Treating Nasal Cavity and Paranasal Sinus Cancers

This information represents the views of the doctors and nurses serving on the American Cancer Society’s Cancer Information Database Editorial Board. These views are based on their interpretation of studies published in medical journals, as well as their own professional experience.

The treatment information in this document is not official policy of the 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 him or her questions about your treatment options.

General treatment information

After your cancer is diagnosed and staged, your cancer care team will discuss your treatment options with you. Choosing a treatment plan is an important decision, so it is important to take time and think about all of the choices.

In creating your treatment plan, the most important factors to consider are the type, location, and the stage (extent) of the cancer. Your cancer care team will also take into account your general state of health and your personal preferences.

Treatment for nasal cavity or paranasal sinus cancer may include:

- Surgery
Radiation therapy  
Chemotherapy  
Targeted therapy  
Palliative treatment  

Depending on the stage of the cancer and your general medical condition, different treatment options may be used alone or in combination. For early stage cancer, surgery may be all that is needed. For more advanced cancer, other treatments like radiation therapy, chemotherapy, or targeted therapy may be needed in addition to or instead of surgery. Be sure to ask your doctor to explain the stage of your cancer so that you can make the best choice about your treatment.

Based on the treatment options, you may have different types 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.

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, nutrition specialists, social workers, and other health professionals.

It is important to discuss all of your treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. If time permits, it is often a good idea to get a second opinion. A second opinion can give you more information and help you feel confident about your chosen treatment plan. These are uncommon cancers, and not all hospitals and doctors have a lot of experience in treating them.

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 keep the tumor from growing, spreading, or returning 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 meant to relieve symptoms such as pain, but it is not expected to cure the cancer.

The next few sections describe the different types of treatment for nasal cavity and paranasal sinus cancers. This is followed by a discussion of the most common
Surgery for Nasal Cavity and Paranasal Sinus Cancers

For most nasal cavity or paranasal sinus cancers, surgery to remove the cancer (and some of the surrounding bone or other nearby tissues) is an essential part of treatment. If the cancer has spread to the lymph nodes in the neck, the surgeon may also remove lymph nodes with an operation called a neck dissection. Often, surgery is combined with other treatments such as radiation therapy to get the best result.

The area around the nasal cavity and paranasal sinuses has 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 surgeon must also take into account how the face will look and function after surgery.

The goal of surgery in these areas is to remove 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.

Unfortunately, these cancers often involve the eye or orbit (the bone and tissue surrounding 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 eye may need to be removed to give the best chance for cure.

Depending on the extent of the operation needed, your appearance may change as a result of surgery. This can range from a simple scar on the side of the nose to more extensive changes if nerves, parts of bones, or other structures need to be removed. It's important to talk with your doctor before the surgery about what these changes might be to help prepare you for them. He or she can also give you an idea about what options might be available afterward, such as reconstructive surgery.

Because of the complex nature of these operations and the fact that these cancers are not common, it’s very important to have a surgeon who has experience treating these cancers.

When cancers are removed, the surgeon also tries to take out a rim of surrounding normal tissue. After a cancer surgery, the tissue that is removed will be looked at under
the microscope to see if the edges contain cancer cells. If the edges don’t contain cancer cells, the cancer is said to have been removed with “negative” or “clear” margins. Negative margins mean that it is less likely that any cancer was left behind. If the edges do contain cancer cells, the margins are said to be “positive.” Positive margins make it more likely that some cancer was left behind. Often this means further treatment, such as more surgery or radiation.

Nasal cavity cancers

Nasal cavity cancers are often removed by a procedure called wide local excision. This means removing the tumor plus an area of normal tissue surrounding 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 removed.

If the tumor is in the lateral (side) wall of the nasal cavity, often this wall must be removed by a procedure called a medial maxillectomy. For this operation, 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 skin incisions. Ask your head and neck surgeon about which approach or incision you may need.

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. Or a cosmetic prosthesis (made of artificial materials) may be used to make a new nose.

Paranasal sinus cancers

Operations for paranasal sinus tumors vary, depending on its specific type, location, size, and growth into other structures.

