# Entitlement Eligibility Guideline

# Gastroesophageal Reflux Disease

**Date reviewed:** 22 January 2025

**Date created:** February 2005

***ICD-11*** **code:** DA22

**VAC medical code:** 00911 Gastroesophageal reflux disease (GERD)

## Definition

**Gastroesophageal reflux disease (GERD)** is a chronic digestive disorder where stomach contents consistently refluxes into the esophagus. This reflux causes irritation, inflammation, and other troublesome symptoms.

The reflux of stomach contents into the esophagus is a normal physiological phenomenon. Reflux becomes abnormal when it causes esophageal injury or produces persistent symptoms that are troublesome to the individual.

Troublesome symptoms of GERD include, but are not limited to, persistent heartburn and regurgitation. GERD usually resolves with appropriate management, including initiation of proton pump inhibitor (PPI) medications.

For the purposes of this entitlement eligibility guideline (EEG), equivalent diagnoses for gastroesophageal reflux disease (GERD) include:

- reflux esophagitis (RE)
- non-erosive reflux disease (NERD).

**Exclusions:**

The following conditions are excluded from this EEG:

- bile reflux (more commonly related to prior stomach/pylorus or gallbladder surgery)
- infectious esophagitis
- eosinophilic esophagitis
- pill esophagitis
- reflux hypersensitivity.

**Note:** The symptoms of GERD may overlap with those of other upper gastrointestinal conditions such as functional heartburn/dyspepsia. Consultation with a disability consultant or medical advisor is recommended when the diagnosis is unclear.

# Diagnostic standard

A diagnosis from a qualified medical practitioner, nurse practitioner, or physician assistant (within their scope of practice) is required.

Symptoms must persist for at least three months and be present for at least six months prior to diagnosis.

GERD is primarily a clinical diagnosis treated with lifestyle, dietary modification and medication (most commonly a PPI medication). Individuals may be referred for further investigation to rule out other potential causes of symptoms when:

- Classic symptoms of heartburn and regurgitation are not present.
- PPI medication trial is ineffective.
- There are other risk factors for complications such as Barrett's esophagus or esophageal adenocarcinoma.
- There are red flags such as initial presentation over 60 years old, difficulty swallowing known as dysphagia, pain with swallowing known as odynophagia, gastrointestinal (GI) bleeding, iron deficiency anemia, unintentional weight loss, or recurrent vomiting.

Investigations, when indicated, may include:

- Upper GI endoscopy +/- biopsies, which involves using a scope (endoscope) to visualize the esophagus, stomach and duodenum.
- Esophageal manometry, which involves inserting a probe into the esophagus to measure muscle contraction and look for motility problems.
- Ambulatory esophageal pH monitoring, where a probe is placed in the esophagus to measure pH. A symptom diary is kept to correlate symptoms with acid exposure.
- Esophageal impedance testing, which involves inserting an electrode into the esophagus to measure electrical currents and is often used in combination with pH or manometry testing.
- Plain x-ray and barium swallow, with the advent of current techniques, these are less commonly used.

# Anatomy and physiology

Anatomically, the esophagus passes through the diaphragm, where the crural muscle helps maintain the integrity of the lower esophageal sphincter (LES). The LES

is a muscular valve that normally relaxes as food moves down the esophagus into the stomach, and tightens afterwards to keep contents in the stomach.

