

# **The Concept of GERD Phenotypes**

---

**Kerry B. Dunbar, MD, PhD, AGAF, FASGE**  
**Associate Professor of Medicine**  
**University of Texas Southwestern Medical Center**  
**Section Chief, Gastroenterology**  
**VA North Texas Healthcare System**  
**September 24, 2021**

# Gastroesophageal Reflux Disease

**In the beginning.....**

**heartburn, regurgitation**

**reflux of gastric contents into  
the esophagus causing  
troublesome symptoms  
and/or complications**

**treatment**

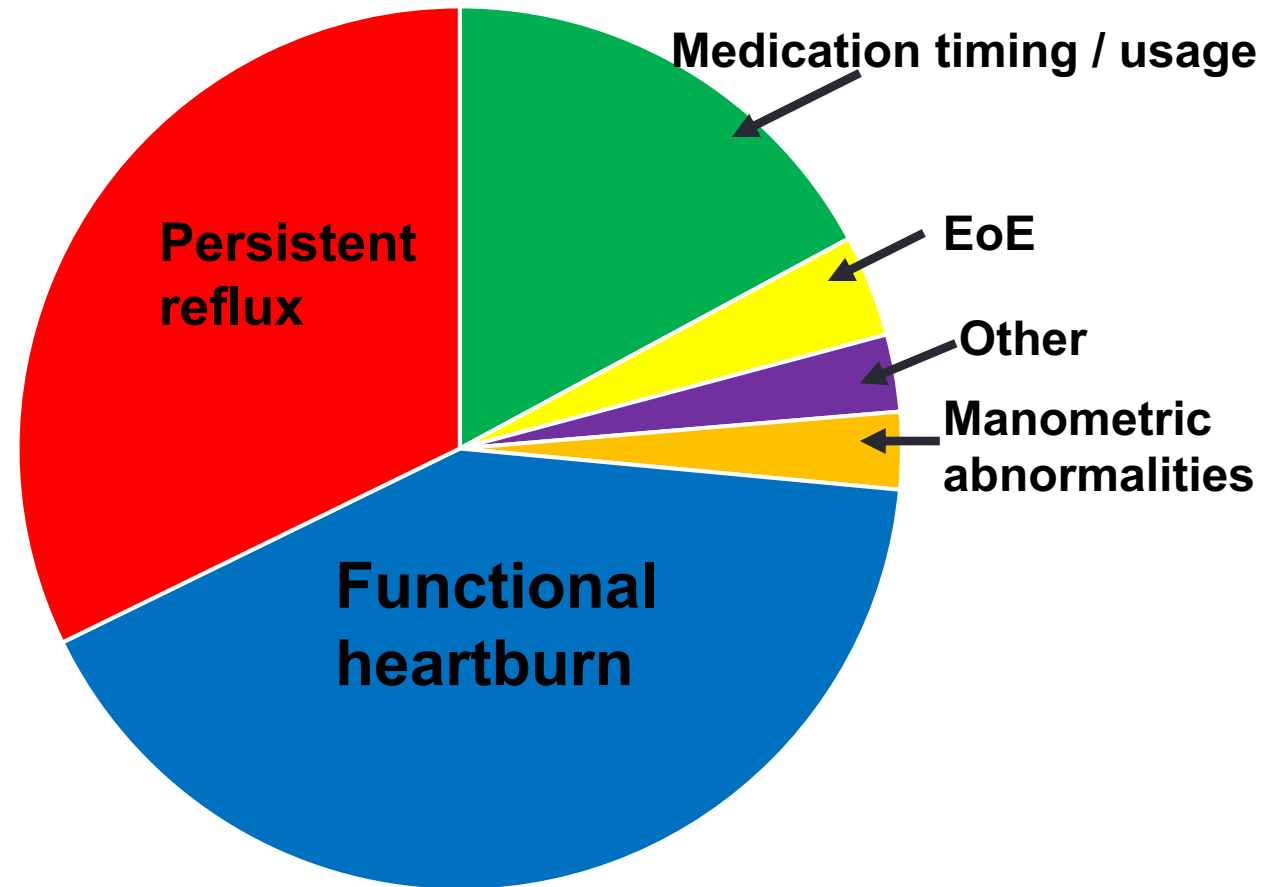


# Some patients don't improve with standard GERD therapy

- Between 10% and 40% of patients have persistent, bothersome GERD symptoms despite PPI use