If the tumor is very small and/or benign and is only in the ethmoid sinuses, an external ethmoidectomy may be done. The surgeon performing this operation 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, a maxillectomy may be done. The type of maxillectomy depends on where the tumor is and whether it also has grown into nearby tissues. The surgeon may make an incision 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 as discussed above. The bones around the maxillary sinus are cut so that the entire tumor and some surrounding tissue can be removed in one piece. This operation may 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 in the ethmoid sinuses, frontal sinuses, and/or the sphenoid sinuses, an operation called a craniofacial resection may be done. This operation is similar to a maxillectomy except that the surgeon may also remove upper parts of the eye socket and the front of the skull base. This is an extensive operation that is done by a surgical team that usually includes an otolaryngologist (head and neck surgeon) and a neurosurgeon (a surgeon who operates on the brain, spinal cord, and other nerves).

**Endoscopic surgery**

In this type of surgery, the surgeon uses an endoscope (a thin, flexible lighted tube inserted into the nose to reach the nasal cavity or sinus) to see and remove the tumor. That way, the surgeon does not have to cut through bone to open up the whole cavity. This reduces the actual amount of normal tissue destroyed. In general, recovering from this type of surgery takes less time.

Endoscopic surgery is most often used for smaller 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. Usually it is combined with radiation treatment.

Endoscopic approaches to remove nasal and sinus cancers are being used more commonly as an increasing number of surgeons are trained in these techniques. These approaches might be less invasive but are best performed 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 are 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**

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. Their goals are to remove lymph nodes proven or likely to contain cancer. The amount of tissue removed depends on the primary cancer’s size and the extent of spread to lymph nodes.

- A *partial or selective neck dissection* removes only a few lymph nodes.
- A *modified radical neck dissection* removes most lymph nodes on one side of the neck between the jawbone and collarbone, as well as some muscle and nerve tissue.
- A *radical neck dissection* removes nearly all nodes on one side of the neck as well as even more muscles, nerves, and veins.

The most common side effects of any neck dissection are numbness of the ear, weakness in raising the arm above the head, and weakness of the lower lip. These occur when nerves that reach these areas 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 is removed as part of a radical neck dissection or because of tumor spread then the weakness will be permanent. After any type of neck dissection, physical therapists can teach the patient exercises to improve neck and shoulder movement.

For more information on surgery, see our document *Understanding Cancer Surgery: A Guide for Patients and Families*.

- **References**

  See all references for *Nasal Cavity and Paranasal Sinus Cancers*

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**Radiation Therapy for Nasal Cavity and Paranasal Sinus Cancers**

Radiation therapy uses high-energy radiation to kill cancer cells. It may be used in several ways for nasal and paranasal sinus cancers:
- As the main (primary) treatment. People with small nasal cavity tumors can often be cured with radiation alone with less change in their facial appearance than if they had surgery. People whose general health is too poor for surgery may also receive radiation therapy as their only treatment.
- After surgery to try to kill any small areas of cancer that were not seen but may remain. This is called *adjuvant* treatment.
- Before surgery to try to shrink the tumor so it is easier to remove. This is called *neoadjuvant* treatment.
- To help with symptoms like pain, bleeding, and trouble swallowing. This is known as *palliative* treatment.
- When the cancer has spread to the brain or spinal cord.

There are 2 major types of radiation therapy: external beam radiation therapy and brachytherapy.

**External beam radiation therapy**

The most common way to deliver radiation to a paranasal or nasal tumor is to focus a beam of radiation from a machine outside of the body. This is known as external beam radiation.

Before your treatments start, the radiation team will take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. Radiation therapy is much like getting an x-ray, but the radiation is stronger. The procedure itself is painless. Each treatment lasts only a few minutes, although the setup time – getting you into place for treatment – usually takes longer.

External beam radiation therapy usually means having treatments 5 days a week for about 6 to 7 weeks. Other schedules for radiation doses have been studied in clinical trials.

_Hyperfractionation_ refers to giving the total radiation dose in a larger number of doses (2 smaller doses per day instead of 1 larger dose, for example). _Accelerated fractionation_ means that the radiation treatment is completed faster (6 weeks instead of 7 weeks, for instance).

Several newer techniques help doctors focus the radiation more precisely, and may be helpful in some situations.