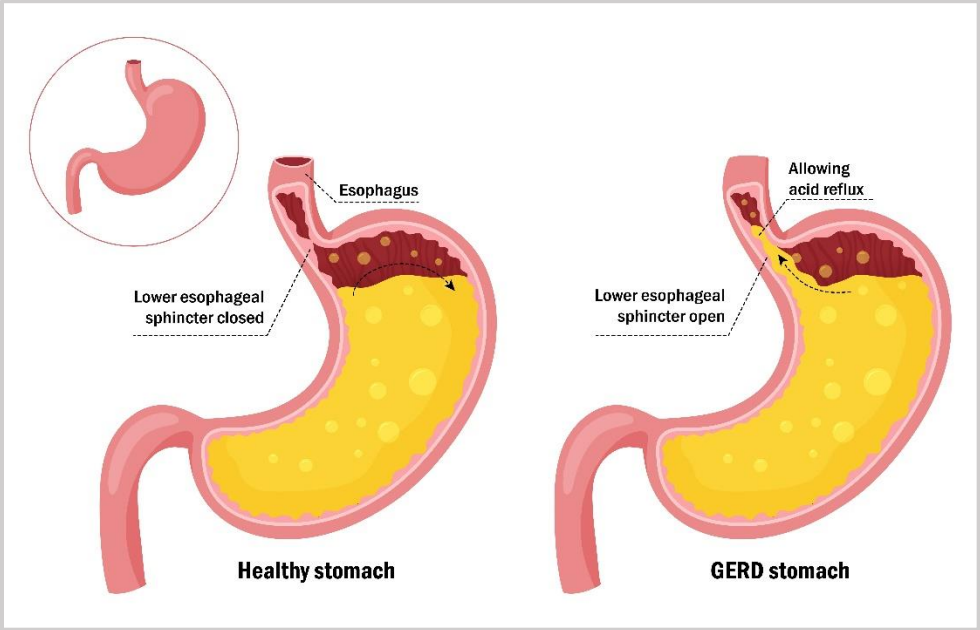
Normal digestion requires a combination of adequate salivation, normal swallowing and esophageal function along with:

- coordinated muscle movements of the esophagus, called peristalsis
- proper anatomic configuration of the gastroesophageal junction
- proper functioning of the LES.

Any problem or deficiency of any or all of these three functions can lead to problematic GERD symptoms. The integrity of the LES can be affected temporarily by various foods, medication and/or can be permanently damaged by trauma or by certain surgical interventions.

The stomach is an acidic environment for digesting food. The stomach cells are well equipped to deal with this harsh environment, and saliva has a buffering action on acid. The esophageal mucosa is not as resilient and is more sensitive to acid exposure. As a result, when acid repeatedly refluxes from the stomach into the esophagus, it can lead to symptoms (classically heartburn and/or regurgitation. Figure 1: Gastroesophageal reflux disease).

**Figure 1: Gastroesophageal reflux disease**




Comparing a healthy stomach to a stomach affected by GERD. Left image: A healthy stomach with the lower esophageal sphincter closed, preventing acid from flowing back into the esophagus. Right image: A stomach affected by GERD where the lower esophageal sphincter is open, allowing acid reflux into the esophagus. Source: Veterans Affairs Canada (2024).

# Clinical features

Gastroesophageal reflux is a common phenomenon and occurs physiologically in normal individuals, for instance when bending over after eating a large meal. For some people, the degree of reflux is either frequent or problematic enough to fit the criteria for a diagnosis of GERD.

Classically, the two main symptoms of GERD include:

- heartburn, typically described as a burning sensation in the retrosternal area, most commonly after eating
- regurgitation, the perception of flow of refluxed stomach contents into the mouth.

Other symptoms include, but are not limited to:

- Difficulty swallowing (dysphagia) and, more rarely, pain with swallowing (odynophagia).

- Chest pain or pressure, typically described as a squeezing or substernal burning sensation and radiating to the back, neck, jaw, or arms. The pain lasts from minutes to hours, often occurring after meals and can awaken people from sleep.
- Increased salivation (also referred to as water brash) in response to reflux.
- Globus sensation, the perception of a lump in the throat.

Other symptoms can occur when stomach contents reflux into the upper airway (mouth and throat), and can be aspirated into the larynx (voice box) or lungs:

- hoarseness of the voice (laryngitis)
- pulmonary aspiration.

Prolonged or severe GERD can result in complications (especially if untreated), where acid bathes the sensitive esophageal tissue, leading to erosions, esophagitis, and potentially esophageal ulcers. Complications include but are not limited to:

- esophageal erosions
- esophageal strictures (narrowing of parts of the esophagus due to scar tissue)
- ulceration
- iron deficiency anemia from occult bleeding
- Barrett's esophagus
- esophageal cancer (adenocarcinoma).

