The surgeon may make an incision (cut) along the side of the nose from the eyebrow or upper eyelid down to or through the upper lip. Or the incision may be made under the upper lip. The bones around the maxillary sinus are cut so that the entire tumor and some surrounding tissue can be taken out in one piece. This operation might remove bone from the hard palate (the roof of the mouth), upper teeth on one side of the mouth, part or all of the orbit (eye socket), part of the cheekbone, and/or the bony part of the upper nose.

If the cancer is a higher stage\(^4\), has spread into the base of the skull or brain, or is in the ethmoid sinuses, frontal sinuses, and/or the sphenoid sinuses, an operation called an open craniofacial resection may be done. This operation is a lot like a maxillectomy except that the surgeon may also remove upper parts of the eye socket and the front base of the skull. This is a major operation that's usually done by a surgical team that includes an otolaryngologist (head and neck surgeon) and a neurosurgeon (a surgeon who operates on the brain, spinal cord, and other nerves).

**Reconstructive surgery:** Depending on how much tissue or bone is removed during surgery, reconstruction of the hard palate with a soft tissue flap with or without a bone graft might be done to help someone eat and talk after surgery. Reconstruction of the eye socket might also allow the placement of an ocular prosthesis (glass eye or fake eye).

**What is endoscopic surgery for nasal cavity or paranasal sinus cancer?**

In this type of surgery, the surgeon uses an endoscope\(^5\) (a thin, flexible tube with a light on the end that's put into the nose to reach the nasal cavity or sinus) to see and remove the tumor in the nasal cavity or sinus. This way, the surgeon doesn't have to cut through skin and bone to open up the whole cavity, as is typically done in an open operation. This reduces the damage to normal tissue. In general, recovering from this type of surgery takes less time. And for some of these cancers, long-term outcomes for endoscopic surgery are as good as other open surgeries used to treat these cancers.

Endoscopic surgery may also be used alone or along with some of the more invasive open surgeries listed above. In this case, it may help limit damage to healthy tissues. It also may help the doctor better see the area to try to be sure all of the cancer has been taken out. (You may hear this called endoscopic-assisted surgery.)

Endoscopic surgery is most often used for small tumors. For larger tumors, it may be used to help try to control the tumor in people who are not healthy enough for a bigger operation.
Endoscopic approaches to remove nasal and sinus cancers are becoming more common as more surgeons are trained in these techniques. **These approaches are best done by teams of experienced surgeons at specialized centers.** Some medical centers (and surgeons) have more experience than others with endoscopic surgery for nasal and sinus cancers. If you’re considering endoscopic surgery as a part of your treatment, be sure to ask about your surgeon’s training and experience, which are key to successful endoscopic surgery.

**Removing lymph nodes in nasal cavity or paranasal sinus cancers**

Cancers of the nasal cavity or paranasal sinuses sometimes spread to the lymph nodes in the neck. Depending on the stage and location of the cancer, these lymph nodes may need to be removed in an operation called a **neck dissection**.

There are several types of neck dissection procedures. The goal of these procedures is to remove lymph nodes known to or likely to contain cancer. The amount of neck tissue removed depends on the cancer’s size and the extent of spread to lymph nodes.

- **A radical neck dissection** (comprehensive neck dissection) removes nearly all lymph nodes on one side of the neck as well as major muscles, nerves, and veins. This can make it hard to move your neck or shoulder well.
- **A modified radical neck dissection** (modified comprehensive neck dissection) removes most lymph nodes on one side of the neck between the jawbone and collarbone, but only some muscle and nerve tissue.
- **A selective neck dissection** is more limited and removes only a few lymph nodes from specific areas of the neck where the cancer most likely spread.

**Gastrostomy tubes (feeding tubes)**

Cancers in the nasal cavity and paranasal sinuses might make it hard for you to swallow enough food to maintain good nutrition and a healthy weight. This can make you weak and make it harder to finish treatment.

Some people with these cancers might need to have a feeding tube, usually called a gastrostomy tube (or G-tube), put in place before treatment. A G-tube is a feeding tube that’s put through the skin and muscle of your abdomen (belly) right into your stomach. The tube is often put in place with the help of a flexible, lighted instrument (endoscope) passed down your mouth and into the stomach. This is done while you are sedated. When it’s placed through an **upper endoscopy**, it’s called a percutaneous
endoscopic gastrostomy, or **PEG tube**. Another option is to put the tube in during an operation. Once in place, liquid nutrition and medicines can be put right into the stomach through the tube.

Often, the gastrostomy tube is only needed for a short time to help you get enough nutrition during cancer treatment. The tube is often removed once you can swallow again after treatment. It's important to keep swallowing even when you're getting most of your nutrition through a G-tube. This helps keep those muscles working and gives you a better chance of going back to normal swallowing after treatment is complete.

### Possible risks and side effects of surgery for nasal cavity or paranasal sinus cancer

All surgery has some risks, including blood clots, infections, complications from anesthesia (medicine to put you to sleep), poor wound healing, and pneumonia. These risks are generally low, but are higher in more complicated operations. Rarely, some people may not survive the surgery.

**Pain** is a common side effect of surgery. It's also common to have **nasal drainage and crusting**. Sometimes it smells bad. This usually starts getting better about 6 months after surgery, but may last longer if you're getting radiation.

Surgery for cancers that are large or hard to reach may be very complicated, in which case side effects may include infection, nose bleeds, scarring, problems eating and talking, and vision changes. Surgery also can be disfiguring, especially if bones in the nose or face need to be removed.

