## Snoring and Obstructive Sleep Apnea (OSA)

The typical manifestations of OSA are snoring, mouth breathing and breathing pauses with fragmentation of sleep with frequent awakenings. Other symptoms include bed wetting, fatigue during the day, hyperactivity and poor school performance.

The diagnosis is based on parental history of nighttime symptoms and physical examination in the office showing tonsillar enlargement. A lateral neck x-ray or an endoscopic exam through the nose can achieve visualization of the adenoids. The gold standard for the diagnosis is a polysomnogram (Sleep Study), which quantifies the degree of obstruction and its sequelae. The treatment of choice in most children is removal of tonsils and adenoids, which leads to resolution of the problem in a large proportion of children. However, young children, those with neurological abnormalities, and those with severe OSA are prone to postoperative complications and are usually observed in the step-down unit where appropriate monitoring allows the detection of respiratory compromise and the intervention to resolve it. Our specialists work in conjunction with sleep specialists from the Departments of Pediatric Neurology and Pulmonology to offer the best care for even the most complicated cases of OSA.

## Sinusitis

Sinusitis is a common diagnosis in children that often presents as recurrent episodes of nasal congestion, nasal drainage, cough, postnasal drip and facial pain/headaches, and can be acute or chronic. There is a strong association between allergies, asthma and sinusitis, which often exacerbates asthma in children. The diagnosis involves appropriate history and physical examination, which might include a nasal endoscopy to visualize possible polyps or obstruction and in some cases, we will obtain a culture to help guide the choice of therapy. The standard radiological test to evaluate the sinuses is a CT scan without contrast. Tests are performed to rule out potential associated conditions, such as allergies, immotile cilia syndrome, immune deficiencies and cystic fibrosis. The mainstay of treatment of sinusitis is antibiotics with occasional use of intranasal and systemic steroids to decrease the inflammatory response within the nasal and sinus cavities. If maximal medical treatment fails, surgical treatment options include adenoidectomy or endoscopic sinus surgery. CT-guided surgery equipment, not available in most hospitals, allows visualization of the anatomy during surgery and facilitates a safer, more thorough procedure.

## Airway Problems

Airway problems range from uncomplicated stridor (noisy breathing) in patients with laryngomalacia to life-threatening airway compromise in patients with subglottic stenosis or foreign body aspiration.

Evaluation of the child with stridor includes careful history and physical exam. We perform flexible fiberoptic laryngoscopy under local anesthesia in the office to evaluate the supraglottic structures as well as the vocal cords. The findings are documented and recorded to show the parents and explain the nature of the abnormalities. The subglottis and distal trachea can be evaluated radiographically by neck x-rays and/or fluoroscopy. Sometimes, a barium swallow is helpful in identifying lesions that extrinsically compress the trachea and the esophagus. CT scan and MRI can also be helpful. The golden standard for evaluating a child with a suspected subglottic or tracheal lesion is a rigid/flexible bronchoscopy in the operating room under general anesthesia.

Our otolaryngologists work as a team with pediatric anesthesiologists to maintain a safe airway while establishing the diagnosis and treating the condition. Once the cause of the stridor is identified, the team makes plans for treatment. This might include endoscopic relief of the stenosis using laser equipment with application of Mitomycin C to prevent scar recurrence or open surgical procedures to expand the airway and eliminate obstructive lesions using rib grafting. Sometimes a tracheotomy is necessary to allow safe breathing while the original problem is rectified. The University of Chicago Aeromedical network (UCAN) can help transport children with airway abnormalities for acute care in the intensive care unit where pediatric otolaryngologists work in close collaboration with the expert pediatric critical care team to identify the problems and help resolve them.

## Sensorineural Hearing Loss (SNHL)

Significant hearing loss occurs in 1-2 of 1,000 newborns with moderate to profound bilateral hearing loss estimated at 1 of 900-2,500 newborns. Most congenital hearing loss is sensorineural with approximately one-half having a genetic etiology. Approximately 30 percent of the genetic causes are syndromic in nature. Around 50 percent of nonsyndromic, autosomal recessive prelingual deafness is due to mutations in the gene encoding connexin 26. Bacterial meningitis is the most common cause of acquired SNHL in children. Early identification of SNHL is key to a child's communicative success. If hearing loss is not identified and addressed early, it may result in significant delays in speech and cognitive development. The federally mandated newborn hearing screen allows early identification of hearing loss. We provide a comprehensive range of services to identify and rehabilitate children with congenital hearing loss. These include newborn hearing screens, expanded testing with soundfield audiometry, otoacoustic emissions, brainstem-evoked response audiometry, genetic testing and counseling, amplification options, cochlear implantation, as well as the rehabilitation that is subsequently required. Children requiring sedation for testing are observed by qualified nurses with appropriate monitoring in the specialized pediatric procedure area.

## Otolaryngologic Manifestations of Gastroesophageal Reflux (GER)

GER is increasingly recognized and defined in children. The exposure of the upper aerodigestive tract to gastric secretions results in numerous pathologic processes. GER can cause or exaggerate chronic rhinosinusitis, recurrent otitis media, chronic cough and airway pathologies, such as subglottic stenosis, recurrent croup, laryngomalacia and reflex apnea. Children with pathologic GER and GER-induced otolaryngologic disease generally have an excellent response to medical therapy. Only small percentages require surgical intervention in the form of anti-reflux surgery. Awareness of the role of GER in otolaryngologic disease is the key to its successful treatment. At UCCH, pediatric otolaryngologists work with pediatric gastroenterologists and pediatric surgeons to provide a comprehensive multidisciplinary approach to managing GER.