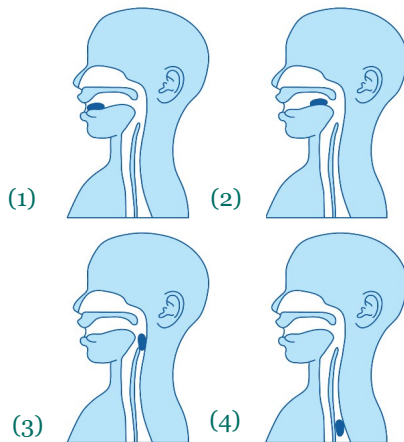




## SECTION 1.2: SWALLOWING BASICS

### WHAT IS SWALLOWING?

Swallowing is the movement of saliva, liquids and foods from the mouth into the stomach. Swallowing requires coordinated use of 26 muscles. The average person swallows 600-900 times per day, and it takes approximately 7 seconds to pass food from the mouth to the stomach. For something we do so often and so easily every day, it's a very complex process.



### HOW DO WE SWALLOW?

Swallowing can be separated into four phases:

- (1) **Phase 1:** Oral Preparatory
- (2) **Phase 2:** Oral Transit
- (3) **Phase 3:** Pharyngeal
- (4) **Phase 4:** Esophageal

(1) **Oral Preparatory phase:** Food and liquid in the mouth are prepared for swallowing. For liquids, this means sucking to pull liquids into the mouth while the tongue moves them to the back of the throat. For solid foods, this means the teeth, lips, cheeks, tongue and jaw work together to form a cohesive chunk of food to be swallowed.

(2) **Oral Transit phase:** Movement of the food or liquid from the tongue toward the back of the mouth and throat to start the swallow. The soft palate (top back portion of the roof of mouth) moves up and toward the back of the throat to block food and liquid from going in the nose. The airway to the lungs is open, allowing breathing to occur during this time.

(3) **Pharyngeal phase (throat):** Food enters the pharynx (throat). The airway to the lungs is

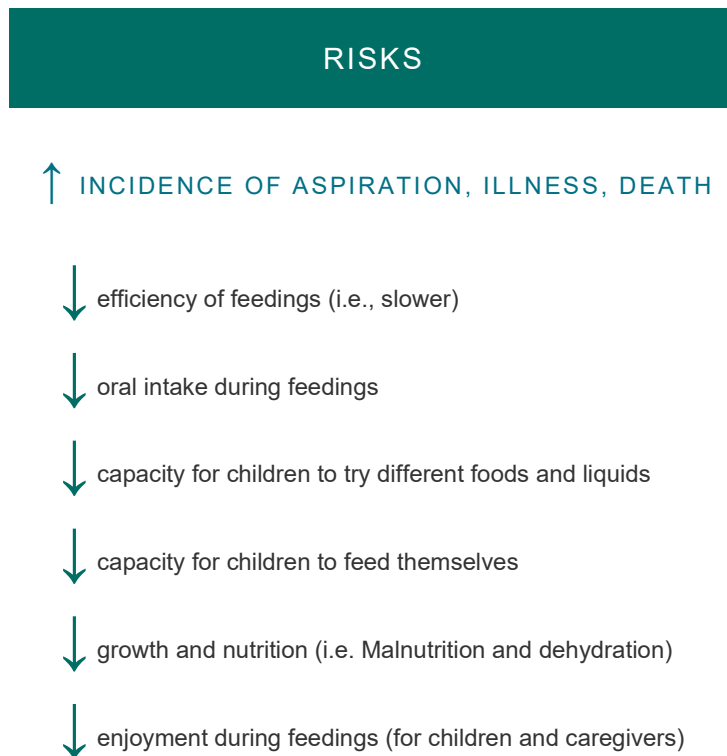
closed off by a flap of tissue (epiglottis) that covers the opening of the trachea (windpipe that leads to the lungs). The vocal folds are also at the top of the airway. They close during this phase to add more protection so that food and liquid don't move into the lungs.

(4) **Esophageal phase:** The food and liquid moves from the top of the esophagus to the stomach. This phase happens on its own and is caused by muscle contractions. There is a circular muscle that relaxes so the food and liquid can go into the stomach. Once the food or liquid moves into the esophagus, the epiglottis opens to allow for breathing

## WHAT IS THE IMPORTANCE OF SWALLOWING?

Eating and mealtimes should be enjoyable and fun daily activities for children. However, when challenges with swallowing arise, eating can become uncomfortable, scary and even life-threatening. Proper swallowing helps with the digestion of food and liquid. It also prevents food and liquid from going into the lungs, which can lead to serious health issues.

Challenges or difficulties swallowing are linked with the following risks:



## WHAT IS ASPIRATION?

Aspiration is when food or liquid pass into the lungs instead of moving into the stomach where they belong. When this occurs, depending on the child, how often they aspirate and how much they are aspirating, it can lead to illness, malnutrition, dehydration and even death.