**Eye changes**: Because these cancers tend to not cause problems until they're quite large, they often involve the eye or orbit (the bone and tissue around the eye) by the time they are noticed or cause symptoms. Most of the time the eye can be saved, but sometimes the entire orbit and eyeball needs to be removed to give the best chance for cure.

**Body image**: Because the changes from surgery can be visible, these procedures can have a major effect on how people see themselves. The surgeon will take into account how the face will look and function after surgery. But, depending on the extent of the operation needed, you might look different after surgery. This can range from a simple scar on the side of your nose to major changes if nerves, parts of bones, or other structures need to be removed. **It's important to talk with your doctor about these changes before the surgery.** Your doctor might be able to help you prepare for them. They can also give you an idea about your options, such as reconstructive surgery,
tissue grafts, or a prosthesis (man-made replacement). For example, an obturator is a custom-made prosthesis used to help restore function in the nose and mouth. An obturator that replaces the roof of the mouth can help you speak and swallow normally. Noses can be made out of plastic, tinted to match the skin, and attached to the face. All of these things can help a person’s self-esteem.

More serious side effects and complications: Since there are many important structures in the nasal cavity and paranasal sinus areas, some surgeries can cause severe complications including blindness, leakage of the cerebral spinal fluid (the fluid around the brain and spinal cord), meningitis (inflammation of the lining of the brain and spinal cord), weakness or numbness of the middle part of the face, spasm of the jaw muscles making it hard to open your mouth, or an abscess (a collection of pus from an infection).

Possible risks and side effects of neck dissection for nasal cavity or paranasal sinus cancer

The most common side effects of any neck dissection are numbness of the ear, weakness in raising the arm above the head, pain in the shoulder and neck, and weakness of the lower lip. These develop when nerves are damaged. After a selective neck dissection, the weakness of the arm and lower lip usually go away after a few months. But if a nerve has been removed as part of a radical neck dissection or because of tumor spread, the weakness will be permanent. After any type of neck dissection, physical therapists can teach the patient exercises to improve neck and shoulder movement.

While some swelling is normal after surgery, it should go away over time. When lymph nodes are removed, it changes how fluid drains from the head, face, and neck. The fluid might not be able to drain like it should. This can cause swelling in these areas called lymphedema. This side effect can develop anytime after lymph node dissection, even many years later. You might be referred to a lymphedema therapist who is specially trained in handling this type of edema in the head and neck area.

More information about Surgery

For more general information about surgery as a treatment for cancer, see Cancer Surgery.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects.
Hyperlinks


References


Radiation Therapy for Nasal Cavity and Paranasal Sinus Cancers

Studies have shown that people who are treated at centers that treat a lot of head and neck cancers with radiation, tend to live longer. And because of the complicated types of surgeries, along with the need for coordination between cancer specialists to make a complete treatment plan, it’s very important to have treatment at cancer centers by radiation oncologists who have experience in treating these cancers.

Radiation therapy uses high-energy rays or particles to kill cancer cells. When treating nasal and paranasal sinus cancers, radiation might be used in many ways:

- As the **main (primary) treatment** for people with small nasal cavity tumors. It doesn't change the way people look as much as surgery does.

- As the **main treatment** for people who can’t have surgery due to poor health or because the tumor is too advanced to remove with surgery.

- **After surgery** (adjuvant treatment), to try to kill any small areas of cancer that are not visible at the time of surgery that might be left behind. This the most common treatment for these tumors -- surgery then radiation (sometimes given with chemotherapy).

- **Before surgery** (neoadjuvant treatment) to try to shrink the tumor so it's easier to remove. It might be given along with chemo.

- **To help ease problems caused by the cancer**, like pain, bleeding, and trouble swallowing when cancer spreads to areas beyond the head and neck. This is called **palliative or supportive treatment**.

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• To treat cancer that has come back after treatment (recurrence).
• To treat lymph nodes in the neck even if they don't appear to have cancer cells in them. But not all doctors agree on this.
• For advanced nasal cavity or paranasal sinus tumors, chemotherapy is given along with the radiation. This is called chemoradiation. It often works better than radiation alone, but it also has more side effects. (See Chemotherapy for Nasal Cavity and Paranasal Sinus Cancer for more details.)

Radiation to this part of your body can affect your teeth and gums. Before starting radiation treatments you will be advised to see a dentist. A dentist can make sure your mouth is healthy before treatment. They might recommend that certain teeth be removed before you start radiation because this can increase your chance of infection during treatment. During and after treatment your dentist can help check for and treat any problems that may come up, such as infection or tooth and bone damage.

Quit smoking before nasal cavity and paranasal sinus cancer treatment

If you smoke, you should quit. Your cancer might not shrink as well if you smoke during radiation treatment, you might have more side effects, and your benefit from radiation treatment might be less (which can raise your risk of the cancer coming back). Smoking after treatment can also increase the chance of getting another new cancer. Quitting smoking for good (before treatment starts, if possible) is the best way to improve your chances of survival. It is never too late to quit. For help, see How To Quit Using Tobacco³.

What type of radiation therapy is used to treat nasal cavity or paranasal sinus cancer?

The types of radiation therapy that might be used to treat nasal cavity and paranasal sinus cancer are:

• External beam radiation therapy (EBRT)
• Brachytherapy (internal radiation)

External beam radiation therapy

The main type of radiation therapy used to treat nasal cavity and paranasal sinus
cancer is external beam radiation therapy. External beam radiation therapy focuses a beam of radiation from a machine outside of the body onto the cancer.

