

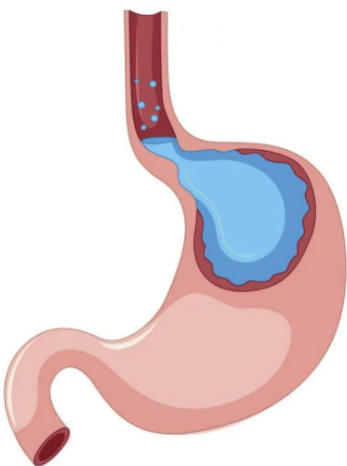


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WHAT IS GERD?

Gastroesophageal reflux disease (GERD) is primarily a disorder of the lower esophageal sphincter (LES) which develops when the contents of the stomach flow back into the esophagus, causing symptoms such as heartburn and acid regurgitation, belching, or difficulty swallowing (Figure 1). Some patients with GERD also develop extra-esophageal (atypical) symptoms such as chronic cough, asthma and laryngitis. GERD can result in serious complications such as esophagitis, ulcers, strictures, or Barrett's esophagus, which can lead to esophageal cancer.^{2,3} Table 1 lists a summary of symptoms and complications of GERD.

Figure 1. Acid Reflux Illustration



Source: Medical News Today¹

Employer Strategies for Managing GERD



Table 1. Manifestations of Gastroesophageal Reflux Disease

Typical Symptoms	Atypical Symptoms	Alarm Symptoms	Complications
Heartburn Regurgitation	Chronic cough Hoarseness Noncardiac chest pain Feeling of lump in throat Throat irritation Sleeping disturbance	Difficulty/pain in swallowing Weight loss Bloody stools Vomiting blood	Esophagitis Esophageal ulcers Peptic stricture Barrett's esophagus Adenocarcinoma

Source: Adapted from Chen, 2019⁴

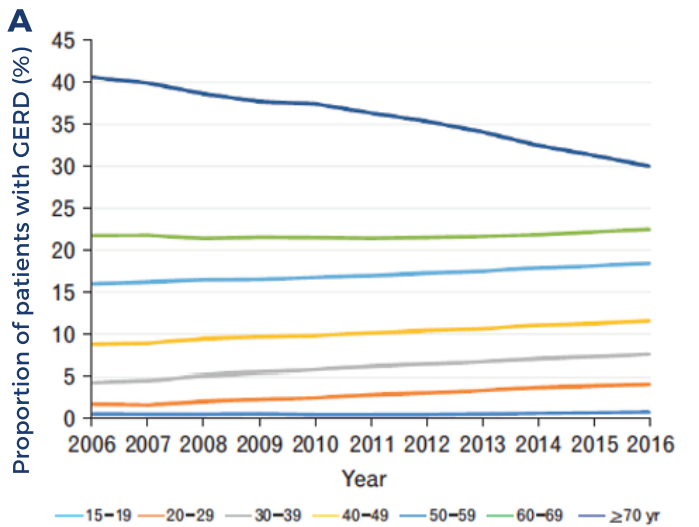
HOW COMMON IS GERD?

The prevalence of GERD symptoms in the United States (U.S.) has been estimated to be 20%.⁵ According to the American College of Gastroenterology, more than 60 million Americans experience heartburn at least once a month, and some studies have suggested that more than 15 million Americans experience heartburn symptoms each day. Frequent heartburn (two or more times a week) may be associated with GERD.⁶

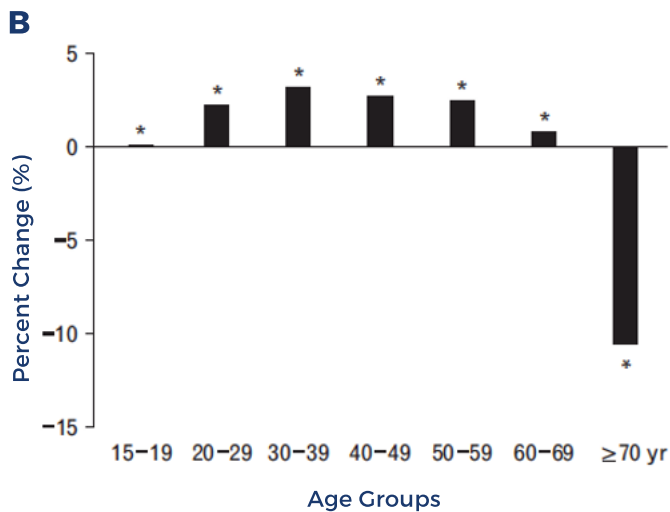
A more recent 2015 study cited 31% of participants having GERD symptoms in the past week, suggesting that the prevalence of GERD symptoms may be increasing, likely due to rising obesity rates. The study also found women, non-Hispanic white individuals, and individuals with comorbidities such as irritable bowel syndrome (IBS), Crohn's disease, diabetes, and endometriosis, were more likely to have GERD symptoms.⁷

