

My Baby Spits Up a Lot. Is There Something Wrong?

It is normal for infants to spit up (reflux) many times during the day. Spitting up occurs in more than half of all infants during the first four months of age. Most babies are “happy spitters” and don’t need any treatment. Symptoms usually disappear between 18 and 24 months of age.

If your baby spits up a lot, but is otherwise healthy, happy, and growing, a few “**lifestyle changes**” may decrease the amount or number of times your baby spits up. These changes include:

- Feed your baby smaller amounts of food, more frequently throughout the day. Sometimes spitting up happens when the baby eats too much at one time.
- Regularly burp your baby during and after each feeding to relieve air trapped in the stomach.
- If your baby spits up while feeding, stop feeding him/her and wait until the next time you are supposed to feed your baby.
- Keep your baby in an upright position during and after feedings...either up against your chest or sitting up straight when he/she is able.
- Put your baby in the car seat only when you are driving somewhere. The baby’s position in the car seat can actually make them spit up more.
- Do not put tight clothes on your baby. Also, make sure their diaper isn’t too tight either.
- Avoid exposing your baby to smoke from cigarettes or cigars.
- Talk to your healthcare provider about whether you should thicken your baby’s formula or bottled breast milk, or if you should switch to a different type of formula.

For a small number of babies, spitting up too much may be a sign of something more serious, and treatment may be needed. **If you notice any of the following symptoms, talk to your healthcare provider.**

- Spitting up blood (bright red streaks in the spit up or spit up that looks like used coffee grounds), or spit up that has green or yellow fluid in it.
- Arching away from the bottle or breast while crying or being very fussy.
- Refusing to eat, or choking or gagging when eating.
- Breathing problems such as wheezing, coughing, turning blue, or getting pneumonia often.
- Not gaining weight the way they should be.
- Fewer wet diapers than usual.
- Fever or diarrhea.

If your healthcare provider decides that your baby needs **medication**, they may prescribe one of the follow types of drugs:

- Acid Suppressors - These decrease acid production in the stomach. They include *Tagamet* (cimetidine), *Pepcid* (famotidine), *Zantac* (ranitidine), or *Axid* (nizatidine).
- Acid Blockers - These completely block acid production in the stomach. Examples of these include *Prilosec* (or *Losec* in Canada) (omeprazole), *Prevacid* (lansoprazole), and others.

Even if medicines are needed, it is important to continue the lifestyle changes above, so that the medicines will work even better.

Remember, spitting up is normal for most babies. If you have any questions about the lifestyle changes or medicines, ask your pharmacist or prescriber.

Medications for the Treatment of Gastroesophageal Reflux Disease in Infants and Children

(Last modified July 2008)

Generic Medication	Brand Name	Oral Dosing Regimen for Gastroesophageal Reflux Disease	Availability	Notes
Histamine-2-Receptor Antagonists				
Cimetidine ^{1,2}	<i>Tagamet, Tagamet HB, others</i>	Not approved in children less than 12 years. ^{1,2} However, doses of 20-40 mg/kg/day given in divided doses every 6 hours have been used. ^{3,19}	Tablet 200 mg (OTC), 300 mg, 400 mg, 600 mg (Canada), 800 mg Liquid 300 mg/5 mL	In Canada, only approved in children 16 years or older. ²
Famotidine ^{4,5}	<i>Pepcid, Pepcid AC, Maximum Strength Pepcid AC, others</i>	Less than 3 months – 0.5 mg/kg/dose once daily ⁴ 3 months to less than 1 year – 0.5 mg/kg/dose twice daily ⁴ 1 year to 16 years – 0.5 mg/kg/dose twice daily (max 80 mg/day) ⁴	Tablet 20 mg (OTC), 30 mg (U.S.), 40 mg Suspension 40 mg/5 mL	In Canada, only OTC product approved for children 12 years and older.
Nizatidine ⁶	<i>Axid (U.S. only), Axid AR (U.S. only), others</i>	<12 yrs: Not approved. ⁶ Per limited, short-term data, 10 mg/kg/day (2 divided doses) is effective and safe. ²⁵ Oral solution approved for children 12 years and older—150 mg twice daily. ⁶	Capsule 75 mg (OTC, U.S.), 150 mg, 300 mg Solution 15 mg/mL (U.S.)	In Canada, not approved for children. Brand name <i>Axid</i> not available in Canada.
Ranitidine ^{7,8}	<i>Zantac, Zantac 25, Zantac 75, Zantac 150, Zantac 300, Peptic Relief (Canada), others</i>	1 month to 16 years – 5-10 mg/kg/day in two divided doses (maximum 150 mg/day) ⁷	Tablet 75 mg (OTC), 150 mg (OTC, U.S.) Capsule 75 mg, 150 mg (U.S.) Syrup 75 mg/5 mL Effervescent tablet 25 mg, 150 mg (US only)	In Canada, only OTC product approved for children ≥16 years. However, product monograph indicates that it has been successfully used in children 8-18 years. ⁸
Proton Pump Inhibitors				
Esomeprazole ^{9,10}	<i>Nexium</i>	1 to 11 years: 10 mg once daily ^{9,10} 12 to 17 years: 20 mg or 40 mg once daily ^{9,10}	Delayed release capsule (U.S.), tabs (Canada) 20 mg, 40 mg Suspension 10 mg, 20 mg (U.S.), 40 mg (U.S.)	Delayed release capsules can be opened and mixed in applesauce. ⁹