**Three-dimensional conformal radiation therapy (3D-CRT):** 3D-CRT uses the results of imaging tests such as MRI and special computers to map the location of the tumor
precisely. 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 normal tissues, but the beams converge at the tumor to give a higher dose of radiation there. Patients are fitted with a mold or cast to keep the body part still so the radiation can be aimed more accurately.

**Intensity modulated radiation therapy (IMRT):** IMRT is an advanced form of 3D therapy. It uses a computer-driven machine that actually moves around the patient as it delivers radiation. In addition to shaping the beams and aiming them at the tumor from several angles, the intensity (strength) of the beams can be adjusted to minimize the dose reaching the most sensitive nearby normal tissues. This may let the doctor deliver a higher dose to the tumor. Many major hospitals and cancer centers now use IMRT as the standard way to deliver external beam radiation.

**Stereotactic radiosurgery (SRS):** SRS is not really surgery, but a type of radiation treatment that gives a large dose of radiation to a small tumor area in one session. It is mostly used for brain tumors and other tumors inside the head. In some cases, a head frame or shell may be used to help keep the patient’s head still and aim the radiation beams precisely. Once the exact location of the tumor is known from the CT or MRI scans, radiation is sent to the area from a machine. The radiation is very precise and nearby tissues are affected as little as possible. Most of the time, stereotactic radiosurgery treatment gives the whole radiation dose in one session. The main advantage of SRS over IMRT is the shortened treatment time.

**Brachytherapy**

Another way to deliver radiation is to insert (implant) very thin metal rods containing radioactive materials in or near the cancer. The radiation travels only a very short distance, which limits its effects on nearby normal tissues. This method is called *internal radiation, interstitial radiation, or brachytherapy.* This is sometimes done if the cancer comes back after external beam radiation therapy.

The implant is usually left in place for several days while the patient stays in a private hospital room. The length of time that visitors, nurses, and other caregivers can spend with the patient may be limited because of potential radiation exposure, but this depends on the type of radiation. The implants are removed before the patient goes home. Sometimes, internal and external beam radiation therapy are used together. With more modern approaches to delivering radiation such as IMRT and SRS, brachytherapy is less commonly performed.

**Side effects of radiation therapy**
Common side effects include:

- Skin problems (like a sunburn)
- Nausea
- Loss of appetite
- Feeling tired or weak
- Mouth/throat pain and sores in the mouth (called mucositis)
- Trouble swallowing
- Hearing loss
- Hoarseness
- Problems with taste
- Bone pain
- Bone damage

Problems with mucositis can be severe enough that patients have trouble eating and drinking. This can lead to weight loss and malnutrition. Some people need to rely on tube feedings during treatment to keep up their strength. With tube feedings, a liquid food is given through a tube that is placed directly into the stomach through a small hole in the belly.

Most of these symptoms will go away shortly after the radiation is finished, but some side effects can be permanent. For example, if an eye is in the path of the radiation beam, vision could be damaged.

Radiation therapy to the head or neck area often damages the salivary (spit) glands, making the mouth very dry. This can lead to problems eating and swallowing. This is a very common side effect of radiation to the head and neck areas, and is often permanent. This side effect can be lessened if a drug called amifostine (Etyol®) is given before each radiation treatment. There are also fewer problems with dry mouth if IMRT is used.

Along with discomfort and problems swallowing, a dry mouth can lead to tooth decay. Radiation can worsen any tooth problems that already exist. You may be advised to see a dentist to check your teeth before treatment. Depending on the expected radiation plan and the condition of your teeth, some of your teeth may need to be removed before starting treatment. People with dry mouth after radiation must pay close attention to their oral health.

If the pituitary or thyroid glands are exposed to radiation, their production of hormones may decrease over time. This can lead to problems with metabolism that may need to be corrected with medicine.
Sometimes chemotherapy is given with radiation to help it work better. This is called chemoradiation, and it has more severe side effects than when radiation is given by itself. However, there are ways to relieve many of the side effects caused by radiation, so it’s important to discuss any symptoms with your cancer care team.

For more information on radiation therapy, see the Radiation Therapy section of our website, or our document A Guide to Radiation Therapy.