Another study that analyzed GERD diagnosis by age groups from 2006 to 2016 found an increase in younger age groups, particularly those aged 30-39, while the diagnosis of patients older than 70 had significantly decreased (Figures 2A and 2B).⁸

Figures 2A and 2B. GERD Diagnosis by Age Group



Percent of change in the proportion of patients with gastroesophageal reflux disease (GERD) between 2006 and 2016 using universal Explorys dataset (Yamasaki, 2018)⁸



The proportion of patients with gastroesophageal reflux disease (GERD) by age group between 2006 and 2016 using universal Explorys dataset (Yamasaki, 2018)⁸

WHAT IS THE IMPACT OF GERD ON HEALTH AND WHAT ARE ASSOCIATED RISK FACTORS?

GERD is a serious health condition, associated with decreased quality of life, mental health, social function⁷ and significant morbidity.^{9,10}

Risk factors that trigger symptoms of GERD include a high-fat diet, foods that reduce LES pressure, such as alcohol, chocolate, peppermint, caffeine, and onion; acidic foods, such as citrus, tomato products, and carbonated beverages;^{4,11} and the timing of meals which can affect sleep.¹⁰

Risk factors for complications of GERD include being male, Caucasian/white, advanced age, tobacco use, and abdominal obesity. Physical activities such as bicycle riding, weight lifting, swimming, and surfing can exacerbate GERD.¹² Other risk factors for GERD include pregnancy, hiatal hernia and medications including anticholinergics, selective serotonin reuptake inhibitor (SSRI) antidepressants, birth control pills, and inhaled bronchodilators.⁴



HOW IS GERD DIAGNOSED AND TREATED?

GERD is initially diagnosed with a clinical history to identify characteristic symptoms of heartburn and regurgitation and their duration, intensity, and association to diet, posture and exercise; and their impact on quality of life.^{4,11} For symptoms not resolved with acid suppression therapy, diagnostic tests may be considered, including upper endoscopy, esophageal pH monitoring and esophageal manometry, to determine optimal treatments.⁴

The current interventions to treat GERD include lifestyle modifications, medicinal therapies, endoscopic therapies and surgery.

Lifestyle Modifications

Lifestyle modifications are recommended as a first-line of therapy for all GERD patients. These modifications include elevation of the head of the bed, weight loss, avoidance of alcohol, tobacco, caffeine, chocolate, spicy foods, acidic foods, and fatty foods. Consultation with a registered dietitian can inform appropriate changes. Studies have shown that weight loss and head of bed elevation are effective, and that smoking cessation significantly improves GERD symptoms in patients with a normal body mass index.^{3,4}

Medicinal Therapies

If patients do not respond to lifestyle modifications and still have GERD symptoms, medicinal therapy is recommended. Medicinal therapy with proton pump inhibitors (PPIs) and histamine-2 receptor antagonists (H2RAs) for nighttime heartburn are most frequently prescribed for GERD patients with typical symptoms. Antacids are also used for mild or intermittent symptoms or as add-on therapy.^{10,13} Emerging evidence suggests that long-term use of PPIs may be associated with increased risk of gastroenteritis, travelers' diarrhea, Clostridium difficile colitis, osteoporosis and bone fracture, microscopic colitis, ischemic heart disease, chronic kidney injury and dementia.¹⁴

Table 2 shows the most common therapies to medically treat GERD, identifying availability over-the-counter (OTC) and by prescription.

Although PPI therapy has been effective in treating GERD, 40% of patients experience breakthrough symptoms^{15,16} identified as refractory GERD, and may be candidates for alternative interventions. These patients and those who have alarm symptoms such as difficulty or pain in swallowing, bloody stools, vomiting blood, or abnormal weight loss should undergo an upper endoscopy to identify complications such as esophagitis, ulcers, strictures, or Barrett's esophagus.^{4,17} A next step in treatment may be endoscopic therapies or surgical procedures.