These tumors are close to the eyes, brain, glands, nerves, and blood vessels. Before your treatments start, the radiation team will use a CT scan to take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. A flexible but sturdy head and neck mask made of plastic mesh might be made to hold your head, neck, and shoulders in the exact same position for each treatment. Some people might feel a bit confined while this mask is on and might need to ask for medicine to help them relax during the treatment. Sometimes, the mask can be adjusted so that it is not too constricting. Your radiation oncologist can discuss the options with you. You might also be fitted for a bite block that you hold in your mouth during treatment.

Standard external beam radiation therapy for nasal cavity and paranasal sinus cancers is given in daily fractions (doses) 5 days a week for about 6 to 7 weeks. Other schedules for radiation may be used, too.

- **Hyperfractionation** refers to a slightly lower radiation dose that is given more than once a day (for example, twice a day for 7 weeks). Hyperfractionation is a schedule that is used often to deliver radiation for these cancers.

- **Accelerated fractionation** refers to the standard radiation dose being given each day but over a shorter amount of time (5 to 6 weeks) instead of the usual 7 weeks. For example, radiation is given 6 days a week over 5 weeks instead of the standard 5 days a week for 7 weeks.

There are also more advanced EBRT techniques that help doctors focus the radiation more precisely:

- **Three-dimensional conformal radiation therapy (3-D CRT)**: 3D-CRT uses the results of imaging tests and special computers to map the exact location of the tumor. Several radiation beams are then shaped and aimed at the tumor from different directions. Each beam alone is fairly weak, which makes it less likely to damage the normal tissues it passes through. But the beams all meet at the tumor to give a high dose of radiation there.

- **Intensity modulated radiation therapy (IMRT)**: IMRT is an advanced form of 3D-CRT therapy. IMRT is the standard way to deliver external beam radiation for these cancers. It uses a computer-driven machine that actually moves around the patient as it delivers radiation. Along with shaping the beams and aiming them at the tumor from several angles, the intensity (strength) of the beams can be
adjusted to limit the dose reaching the nearby normal tissues. This may let the doctor deliver a higher dose to the tumor with fewer side effects.

**Proton beam radiation therapy**

Proton beam radiation therapy focuses beams of protons instead of x-rays on the cancer. Unlike x-rays, which go through the patient and expose the body to radiation both before and after they hit the tumor, protons stop moving after traveling a certain distance. So the tissues behind the tumor are almost protected from radiation and even tissues in front of the tumor are exposed to less radiation than the tumor. This means that proton beam radiation can deliver radiation to the cancer while doing less damage to nearby normal tissues. Because there are so many critical structures close by, proton beam radiation can be used to treat certain tumors of the nasal cavity or paranasal sinuses. But more studies are needed with proton therapy to evaluate long-term side effects and to see if it is better than IMRT.

Right now, proton beam therapy is not widely available. The machines needed to make protons are very expensive, and they aren’t available in many centers in the United States. Proton beam radiation might not be covered by all insurance companies at this time.

**Brachytherapy**

Brachytherapy (also called internal radiation or interstitial radiation), is another way to deliver radiation. Radioactive material is put right into or near the cancer. The radiation travels only a very short distance, which limits its damage of nearby normal tissues. This method of internal radiation therapy may be used with EBRT to treat nasal cavity and paranasal sinus cancers, but this is not common. More research is needed to know if it helps and how to best use it.

**What are the possible side effects of radiation therapy for nasal cavity or paranasal sinus cancers?**

If you are going to get radiation therapy, it’s important to ask your doctor about the possible side effects so you know what to expect and can find ways to manage them.

Common side effects depend on where the radiation is aimed and can include:

- Skin problems in the area being treated, ranging from redness to blistering and
peeling

- Nausea
- Loss of appetite
- Feeling tired or weak
- Trouble swallowing
- Hearing problems
- Dry eyes or dry mouth
- Hoarseness
- Change of taste
- Bone pain
- Bone damage
- Brain damage (this is rare)

Most of these side effects go away slowly when treatment is over but some side effects can be permanent. For example, if your eye is in the path of the radiation beam, it could change the way you see through that eye. Side effects of radiation tend to be worse if chemotherapy is given at the same time. Tell your doctor about any side effects you have because there are often ways to lessen them.

**Mouth sores**: People treated with radiation to the head, neck, and throat area can get painful sores in the mouth and throat that can make eating and drinking very hard. This can lead to weight loss and poor nutrition. Some people might need a feeding tube (called a gastrostomy or G-tube) during treatment to give them nutrition. The mouth sores heal with time after the radiation has stopped, but some people continue to have problems swallowing long after treatment ends. Ask about swallowing exercises you can do to help keep those muscles working and increase your chance of eating normally after treatment.

**Narrowing of the nasal cavity**: Sometimes, radiation to the nasal cavity can cause the cavity to get smaller or cause the nasal cavity tissues to stick together. This might make it hard to breathe. Simple techniques like gently rotating a cotton swab covered with petroleum jelly in the nose or rinsing the inside of the cavity with salt water might help open the tightened area a little so breathing is not a problem.

**Dry mouth**: Radiation aimed at the head and neck might damage the salivary (spit) glands, leading to dry mouth that doesn't get better with time. This can cause discomfort and problems swallowing. It can also lead to tooth decay and damage to the jaw bone. People treated with radiation to the neck and throat must pay close attention to their oral health and see their dentist regularly.
Hormone problems: If the pituitary or thyroid glands are exposed to radiation, they might be damaged. Your doctor will do blood tests to see how well these glands are working. You may need to take medicine if there are problems.