- References
See all references for Nasal Cavity and Paranasal Sinus Cancers

Chemotherapy for Nasal Cavity and Paranasal Sinus Cancers

Chemotherapy (chemo) uses anti-cancer drugs that are given into a vein or by mouth. These drugs enter the bloodstream and reach all areas of the body, making this treatment useful for cancer that has spread metastasized (spread) to organs beyond the nasal cavity and paranasal sinuses.

Chemo may be used in different situations for nasal cavity and paranasal sinus cancers:

- Before surgery (often along with radiation therapy) to try to shrink the tumor and make surgery easier. This is called neoadjuvant chemotherapy.
- After surgery (often along with radiation therapy) to help lower the chance the cancer will come back later. This is called adjuvant chemotherapy.
- As the main treatment (often along with radiation therapy) for cancers that are too large or have spread too far to be completely removed with surgery.

Chemo for nasal cavity and paranasal sinus cancers may include a combination of several anti-cancer drugs. Nasal and paranasal sinus 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 used to treat carcinomas include:

- Carboplatin
- Cisplatin
- 5-fluorouracil (5-FU)
- Docetaxel (Taxotere®)
- Paclitaxel (Taxol®)
- Bleomycin
- Cyclophosphamide (Cytoxan®)
- Vinblastine
- Methotrexate

Chemo drugs may be used alone, but more often they are used in combination with one another. The drugs used depend on several factors, including the extent of the cancer, the person’s overall health, and whether chemo is combined with radiation therapy. Cisplatin (sometimes combined with 5-FU) is the drug most often given with radiation. Some studies have shown that giving docetaxel with these 2 drugs may work even better.

New chemo drugs and combination treatments are also being studied. Some doctors give the drugs directly into arteries leading to the tumor. This concentrates the chemotherapy into the area that needs it to try to reduce side effects.

Different chemo drugs are used for sarcomas and melanomas. Information about chemotherapy for sarcomas may be found in our document Sarcoma: Adult Soft Tissue Cancer. Drug therapy for melanoma is covered in our document Melanoma Skin Cancer.

**Side effects of chemotherapy**

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 bone marrow (where new blood cells are made), the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells are also likely to be affected by chemo, which can lead to side effects. Side effects depend on the specific drugs used, their dose, and the length of treatment. Common temporary side effects of chemo include:
Nausea and vomiting
Loss of appetite
Loss of hair
Mouth sores
Diarrhea
Low blood counts

Chemo often affects the blood-forming cells of the bone marrow, this can lead to:

- Increased chance of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (from a shortage of blood platelets)
- Fatigue (from low red blood cell counts)

If the blood counts get too low, treatment may need to be delayed for a time so that they return to a safe level.

Most side effects improve once treatment is stopped. Hair will grow back after treatment ends, though it may look different. There are remedies for many of the temporary side effects of chemotherapy. For example, there are very good drugs to prevent or reduce nausea and vomiting.

Some side effects continue long after treatment is stopped. For example, cisplatin can cause nerve damage (neuropathy), which can lead to numbness in the hands and feet or hearing loss. These symptoms usually improve after the drug is stopped, but may not go away completely.

If your doctor plans treatment with chemo you should be sure to discuss which drugs will be used and the possible side effects. Once chemo is started, let your health care team know if you have side effects, so they can be treated.

For more information on chemotherapy, see the Chemotherapy section on our website.

- References
See all references for Nasal Cavity and Paranasal Sinus Cancers

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Targeted Therapy for Nasal Cavity and Paranasal Sinus Cancers

As researchers have learned more about the changes in cells that cause cancer, they have been able to develop newer drugs that specifically target these changes. Targeted drugs work differently from standard chemo drugs. They often have different (and less severe) side effects. This type of drug has not been well studied for treating nasal cavity and paranasal sinus cancers.

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

Cetuximab may be combined with radiation therapy for some earlier stage cancers. For more advanced cancers, it may be combined with standard chemotherapy drugs such as cisplatin, or it may be used by itself.