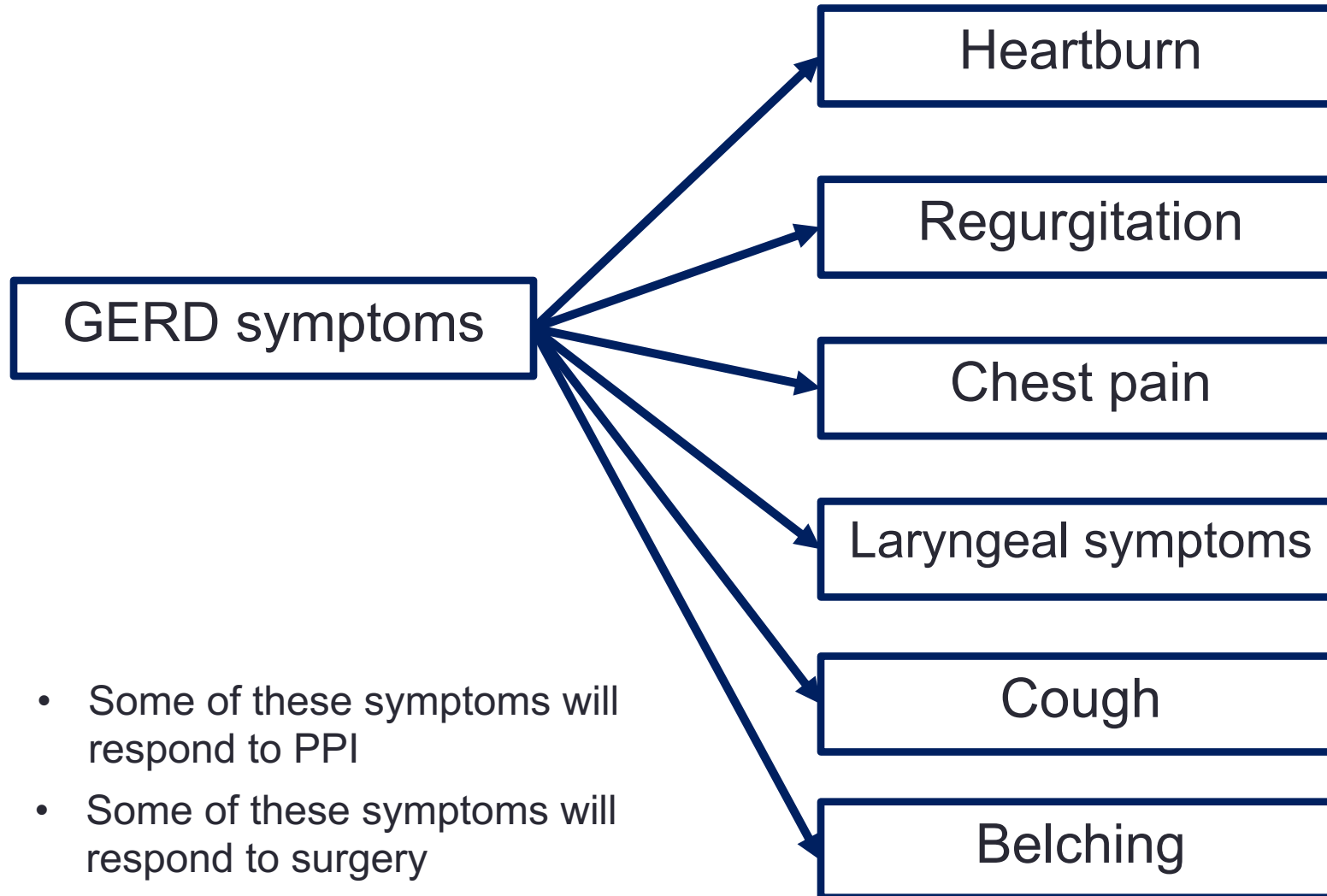
## Why?

