

Sinusitis

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What is it?

Sinusitis is an inflammation of the *sinuses* which surround the nose. Sinuses are bony air cavities in the head and face, which connect with the nose through small openings about the size of a pencil lead. Normally, the nose and sinuses produce between a pint and a quart of mucus and secretions per day. This mucus passes into and through the nose, sweeping and washing the membranes, picking up dust particles, bacteria, and other air pollutants. The mucus then flows backward into the throat where it is swallowed.

Sinuses are located in the cheek bones (*maxillary*), in the forehead above the eyes (*frontal*), behind the nose (*sphenoid*) and on the nasal side of the eye sockets (*ethmoid*). In infancy and early childhood, only the ethmoid and maxillary sinuses are developed. The others appear around age six.

Sinusitis is usually categorized as either acute or chronic. Acute sinusitis is an infectious process in a sinus that lasts from one day to three months. Chronic sinusitis lasts longer than three months.

What causes it?

A typical case of acute sinusitis begins with a "cold", or "flu", or an allergy attack that causes swelling of the nasal membranes and increased watery mucous production. The membranes can become so swollen that the tiny openings from the sinuses become blocked. When mucous and air cannot flow easily between the nose and sinuses, abnormal pressure occurs in the sinuses and mucous can build up in them.

A blocked sinus cavity filled with mucous becomes a good place for viruses or bacteria to grow. When a

person's "cold" lasts more than the typical 1-2 weeks, and when the mucous is persistently yellow/green, or develops a bad odor or taste, then a bacteria may have caused a secondary sinus infection.

Who gets it?

Anyone can "catch" a sinus infection. An estimated 0.5% of viral upper respiratory tract infections are complicated by acute sinusitis. However, certain groups of people are more likely to develop sinusitis.

People with allergies have swelling in the nasal membranes which block the sinus openings. People with deformities of the nose that impair good breathing and proper drainage also are more likely to have sinuses which become obstructed. In addition, people who are frequently exposed to infections, such as school teachers and health workers, as well as smokers are especially susceptible.

What are the symptoms?

Secretions from the sinuses cause blockage of the nasal passages. This creates a pressure type pain in the forehead or face, between and behind the eyes, or in the cheeks and upper teeth, depending upon which sinuses are involved and can be quite severe in acute bacterial sinusitis. Cough, due to post nasal drip, may be followed by gagging or even vomiting. It tends to be worse at night. Sleep may be disturbed, leading to irritability during the daytime.

Many infants nurse poorly and sometimes cough and choke during feeding. Children usually have persistent cough, fever, and purulent or pussy nasal discharge, which tends to be thick and may range in color from mucousy to pussy white.

The older child or adult tends to have colored nasal discharge, one-sided facial pain, headache, fever, and cough, usually following an upper respiratory viral infection. Headaches are less prominent in chronic sinusitis, but congestion and unpleasant nasal secretions usually persist. Frequently, the eustachian tube is obstructed, whether or not there is a middle ear infection present, which may result in a popping or clicking sensation in the ears and muffled hearing. Bad breath is also frequently present.

The pain of maxillary sinusitis typically appears within two hours of awakening, intensifies in the early afternoon, and then fades toward evening. The pain is usually worse with coughing or bending at the waist into a head down position.

How do you prevent it?

There are several things you can do yourself. You should avoid air pollutants that irritate the nose, especially tobacco smoke. Special air filters, called *high-efficiency particulate air filters* and *electrostatic filters*, can be helpful in reducing irritants in the home.

Some episodes of sinusitis can be avoided by proper humidification of the home (keep the humidity at 45-50%) and by avoiding over heating (keep the temperature no higher than 70 degrees F). Low humidity and excess heat interfere with the normal function of the nose and sinuses.

Can it be treated?

Ideally, therapy for sinusitis should control infection, reduce tissue swelling, encourage drainage, and maintain the opening of the sinuses in the nose. Initial treatment is medical, and surgical therapy is reserved for those who do not adequately recover.

- **Stop smoking** and avoid smoky rooms since cigarette smoke paralyzes the body's own immune system which normally fights infection.

- **Humidified Air** can be administered either through a commercial humidifier, or by pouring boiling water into a cup or pan and breathing in the steam, possibly with a towel draped over the head and the pan, for approximately ten minutes.

- **Saline Nasal Spray** (Ocean, NaSal) can be sprayed into the nasal passages several times a day. Gently sniffing in allows the solution to trickle down the back of the throat and thins the mucous. The solution can be made at home by adding 1/4 tsp. table salt to one cup warm water and then putting the liquid into the spray bottle or use a bulb syringe.

- **Decongestants** like pseudoephedrine (Sudafed) decrease tissue swelling, thus providing relief from nasal congestion. Topical decongestants (Afrin, Neosynephrine) temporarily may help, but can cause rebound congestion once they are stopped and should be used rarely if at all.

- **Expectorants** (plain Robitussin, Mucinex) can thin sinus secretions and appear to increase sinus drainage and promote the recovery of the usual immune functions.

- **Antihistamines** (Actifed, Benadryl, Chlor-trimeton) should be avoided unless allergies are triggering the sinus infection. Antihistamines may dry and thicken infected sinus secretions, making them more difficult to drain.

- **Antibiotics** are the mainstay of medical management if there is a bacterial infection lasting longer than 10-14 days without improvement or causing fever, facial swelling, or facial pain. Because the sinuses are air spaces without good penetrating circulation, treatment is often longer than with other infections. Occasionally, treatment requires several weeks of therapy in order to completely clear the sinus infection. Even if you feel better after a few days of antibiotics, you should finish the entire prescription in order to completely eradicate the sinus infection.

- **Surgical antrostomy**, which creates an opening in the wall of the sinus to drain the secretions into the nose, is required only in very rare cases.

Are there complications?

Most cases of sinusitis respond promptly to medical treatment and are not serious. However, an infection that is in the sinus is also very close to the eye and to the brain. Extension of a sinus infection to the eye or brain is rare, but very serious.

Furthermore, it is not healthy for the lungs to have infected mucus dripping down from infected sinuses. Bronchitis, chronic cough, and asthma are often aggravated, or even brought on, by sinusitis.

If left untreated, acute sinusitis can be associated with such complications as *cellulitis* (skin infection), *meningitis* (brain infection), *osteomyelitis* (bone infection) and *cavernous sinus thrombosis* (blood clot within the brain). In children, untreated acute sinusitis can result in facial deformity or serve as a trigger for asthma.

In summary

- Blockage of the sinus opening into the nose is the most common trigger for sinusitis
- Tobacco smoke increases the risk for sinusitis
- Nasal congestion and frontal headaches are much more commonly caused by viral upper respiratory infections and allergic rhinitis than by true sinusitis.
- For more information contact your doctor or the American Academy of Family Physicians at familydoctor.org