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Generic Medication	Brand Name	Oral Dosing Regimen for Gastroesophageal Reflux Disease	Availability	Notes
Lansoprazole ^{11,12}	<i>Prevacid</i>	≥3 mos: Limited data, single-dose studies, range used: 0.5 to 1.6 mg/kg. ²³ (<1 yr not approved. ^{11,12}) Initial dose: 1.5 mg/kg once daily ²³ OR 1 to 11 years: ^{11,12} 30 kg or less – 15 mg once daily More than 30 kg – 30 mg once daily 12 to 17 years ^{11,12} – 15 mg once daily	Capsule 15 mg, 30 mg Orally disintegrating tablet 15 mg, 30 mg Granules for Suspension 15 mg, 30 mg	Delayed release capsules can be opened and mixed in applesauce, <i>Ensure</i> , pudding, cottage cheese, yogurt, or strained pears.
Omeprazole ^{13,14}	<i>Prilosec, Losec</i> (Canada), others	<1 yr: Not approved. ¹³ Per limited, short-term data, 1 to 3.3 mg/kg/day is effective and safe. ²⁵ 1 to 16 years: ¹³ 5 to less than 10 kg – 5 mg once daily 10 to less than 20 kg – 10 mg once daily 20 kg or greater – 20 mg once daily	Capsule 10 mg, 20 mg (OTC, U.S.), 40 mg Delayed-release oral suspension 2.5 mg (U.S.), 10 mg (U.S.) MUPS (multiple unit pellet system) 10 mg (Canada), 20 mg (Canada)	In Canada, not approved for use in children. ¹⁴ Delayed release capsules can be opened and mixed with applesauce.
Pantoprazole ^{15,16}	<i>Protonix, Pantoloc</i> (Canada)	Not approved for use in children. ^{15,16} However, limited short-term data indicates that 0.5 to 1 mg/kg/day once daily is effective and safe. ¹⁹	Tablet 20 mg, 40 mg Delayed-release oral suspension 40 mg (U.S. only)	Oral suspension should be mixed in applesauce or apple juice, not in water, other foods or liquids.
Rabeprazole ^{17,18}	<i>Aciphex, Pariet</i> (Canada)	≥12 yrs: 20 mg twice daily. ¹⁷	Tablet 10 mg (Canada), 20 mg	In Canada, not approved for children. ¹⁸
Prokinetic Agents				
Bethanechol ³	<i>Urecholine, Duvoid</i> (Canada), <i>Myotonachol</i> (Canada), others	Not approved for use in children. ³ However, doses of 0.1 to 0.2 mg/kg/dose before meals, up to four times a day have been used. ^{19,23}	Tablet 5 mg, 10 mg, 25 mg, 50 mg	Only use in patients who fail H2-blockers or PPIs. ²⁴
Cisapride	<i>Propulsid</i>	Restricted availability – must be approved by pharmaceutical company		
Domperidone ²¹	<i>Motilium</i> (Canada)	Not approved for use in children. ²¹	Tablet 10 mg (Canada)	May have fewer side effects than metoclopramide. Only use in patients who fail H2-blockers or PPIs. ²⁴

