

This document is a short Overview of Pediatric Acid Reflux and GERD from [www.reflux.org](http://www.reflux.org) web site. Dozens of other documents about Pediatric GERD can be found in the Reading Room section of this web site.

## ***What is GER?***

Gastroesophageal Reflux (GER) or Reflux is the medical term used to describe a condition in which stomach contents - food and gastric acid - frequently flow back up out of the stomach into the esophagus. The food that comes up may or may not flow all the way out of the mouth. It may be forceful vomiting which rapidly and completely empties the stomach, or it can be more like a "wet burp" that doesn't reach the mouth

## ***What are the symptoms of pediatric GER?***

There are many different symptoms of GER. Your child may only have a few of these symptoms. The most common symptoms include:

- pain, irritability, constant or sudden crying, "colic"
- frequent spitting-up or vomiting
- vomiting or spitting-up more than one hour after eating
- not outgrowing the spitting-up stage
- refusing food or accepting only a few bites besides being hungry
- poor sleep habits, frequent waking
- "wet burp" or "wet hiccup" sounds
- bad breath

The less common symptoms of pediatric GER include:

- constant eating and drinking (to soothe a sore throat)
- intolerance of certain foods
- poor weight gain; weight loss
- swallowing problems, gagging, choking
- hoarse voice
- frequent red, sore throat
- respiratory problems; pneumonia, bronchitis, wheezing, asthma, nighttime cough, apnea, aspiration, noisy or labored breathing
- ear infections
- constantly running nose; sinus infections
- tooth enamel erosion
- excessive salivation, drooling
- peculiar neck arching, Sandifer's Syndrome

If you think your child may have GER, please contact your child's doctor. It is also very important to let your doctor know if your child develops new symptoms or if the symptoms change.

## ***Is Reflux a new disease?***

No. It is simply more common than previously thought, and diagnostic tests have improved, making it easier to detect reflux. Also, more is now known about the potentially serious consequences of untreated reflux in babies. It is still under-recognized and under-diagnosed. Some researchers believe as many as 7,000,000 children in the US have GER

## ***How serious is reflux?***

Many young babies (about 65%) regurgitate a small amount of milk occasionally, especially when burping after meals. This "spitting up" is normal. Others vomit a large portion of every feeding. The severity of the reflux itself is not what matters. Reflux only becomes a problem when the child is showing signs of complications. When babies develop complications they are said to have Gastroesophageal Reflux DISEASE or GERD.

## ***What are the possible complications of reflux?***

Most babies with mild reflux get better by age one without developing any medical complications. They are very challenging to care for and it can be very stressful on the family regardless of whether it is a medical problem.

When stomach acid flows into the esophagus it can cause a burning sensation called "heartburn." If the acid reflux causes reddening and swelling of the esophagus, this is called esophagitis. Esophagitis can be quite painful and can reduce the desire to eat. Severe esophagitis can lead to bleeding from the inflamed portion of the esophagus. Scar tissue can also form inside the lower esophagus if swelling has been present for a long time. When the scar tissue forms it reduces the size of the esophageal opening and makes swallowing difficult. This type of scar is called a stricture.

Another possible complication of acid reflux is poor growth due to a lack of adequate nutrition. Malnutrition or "failure to thrive" can result from losing too much food from frequent vomiting or from lack of appetite due to pain. If inadequate growth continues, developing vital organs can be damaged and the child may not have enough energy to learn to walk and run.

Babies with acid reflux can also develop respiratory problems from stomach contents entering the nose, windpipe or lungs. When material enters the lungs this is called aspiration. Many babies are first diagnosed as having acid reflux while investigating the cause of recurrent breathing problems such as wheezing, stridor or pneumonia. Acid reflux is now recognized as a cause of sinus infections.

Stomach acid can melt tooth enamel. Please take your child to a dentist as soon as his or her teeth start coming in. Make sure that the dentist watches for tooth decay and enamel erosion.

Your child probably won't develop any serious medical problems, but is it important to be aware of the possibilities so that you can consult your doctor if you see any signs of trouble.

### ***What are the causes of reflux?***

The most common cause of acid reflux is an improperly functioning ring of muscle called the lower esophageal sphincter (LES) where the stomach and esophagus join. The LES normally opens to allow swallowing, belching and vomiting and then closes immediately. If this sphincter stays relaxed, or relaxes periodically, the food and stomach acid can escape back into the esophagus.

There are many reasons for the sphincter to work improperly; bending over, breathing hard, wearing tight clothes and overeating can all force food upwards; spices, smoke and other substances can weaken the muscle; some foods are not well tolerated and don't digest easily; and allergies and other medical problems can cause the valve to open.

We strongly suspect that acid reflux is not a single disease, but several diseases that look alike. The symptoms look so similar that they would look like a single disease. Some children just seem to be born with an immature digestive system and it could be a food allergy in others. In some families, GERD is inherited. There are many medical problems that cause GERD including low tone and long ligaments.

### ***How is acid reflux diagnosed?***

Acid reflux is diagnosed primarily based on the symptoms displayed. Often, if the symptoms are quite typical of reflux, the doctor will start treatment without first performing any tests. If the baby responds well, tests may be unnecessary unless the doctor has reason to believe there might be another medical condition.