Cetuximab is given by infusion into a vein (IV), usually once a week. A rare but serious side effect of cetuximab is an allergic reaction during the first infusion, which could cause breathing problems and low blood pressure. You may be given medicine before treatment to help prevent this. Many people develop skin problems such as an acne-like rash on the face and chest during treatment, which in some cases can lead to infections. Other side effects may include headache, tiredness, fever, and diarrhea.

Other targeted therapy drugs to treat nasal cavity and paranasal sinus cancers are being studied now.

For more information on drugs considered targeted therapy, see our document Targeted Cancer Therapy.

- References
  See all references for Nasal Cavity and Paranasal Sinus Cancers

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Palliative Treatment for Nasal Cavity and Paranasal Sinus Cancers

Most of this document discusses ways to remove or to destroy cancer cells or to slow their growth. But it is important to realize that maintaining a patient’s quality of life is another important goal. This is true regardless of whether a person is being treated to try to cure the cancer or if the cancer is too advanced to be cured. If the goal of treatment is a cure, palliative treatments can help ease symptoms from the main cancer treatment itself. If the cancer is advanced, palliative treatment may play an even larger role, helping to keep the person comfortable and maintain quality of life for as long as possible.

For example, pain is a significant concern for many patients with cancer. It can almost always be treated effectively 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 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 can make it hard to swallow. If this affects how a person eats or drinks, they may need to have a feeding tube inserted into the stomach. Often, this is placed with an endoscope (a flexible tube that goes into the stomach through the throat) and is known as a PEG (percutaneous endoscopic gastrostomy). 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.

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 tell your doctor how you are feeling and what symptoms you are having. Some people don’t like to disappoint their doctors by telling them they are not feeling well. This does no one any good. Your doctor wants to know how you really feel. Talking about the symptoms you are having allows your doctor to give treatments that can relieve the symptoms. Getting effective treatment can help you feel better and let you concentrate on the things that are important in your life.

- **References**
Treatment Options by Type, Location, and Stage of Nasal Cavity and Paranasal Sinus Cancer

Most of the time, the treatment of nasal cavity or paranasal sinus cancer is based on its location and its stage – how far it has spread in the body. But other factors, such as a person’s overall health, may also affect treatment options. Talk to your doctor if you have any questions about the treatment plan he or she recommends.

The staging of nasal cavity and paranasal sinus cancer is very complex, and thus far staging systems have only been agreed upon for the most common cancers – maxillary sinus and nasal cavity/ethmoid sinus cancers. (See How Are Nasal Cavity and Paranasal Sinus Cancers Staged?) Treatment choices for less common cancers of the nasal cavity and paranasal sinuses are tailored to suit each patient depending on the tumor type, size, location, and the patient’s general medical condition and desires.

Maxillary sinus cancer

Stages I and II: The first step in treating most stage I or II maxillary sinus cancers is surgery to remove the cancer. Usually a maxillectomy (removal of bone and mucosa of the maxillary sinus) is done. Surgery to remove lymph nodes in the neck is not needed.

After surgery, most people with these cancers are treated with radiation. Radiation may not be needed for people with stage I cancers if the cancer was removed completely with negative margins (meaning that there are no cancer cells at the edge of the removed specimen), and the cancer was not growing into the area around the nerves (called perineural invasion).

For stage II cancers and stage I cancers that couldn’t be removed completely, had
positive margins (cancer cells were found in the edges of the tissue removed), or perineural invasion, radiation is often given after surgery. Some doctors may recommend chemotherapy (chemo) or targeted therapy along with the radiation.

Radiation is often recommended for cancers that are the type called adenoid cystic, even if the margins are negative and there is no perineural invasion.

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

**Stages III and IVA:** People with these stages of maxillary sinus cancer are also treated with 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 (a neck dissection).

After surgery, the area where the tumor had been 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. Chemo (or targeted therapy) may be given along with the radiation therapy. This has more side effects than giving either treatment alone, but it may also reduce the risk that the cancer will grow back after treatment. Sometimes the radiation (and chemo) are given before the surgery to try to shrink the tumor so that it can be more easily or more completely removed.

**Stage IVB:** Some cancers are in this stage because the main tumor is not resectable (it cannot be removed completely with surgery). People with these cancers are usually treated with radiation therapy. They may also receive chemo (or targeted therapy). Surgery is sometimes done before radiation therapy to help relieve sinus blockage, but it is not meant to cure or completely remove the cancer on its own.