Generic Medication	Brand Name	Oral Dosing Regimen for Gastroesophageal Reflux Disease	Availability	Notes
Metoclopramide ¹⁹	<i>Reglan, Maxeran</i> (Canada), others	Not approved for use in children. However, 0.1 to 0.2 mg/kg/dose up to 4 times a day has been commonly used. ¹⁹	Tablets 5 mg, 10 mg Syrup 5 mg/5 mL	Frequent side effects. Only use in patients who fail H2-blockers or PPIs. ²⁴
Antacids				
Aluminum with or without magnesium hydroxide-containing antacids ¹⁹	<i>Amphojel, Maalox, Alternagel</i> , others	Infants: 1 to 2 mL/kg/dose of regular strength preparations after meals and at bedtime. ²³ Children: 5 mL to 15 mL/dose of regular strength preparations after meals and at bedtime. Use half the above volume if using extra-strength Al/Mag hydroxide combo suspension. ²³	Varying amounts/5 mL	Not recommended for long-term use because of poor palatability, potential for aluminum-related adverse effects such as bone effects and increases in plasma aluminum concentrations. ^{20,24,25}
Calcium-containing antacids ²²	<i>Tums Kids</i> , others	2 to 4 years: 1500 mg/day in divided doses 5 to 11 years: 3000 mg/day in divided doses	Varying amounts of calcium carbonate/tablet Tablet 500 mg (<i>Tums</i> , others), 750 mg (<i>Tums Kids, Tums Smoothies</i> , others) and others	Not recommended for long-term therapy because of the need for frequent dosing, poor palatability. ^{20,25}

OTC – over-the-counter

GERD - gastroesophageal reflux disease

PPI – proton pump inhibitor

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References

1. Product information for cimetidine (*Tagamet HB*). <http://www.tagamethb.com>. (Accessed April 13, 2008).
2. Cimetidine monograph. eCPS. Canadian Pharmacists Association. <http://www.e-therapeutics.ca>. (Accessed April 14, 2008).
3. McEvoy GK (ed). *American Hospital Formulary Service*. Bethesda, MD 20814: American Society of Health-System Pharmacists, 2008.
4. Product information for famotidine (*Pepcid*). Merck and Co. Whitehouse Station, NJ 08889. October 2006.
5. Product monograph for famotidine (*Pepcid*). Merck Frosst Canada Ltd. Kirkland, QC H9H 3L1. August 2007.
6. Product information for nizatidine (*Axid*) oral solution. Reliant Pharmaceuticals, Inc. Liberty Corner, NJ 07938. August 2004.
7. Product information for ranitidine (*Zantac*). GlaxoSmithKline. Research Triangle Park, NC 27709. October 2004.
8. Product monograph for ranitidine (*Zantac*). GlaxoSmithKline. Mississauga, Ontario L5N 6L4. February 2006.
9. Product information for esomeprazole (*Nexium*). Astra Zeneca Pharmaceuticals. Wilmington, DE 19850. February 2008.
10. Product monograph for esomeprazole (*Nexium*). Astra Zeneca Canada. Mississauga, Ontario L4Y 1M4. November 2007.
11. Product information for lansoprazole (*Prevacid*). TAP Pharmaceuticals. Lake Forest IL 60045. September 2006.
12. Product monograph for lansoprazole (*Prevacid*). Abbott Laboratories Ltd. St-Laurent QC H4S 1Z1 November 2007.
13. Product information for omeprazole (*Prilosec*). Astra Zeneca Pharmaceuticals. Wilmington, DE 19850. March 2008.
14. Product monograph for omeprazole (*Losec*). Astra Zeneca Canada. Mississauga, Ontario L4Y 1M4. September 2007.
15. Product information for pantoprazole (*Protonix*). Wyeth Pharmaceuticals. Philadelphia PA 19101. December 2007.
16. Product monograph for pantoprazole (*Pantoloc*). Nycomed Canada. Oakville, ON L6M 4X8. July 2007.
17. Product information for rabeprazole (*Aciphex*). Eisai Inc. Woodcliff Lake, NJ 07677. June 2008.
18. Product monograph for rabeprazole (*Pariet*). Janssen-Ortho Inc. Toronto, Ontario M3C 1L9. November 2006.
19. Drug doses. In: Roberston J, Shilkofski N. *The Harriet Lane Handbook*, 17th ed. Philadelphia, Pennsylvania: Elsevier Mosby, 2005: 706, 732, 764, 881, 915.
20. Rudolph CD, Mazur LJ, Liptak GS, et al. Guidelines for evaluation and treatment of gastroesophageal reflux in infants and children: recommendations of the North American Society for Pediatric Gastroenterology and Nutrition. *J Pediatr Gastroenterol Nutr* 2001;32(suppl 2):S1-S31.
21. Product monograph for domperidone. Pharmascience Inc. Montreal, Quebec H4T 1M4. October 1997.
22. *Tums Kids*: *Tums* relief for kids 2-11. http://www.tums.com/products_kids.aspx. (Accessed April 14, 2008).
23. Taketomo C, Ed. Children's Hospital Los Angeles (CHLA) Pediatric Dosing Handbook and Formulary. 18th Edition. Hudson, OH: Lexi-Comp, 2006-2008.
24. Lifschitz CH. Management of gastroesophageal reflux disease in children and adolescents. *UpToDate*. 2008. <http://www.uptodate.com>. (Accessed April 17, 2008).
25. Anon. Pediatric gastroesophageal reflux. Clinical practice guideline summary. Children's Digestive Health and Nutrition Foundation. February 2003. http://www.cdhnf.org/pdf/GERD_8_pg_brochure_031103.pdf. (Accessed July 7, 2008).