Aspiration effects of GERD may include:

- transient or long-term cough
- shortness of breath
- pneumonitis: Inflammation of lung tissue due to exposure to gastric contents.

In rare cases when the diagnosis of GERD is clear, and lifestyle interventions and medications are not controlling symptoms, surgery may be performed. The most common surgery is a laparoscopic Nissen fundoplication, which involves wrapping the top of the stomach around the lower esophagus to reinforce the lower esophageal sphincter (LES).

While the incidence of GERD has been reported to be almost equal in males and females, the male to female ratio appears to increase as the disease progresses. Males have a higher incidence of reflux esophagitis, Barrett's esophagus and esophageal adenocarcinoma, while females present more typically with non-erosive reflux disease and report greater pain associated with symptoms.

# Entitlement considerations

## Section A: Causes and/or aggravation

For Veterans Affairs Canada (VAC) entitlement purposes, the following factors are accepted to cause or aggravate the conditions included in the Definition section of this EEG, and may be considered along with the evidence to assist in establishing a relationship to service. The factors have been determined based on a review of up-to-date scientific and medical literature, as well as evidence-based medical best practices. Factors other than those listed may be considered, however consultation with a disability consultant or medical advisor is recommended.

The timelines cited below are for guidance purposes. Each case should be adjudicated on the evidence provided and its own merits.

### Factors

1. Having a **hiatus hernia** at the time of clinical onset of GERD. Hiatus hernia means a herniation of part of the stomach into the thoracic cavity through the esophageal hiatus in the diaphragm.

2. Undergoing **intra-abdominal surgery** in the area of the LES, the region immediately surrounding the intra-abdominal esophagus and the diaphragmatic crura, within several days of clinical onset or aggravation of GERD.

   Interference with the LES during certain surgical procedures, such as vagotomy, partial or total gastrectomy, and esophageal dilatation may play a role in the development of reflux esophagitis. Certain procedures for weight loss, such as sleeve gastrectomy, can predispose to GERD, whereas other procedures, such as Roux-en-Y gastric bypass, do not.

3. Having been diagnosed with the **certain medical conditions** including some auto-immune disorders at the time of clinical onset or aggravation of GERD. The effects of these conditions on the esophagus can include reduced motility and LES dysfunction. These disorders include, but are not limited to:

   - scleroderma (systemic sclerosis)
   - mixed connective tissue disease
   - polymyositis
   - Sjogren syndrome
   - Zollinger-Ellison syndrome.

4. Experiencing **increased intra-abdominal pressure** at the time of clinical onset or aggravation of GERD may result from, but is not limited to, obesity.

5. Using **medications** from the specified list of medications in Appendix A, supported by the timeline of clinical onset or aggravation of GERD.

   If it is claimed a medication resulted in the clinical onset or aggravation of GERD, the following must be established:

   - The medication was prescribed to treat an entitled condition.
   - The individual was receiving the medication at the time of the clinical onset or aggravation of the GERD.
   - The current medical literature supports the medication can result in the clinical onset or aggravation of GERD.
   - The medication use is long-term, ongoing, and cannot reasonably be replaced with another medication, or the medication is known to have enduring effects after discontinuation.

6. Diagnosed with **alcohol use disorder**.

7. Inability to obtain appropriate **clinical management** of GERD.

**Note**: At the time of publication the health-related expert opinion and scientific evidence is insufficient to conclude that psychological stress, or specific psychiatric disorders such as anxiety disorders, depressive disorders, posttraumatic stress disorder, or feeding and eating disorders cause or permanently aggravate GERD.

## Section B. Medical conditions which are to be included in the entitlement/assessment

Section B provides a list of diagnosed medical conditions which are considered for VAC purposes to be included in the entitlement and assessment of GERD.