# Causes of Persistent Heartburn with PPI Use



- Similar to other studies of refractory GERD, persistent symptoms

# GERD Symptoms – Lump vs. Split

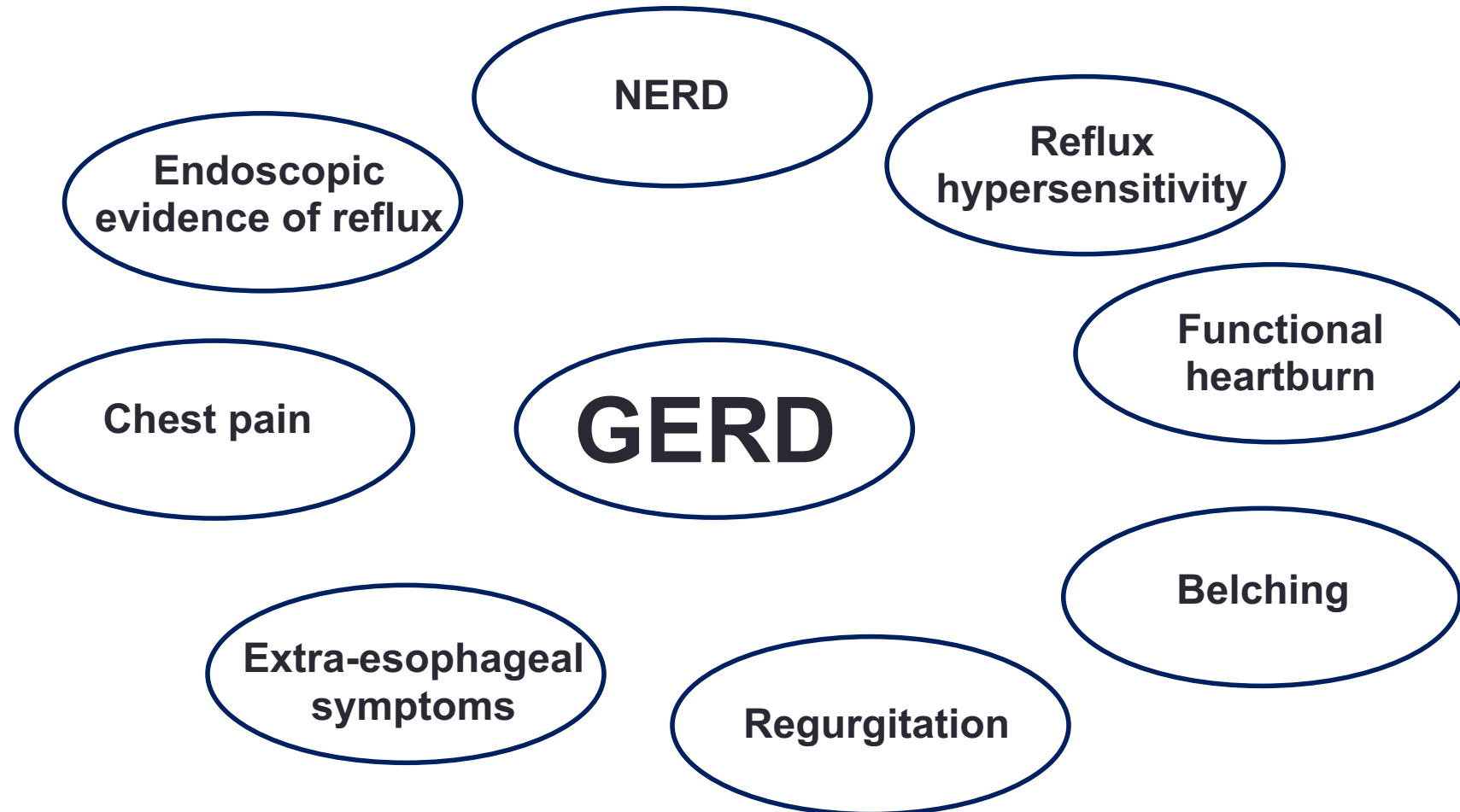


- Some of these symptoms will respond to PPI
- Some of these symptoms will respond to surgery

# Why GERD Phenotypes?

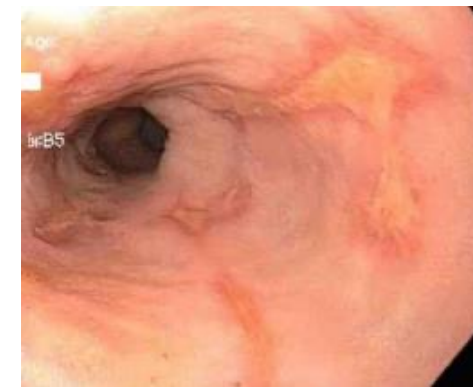
- A better way to think about evaluation and management of GERD-type symptoms
- Options for defining GERD phenotypes
  - Categorize by symptoms
  - Categorize by endoscopic appearance
  - Categorize by reflux testing
    - pH testing
    - pH impedance
- Effective GERD phenotyping includes features of all of these
- GERD phenotypes can help guide
  - Treatment selection
  - Expectations for improvement

