

Children's Hospital of Illinois
SINUSITIS
INFORMATION SHEET

WHAT IS SINUSITIS?

Sinusitis is inflammation (swelling) of the sinuses. The sinuses are airspaces within the bones of the face and skull. There are a total of four paired sinuses. The sinuses warm and humidify the air as one breathes. They also trap and filter particles from the air, such as bacteria, spores, and dust.

The sinuses of people with cystic fibrosis (CF) are lined with the same epithelial cells that line the airways (breathing tubes). Thus, the epithelial cells of the sinuses have the same defect in the Cystic Fibrosis Transmembrane Regulator (CFTR). Because of the defect, the cells produce mucus which is too thick and cannot be cleared. The airspaces become full of mucus and can become infected. The same bacteria that cause problems in the lungs, also cause infect the sinuses. These bacteria are: *Staphylococcus aureus*, *Hemophilus influenza*, *Pseudomonas aeruginos*, *Burkholderia cepacia*, *Achromobacter (a.k.a. Alcaligenes or Acinetobacter) xylooxidans* and *Stenotrophomonas maltophilia*.

WHAT ARE SYMPTOMS OF SINUSITIS?

Most children with CF usually develop sinus symptoms between the ages of 5 and 14 years. Common symptoms include:

- Nasal obstruction
- Chronic congestion or discharge
- Headaches
- Post-nasal drip with morning cough
- Cough that is aggravated by lying down
- Severe bad breath
- Constant need to "clear one's throat."

HOW IS SINUSITIS DIAGNOSED?

Sinusitis is usually diagnosed by having a history of the common symptoms. Sometimes a computed tomography (CT) scan is used to assess the extent of the sinusitis or follow response to therapy. Magnetic resonance imaging (MRI) or plain x-rays are rarely used.

HOW IS SINUSITIS TREATED?

Sinusitis is usually treated with the following therapies: antibiotics, nasal steroids, saline or antibiotic flushes, antihistamines or nasal decongestants and surgery.

Antibiotics are used to treat the bacterial infection. Nasal swabs, sputum cultures and/or transantral aspiration (putting a needle directly into the sinus) may be used to obtain specimens, so the appropriate antibiotic can be chosen. Antibiotics are usually given by mouth for 3-6 weeks. Other ways to give antibiotics are intravenously (IV), via flushes directly into the nose or sinuses, or nebulized.

Nasal steroids are used to decrease the swelling. If the swelling of the nasal lining can be decreased, drainage of the sinuses may improve.

Saline flushes are used to clear mucus and hydrate thick secretions. Infectious bacteria and viruses may also be removed with the nasal secretions. The nasal passages are washed with the saline using a bulb or catheter-tipped syringe.

Antihistamines and decongestants are occasionally used. Some people with CF also have hay fever so antihistamines may be helpful. Decongestants, such as pseudoephedrine (Sudafed), can be helpful for relieving symptoms of sinus headache or fullness. Topical decongestants, such as oxymetazoline (Afrin), can give temporary relief by promoting sinus drainage, but should not be used more than three days in a row for fear of a **rebound affect leading to increased nasal secretions**. Mucolytics, such as guaifenesin, may be used to promote sinus drainage.

Surgical treatment of sinus disease may be considered in anyone with CF and ongoing nasal or sinus symptoms such as: headache, loss of taste or smell, severe post-nasal drip, frequently recurring pulmonary exacerbations or those awaiting lung transplantation.

The surgeries are usually done with an endoscope, a small, narrow camera inserted into the nostrils. Advanced endoscopic sinus surgery involves use of a CT scanner in conjunction with the endoscope to help the surgeon gain a 3-D view of the sinuses which provides better access.