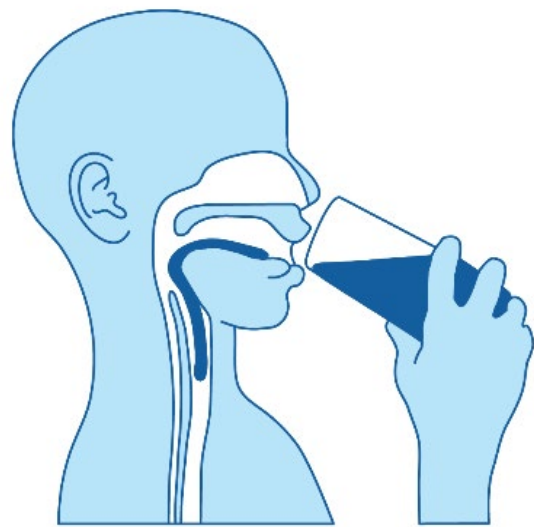
*There are many reasons why children aspirate such as:*

- Gastroesophageal reflux disease or reflux (for example: food or liquid from stomach is vomited up and goes into the lungs)
- Abnormal anatomy (for example: cleft lip/palate)

- Impaired anatomy (for example: paralyzed vocal folds)
- Delayed growth (for example: baby born early – prematurity)
- Brain injury (for example: child with cerebral palsy)
- Muscle weakness or rigidity (for example: child with Down syndrome or cerebral palsy)
- Muscle discoordination (for example: child with cerebral palsy)
- Medical procedures (for example: tracheostomy, nasogastric feeding tube)







*Figure shows normal swallowing and no aspiration with liquid moving down the esophagus.*



*Figure shows dysfunctional swallow and aspiration of liquid moving down the trachea toward the lungs.*



## KEY SIGNS FOR IDENTIFYING SWALLOWING CHALLENGES

| SIGNS AND SYMPTOMS OF SWALLOWING CHALLENGES   | DESCRIPTIONS (WHAT IT LOOKS LIKE)  |
|---|--|
| Coughing or Choking<br>                      | Child coughs or chokes during or after swallowing food or liquid   |
| Gurgly “wet” Sounding Voice or Breathing<br> | Child’s voice or breathing sounds wet during or after swallowing food or liquid  |
| Complaints of Discomfort<br>                 | Child experiences sensation of food being stuck in throat during, following and/or in-between meals; reports pain or discomfort with eating/drinking or food comes back up into mouth after swallowing |
| Watery Eyes<br>                            | Child’s eyes water during or after swallowing food or liquid   |
| Change in Color<br>                        | Child’s face changes color (pale, red, or purple/blue) during or after swallowing food or liquid   |
| Fever<br>                                  | Child experiences fever following a meal   |
| Facial Grimace<br>                         | Child displays uncomfortable faces during or following feedings  |
| Change in Breathing<br>                    | Child’s breathing becomes unusually fast or slow, child stops breathing while feeding or child wheezes or gasps for air during or after swallowing food or liquid                                      |
| Lung Infections<br>                        | Child experiences infections in the lungs or airway  |



## SWALLOWING SAFETY TIPS FOR ALL AGES

### TIP 1:

Always consider the individual needs of a child when choosing a level of support. As children grow and develop, their swallowing skills can also change. They may require less or more support. Care must be individualized, and strategies must be regularly evaluated and changed as necessary.

### TIP 2:

Good positioning is key. Finding a safe and comfortable position for a child is critical when it comes to swallowing safety, efficiency and maintaining the health of a child.

### TIP 3:

Small and slow. Keep bite and sip sizes small and use a slower rate of feeding. The slower the rate of eating and drinking and the smaller the bites/sips, the easier and safer it will be for a child to swallow.

### TIP 4:

Adjust texture or thickness of foods and liquids. Liquids may need to be thickened and specific food textures may need to be modified to make feedings safer and more comfortable for a child.

### TIP 5:

Change how you feed a child. Feeding supplies may need to be changed (for example: use a different nipple, cup or chair) to make feedings safer and more comfortable for a child.

### TIP 6:

Children learn best in the context of positive relationships. Offering positive interactions with a child during feedings is the best way to support this process.

### TIP 7:

Always remember that finding what works best can sometimes take a lot of work. Caregivers may need to try many strategies to find what is safest and works best for a child. Take time, watch how a child responds and make small changes gradually.



## FINAL THOUGHTS

Recognizing when a swallowing problem exists and ensuring proper swallowing guidelines are followed for children is a critical element of safe feeding practices. The health and well-being of every child depends on caregivers who are perceptive, supportive and quick to respond to a child's needs. When unsure about how a child is swallowing or when looking for ways to better support swallowing, seek out the support of others. Often, sharing challenges or questions with other caregivers and team members can lead to greater problem-solving and creative solutions as well as alleviate caregiver distress



*For more specific information on food textures and liquid consistencies to support safer swallowing, refer to Chapter 1, Section 9 and Appendix 9C.*

*For more specific information on modifying foods and liquids, refer to Appendix 9E.*