# GERD Phenotypes



# Phenotype - Endoscopic Evidence of Reflux

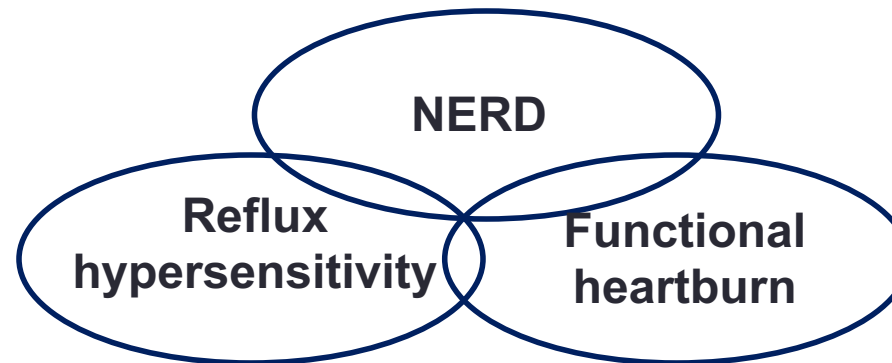
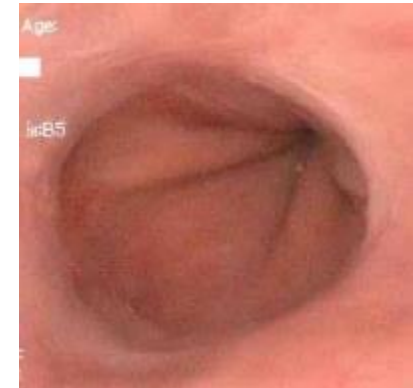
- Erosive esophagitis and Barrett's esophagus
- The presence of Barrett's esophagus confirms abnormal reflux
  - Often persistent even with PPI therapy
- Erosive esophagitis
  - Los Angeles grade C and D
    - Convincing for true GERD
  - LA grade A – found in 6% of asymptomatic pts
    - Unlikely to progress
    - Not convincing for abnormal reflux
  - LA grade B – probably convincing
    - May still want to pH test prior to anti-reflux surgery
- Peptic stricture
- Symptoms can include heartburn and regurgitation
  - 14 - 47% asymptomatic
  - Symptoms respond to PPI treatment
    - Better response with higher grades of esophagitis
    - Improvement in heartburn and regurgitation





# Phenotype - Non-Erosive Reflux Disease

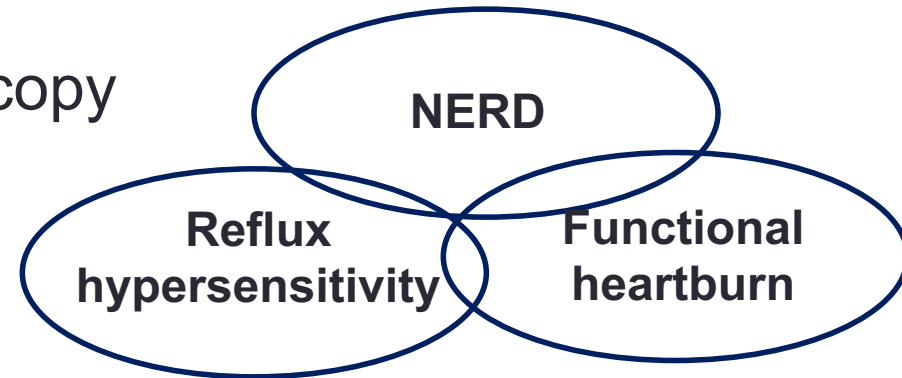
- Endoscopic appearance is normal
- Symptoms – heartburn, regurgitation
- Histopathology similar to erosive esophagitis
  - Exposure of subepithelial nerve endings to reflux
- Symptoms + normal EGD
  - 3 possibilities



- True NERD
  - normal endoscopic appearance
  - abnormal pH testing - >6% acid exposure time (AET)
  - Likely to improve with PPIs

# Phenotype - Reflux Hypersensitivity and Functional Heartburn

- Base on symptoms + endoscopy
- Reflux hypersensitivity
  - Normal AET
  - Positive symptom correlation between GERD symptoms and reflux events
  - Increased sensitivity to esophageal stimuli (like reflux)
- Functional heartburn
  - Normal AET
  - No correlation between symptoms and reflux events
- TCAs, SSRIs can be helpful