The first test is typically a Barium Swallow X-ray (Fluoroscopy) that can show strictures of the esophagus and deformities of the upper digestive tract. The baby is given a small amount of a chalky liquid that shows up well on the x-ray film, forming a distinct outline of the esophagus and stomach. The x-ray will also show some of the nearby organs. Since most babies don't conveniently spit up during the test, it usually just serves to rule out other problems, such as obstructions, but doesn't actually confirm the diagnosis of reflux.

A 24 hour ph-Probe Study is the most accurate way to diagnose acid reflux. A very thin flexible tube is placed in the baby's esophagus with the tip just above the stomach. The probe is connected to a recording device which monitors the acid levels in the esophagus, and shows precisely when reflux episodes occur. Most young babies will reflux

occasionally but when acid levels are high much of the time the child can be said to have "pathological" or "clinical" reflux.

A Milk Scan (Scintigraphy) is a series of scans (either computerized or with a hand held machine) that show how food moves out of the stomach. The child is fed either liquids or solids mixed with a radio-labeled powder and scanned several times. This study is used primarily if slow stomach emptying is suspected but it also shows reflux episodes and whether the food gets into the lungs.

A flexible scope (Endoscope) can be used to examine the upper digestive tract and airway. Biopsies of the esophagus, stomach and upper portion of the small intestine can be taken during the endoscopy. These tissue samples are examined for signs of digestive problems other than reflux, to check the severity of esophageal inflammation caused by the acid, and to detect abnormal cell growth called Barrett's Esophagus. This procedure also allows the doctor to examine the sphincters and actually watch them open and close. Obstructions and ulcers may also be seen through an endoscope.

### ***How is GER cured or treated?***

Until researchers discover the root cause of acid reflux, a complete cure is not possible. There are, however, many different treatment methods available.

Most children will outgrow acid reflux in their first year of life and may not require anything more than careful position and feeding techniques. Only a few babies continue to reflux after age two. It is uncommon for acid reflux to continue past early childhood but it does happen.

Babies with reflux need to be positioned so gravity can help keep the food from coming back up out of the stomach. Many babies with acid reflux are held upright almost every waking minute. In the past it was recommended that babies with reflux should never be left on their backs because refluxed food may be aspirated into the airway or lungs more easily in this position. Babies with reflux were always kept in a prone (face down) position when sleeping. These positioning instructions are now being questioned in light of the Back to Sleep Campaign. Only you and your doctor can determine whether the risk of SIDS or the risk of reflux aspiration is greater for your child. If your child experiences apnea or misses breaths, consult your doctor immediately. An apnea monitor may be used to determine whether your baby is safer on his or her back or stomach.

Often the head of the crib is raised to let gravity help keep your child's food down. A baby older than about three months will slide slowly to the bottom of a raised mattress. There are sheets with pockets available to remedy this problem. See the products page and ads.

Feeding instructions include positioning the baby vertically, thickening formula so it will splash less, burping frequently, adjusting the size of meals and avoiding spicy, fatty and acidic foods.

There are several types of medications used in the treatment of acid reflux: (see also our special newsletter on medications)

- Antacids - Neutralize stomach acid.
- Motility medicines - also prokinetic medications. These increase the muscle tone of the digestive tract and keep the food moving better. Bethanechol (Urecholine) and metoclopramide\* (Reglan) are the only ones currently used in the United States. Erythromycin and anti constipation medicines are sometimes used for this purpose. Cisapride (Propulsid) was withdrawn from the US market in July of 2000 and is only available in special circumstances. Cisapride and domperidone are available in many countries. \* Metoclopramide has significant side effects. Read the article in the Reading Room about it.
- Acid Suppressers - Suppress acid production in the stomach, including: cimetidine (Tagamet), famotidine (Pepcid), ranitidine (Zantac). and Nazitidine (Axid).
- Acid Blockers - Completely block acid production in the stomach. Omeprazole (Prilosec) and lansoprazole (Prevacid) are approved for use in children of certain ages. Rabeprazole (AcipHex) and pantoprazole (Protonix) are used for adults.

Frequently, some experimentation is needed to find the best drug since not all children react the same way, even to similar drugs.

If lack of weight gain and/or eating problems are severe, alternate methods of feeding can be used. The esophagus can be bypassed and food introduced directly into the stomach or intravenous nutrition can be used.

If reflux and complications are severe surgery can be performed to tighten the LES. The most common surgery is called a fundoplication. The very top of the stomach (fundus area) is wrapped around the base of the esophagus. The muscle tone of the stomach can then help pinch the top of the stomach closed. Surgery is required by only a small number of infants and children with reflux.

## ***Resources***

Additional information about acid reflux and GERD can be found in the reading room section of this web site [www.reflux.org](http://www.reflux.org)

Do you need to see a basic lesson on the digestive system? Kids Health has a good one on their web site.

[http://www.kidshealth.org/kid/body/digest\\_noSW.html](http://www.kidshealth.org/kid/body/digest_noSW.html)