Lymphedema: Some people treated with radiation therapy might be at risk of developing lymphedema in the head and neck areas that were radiated. These areas can become swollen and firm. This can be worse if the person also had surgery. Sometimes medicines, physical therapy, or massage therapy might be helpful.

Damage to the carotid artery: Radiation to the neck area might increase a person’s risk of stroke many years after treatment. This might be because of health problems that were already present before radiation such as narrowing of the artery or an increase in plaques both of which can lower blood flow. People who smoke are also at risk. Because of this some doctors might schedule regular ultrasounds for you after treatment, to keep an eye on your arteries.

More information about radiation therapy

To learn more about how radiation is used to treat cancer, see Radiation Therapy.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects.

Hyperlinks

4. www.cancer.org/treatment/understanding-your-diagnosis/tests.html
5. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html

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Chemotherapy for Nasal Cavity and Paranasal Sinus Cancers

Chemotherapy (chemo) is treatment with anti-cancer drugs that are injected into a vein or taken by mouth. These drugs enter the blood and reach most areas of the body.

If you smoke, you should quit. Smoking during chemotherapy treatment can cause more side effects and can cause the chemo drugs to not work as well. It can give you a higher chance of getting an infection and is linked to worse outcomes. Smoking also increases the risk of the cancer coming back after treatment and of getting another new cancer. Quitting smoking\(^1\) (before treatment starts, if possible) is the best way to improve your chances of survival. It is never too late to quit.

Chemo may be used at different times during treatment for nasal cavity and paranasal sinuses:

- **Before surgery** (neoadjuvant or induction chemo), often along with radiation therapy (called chemoradiation), to try to shrink the tumor and make surgery easier. Some call this organ preservation treatment because chemo given before surgery can “preserve” and not damage the structures in and near a critical organ. For example, induction chemo may be used to try to save the eyeball if the cancer has spread there.

- **After surgery** (adjuvant chemo), often with radiation therapy (chemoradiation) to try to kill any cancer cells that might have been left behind but can’t be seen on imaging tests\(^2\). It can also help lower the chance the cancer will come back, especially if cancer is found at the edges (margins) of the removed tumor, or if the cancer has other features that make it more likely to come back.

- **As the main (primary) treatment**, often along with radiation therapy (chemoradiation) for cancers that are too big or have spread too far into nearby tissues to be completely removed with surgery. Chemoradiation can also be used as the main treatment for people who are too sick for surgery or don’t want to have surgery.

- **For metastatic cancer** (cancer that has spread to distant organs) to control cancer growth when it has spread to other parts of the body and cannot be treated with surgery or radiation.
Chemoradiation

Chemoradiation is chemotherapy given at the same time as radiation. This combination has been shown to work better to shrink some of these tumors than using either treatment alone. It also might help lower the chance of cancer coming back after treatment (cancer recurrence) for some types of cancer.

How is chemotherapy given?

Chemo drugs for nasal cavity or paranasal sinus cancer are given into a vein (IV), often as an infusion over a certain period of time. This can be done in a doctor’s office, infusion center, or in a hospital setting.

Often, a slightly larger and sturdier IV access is required in the vein system to administer chemo. These are known as central venous catheters (CVCs), central venous access devices (CVADs), or central lines. They are used to put medicines, blood products, nutrients, or fluids right into your blood. They can also be used to take blood for testing. There are many different kinds of CVCs. The most common types are the port and the PICC line.

Chemo is given in cycles, followed by a rest period to give you time to recover from potential chemotherapy-related side effects. Cycles can be given weekly or every 3 weeks, but the schedule varies depending on the drugs used. For example, with some drugs, the chemo is given only on the first day of the cycle. With others, it is given for a few days in a row, or once a week. Then, at the end of the cycle, the chemo schedule repeats to start the next cycle.

Adjuvant or neoadjuvant chemo can be given over weeks or months, depending on the drugs used. The length of treatment depends on how well it is working and what side effects you might have. If you have any questions regarding chemotherapy discuss them with your medical oncologist.

Chemotherapy used to treat nasal cavity and paranasal sinus cancers

Chemo for nasal cavity and paranasal sinus cancers may include a combination of several drugs. These cancers are rare, so there aren’t many studies to help doctors decide the best way to treat them. Often, doctors treat them with the same drugs that are used for other, more common, cancers of the head and neck.

The most common types of nasal cavity and paranasal sinus cancers—squamous cell carcinoma, adenocarcinoma, and adenoid cystic carcinoma—can be grouped together...
as carcinomas. Some of the chemo drugs commonly used to treat carcinomas include:

- Cisplatin
- Carboplatin
- 5-fluorouracil (5-FU)
- Docetaxel (Taxotere)
- Paclitaxel (Taxol)
- Methotrexate
- Capecitabine (Xeloda), a pill that is converted to 5-FU once it gets to the tumor

The drugs used depend on many things, including the type of cancer, the extent of the cancer, the person’s overall health, and whether chemo is combined with radiation therapy. Chemotherapy drugs used first include cisplatin or carboplatin alone, or in combination with 5-FU, but other combinations are also available. For people who cannot tolerate chemo, the targeted therapy\textsuperscript{5} drug, cetuximab, is often used with radiation instead.

Different chemo drugs are used for nasal cavity and paranasal sinus sarcomas and melanomas. Information about chemotherapy for sarcomas may be found in Sarcoma: Adult Soft Tissue Cancer\textsuperscript{6}. Chemo for melanoma is covered in Melanoma Skin Cancer\textsuperscript{7}.