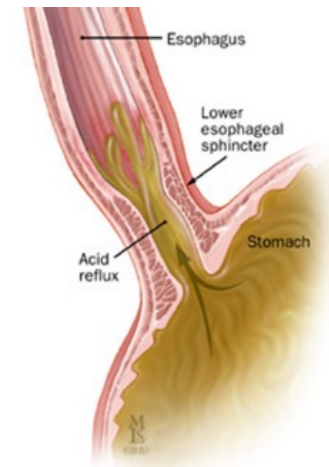
# Phenotype - Chest pain



- Chest pain – differential is broad
- GERD symptoms, abnormal pH testing present in 30-40% of pts with noncardiac chest pain
- Chest pain more likely to respond to standard GERD treatment if
  - associated with typical GERD symptoms
  - abnormal AET
  - strong symptom correlation on pH testing
- PPI response depends on the presence of real GERD
  - With definite GERD – 3 of 4 will improve
  - Without objective GERD – 1 of 3 will improve

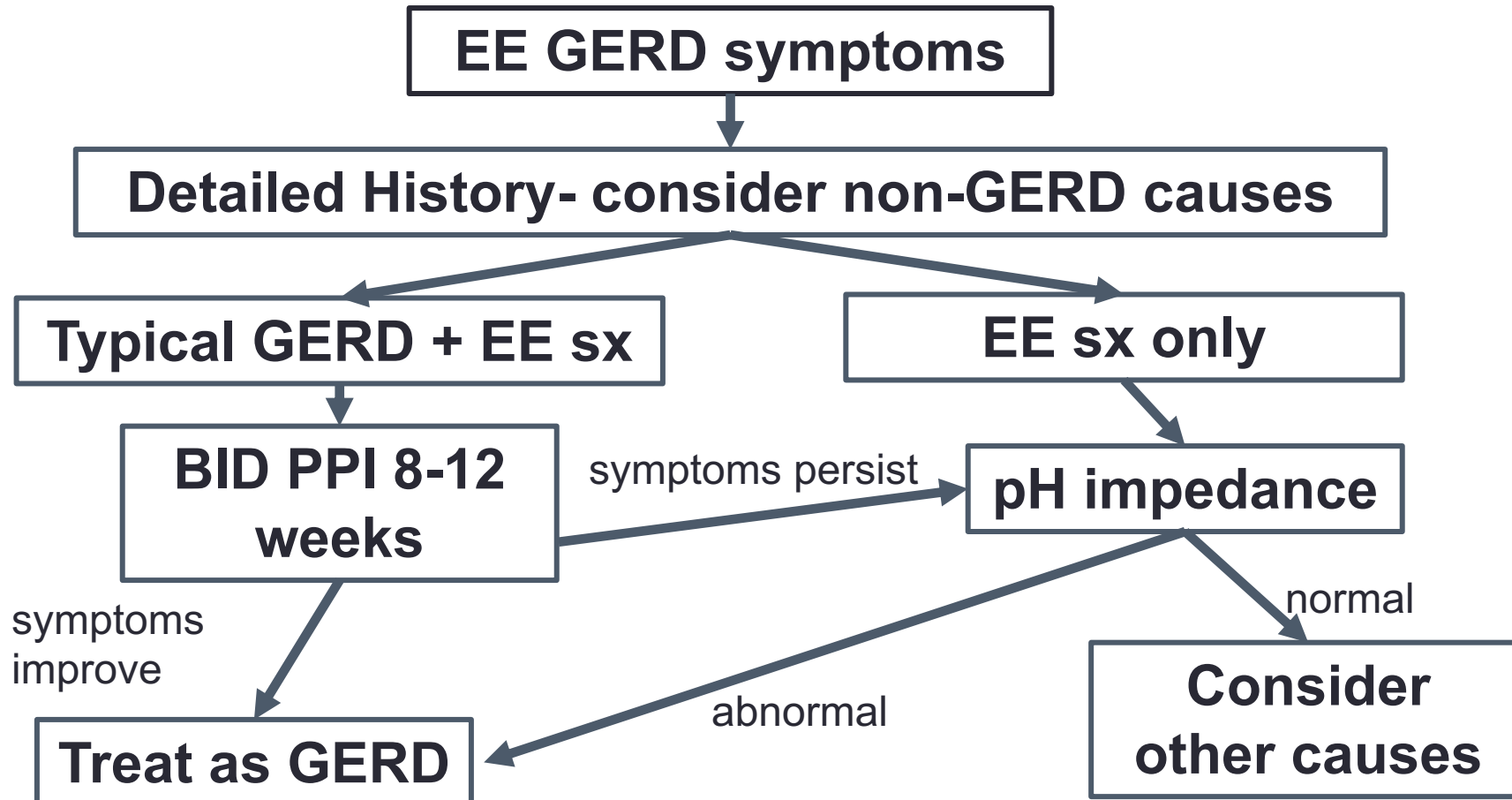
# Phenotype - Regurgitation

- Response to PPIs is ~20% lower than with heartburn
- Pathophysiology – weak LES pressure, hiatal hernia
- Surgery can be more effective than PPI therapy as it corrects the underlying mechanical defect
  - Fundoplication
  - Magnetic sphincter augmentation
  - Transoral incisionless fundoplication
- Other options for treatment of regurgitation
  - Baclofen – mixed data
  - Diaphragmatic breathing
- Beware rumination syndrome –
  - Regurgitation of recently ingested food with spitting or re-mastication and swallowing, not preceded by retching or nausea
  - Treatment includes behavioral therapy, diaphragmatic breathing, education, baclofen



# Phenotype – Extra-Esophageal GERD

- Dysphonia, throat-clearing, cough, asthma, globus
- Low threshold to send for ENT, allergy, pulmonary evaluation
- Patients can have ‘real’ GERD and have EE symptoms that aren’t due to reflux