- Hiatus hernia
- Barrett's esophagus (columnar metaplasia)
- Esophageal dysplasia reflux esophagitis (RE) or erosive esophagitis (e.g. esophageal erosions, ulcerations and stricture formation)
- Non-erosive reflux disease (NERD)
- Functional heartburn/dyspepsia
- Postprandial distress syndrome
- Epigastric pain syndrome

## Section C: Common medical conditions which may result, in whole or in part, from gastroesophageal reflux disease and/or its treatment

Section C is a list of conditions which can be caused or aggravated by GERD and/or its treatment. Conditions listed in Section C are not included in the entitlement and assessment of GERD. A consequential entitlement decision may be considered where the individual merits and the medical evidence of the case support a consequential relationship. Conditions other than those listed in Section C may be considered; consultation with a disability consultant or medical advisor is recommended.

- Asthma
- Bronchiectasis
- Aspiration pneumonitis
- Dental erosion (only in exceptional circumstances when GERD has not been treated)
- Esophageal adenocarcinoma

**Note**: For asthma, bronchiectasis, aspiration pneumonitis, and dental erosion, a confirmed diagnosis of GERD is required.

# Links

**Related VAC guidance and policy:**

- Anxiety Disorders – Entitlement Eligibility Guidelines
- Asthma – Entitlement Eligibility Guidelines
- Depressive Disorders - Entitlement Eligibility Guidelines
- Feeding and Eating Disorders - Entitlement Eligibility Guidelines
- Posttraumatic Stress Disorder (PTSD) - Entitlement Eligibility Guidelines
- Substance Use Disorders - Entitlement Eligibility Guidelines
- Pain and Suffering Compensation – Policies
- Royal Canadian Mounted Police Disability Pension Claims – Policies
- Dual Entitlement – Disability Benefits – Policies
- Establishing the Existence of a Disability – Policies
- Disability Benefits in Respect of Peacetime Military Service – The Compensation Principle – Policies
- Disability Benefits in Respect of Wartime and Special Duty Service – The Insurance Principle – Policies
- Disability Resulting from a Non-Service Related Injury or Disease – Polices
- Consequential Disability – Policies

# Appendix A: Medications

The medications and/or classes of medications that may cause or aggravate GERD include, but are not limited to, the below list.

**Note**: Individual medications may belong to a class of medications. The effects of a specific medication may vary from the class. The effects of the specific medication should be considered.

- Anticholinergics including, but not limited to (**Note:** this group does not include drugs with anticholinergic side effects):
    - benztropine (Cogentin)
    - trihexyphenidyl (Artane)
    - flavoxate (Urispas)
    - oxybutynin (Ditropan)
    - orphenadrine.
- Calcium channel blockers:
    - amlodipine (Norvasc)
    - diltiazem (Tiazac)
    - felodipine (Plendil)
    - flunarizine
    - nifedipine (Adalat, Procardia)
    - nimodipine
    - verapamil (Isoptin).
- Tricyclic antidepressants (**Note:** this group does not include selective serotonin reuptake inhibitor [SSRI] antidepressants or serotonin and norepinephrine reuptake inhibitor [SNRI] antidepressants):
    - amitriptyline (Elavil)
    - clomipramine (Anafranil)
    - desipramine
    - doxepin
    - imipramine (Impril, Tofranil, Tripamine)
    - nortriptyline (Aventyl, Norventyl)
    - trimipramine (Surmontil).
- Theophylline
- Hormone replacement therapy (HRT) with estrogen alone (**Note:** this does not include combination therapy of estrogen plus progesterone).
- Non-steroidal anti-inflammatory drug (NSAID) use: where NSAID use is required on a permanent and ongoing basis:

- celecoxib (Celebrex)
- diflunisal
- etodolac
- flurbiprofen (Ansaid)
- ibuprofen (Advil, Motrin)
- indomethacin (Indocid)
- ketoprofen
- meloxicam (Mobicox)
- nabumetone
- naproxen (Aleve, Anaprox, Naprosyn)
- nepafenac (Nevanac)
- piroxicam (Feldene)
- sulindac
- tenoxicam
- tiaprofenic acid
- diclofenac (Arthrotec, Cambia).

**Note:** Topical NSAIDs, such as pennsaid and voltaren, should be adjudicated on the evidence provided and its own merits. Consultation with a disability consultant or medical advisor is recommended.