### Possible side effects of chemotherapy for nasal cavity and paranasal sinus cancers

Chemo drugs attack cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in the lining of the mouth and intestines, and the hair follicles, are also dividing quickly. These cells can be affected by chemo too, which can lead to side effects.

The side effects\textsuperscript{8} of chemotherapy depend on the type and dose of specific drugs used and how long you take them. Short-term side effects of chemo can include:

- Nausea and vomiting
- Loss of appetite or weight loss
- Loss of hair
- Mouth sores
- Diarrhea
- Nail changes
- Skin changes
• Ringing in the ears

Chemo can also affect the blood-forming cells in the bone marrow, which can lead to:

• An increased chance of infection (from low white blood cell counts)
• Easy bleeding or bruising (from low blood platelet counts)
• Fatigue or shortness of breath (from low red blood cell counts)

Although most side effects get better once treatment is stopped, some can last a long time or even last forever. If your doctor plans treatment with chemotherapy, be sure to discuss the drugs that will be used and the possible side effects. Once chemotherapy is started, let your health care team know if you have side effects, so they can be treated. There are ways to prevent or treat many of the side effects related to chemotherapy. For instance, there are many drugs that can help prevent or treat nausea and vomiting. Sometimes, the doses of the chemo drugs may need to be lowered or treatment may need to be delayed or stopped to help keep the problem from getting worse.

Other side effects only happen with certain drugs. Ask your cancer care team about the possible side effects of the specific drugs you are getting. For example:

**Neuropathy (nerve damage)** is a common side effect of cisplatin, docetaxel, and paclitaxel which can lead to numbness, tingling, or even pain in the hands and feet. The nerve damage caused by cisplatin can also cause hearing loss. This may improve once treatment is stopped, but it can last a long time in some people. If you’ll be getting any of the drugs mentioned here, talk with your doctor about the side effects before chemo starts, and let them know right away if you develop numbness and tingling sensations or other side effects.

**Hand-foot syndrome** can develop during treatment with capecitabine or 5-FU (when it is given as a continuous infusion). It can start out as redness in the hands and feet, and then might progress to pain and sensitivity in the palms and soles. If it worsens, skin may blister or peel, sometimes leading to painful sores. It’s important to tell your doctor right away about any early symptoms, such as redness or sensitivity, so that steps can be taken to keep things from getting worse.

**More information about chemotherapy**

For more general information about how chemotherapy is used to treat cancer, see [Chemotherapy](https://www.cancer.org)\(^9\).
To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects\textsuperscript{10}.

**Hyperlinks**

2. [www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html)

**References**


Lippincott Williams & Wilkins; 2019.


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**Targeted Drug Therapy for Nasal Cavity and Paranasal Sinus Cancers**

**What is targeted drug therapy?**

Targeted drug therapy is the use of medicines that target or are directed at proteins on cancer cells that help them grow, spread, and live longer. These drugs work to destroy
cancer cells or slow their growth. Their side effects are different from chemotherapy\(^1\) (sometimes less severe) and many are taken as a pill.

Targeted drug therapy is used to treat many kinds of cancer, but this type of drug has not been well studied for treating most kinds of nasal cavity and paranasal sinus cancers since they are so rare. Some targeted drugs are used to treat melanomas\(^2\) in these areas. They can be used for nasal cavity and paranasal sinus cancers because of information from studies done in more common head and neck cancer types.

Some targeted drugs, for example, monoclonal antibodies, work in more than one way to control cancer cells and may also be considered immunotherapy\(^3\) because they boost the immune system.

**Drugs that target cancer cells with EGFR changes**

Epidermal growth factor receptor (EGFR) is a protein that helps cancer cells grow. Drugs that target EGFR can be used to treat some advanced squamous cell cancers of the head and neck.

**Cetuximab for nasal cavity or paranasal sinus cancers**

Cetuximab (Erbitux) is a monoclonal antibody\(^4\), which is a man-made version of an immune system protein that targets EGFR, a protein on the surface of certain cells that helps them grow and divide. Nasal cavity and paranasal sinus cancer cells often have more than normal amounts of EGFR. By blocking EGFR, cetuximab can slow or stop cancer cell growth.

Cetuximab may be used to treat more advanced cancers, such as those that have spread or come back\(^5\) after treatment. It may be combined with radiation and/or chemo drugs, such as cisplatin and 5-FU, or it may be used alone.

Cetuximab is given by infusion into a vein (IV), either once a week or every other week.

**Possible side effects of drugs that target EGFR**

The most common side effects of cetuximab are skin problems such as an acne-like rash on the face and chest during treatment, which in some cases can lead to infections. An antibiotic cream or ointment may be needed to help control the skin rash and related infections. Developing this rash might suggest the cancer is responding to treatment.
Other side effects might include headache, tiredness, fever, nausea, and diarrhea.

A rare but serious side effect of cetuximab is an allergic reaction during the infusion\textsuperscript{6}, especially the first infusion, which could cause serious breathing problems and low blood pressure. You'll be given medicine before treatment to help prevent this.

Talk to your cancer care team about the side effects to watch for and what can be done to help prevent or treat them.

**More information about targeted therapy**

To learn more about how targeted drugs are used to treat cancer, see [Targeted Cancer Therapy\textsuperscript{7}](#).

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects\textsuperscript{8}](#).