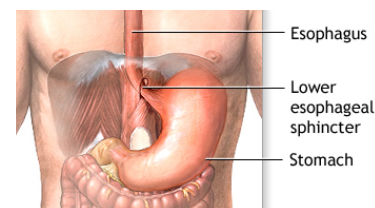
Table 2. Medicinal Therapies for GERD

Antacids		
Generic	Brand	OTC
alginate	Gaviscon®	Yes
aluminum hydroxide/ magnesium hydroxide/ simethicone	Maalox®, Mylanta®	Yes
calcium carbonate	Tums®	Yes
calcium carbonate/ magnesium hydroxide	Rolaids®	Yes
magaldrate	Riopan®	Yes
Histamine-2 Receptor Blocker (H2RAs)		
Generic	Brand	OTC
cimetidine	Tagamet HB®	Yes
famotidine	Pepcid®	Yes
nizatidine	Axid	Yes
Proton Pump Inhibitors (PPI)		
Generic	Brand	OTC
dexlansoprazole	Dexilant	No
esomeprazole	Nexium®	Yes
lansoprazole	Prevacid®	Yes
omeprazole	Prilosec, Zegerid	Yes
pantoprazole	Protonix	No
rabeprazole	AcipHex	No

Sources: <https://www.niddk.nih.gov>, <https://medlineplus.gov>

Endoscopic Therapy

Endoscopic therapy candidates are patients with poor compliance to medicinal therapy, a desire to discontinue medicinal therapy, or a preference for a less invasive procedure than surgery. Outcomes of endoscopic therapy can include symptom control, quality of life improvement and erosive esophagitis healing. Because endoscopic therapies are outpatient procedures, they are typically less expensive than surgical interventions and relatively safe.¹³



Source: <https://medlineplus.gov>

Surgery

Patients with GERD who are dissatisfied with the results of medical therapy comprise the majority of patients considered for surgical therapy. Surgical interventions for GERD include laparoscopic Nissen fundoplication (LNF), historically considered the gold standard, and an emerging surgery, magnetic sphincter augmentation (MSA) using the LINX® Reflux Management System. It is estimated that .1% of GERD patients undergo anti-reflux surgery.¹⁸ Bariatric surgery is recommended for obese patients with GERD.¹¹ Based on the patient's prognosis, the patient and physician will determine the best course of action for surgical interventions.



Laparoscopic Nissen Fundoplication (LNF)

The LNF procedure, which wraps the fundus of the stomach around the esophagus, is minimally invasive, safe and effective, particularly in the short term. In the long term (>10 years) the failure rate is close to 25%, whereby the patient may develop a recurrence of moderate to severe symptoms, may need to restart pharmacologic GERD therapy, or may need to repeat surgery.¹⁹ One study cites that despite a reoperation rate of 13.6%, there were excellent long-term symptomatic outcomes and no difference between short- and long-term results.²⁰

Magnetic Sphincter Augmentation (MSA)

MSA using the LINX® Reflux Management System places a flexible ring of small magnets around the LES to help keep it closed to prevent reflux. The LINX® system opens temporarily when patients swallow to allow food and liquid to pass into the stomach. MSA has demonstrated good to excellent clinical outcomes at up to 12 year follow-up.^{21,22} When compared with LNF, MSA appears to have similar efficacy and safety profiles, and also some advantages, including shorter operative time, less technical variability, less interventions on the normal anatomy, less bloating symptoms and a better ability to belch or vomit.^{23,24} It has also shown promising results comparing the MSA procedure with double-dose PPIs.^{22,25} For patients with mild to moderate GERD, MSA could be considered a more routine option as an alternative to LNF.²⁶

WHAT ARE THE COSTS ASSOCIATED WITH GERD?

Because GERD is associated with substantial direct and indirect costs to both the employers and employees, it is important for employers to know the cost and efficacy of prevention and treatment of GERD, as well as productivity costs. A 2007 study on employers' costs for GERD showed annual direct and indirect (absenteeism) costs to be almost two times higher for employees with GERD compared with employees without GERD.²⁷



Direct Costs

In 2015, direct costs for all U.S. healthcare expenditures for esophageal disorders totaled \$18.1 billion, of which 54.4% were prescriptions, 13.6% office visits, 12.7% inpatient, 9.7% outpatient, 7.8% home health, and 1.8% emergency department.^{3,28}