# References as of 22 January 2025


Asanuma, K., Iijima, K., & Shimosegawa, T. (2016). Gender difference in gastro-esophageal reflux diseases. World journal of gastroenterology, 22(5), 1800.

Australian Government Repatriation Medical Authority. (2021). *Statement of Principles concerning Gastro-esophageal Reflux Disease, Reasonable Hypothesis and Balance of Probabilities*. SOPs - Repatriation Medical Authority

Australian Government Repatriation Medical Authority. (2018). *Statement of Principles concerning Tooth Wear, Reasonable Hypothesis and Balance of Probabilities*. SOPs - Repatriation Medical Authority

Cassisi, J. E., Umeda, M., Deisinger, J. A., Sheffer, C., Lofland, K. R., & Jackson, C. (2004). Patterns of Pain Descriptor Usage in African Americans and European

Americans With Chronic Pain. Cultural Diversity and Ethnic Minority Psychology, 10(1), 81–89. https://doi.org/10.1037/1099-9809.10.1.81

Chatzidimitriou, K. (2022). *Prevalence and association of gastroesophageal reflux disease and dental erosion: An overview of reviews.* [Unpublished master's thesis]. Aristotle University of Thessaloniki.

Chatzidimitriou, K., Papaioannou, W., Seremidi, K., Bougioukas, K., & Haidich, A. B. (2023). Prevalence and association of gastroesophageal reflux disease and dental erosion: An overview of reviews. *Journal of dentistry*, *133*, 104520. https://doi.org/10.1016/j.jdent.2023.104520

Chokhawala, K., Stevens, L. (2022, Sept.). Antipsychotic Medications. *In StatPearls*. StatPearls Publishing. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK519503/

Cook, M. B., Wild, C. P., & Forman, D. (2005). A systematic review and meta-analysis of the sex ratio for Barrett's esophagus, erosive reflux disease, and nonerosive reflux disease. American journal of epidemiology, 162(11), 1050-1061.

CPS [Internet] (2016) *Canadian Pharmacists Association*; c2016

Craven, M. R., Kia, L., O'Dwyer, L. C., Stern, E., Taft, T. H., & Keefer, L. (2018). Systematic review: Methodological flaws in racial/ethnic reporting for gastroesophageal reflux disease. Diseases of the Esophagus, 31(3), dox154. https://doi.org/10.1093/dote/dox154

Davidhizar, R., & Giger, J. N. (2004). A review of the literature on care of clients in pain who are culturally diverse. International Nursing Review, 51(1), 47–55. https://doi.org/10.1111/j.1466-7657.2003.00208.x

Denholm, M., & Jankowski, J. (2011). Gastroesophageal reflux disease and bulimia

nervosa – a review of the literature. Diseases of the Esophagus, 24(2), 79–85. https://doi.org/10.1111/j.1442-2050.2010.01096.x

Department of Health Government of Alberta, Canada (2016). Enhanced Clinical Care Pathway: Gastroesophageal Reflux Disease.

Drossman, D. A. (2016). Functional gastrointestinal disorders: History, pathophysiology, clinical features and Rome IV. *Gastroenterology*, *150*(6), 1262-1279. https://doi.org/10.1053/j.gastro.2016.02.032

Elsevier. (2022). Gold Standard Drug Database. https://www.elsevier.com/solutions/drug-database

Farjam, M., Sharafi, M., Bahramali, E., Rezaei, S., Hassanzadeh, J., & Rezaeian, S. (2018). Socioeconomic Inequalities in Gastroesophageal Reflux Disorder: Results from an Iranian Cohort Study. Middle East Journal of Digestive Diseases, 10(3), 180. https://doi.org/10.15171/mejdd.2018.108

Fass, R. (2022). Approach to refractory gastroesophageal reflux disease in adults. In N.J. Talley (Ed.). *UpToDate*.