**Hyperlinks**


**References**

Kashat L, Le CH, Chiu AG. The Role of Targeted Therapy in the Management of


**Immunotherapy for Nasal Cavity and Paranasal Sinus Cancers**

Immunotherapy is the use of medicines to help boost a person’s own immune system to find and destroy cancer cells more effectively. It typically works on specific proteins in the immune system to enhance the immune response. It has different (sometimes less severe) side effects than [chemotherapy](#).  

Some immunotherapy drugs, for example, monoclonal antibodies, work in more than one way to control cancer cells and may also be considered [targeted drug therapy](#) because they block a specific protein on the cancer cell to keep it from growing.  

Immunotherapy is used to treat many kinds of cancer, but this type of drug has not been well studied for treating most kinds of nasal cavity and paranasal sinus cancers since they are so rare. Some immunotherapy drugs are used to [treat melanomas](#) in these areas. They are used for nasal cavity and paranasal sinus cancers based on information from studies done on more common head and neck cancer types.

**Immune checkpoint inhibitors for nasal cavity or paranasal sinus cancers**

An important part of the immune system is its ability to keep itself from attacking normal
cells in the body. To do this, it uses “checkpoint” proteins on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system.

Drugs that target these checkpoints (called checkpoint inhibitors) can be used to treat some people with nasal cavity and paranasal sinus cancer.

**PD-1 inhibitors**

**Pembrolizumab (Keytruda) and nivolumab (Opdivo)** are drugs that target PD-1, a protein on T cells in the immune system. PD-1 normally helps keep these cells from attacking other cells in the body. By blocking PD-1, these drugs boost the immune response against cancer cells. This can shrink some tumors or slow their growth.

Pembrolizumab is commonly used first in people with certain types of nasal cavity or paranasal sinus cancer that has returned after treatment or that has spread to other parts of the body. It can be used either alone or in combination with chemotherapy drugs, unless the patient is not a candidate for immunotherapy. Both nivolumab and pembrolizumab can be used when chemotherapy stops working.

Pembrolizumab is also an option as the first treatment in some people.

These immunotherapy drugs are given as intravenous (IV) infusions, typically every 3, 4, or 6 weeks.

**Possible side effects of immune checkpoint inhibitors**

Side effects of these drugs can include feeling tired, cough, nausea, diarrhea, skin rash, loss of appetite, constipation, joint pain, and itching.

Other, more serious side effects occur less often:

**Infusion reactions:** Some people might have an infusion reaction⁴ while getting these drugs. This is like an allergic reaction, and can include fever, chills, flushing of the face, rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It’s important to tell your doctor or nurse right away if you have any of these symptoms while getting these drugs.

**Autoimmune reactions:** These drugs work by basically removing one of the safeguards on the body’s immune system. Sometimes the immune system starts attacking other normal parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys,
skin, or other organs.

It’s very important to report any new side effects during or after treatment with any of these drugs to your health care team right away. If serious side effects do occur, your treatment might be stopped and you will be given high doses of corticosteroids to suppress your immune system.

More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see Cancer Immunotherapy⁶.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects⁶.

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html
2. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-therapy.html

References


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Supportive Treatment for Nasal Cavity and Paranasal Sinus Cancers

Most of our information about nasal cavity and paranasal sinus cancer is about ways to remove or to destroy cancer cells or to slow their growth. But it’s important to remember that helping someone have a good quality of life is another important goal. This is true in all cases -- whether treatment is being used to try to cure the cancer or to slow down cancer growth when the cancer has spread to other parts of the body.

If the goal of treatment is a cure, supportive treatments can help ease symptoms related to cancer treatment side effects or the cancer itself. If the cancer is advanced, supportive treatment may play an even bigger role, helping to keep the person comfortable and maintain a good quality of life for as long as possible.

You might also hear supportive care referred to as palliative care, symptom management, or comfort care.

**Pain:** Pain is a significant concern for many patients with cancer. It can almost always be well controlled with milder drugs like ibuprofen or acetaminophen or, if needed, with stronger medicines like morphine or similar drugs (known as opioids). Taking these drugs does not mean a person will become addicted. Many studies have shown that people with cancer who take opioids for pain as their doctor directed typically do not become addicted.

**Nutrition:** Nutrition is another important concern for people with head and neck cancers such as nasal cavity or paranasal sinus cancers. Both the cancer and its treatment may make it hard to swallow. If this affects how a person eats or drinks, they might need to have a feeding tube inserted into the stomach. This tube will most likely be needed for a short time during treatment, but in some cases it may need to be left in longer.

**Narrowing of the nasal cavity:** Sometimes, radiation can cause the nasal cavity to get smaller or cause the nasal cavity tissues to stick together. This might make it hard to breathe. Simple techniques like gently rotating a cotton swab covered with petroleum jelly in the nose or rinsing the inside of the nasal cavity with salt water might help open the tightened area a little and make breathing easier.

**Lymphedema:** Some people treated with radiation therapy might be at risk of developing lymphedema in the head and neck areas that were radiated. These areas can become swollen and firm. This can be worse if the person also had surgery.
Sometimes, medicines, physical therapy, or massage therapy might be helpful.

There are many other ways your doctor can help maintain your quality of life and control your symptoms. But this means that you have to be honest with your doctor about how you are feeling and what symptoms you are having. Some people don’t like to tell their doctors they are not feeling well. But talking about it allows your doctor to treat and relieve the symptoms. Getting effective treatment can help you feel better.

**More information about palliative care**

To learn more about how palliative care can be used to help control or reduce symptoms caused by cancer, see [Palliative Care](#).

