Managing Oral and Respiratory Secretions
by Susan Agrawal

Some children with neurological, swallowing, or respiratory conditions experience problems handling their oral and respiratory secretions. While some children have too many oral secretions, others simply cannot swallow their saliva. Those with underlying respiratory conditions may have trouble with mucus and other respiratory secretions that are coughed up.

Excess or unhandled secretions are most often considered a “nuisance” problem, because for most (but not all) children they do not cause serious medical problems. Nonetheless, excess secretions can have a serious impact on a child’s quality of life, including a child’s social situation. They can also cause associated symptoms, including choking or coughing, congestion, or skin irritation. When secretions affect a child’s quality of life or health, they should be addressed medically.

Causes and Types of Problematic Secretions

The largest group of children with secretion management problems is made up of children who cannot or do not swallow their secretions. Many of these children have neurological or neuromuscular conditions such as cerebral palsy that make swallowing difficult, but some have problems swallowing due to anatomical malformations that directly affect the swallow. Issues such as a large tongue, orthodontic problems, jaw malformations, clefts (lip, palate, or larynx), or esophageal malformations commonly lead to swallowing dysfunction.

Most of these children have normal amounts of secretions, but are unable to swallow some or all of them. Many of these children drool, sometimes almost continuously, which is called sialorrhea. This drooling is anterior, meaning it runs out of the mouth. Children with minimal head and trunk control often drool, due to both low muscle tone and poor positioning.

Other children may have posterior drooling, in which secretions pour down the back of the throat. When children do not swallow frequently enough or at all, they may aspirate secretions from the mouth into their upper or lower airways, which can cause choking, coughing, vomiting, and in some children, serious respiratory complications including pneumonia.
Some children also produce excess secretions. There are many possible causes for excess secretions, including neurological issues (especially dysautonomia), nausea, reflux, infection, the presence of a tracheostomy or ventilator, and the side effects of certain medications. Anti-seizure medications and tranquilizers are known causes of excess drooling. Mouth breathing and obstruction of the nose or upper airway by tonsils or adenoids may also lead to increased secretions. Children with respiratory conditions such as cystic fibrosis or other lung diseases may also have increased secretions or mucus production as a result of their underlying conditions.

**Effects of Drooling or Excess Secretions**

While most side effects of drooling are not medically serious, they can be very challenging for children and caregivers. Common mild side effects include the following:

- Facial rash or skin breakdown around the mouth and on the chin
- Soiled or wet clothing
- Social problems, including teasing or embarrassment
- Mild dehydration
- Speech difficulties
- Feeding problems

For some children, drooling and excess secretions can be much more serious, especially if they have anterior drooling or are unable to swallow secretions appropriately. These children may experience the following more serious side effects:

- Choking and coughing
- Gagging and vomiting
- Aspiration
- Congestion
- Difficulty breathing
- Pneumonia

**Treatments for Problematic Secretions**

There are many treatments available for excess secretions, including simple management, medications, therapies, and surgery. Any child whose quality of life is being affected by drooling should see a specialist, in most cases an otolaryngologist (ENT).

Simple management strategies may include using bibs, bandanas, or wraps to absorb secretions. Some children may also require the use of a barrier cream on the face to prevent skin breakdown. Oral suctioning using a suction machine or bulb syringe may also be helpful.
Children who drool as a result of an impaired swallow may benefit from oral-motor training, such as speech therapy services, swallowing/feeding therapy, or VitalStim therapy. Some children may also improve using biofeedback or behavior training to help them learn to swallow appropriately, though children must be physically and cognitively able to participate in this type of therapy.

Children with excess saliva or continuous drooling may benefit from management of secretions using medication. Because medication side effects may outweigh the benefits, treatment with medication should be reserved for more serious cases. Commonly used medications include the anticholinergic drugs Robinul (glycopyrrolate), Atropine, and Scopolamine, which can be administered through a patch. All medications in this class will reduce, but not eliminate, secretions. However, they may cause secretions to become thick, which can be problematic for children with respiratory problems. In addition, these medications can cause urinary retention, flushing, increased body temperature, lack of sweating, slowed digestion, and an increase in autonomic symptoms for many children.

Another option is Botox injections into one or more of the salivary glands. These injections in effect paralyze the gland, preventing it from producing saliva. The effects are temporary, typically lasting from one to three months. Some children do experience a spread of the paralytic agent used, so care should be taken to find an experienced provider.

In children with posterior drooling and respiratory symptoms, a careful plan for respiratory hygiene should be created. This plan should attempt to thin secretions, mobilize them from the lower airways, and remove them.

Nebulized normal or hypertonic saline may be used to thin secretions. Children with cystic fibrosis or very thick secretions may also use the medication Pulmozyme for this purpose.

A variety of devices may be used to mobilize secretions. They include the following:

- Chest physical therapy and/or postural drainage
- Percussion of the chest using a vibratory device
- Specialized breathing and coughing exercises
- High frequency chest wall oscillating vest treatments (The Vest, SmartVest)
- CoughAssist devices
- Oscillating positive expiratory pressure (PEP) devices (Flutter, Acapella, Cornet)
- Intrapulmonary percussive ventilation

After secretions have been mobilized, they should be removed, either by coughing or suctioning. Oral suctioning with a suction machine or bulb syringe may be sufficient for some children, but those with a poor cough may require deep suctioning to remove secretions. Some children who require constant suctioning may need to consider a tracheostomy for better secretion management.
Children with severe drooling and respiratory symptoms may benefit from surgical treatment. The typical procedures used include the following:

- Salivary gland ligation, in which one or more glands are tied off
- Salivary gland removal
- Salivary gland rerouting
- Tracheostomy placement to allow for better suctioning
- Laryngeal-tracheal diversion, in which the trachea is separated from the esophagus using a tracheostomy, so that aspiration into the airway is no longer possible

**Tough Choices**

Managing secretions can be a difficult process of trial and error. Sometimes the risks of treatment outweigh the benefits, while other times, the benefits clearly outweigh the risks. The decision must be made individually for each child, evaluating the pros and cons of various treatment strategies.

Your child may require consultation with an ENT, physiatrist, pulmonologist, complex care physician, or a combination of these specialists in order to come up with a comprehensive plan to manage secretions. If done well, appropriate secretion management can dramatically improve a child’s health and quality of life.