Cite this Detail-Document as follows: *Treatment of gastroesophageal reflux in children. Pharmacist's Letter/Prescriber's Letter 2008;24(5):240504.*

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Treatment of Gastroesophageal Reflux in Infants

Background

Gastroesophageal reflux (GER) is common in the pediatric population, especially in infants. GER occurs when the contents of the stomach reflux into the esophagus.¹ Gastroesophageal reflux disease (GERD) is defined as symptoms or problems caused by the passage of these gastric contents into the esophagus. The most common cause of GER in infants is an immature, uncoordinated digestive system. Most infants outgrow GER by 18 to 24 months of age. Nonpharmacologic therapy is considered first-line.^{1,2} However, in rare cases, pharmacologic therapy is necessary. This article reviews the symptoms of GER and GERD in infants and its treatment. A chart of medications used to treat pediatric GERD, along with a patient handout, is also included.

Symptoms

GER is common in infants. They typically spit up multiple times a day without adverse consequences. These infants are known as “happy spitters.” With the “happy spitter,” the mainstay of therapy is parental education, reassurance, and guidance.

However, rarely, GER is associated with adverse symptoms leading to GERD and requires drug therapy. While some of the symptoms of GERD are similar to those seen in adults, others are characteristic of the pediatric population and include anorexia, dysphagia, anemia, failure to thrive, asthma symptoms such as wheezing or stridor, cough, excessive crying, difficulty with feeding (e.g., refusal of feeds or choking or gagging with feeds), and abnormal neck posturing.¹⁻⁵

Lifestyle Modification

Although lifestyle modification is routinely recommended for GER and GERD, the majority of the studies demonstrating benefit have been performed in adults and the results have been

extrapolated to the pediatric population.^{2,4,5} However, it is still considered first-line therapy.

Positioning of the infant may reduce the episodes of GER. Caregivers should be advised to elevate the head of the baby's crib or bassinet. In addition, holding the baby upright for 30 minutes after a feeding may reduce the incidence of GER. Babies should only be placed in an infant car seat when driving in the car because the position in the car seat can actually increase GER.⁵

As in adults, tight clothing can increase the chance of GER. In a baby, tight diapers and waistbands on clothing should be avoided.⁵