To learn about some of the side effects of cancer or treatment and how to manage them, see [Managing Cancer-related Side Effects](#).

**Hyperlinks**


**References**


Treatment of Nasal Cavity and Paranasal Sinus Cancers, by Type and Stage

Most of the time, treatment of nasal cavity or paranasal sinus cancer is based on where it is and its stage (how far it has spread). But other factors, such as a person’s overall health and personal preferences, could also affect treatment options. Talk to your doctor if you have any questions about the treatment plan they recommend.

The staging of nasal cavity and paranasal sinus cancer is very complex. At this time, staging systems have only created for the most common cancers – maxillary sinus and nasal cavity/ethmoid sinus cancers. Treatment choices for less common cancers of the nasal cavity and paranasal sinuses are tailored to each patient depending on the tumor type, size, location, and the patient’s general medical condition and wishes.

Because nasal cavity and paranasal sinus cancers are rare, they’ve been hard to study well. Most experts agree that treatment in a clinical trial should be considered for any type or stage of nasal cavity and paranasal sinus cancer. That way people can get new treatments that are being studied.

What are treatment options for maxillary sinus cancer?

Stages 0, I, and II maxillary sinus cancer

The first step in treating most stage 0, I, or II maxillary sinus cancers is surgery to remove the cancer. In most cases, a maxillectomy (removal of bone and mucosa of the maxillary sinus) is done. Lymph nodes in the neck aren’t removed.

Radiation might be needed after surgery for people with stage I and II cancers, if the cancer has features that make it more likely to come back, such as positive margins (cancer cells found at the edge of the removed tumor), or cancer growing into the area around the nerves (called perineural invasion).

Radiation is often recommended after surgery for adenoid cystic cancers, even if the
margins are negative and there’s no perineural invasion, because they have a high chance of coming back after treatment.

For some aggressive types of maxillary sinus tumors, such as undifferentiated cancer or esthesioneuroblastoma, chemotherapy might be recommended along with radiation treatment.

In cases where surgery to remove the cancer would be risky because of other medical problems, treatment may be radiation therapy alone or chemo given with the radiation.

**Stages III and IV maxillary sinus cancer**

**Stages III and IVA:** People with stages III or IVA maxillary sinus cancer will have surgery to remove the tumor. If there are signs that the cancer has spread to the lymph nodes in the neck, these lymph nodes are removed as well. (This is called a neck dissection.)

After surgery, the area where the tumor had been removed is treated with radiation therapy. Sometimes the lymph nodes in the neck are also treated with radiation. This is more likely if the cancer has spread to a neck lymph node or if there are features that make it more likely the cancer will come back, such as a positive margin (cancer found at the edge of the removed tumor). Chemo may be given along with the radiation therapy. This has more side effects than getting either treatment alone, but it may help reduce the risk that the cancer will come back after treatment.

**Stage IVB:** Some cancers are stage IVB because the main tumor or the lymph nodes cannot be removed completely with surgery (are not resectable). People with these cancers might be treated with radiation therapy alone, radiation with chemotherapy, or chemotherapy first then radiation, or chemotherapy first then chemo given with radiation. Radiation might also be given with targeted therapy. Surgery sometimes helps relieve sinus blockage, but it's not meant to cure or completely remove the cancer.

Stage IVB also includes some cancers where the main tumor and lymph nodes can be removed with surgery (is resectable). These cancers are treated like stage IVA cancers – surgery to remove the tumor and neck lymph nodes, followed by radiation and maybe chemo.

**Stage IVC:** These cancers have spread to organs beyond the head and neck, like the lungs or bones. The goal of treatment is usually to stop or slow the spread of the cancer for as long as possible and to help relieve any symptoms it may be causing.

Treatment for this stage varies, depending on where the cancer is, the problems it’s
causing, and a person’s general health. Chemo (or targeted therapy) is often the main form of treatment if a person can tolerate it because it reaches almost all parts of the body. Another option might be immunotherapy, either alone or along with chemo. Radiation therapy may be directed at areas of cancer that are causing problems. Because these cancers are very rare and hard to treat, clinical trials are a good option.

What are treatment options for nasal cavity cancer?

**Stages 0, I, and II nasal cavity cancer**

These cancers are in the nasal cavity but haven’t spread to lymph nodes. They can be treated with surgery or radiation, but radiation after surgery is often recommended because there is a higher chance the cancer will come back if surgery or radiation alone is the only treatment.

**Stages III and IV nasal cavity cancer**

These cancers can be treated with surgery, and radiation is often given after surgery. If the cancer has spread to lymph nodes in the neck, these will be removed as well (called a neck dissection).

Another option is to treat with radiation, sometimes combined with chemo or targeted therapy. For some aggressive types of nasal cavity cancer or those that cannot be removed with surgery, chemotherapy first followed by chemotherapy plus radiation might be an option. More studies are being done to see if this approach is helpful.

For more advanced cancers (those that have spread to other parts of the body), treatment options might include chemo, targeted therapy, immunotherapy, or some combination of these.

What are treatment options for ethmoid sinus cancer?

Because the ethmoid sinuses are close to the eye sockets and the skull base, operations for cancers in this area are often more difficult and more extensive than operations for maxillary sinus cancers.

**Stages 0, I, and II ethmoid sinus cancer**

These cancers are often treated first with surgery to remove the tumor. Surgery is
typically followed by radiation therapy (sometimes with chemo), especially if the tumor has features that make it more likely to come back, such as positive margins (cancer cells found at the edge of the removed tissue) or perineural invasion (cancer cells found around a nerve). This may help lower the chance of the cancer coming back later.