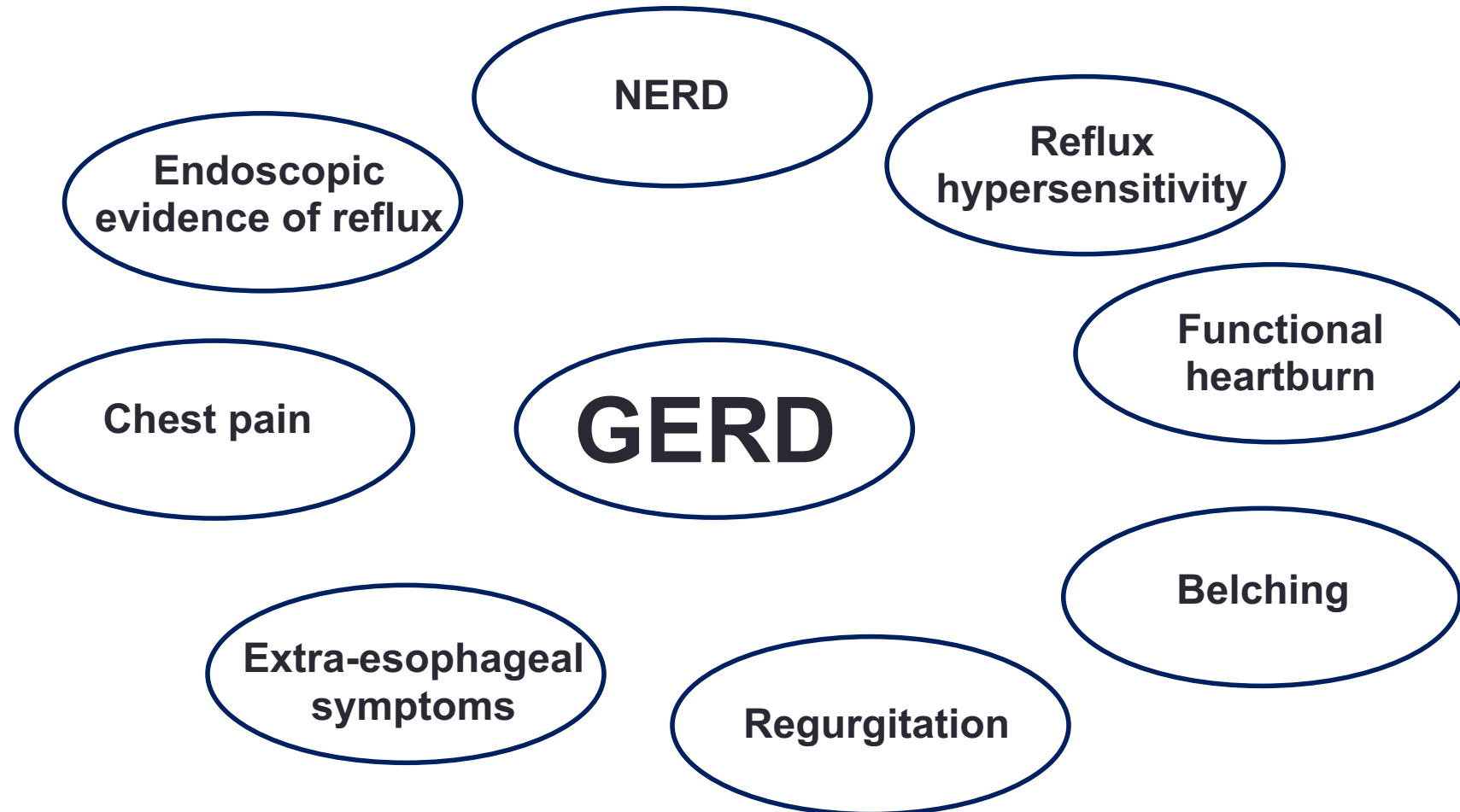


# Phenotype - Belching

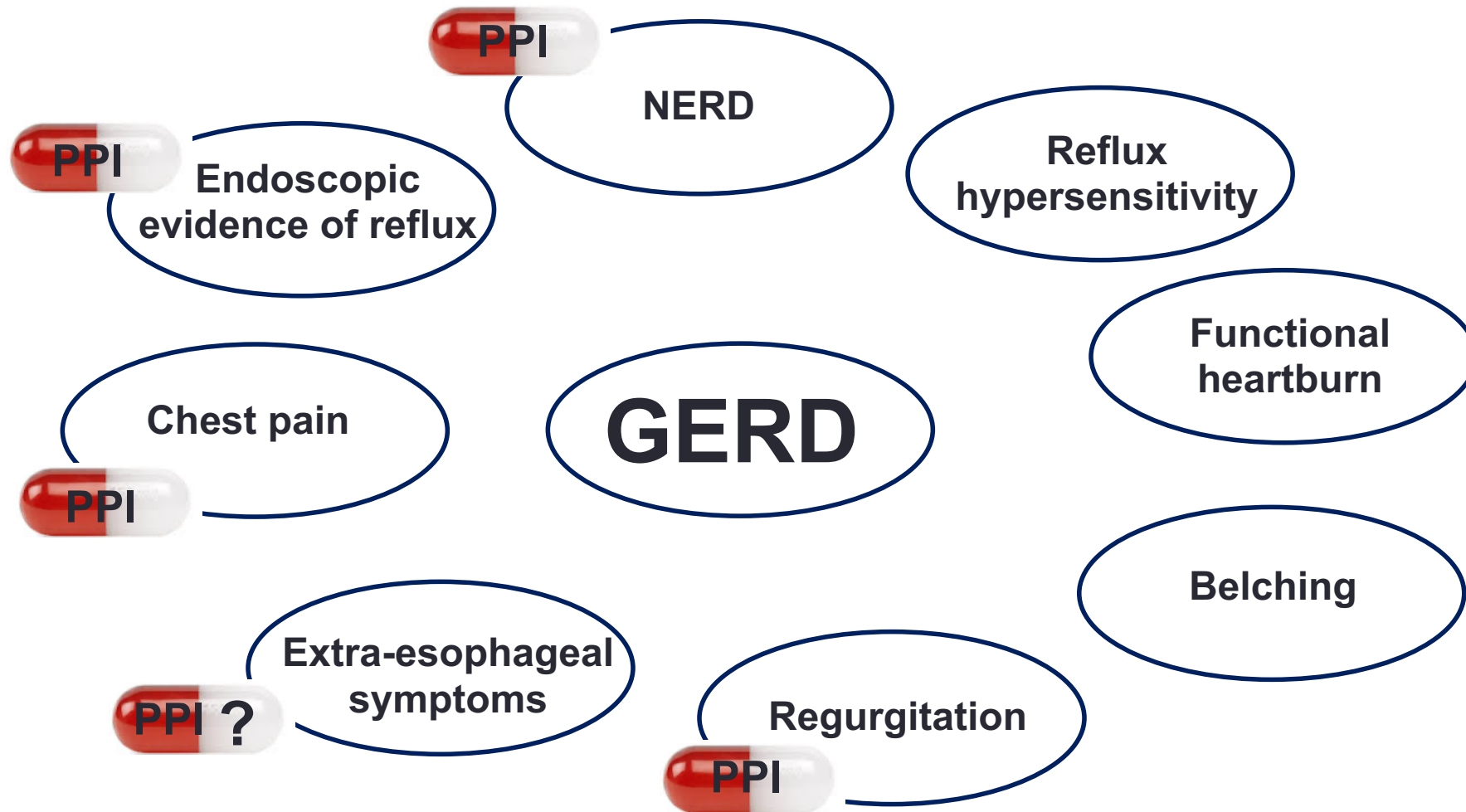
- Gastric belching
  - Air moves involuntarily from the stomach → esophagus
  - Due to TLESRs
  - Can be seen with GERD, Rome IV functional belching
- Supragastric belching
  - UES relaxes → swallow air → expel the air before it reaches the stomach
  - Can happen many times per minute
  - Can cause reflux
- Management
  - If reflux-related, belching may improve with treatment of GERD
  - Minimize carbonated beverages, gum chewing, and smoking
  - Avoid eating quickly
  - Diaphragmatic breathing exercises
  - Possibly baclofen