Overfeeding has also been linked to GER. Consequently, reducing the size of feeds, but feeding more frequently, may prove beneficial. If the baby spits up, the feed should be stopped and fed at the next scheduled feeding time. Thickening the feeds has also been suggested although there are concerns about introducing solid food too early. In addition, a recent study showed that thickening feeds reduced regurgitation, but not to a significant extent.⁶ If thickened feedings are to be used, up to one tablespoon of rice cereal for every ounce of formula or breast milk can be added to a bottle. While thickened feeds may not eliminate GER, thickened feeds may reduce the number of episodes of reflux. Because this thickened feeding provides more calories, the baby may also be satisfied with smaller feedings. Burping the baby more often during a feeding lessens the incidence of GER. Finally, a one to two week trial of a hypoallergenic formula (e.g., *Enfamil Nutramigen Lipil Powder*, *Enfamil Pregestimil Lipil Powder*, others) can be tried to rule out a formula-intolerance.⁵

Pharmacologic Therapy

When lifestyle modification fails to improve symptoms of GERD, pharmacological therapy is necessary. Medications can be used to buffer

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gastric acid, reduce gastric acidity, or affect gastrointestinal motility. Aluminum- or magnesium-containing antacid therapy (*Amphojel*, *Maalox*, others) or calcium-based antacids (*Tums*, others) have been used for short-term relief in infants and children, but treatment side effects (increases in plasma aluminum concentrations, microcytic anemia, effect of aluminum on bone mineralization, constipation) and the need for frequent dosing and poor palatability limit their usefulness. Consequently, chronic antacid therapy is generally not recommended.^{2,4}

While prokinetic agents, such as metoclopramide (*Reglan*, others) and less commonly, bethanechol (*Urecholine*, *Duvoid*, *Myotonachol*, others), have been used in infants and children with GERD, these agents have not been conclusively proven to be effective in the treatment of GERD in infants and children. In addition, they have fallen out of favor now that more convenient and better tolerated drugs are available (i.e., H₂-receptor antagonists, proton pump inhibitors [PPIs]). These agents are only recommended in patients who have failed therapy with acid-suppressing drugs.⁴ Cisapride (*Propulsid*) was a marginally effective prokinetic agent for the treatment of GERD,^{2,4} but it was withdrawn from the market and is only available by a limited access program, making it difficult to use in infants and children with GERD.

With the limitations of the other therapies, acid suppressants are sometimes necessary. Treatment with acid suppression therapy has been shown to be effective and safe in children with GERD [Evidence level A; RCT],^{2,4} but there is very limited information for use of this therapy in infants. Despite this lack of evidence, the use of PPIs has increased steadily since 1999, with an increase of almost eight-fold between 1999 and 2004.⁷

In infants who require drug therapy, a four- to eight-week trial of either an H₂-antagonist (e.g., famotidine [*Pepcid*], ranitidine [*Zantac*], others) or a PPI (omeprazole [*Prilosec*, *Losec* in Canada], lansoprazole [*Prevacid*]) can be tried, along with continued lifestyle modification.^{2,4} Commonly used agents and dosing regimens are shown in the attached chart. Because H₂-receptor antagonists have been available longer than PPIs, there is more information on the use of these agents in infants and children with GERD.

In many infants, GERD is a trigger for wheezing. Studies have shown that aggressive control of GERD symptoms in infants will lead to better control of wheezing. Consequently, in infants with persistent respiratory symptoms and symptoms of GERD, a three-month trial with an acid-suppressing drug can be tried. Management after three months depends on response to acid-suppressive agents.⁴

As in adults, treatment in infants and children can either be a “step-up” regimen or a “step-down” regimen. In the “step-up” regimen, treatment is started with standard doses of an H₂-receptor antagonist, followed by a PPI, and then a high-dose PPI regimen, if symptoms fail to improve. In the “step-down” approach, treatment is initiated with a high-dose PPI, followed by a standard-dose PPI, and finally an H₂-receptor antagonist, as symptoms improve.^{2,4}

If no improvement occurs after four to eight weeks following initial pharmacotherapy, further diagnostic testing such as endoscopy may be necessary. If improvement is noted, treatment can continue for two to three months. If symptoms recur after discontinuation of therapy, endoscopy may be needed to determine the severity of esophagitis. In some children, long-term therapy may be necessary.

There are only limited efficacy trials of PPIs in infants and no head-to-head comparisons of the H₂-antagonist medications or PPIs in infants or children with GERD.