For some very small cancers that are unlikely to spread, some doctors may recommend surgery only, but not all doctors agree with this.

Radiation therapy instead of surgery may also be an option for people with small tumors or people who are not healthy enough to have surgery.

For some aggressive types of ethmoid sinus tumors, such as undifferentiated cancer, chemotherapy may be recommended along with radiation treatment.

**Stages III and IVA ethmoid sinus cancer**

These cancers are often treated with surgery. If lymph nodes\(^6\) in the neck are enlarged, they will also be removed in an operation called a neck dissection. Surgery is typically followed by radiation therapy, sometimes along with chemo.

Another option may be to start treatment with radiation therapy given with chemotherapy. This might be followed by surgery if the tumor shrinks enough.

In some cases, chemotherapy might be given first, followed by radiation alone or radiation given along with more chemotherapy. In other cases, chemotherapy is given first, followed by surgery, then radiation (with or without chemo).

**Stage IVB and IVC ethmoid sinus cancers**

**Stage IVB:** For tumors that cannot be removed with surgery (are unresectable) or for people who can’t have or don’t want surgery, the first treatment is usually radiation therapy. Sometimes chemo is given with the radiation treatments. In some cases, if the person is healthy enough, chemotherapy can be given first then radiation or chemo with radiation. If someone is too weak for those treatment options, radiation alone or one chemotherapy drug might be tried.

**Stage IVC:** The goal of treatment for cancers that have spread to distant parts of the body, like the lungs or bones, is to stop or slow the growth of the cancer for as long as possible and to help relieve any symptoms it may be causing.

Treatment for this stage depends on where the cancer is, the problems it’s causing, and
a person’s general health. Chemo (and/or targeted therapy) is often the main treatment if a person can tolerate it because it reaches almost all parts of the body. Another option might be immunotherapy, either alone or along with chemo. Radiation therapy may be directed at areas of cancer that are causing problems. Because these cancers are hard to treat, clinical trials of newer treatments are a good option for some people.

**What are treatment options for sphenoid sinus cancer?**

The sphenoid sinuses are very difficult to reach with surgery. Cancers in this location are generally treated with radiation therapy, chemo, targeted therapy, and/or immunotherapy might be used as well.

**What are treatment options for melanoma of the nasal cavity or paranasal sinus area?**

Most melanomas of the nasal cavity or paranasal sinuses are treated with surgery to remove the tumor and a rim of normal tissue around it. Lymph nodes in the neck may also be removed in an operation called a neck dissection. Radiation therapy is often given after surgery.

For cancers that can’t be removed, radiation therapy, chemo, or other treatments (immunotherapy or targeted therapy) may be used. A melanoma that forms in the nasal cavity or a paranasal sinus is different in many ways from a melanoma skin cancer, but it's often treated the same way when it is advanced.

For more information about the treatment of advanced melanomas, see Melanoma Skin Cancer.

**What are treatment options for sarcoma of the nasal cavity or paranasal sinus area?**

Like other cancers of the nasal cavity and the paranasal sinuses, surgery is the main treatment for most types of sarcoma. In some cases radiation and/or chemo may also be used.

Rhabdomyosarcoma is a type of sarcoma that is most common among infants and young children. It’s usually treated with a combination of surgery, radiation therapy, and chemo. For more information about the treatment of rhabdomyosarcoma, please see Rhabdomyosarcoma.
For other types of sarcoma, see Sarcoma: Adult Soft Tissue Cancer\textsuperscript{13}.

**What are treatment options for recurrent nasal cavity or paranasal sinus cancer?**

Cancer is called recurrent\textsuperscript{14} when it comes back after treatment. Recurrence can be local (in or near the same place the cancer first started), regional (in nearby lymph nodes), or distant (spread to distant organs such as the lungs). Options for treating recurrences depend on the location and type of cancer, as well as the treatment used the first time.

For a local recurrence, if radiation was the first treatment for the cancer, surgery may be used. If the first treatment was surgery without radiation, radiation therapy may be tried. Chemo and/or targeted therapy may be used with radiation, or it may be used by itself to treat recurrences that are not controlled by radiation therapy or surgery.

In a regional recurrence, the cancer comes back in the lymph nodes in the neck. This is often treated with surgery to remove many lymph nodes in the neck (a neck dissection) that are on the same side as the cancer. This may be followed with radiation to the neck, sometimes combined with chemo and/or targeted therapy.

Recurrent melanomas\textsuperscript{15} or sarcomas\textsuperscript{16} of the nasal cavity or paranasal sinuses are treated by surgery, if possible. Depending on the exact type of cells forming the cancers, chemo or other treatments may also be given.

When a nasal cavity or paranasal sinus cancer comes back in other organs, it's often treated with chemo, targeted therapy, and/or immunotherapy, although radiation could also be an option if it wasn't given before.

Treatments for recurrent nasal cavity or paranasal sinus cancer may temporarily shrink cancers and help relieve symptoms. If further treatment is recommended, it's important to talk to your doctor so that you understand what the goal of treatment is – whether it's to try to cure the cancer or to keep it under control for as long as possible and relieve symptoms. This can help you weigh the risks and benefits of each treatment.

Because these cancers are hard to treat, clinical trials\textsuperscript{17} of new treatments are a good option for some people.

**Hyperlinks**

1. www.cancer.org/cancer/nasal-cavity-and-paranasal-sinus-cancer/detection-

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The American Cancer Society medical and editorial content team (www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

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