Gastroesophageal Reflux (GER)

Nationwide Children's®
When your child needs a hospital, everything matters.

Partners For Kids®

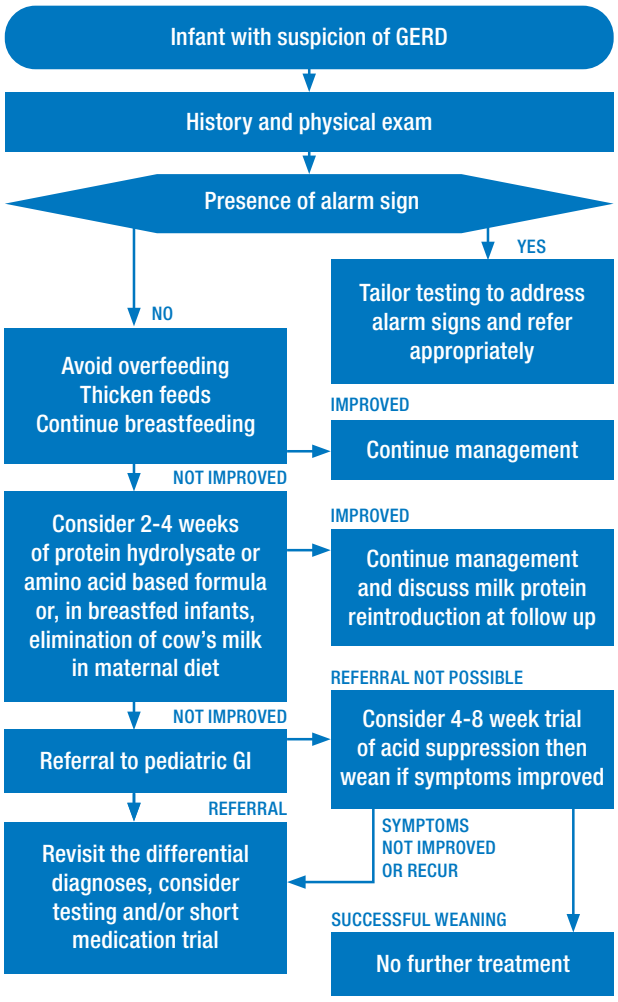
Prescribing for Gastroesophageal Reflux

Prescribing medications to treat Gastroesophageal Reflux (GER) or symptoms of heartburn has become increasingly common and there is an array of options available. To address the chronic use and varying costs of these medications, Partners For Kids, in collaboration with Nationwide Children's Division of Pediatric Gastroenterology, have created this tool.

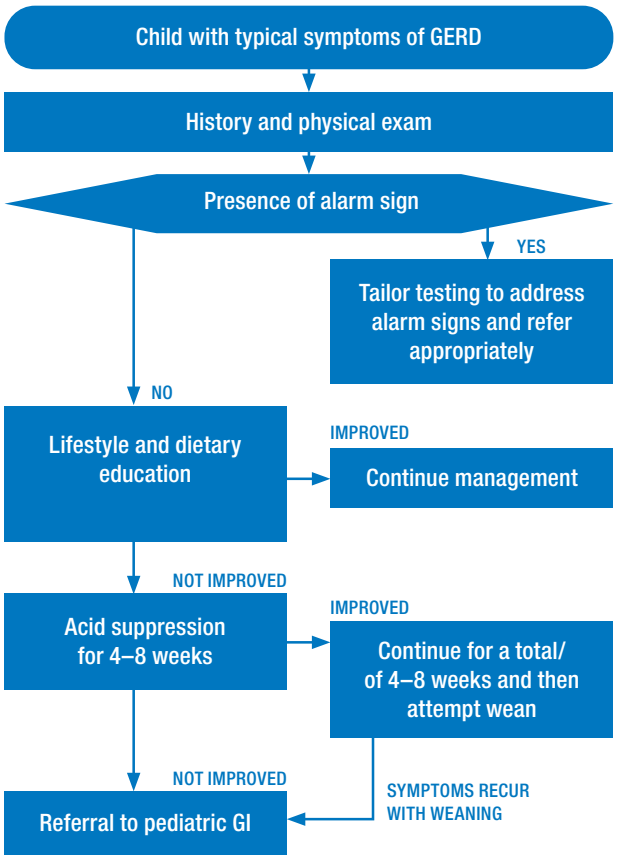
Start by maximize feeding changes in infants and dietary/lifestyle modifications in children/adolescents, then apply the following recommendations when deciding to trial acid suppression medications:

1. Medications should only be used for treatment of typical symptoms in children with GERD.
   a. Medications are not recommended for:
      – Crying/distress in infants without presence of other signs/symptoms
      – Visible regurgitation without presence of other signs/symptoms
      – Extra-esophageal symptoms only
   b. Generally, antacids/alginates are not recommended for chronic treatment for GERD in infants and children.
   c. Decision between Histamine-2 Receptor Antagonist (H2RA) therapy and Proton Pump Inhibitor (PPI) therapy should be based upon:
      – Ease and ability to administer medication (see Table 1 for available dosage formulations)
      – Cost/insurance coverage
      – Availability as not all pharmacies compound PPI products
   d. In general, evidence in adults supports superiority of PPI over H2RA therapy; however, there is a lack of research in children.

ALGORITHM 1. Management of the symptomatic infant.[1]



ALGORITHM 2. Management of reflux symptoms in the older child.[1]



2. Things to consider when prescribing PPI therapy:
    a. If a patient can take solid dosage forms, consider omeprazole (Prilosec®) first line over lansoprazole (Prevacid®). These capsules can be opened and sprinkled on soft foods.
    b. If a liquid/dissolvable formulation is required, try compounded omeprazole suspension before lansoprazole orally-disintegrating tablets (Prevacid® SoluTab®).
    c. Chronic acid suppression can minimize the effectiveness of any medication that requires acid for absorption. These medications include: antifungals (ketoconazole, voriconazole, itraconazole), atazanavir, calcium, and iron salts.
    d. In 2012, the FDA issued a Safety Alert that PPIs may be associated with an increased risk of Clostridium-associated diarrhea (CDAD). The FDA recommends using the lowest dose and shortest duration of PPI therapy possible and advising patients to seek medical attention if they develop symptoms of CDAD (abdominal pain, fever, and watery stools).[2]
    e. Adult studies have shown that use of PPIs increases risk of fractures, dementia, MI, and renal disease.
    f. Not enough research is available on long term effects of these medications in pediatric patients taking acid suppression medications. However, some reports have shown increased risk of infections (necrotizing enterocolitis, community-acquired pneumonia, upper respiratory tract infections, sepsis, and urinary tract infections) in this patient population.[3]

TABLE 1. Available Dosage Formulations

Histamine-2 Receptor Antagonist (H2RA)				
Drug	**Formulation**	**Strength**	**Dosing**	**Max Dose**
Famotidine (Pepcid®)	Suspension	40 mg/5 mL	1 mg/kg/day divided twice daily	40 mg/day
	tablet	10 mg, 20 mg, 40 mg		
Proton Pump Inhibitors (PPI)				
Drug	**Formulation**	**Strength**	**Dosing**	**Max Dose**
Omeprazole (Prilosec®)	Suspension	2 mg/mL	1 - 4 mg/kg/day given once daily	40 mg/day
	Capsule	10 mg, 20 mg, 40 mg		
Lansoprazole (Prevacid®)	Suspension	3 mg/mL	1–2 mg/kg/day given once daily	30 mg/day
	Capsule	15 mg, 30 mg		
	Orally-disintegrating tablet	15 mg, 30 mg		
Pantoprazole (Protonix®)	Packet for oral suspension	40 mg	< 5 years: 0.6 – 1.2 mg/kg/day > 5 years OR < 40 kg: 20 mg daily > 12 years OR > 40 kg: 40 mg daily	40 mg/day
	Tablet	20 mg, 40 mg		

[1] Rosen R, et al. Pediatric Gastroesophageal Reflux Clinical Practice Guidelines: Joint Recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition. JPGN 2018;66: 516-554.

[2] Freedberg DE, Lamousé-Smith ES, Lightdale JR, et. al. 2015. Use of acid suppression medication is associated with risk for C. difficile infection in infants and children: a population-based study. Clinical Infectious Diseases, civ432.

[3] Canani RB, Cirillo P, Rogger P et. al. Therapy with gastric acidity inhibitors increases the risk of acute gastroenteritis and community acquired pneumonia in children. Pediatrics 2006; 117(5), pp.e817-e820.

Referrals and Consultations

Online: **NationwideChildrens.org**
Phone: **(614) 722-6600** or **(877) 722-6220** | Fax: **(614) 722-4000**
Physician Direct Connect Line for 24-hour urgent physician consultations:
(614) 355-0221 or **(877) 355-0221**.
Pharmacy Consultations/Assistance: **PFKPharmacy@NationwideChildrens.org**

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