Adverse Effects Associated with Acid Suppressive Therapies

Although generally well tolerated, acid suppressive therapies have been associated with significant adverse effects. While preliminary evidence suggests that H₂-antagonists and PPIs are safe when used long-term in children, there is no similar information in infants. In addition, there have been recent reports that chronic acid suppression can increase the incidence of necrotizing enterocolitis in infants, and increase the incidence of acute gastroenteritis and community-acquired pneumonia in children. It is not known if there may be a parallel increase in the incidence of gastroenteritis or pneumonia in infants. Similarly, although it has been hypothesized that chronic acid suppression is associated with *Clostridium difficile* infections,

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vitamin B12 deficiency, and hip fractures in adults, the potential for these adverse effects in infants is not known.⁸ The risk of these adverse effects may not justify the potential benefit, especially in infant GERD which is usually a self-limited condition.

When Further Evaluation is Necessary

Although “spitting up” is normal in infants, there are a number of signs or symptoms which may indicate more severe disease that may require therapy. These include:

- Poor weight gain
- Spitting up, which is forcefully causing stomach contents to shoot out of the mouth
- Spitting up blood or green or brown fluid
- Refusal of feedings or choking and gagging with feedings
- Fewer wet diapers than normal or lethargy
- Breathing problems such as turning blue, wheezing, chronic coughing, or repeated episodes of pneumonia
- Other signs of illness, such as fever or diarrhea

Conclusion

GER is a common condition in infants and children that can occasionally lead to GERD. Lifestyle modification is the mainstay of therapy [Evidence level C; expert opinion].^{2,5} However, some infants and children will require pharmacologic therapy. Within the last few years, the number of the pharmacological agents approved for use in children with GERD has increased, and more liquid formulations which allow for easier administration are available. However, information concerning the use of pharmacological agents in infants is still lacking.

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Levels of Evidence

In accordance with the trend towards Evidence-Based Medicine, we are citing the **LEVEL OF EVIDENCE** for the statements we publish.

Level	Definition
A	High-quality randomized controlled trial (RCT) High-quality meta-analysis (quantitative systematic review)
B	Nonrandomized clinical trial Nonquantitative systematic review Lower quality RCT Clinical cohort study Case-control study Historical control Epidemiologic study
C	Consensus Expert opinion
D	Anecdotal evidence In vitro or animal study

Adapted from Siwek J, et al. How to write an evidence-based clinical review article. *Am Fam Physician* 2002;65:251-8.

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References

1. Nelson SP, Chen EH, Syniar GM, Christoffell KK. Prevalence of symptoms of gastroesophageal reflux during childhood: a pediatric practice-based survey. *Arch Pediatr Adolesc Med* 2000;154:150-4.
2. Rudolph CD, Mazur LJ, Liptak GS, et al. Guidelines for evaluation and treatment of gastroesophageal reflux in infants and children: recommendations of the North American Society for Pediatric Gastroenterology and Nutrition. *J Pediatr Gastroenterol Nutr* 2001;32(Suppl 2):S1-S31.
3. Carr MM, Nguyen A, Nagy M, et al. Clinical presentation as a guide to the identification of GERD in children. *Int J Pediatr Otorhinolaryngol* 2000;54:27-32.
4. Lifschitz CH. Management of gastroesophageal reflux disease in children and adolescents. *UpTo Date* (Last reviewed January 2008).
5. Anon. Pediatric gastroesophageal reflux. Clinical practice guideline summary, Children's Digestive Health and Nutrition Foundation. February 2003. http://www.cdhnf.org/pdf/GERD_8_pg_brochure_031103.pdf. (Accessed July 7, 2008).
6. Hegar B, Rantos R, Firmansyah A, et al. Natural evolution of infantile regurgitation versus the efficacy of thickened formula. *J Pediatr Gastroenterol Nutr* 2008;47:26-30.
7. Barron JJ, Tan H, Spalding J, et al. Proton pump inhibitor utilization patterns in infants. *J Pediatr Gastroenterol Nutr* 2007;45:421-7.
8. Orenstein SR, Hassall E. Infants and proton pump inhibitors: tribulations, no trials. *J Pediatr Gastroenterol Nutr* 2007;45:395-8.

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Cite this Detail-Document as follows: Treatment of gastroesophageal reflux in infants. Pharmacist's Letter/Prescriber's Letter 2008;24(8):240810.



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