



## Déjà Eew: Gastroesophageal Reflux Disease

**O**ur dry cleaner was thrilled every time we had a new baby. For six months he could count on us dropping off armloads of dresses, shirts and pants, some of them barely out of the plastic before getting covered with spit-up. The majority of babies do spit up at least once a day (67% of four-month-olds). So how do we know what's normal spitting (Gastroesophageal Reflux) and what's not (Gastroesophageal Reflux Disease or GERD)?

### Why do babies spit up so much?

Compared to an adult, a newborn has a stiff stomach and a short esophagus. When we eat, our stomachs relax and expand to accommodate incoming food. Babies' stomachs relax much less, so as breastmilk or formula enters the stomach, the pressure rises quickly. The trip from the stomach to the mouth is comparatively shorter in babies, so the chances some gastric contents are going to make it back up (regurgitation) are pretty good.

There is a muscular valve between the stomach and the esophagus, the gastroesophageal sphincter, whose job it is to keep food down. But under normal conditions the sphincter relaxes from time to time, allowing some food to pass back up into the esophagus (reflux). Reflux begins at birth, with half of zero to three-month-old babies refluxing. It peaks at four months of age and by ten to twelve months of age only 5% of babies are still refluxing.

### How do I know if my baby is spitting up too much?

Diagnosing GERD can be quite challenging. Not all babies who spit up have GERD, and not all babies with GERD spit up. Problematic GERD may cause vague symptoms like nasal congestion, coughing, wheezing, hoarseness, even seizure-like episodes (Sandifer's syndrome). In severe cases, infants may refuse to eat or fail to gain weight. While babies with GERD may be fussy, studies of irritable infants showed very few of them had GERD. Infants with colic often end up on medicines for GERD, but these medicines have never been proven to help colic symptoms.

### What will my child's doctor want to know?

As always, we start with a thorough history. You may want to keep a diary of feeds: what kind of feed, how often, how many ounces, and volume and force of vomiting are all helpful details. Blood in the vomit or stool, bile in the vomit, and projectile vomiting all suggest potentially serious causes of vomiting other than GERD.

The physical exam is also important, starting with growth curves. A low weight or an unusually large or small head circumference can suggest serious disease. The exam may reveal fever, wheezing, an abdominal mass, or signs of neurologic disease.

**“Problematic GERD may cause vague symptoms like nasal congestion, coughing, wheezing, hoarseness, even seizure-like episodes (Sandifer's syndrome).”**

### Can you see GERD on an X-ray?

There are several diagnostic studies available, none of them perfect. The simplest is an “upper GI,” where the infant swallows formula mixed with a contrast medium like barium. X-rays then show where the formula goes, and whether any comes back up into the esophagus. They can also follow the contrast through the small intestine (“small bowel follow-through”). Reflux into the esophagus is a normal event in many infants, so a positive upper GI doesn't necessarily mean a baby has GERD. But the upper GI is very useful for finding other problems that may cause vomiting, such as obstructions of the upper GI tract. Scintigraphy is similar to an upper GI, using a radioactive tracer to follow the course of formula through the esophagus and stomach.

### What other tests are there for GERD?

A pH probe can be passed through the infant's nose and down the esophagus to measure whether stomach acid is refluxing. A pH probe can help correlate a baby's symptoms with his reflux, but it only works if the gastric contents are acidic. Another approach, esophago-gastro-duodenoscopy (EGD or upper endoscopy) must be performed by a gastroenterologist. In an EGD the doctor uses a flexible fiberoptic scope to look into the esophagus and stomach for signs of damage from acid reflux. EGD is especially useful when a biopsy of the esophagus is needed.

### How is GERD treated?

When the history and physical exam suggest a diagnosis of GERD we often start with lifestyle modifications. Cigarette

smoke causes GERD in both infants and adults, so any tobacco exposure must be eliminated. About 40% of infants with GERD are allergic to the cow's milk protein in formulas (which may be why breastfed infants have less GERD). Half of these babies will also be allergic to soy protein, so a two-week trial of a hydrolyzed protein formula like Alimentum or Nutramigen is worth a try.

Babies who are taking large, infrequent feeds may be encouraged to eat smaller volumes more often. Adding rice cereal to the formula (1 tsp per ounce of formula) gets the same calories in a smaller volume and has been shown to reduce regurgitation and crying. It would seem that sitting babies up rather than lying them on their backs would help, but X-rays show just the opposite: babies who are sitting or semi-supine are more likely to reflux. Reflux is least likely when a baby is lying face down, but this puts babies at much higher risk for sudden infant death, so we do not routinely recommend this position.

### What medications help GERD?

We try medications from three classes. Histamine-2 receptor antagonists (H2RAs) include ranitidine, famotidine, nizatidine, and cimetidine. These medicines reduce acid secretions in the stomach and are generally safe and effective. With time they can become less effective. Another class is the proton pump inhibitors (PPIs). The PPIs (omeprazole, esomeprazole, lansoprazole, pantoprazole, rabeprazole) are somewhat more potent at reducing acid secretion and can be used in combination with the H2RAs. A third class of medications, the prokinetics, includes metoclopramide, cisapride, and erythromycin. In theory these drugs help move food forward through the GI tract, but they have substantial potential side effects and are usually third-line agents.

### Isn't there a surgery for GERD?

In the Nissen fundoplication a surgeon wraps part of the stomach up around the esophagus. This surgery is typically reserved for children with severe reflux, usually as a result of premature birth or brain injury.

### When will it go away?

While GERD can affect older children and adults, the vast majority of infants outgrow their reflux by one year of age. It may make your drycleaner sad, but don't worry, the couple down the street just had a new baby.

*Dr. David Hill is a board certified pediatrician with Cape Fear Pediatrics ([www.capefearpediatrics.com](http://www.capefearpediatrics.com)). He and his wife have three children.*