Gerretsen, P., & Pollock, B. G. (2011). Drugs with anticholinergic properties: A current perspective on use and safety. *Expert opinion on drug safety*, *10*(5), 751–765. https://doi.org/10.1517/14740338.2011.579899

Hajizadeh, M., Mitnitski, A., & Rockwood, K. (2016). Socioeconomic gradient in health in Canada: Is the gap widening or narrowing? Health Policy, 120(9), 1040–1050. https://doi.org/10.1016/j.healthpol.2016.07.019

Hungin, A., Molloy-Bland, M., & Scarpignato, C. (2019). Revisiting Montreal: New insights into symptoms and their causes, and implications for the future of GERD. *The American Journal of Gastroenterology*, *114*(3), 414–421.

https://doi.org/10.1038/s41395-018-0287-1

IBM Micromedex (2023). Diltiazem [Drug monograph]. DynaMed

Jordão, H. W. T., Coleman, H. G., Kunzmann, A. T., & McKenna, G. (2020). The association between erosive toothwear and gastro-oesophageal reflux-related symptoms and disease: A systematic review and meta-analysis. *Journal of dentistry, 95, 103284*. https://doi.org/10.1016/j.jdent.2020.103284

Kahrilas, P.J. (2022). Medical management of gastroesophageal reflux disease in adults. In N.J. Talley (Ed.). *UpToDate*.

Kahrilas, P.J. (2022). Clinical manifestations and diagnosis of gastroesophageal reflux in adults. In N.J. Talley (Ed.). *UpToDate*.

Katz, P. O., Dunbar, K. B., Schnoll-Sussman, F. H., Greer, K. B., Yadlapati, R., & Spechler, S. J. (2022). ACG Clinical guideline for the diagnosis and management of gastroesophageal reflux disease. *The American Journal of Gastroenterology*, *117*(1), 27–56. https://doi.org/10.14309/ajg.0000000000001538

Kim, Y. S., Kim, N., & Kim, G. H. (2016). Sex and Gender Differences in Gastroesophageal Reflux Disease. *Journal of Neurogastroenterology and Motility*, *22*(4), 575-588. https://doi.org/10.5056/jnm16138

Lexicomp (n.d). *UpToDate*. Retrieved October 2022.

Li, Y., Wang, Z., Fang, M., Tay, F. R., & Chen, X. (2022). Association between gastro-oesophageal reflux disease and dental erosion in children: A systematic review and meta-analysis. *Journal of dentistry*, *125*, 104247. https://doi.org/10.1016/j.jdent.2022.104247

Luchenski, S., Quesnel-Vallee, A., & Lynch, J. (2008). Differences between women's and men's socioeconomic inequalities in health: Longitudinal analysis of the

Canadian population, 1994-2003. Journal of Epidemiology & Community Health, 62(12), 1036– 1044. https://doi.org/10.1136/jech.2007.068908

MD, S. J. C. (2014). Traumatic Brain Injury. Physical Medicine and Rehabilitation Board Review, Third Edition. Pg. 88-89 Demos Medical Publishing. Physical Medicine and Rehabilitation Board Review, Fourth Edition - Sara J. Cuccurullo, MD - Google Books

Moraczewski J, Aedma KK. Tricyclic Antidepressants. [Updated 2022 Nov 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557791/

Mungan Z., Pınarbaşı Şimşek B. (2017). Which drugs are risk factors for the development of gastroesophageal reflux disease? *Turkish Journal of Gastroenterology, 28*(1), S38-S43. http://doi.org/10.5152/tjg.2017.11

Oudkerk, J., Grenade, C., Davarpanah, A., Vanheusden, A., Vandenput, S., & Mainjot, A. K. (2023). Risk factors of tooth wear in permanent dentition: A scoping review. *Journal of oral rehabilitation*. 10.1111/joor.13489. Advance online publication. https://doi.org/10.1111/joor.13489

Rajendra, S., Ackroyd, R., & Mohan, C. (2005). South Asian origin as a risk factor for GERD. Alimentary Pharmacology & Therapeutics, 22(1), 75-76.

Ramachandran, A., Raja Khan, S. I., & Vaitheeswaran, N. (2017). Incidence and pattern of dental erosion in gastroesophageal reflux disease patients. *Journal of Pharmacy & Bioallied Sciences*, 9 (Suppl 1), S138–S141.