The costs and efficacy of medicinal, endoscopic and surgical treatments for GERD vary based on patient responses and time periods. Citing studies that suggest 10% to 40% of upper endoscopies are not generally indicated, and the associated unnecessary costs, the American College of Physicians issued best practice advice for use of upper endoscopy for GERD.²⁹ One study found the direct healthcare costs for a cohort of GERD patients with atypical symptoms to be five times higher than patients with typical symptoms, and further noted that the predominant cost driver was inappropriate and overuse of PPI therapy.³⁰ Some studies have shown that endoscopic and laparoscopic procedures are more cost effective over a 30-year period compared to PPI therapy.^{31,32} Other studies have shown that LNF and MSA costs may be similar if surgical and post-surgical costs are considered.^{16,22,33}

Indirect Costs

A study of the impact of GERD on work productivity cited a 10% reduction in indirect productivity (absenteeism and presenteeism) due to GERD, equating to a weekly mean of productivity loss per employee of between 2.4 hours (\$62) and 16.6 hours (\$430), assuming a 40-hour work week and average 2005 wages in the U.S.^{3,34,35} In 2020 dollars, this would equate to between \$84 and \$582 in weekly mean per employee productivity loss.³⁶

WHAT ACTIONS SHOULD EMPLOYERS TAKE TO MANAGE GERD?

Employers need to be mindful that GERD is not only a disease of the older population, but is prevalent in younger age groups and can influence employee health and productivity. It is important for employers to identify the prevalence of GERD and related risk factors in their populations to effectively promote prevention and manage interventions.

1. KNOW YOUR DATA

- Review GERD diagnosis rates and related risk factors of obesity and diabetes in your population, overall and by demographic subgroups, and geographic locations.
- Identify utilization and cost data for GERD diagnostic procedures that inform treatment protocols.
- Review utilization and cost data for GERD medicinal (pharmacologic) therapies for your population to identify trends and outliers.
- Review utilization and cost data for GERD endoscopic therapy and surgery for your population to identify trends and outliers.

2. REVIEW YOUR BENEFITS

- Review your drug formulary to identify the coverage and costs for PPI and other medicinal therapies. Consult with your advisor, pharmacy benefit manager (PBM) and health plan to identify opportunities for financial incentives to promote utilization of the most cost effective PPI therapies that have the best outcomes.
- Discuss with health plans and benefits consultants the current coverage and utilization management criteria for GERD endoscopic and surgical interventions, as well as consultations for medical nutrition therapy and other lifestyle changes. Ask how the plan currently authorizes and manages services, ensuring that appropriate protocols are met for the pre- and post- intervention periods. Consider incentives for particular services that offer the best value relative to cost and outcomes.
- Review current plan out-of-pocket payments for medicinal, endoscopic and surgical interventions to ensure they align with the overall strategy to address GERD management.
- Offer employees educational resources to address GERD prevention that include lifestyle interventions for diet and weight loss. Offer educational resources to aid employees in understanding the management of GERD, including medicinal, endoscopic and surgical interventions.
- Consider offering flexible schedules, dietary accommodations and work-from-home options to help employees manage GERD.

3. REVIEW YOUR PROVIDER NETWORK AND PAYMENT MECHANISMS

- Identify volumes and outcome ratings for physicians and facilities for surgical procedures for GERD (LNF, MSA).
- Ask your health plan how GERD surgical procedures are currently reimbursed. Consider implementing case rates/bundled payments that include pre-assessment, surgery, and post-surgical monitoring and support services.
- Ask your health plan to report on complication rates including infections and repeat procedure rates for surgery.

Resources

Job Accommodation Network

Gastro Esophageal Reflux Disease (GERD, Acid Reflux, Heartburn)

<https://askjan.org/disabilities/Gastro-Esophageal-Reflux-Disease-GERD-Acid-Reflux-Heartburn.cfm>

Mayo Clinic

Gastroesophageal reflux disease (GERD). [Patient care and health information].

<https://www.mayoclinic.org/diseases-conditions/gerd/symptoms-causes/syc-20361940>

National Institute of Diabetes & Digestive & Kidney Diseases (NIH, DHHS)

Acid Reflux (GER & GERD) in Adults

<https://www.niddk.nih.gov/search?s=health-info&q=GERD&n=10>

U.S. National Library of Medicine

Medline

<https://medlineplus.gov/gerd.html>

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The Greater Philadelphia Business Coalition on Health (GPBCH) seeks to increase the value of health benefit spending for its employer members, by improving workforce and community health, increasing healthcare quality and safety, and reducing health care costs. The Coalition represents employer interests in working with health plans, health care providers, benefits consultants, suppliers and other system stakeholders to address population health priorities and to ensure that when health care is needed it is accessible, affordable, high-quality, and safe.