Stage IVB also includes some cancers where the main tumor can be removed with surgery (is resectable) but the cancer has spread to lymph nodes, making them larger than 6 cm (about 2½ inches, across). These cancers are treated like stage IVA cancers — surgery to remove the tumor and neck lymph nodes, followed by radiation and maybe chemo. Again, sometimes radiation and chemo are given before the operation to try to shrink the tumor and make it easier to remove.

**Stage IVC:** These cancers have spread to organs beyond the head and neck. Cancers in this stage are extremely hard to cure, so the goal of treatment is usually 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 varies, depending on where the cancer is, the problems it is
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 all parts of the body. 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 may be a good option for some people.

**Nasal cavity cancers**

**Stages I and II:** These cancers are in the nasal cavity without spread to lymph nodes. They can be treated with surgery or radiation. Radiation is often recommended after surgery.

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

Another option is to treat with radiation, sometimes combined with chemo or targeted therapy.

**Ethmoid sinus cancer**

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

**Stages I and II:** These cancers can be treated with surgery to remove the tumor. Surgery is typically followed by radiation therapy (sometimes with chemo or targeted therapy). This is to try to kill any tiny bits of cancer cells that couldn’t be seen and removed during surgery, which may lower the chance of the cancer coming back later. Sometimes chemo and radiation therapy are given before surgery to shrink the tumor and make it easier to remove.

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

Radiation therapy instead of surgery may also be an option for some patients. Radiation often results in less change in the facial appearance than surgery.

**Stages III and IVA:** These cancers are usually treated with surgery as well. If lymph nodes 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 or targeted therapy).

Another option may be to start treatment with radiation therapy and chemo (or targeted therapy). This might be followed by surgery if the tumor shrinks enough.

**More advanced cancers:** for tumors that are unresectable or for people who are unable or don’t want surgery, the first treatment is usually radiation therapy. Sometimes chemo is given with the radiation treatments.

Cancers that have spread to distant parts of the body are extremely hard to cure, so the goal of treatment is usually 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 depends on where the cancer is, the problems it is causing, and a person’s general health. Chemotherapy (or targeted therapy) is often the main treatment if a person can tolerate it because it reaches all parts of the body. 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 may be a good option for some people.

**Sphenoid sinus cancer**

The sphenoid sinuses are very difficult to reach surgically. Cancers in this location are generally treated with radiation therapy. Chemotherapy (or targeted therapy) may be added as well.

**Melanomas**

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

For cancers that can’t be removed, radiation therapy, chemo, or other treatments (immunotherapy or targeted therapy) may be used. Although a melanoma that forms in the nasal cavity or a paranasal sinus is different in many ways from a melanoma skin cancer, it is often treated the same way when it is advanced. For more information about the treatment of advanced melanomas, see our document [Melanoma Skin Cancer].

**Sarcomas**
Like with 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 is usually treated with a combination of surgery, radiation therapy, and chemo. For more information about the treatment of rhabdomyosarcoma, please see our document Rhabdomyosarcoma.

For other types of sarcoma, please see our document Sarcoma: Adult Soft Tissue Cancer.

**Recurrent nasal cavity or paranasal sinus cancer**

Cancer is called *recurrent* when it comes back after treatment. Recurrence can be local (in or near the same place it 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 initial treatment.

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 (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.

Recurrences of sphenoid sinus cancer are usually treated with chemotherapy (or targeted therapy).

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 or sarcomas 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 is often treated with chemo and/or targeted therapy, although radiation could also be an option if it wasn’t given before.

If chemo is no longer working, a newer option might be treatment with
an immunotherapy drug such as pembrolizumab (Keytruda) or nivolumab (Opdivo). These drugs can help the body’s own immune system attack the cancer.

Treatments for recurrent nasal cavity or paranasal sinus cancer may temporarily shrink cancers and help relieve symptoms, but these cancers are very difficult to cure. 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 is 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 pros and cons of each treatment. Because these cancers are hard to treat, clinical trials of newer treatments could be a good option for some people.

- References
See all references for Nasal Cavity and Paranasal Sinus Cancers

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