Ranjitkar, S., Kaidonis, J. A., & Smales, R. J. (2012). Gastroesophageal reflux disease and tooth erosion. *International Journal of Dentistry*, 2012, Article 479850.

https://doi.org/10.1155/2012/479850

Richter, J. E. (2024). Gastroesophageal Reflux Disease (GERD) in Adults. *DynaMed*.

Richter, J. E., & Rubenstein, J. H. (2018). Presentation and Epidemiology of Gastroesophageal Reflux Disease. Gastroenterology, 154(2), 267–276. https://doi.org/10.1053/j.gastro.2017.07.045

Shu, L., & Tong, X. (2022). Exploring the causal relationship between gastroesophageal reflux and oral lesions: A mendelian randomization study. *Front. Genet.*, 13, 1046989. https://doi.org/10.3389/fgene.2022.1046989

Sleisenger, M. (1989). *Gastrointestinal disease pathophysiology diagnosis management* (4th ed.). W.B. Saunders.

Spechler, S. J. (1992). Comparison of Medical and Surgical Therapy for Complicated Gastroesophageal Reflux Disease in Veterans. New England Journal of Medicine, 326(12), 786–792. https://doi.org/10.1056/NEJM199203193261202

The Rome Foundation. (2016). Rome IV Criteria: Diagnostic criteria for functional GI disorders. Retrieved September 7, 2022, from: https://theromefoundation.org/rome-iv/rome-iv-criteria/

Thrift, A. P., Kramer, J. R., Qureshi, Z., Richardson, P. A., & El-Serag, H. B. (2013). Age at Onset of GERD Symptoms Predicts Risk of Barrett's Esophagus. The American Journal of Gastroenterology, 108(6), 915–922. https://doi.org/10.1038/ajg.2013.72

Vafaei, A., Rosenberg, M. W., & Pickett, W. (2010). Relationships between income inequality and health: A study on rural and urban regions of Canada. The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy.

Vakil, N., van Zanten, S. V., Kahrilas, P., Dent, J., Jones, R., & Global Consensus Group.

(2006). The Montreal definition and classification of gastroesophageal reflux disease: A global evidence-based consensus. *The American Journal of Gastroenterology*, *101*(8), 1900–1943.

Velanovich, V. (2006). Nonsurgical factors affecting symptomatic outcomes of antireflux surgery. Diseases of the Esophagus, 19(1), 1–4. https://doi.org/10.1111/j.1442- 2050.2006.00528.x

Veterans Affairs Canada (2024). *Gastroesophageal Reflux Disease*. License for use purchased from Healthy Stomach And Gastroesophageal Reflux Disease Infographic. Gastric Yellow Juice In Normal And GERD Stomach. Cartoon Design. Royalty Free SVG, Cliparts, Vectors, and Stock Illustration. Image 195471834. (123rf.com)

Warsi, I., Ahmed, J., Younus, A., Rasheed, A., Akhtar, T. S., Ain, Q. U., & Khurshid, Z. (2019). Risk factors associated with oral manifestations and oral health impact of gastro-oesophageal reflux disease: A multicentre, cross-sectional study in Pakistan. *BMJ Open*, *9*(3), e021458. https://doi.org/10.1136/bmjopen-2017-021458

Willis, K., & Hajizadeh, M. (2020). Socioeconomic inequalities in gastric cancer incidence in Canada: 1992–2010. Acta Oncologica, 59(11), 1333–1337. https://doi.org/10.1080/0284186X.2020.1764098

World Health Organization. (2019). *International statistical classification of diseases and related health problems* (11th Revision). https://icd.who.int/

Yanushevich, O. O., Maev, I. V., Krikheli, N. I., Andreev, D. N., Lyamina, S. V., Sokolov, F. S., Bychkova, M. N., Beliy, P. A., & Zaslavskaya, K. Y. (2022). Prevalence and risk of dental erosion in patients with gastroesophageal reflux disease: A meta-

analysis. *Dentistry journal*, *10*(7), 126. https://doi.org/10.3390/dj10070126