# GERD Phenotypes

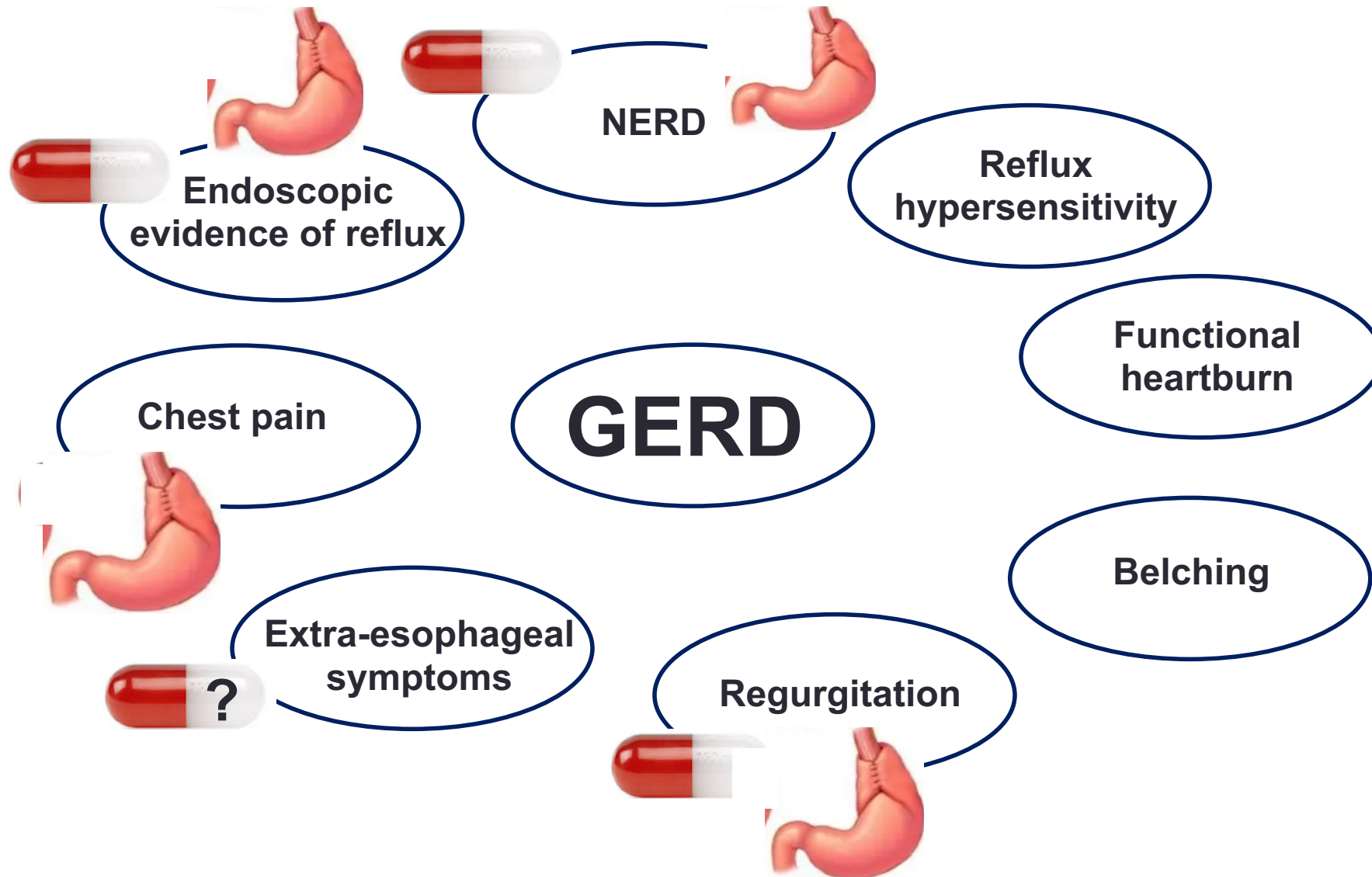


# GERD Phenotypes

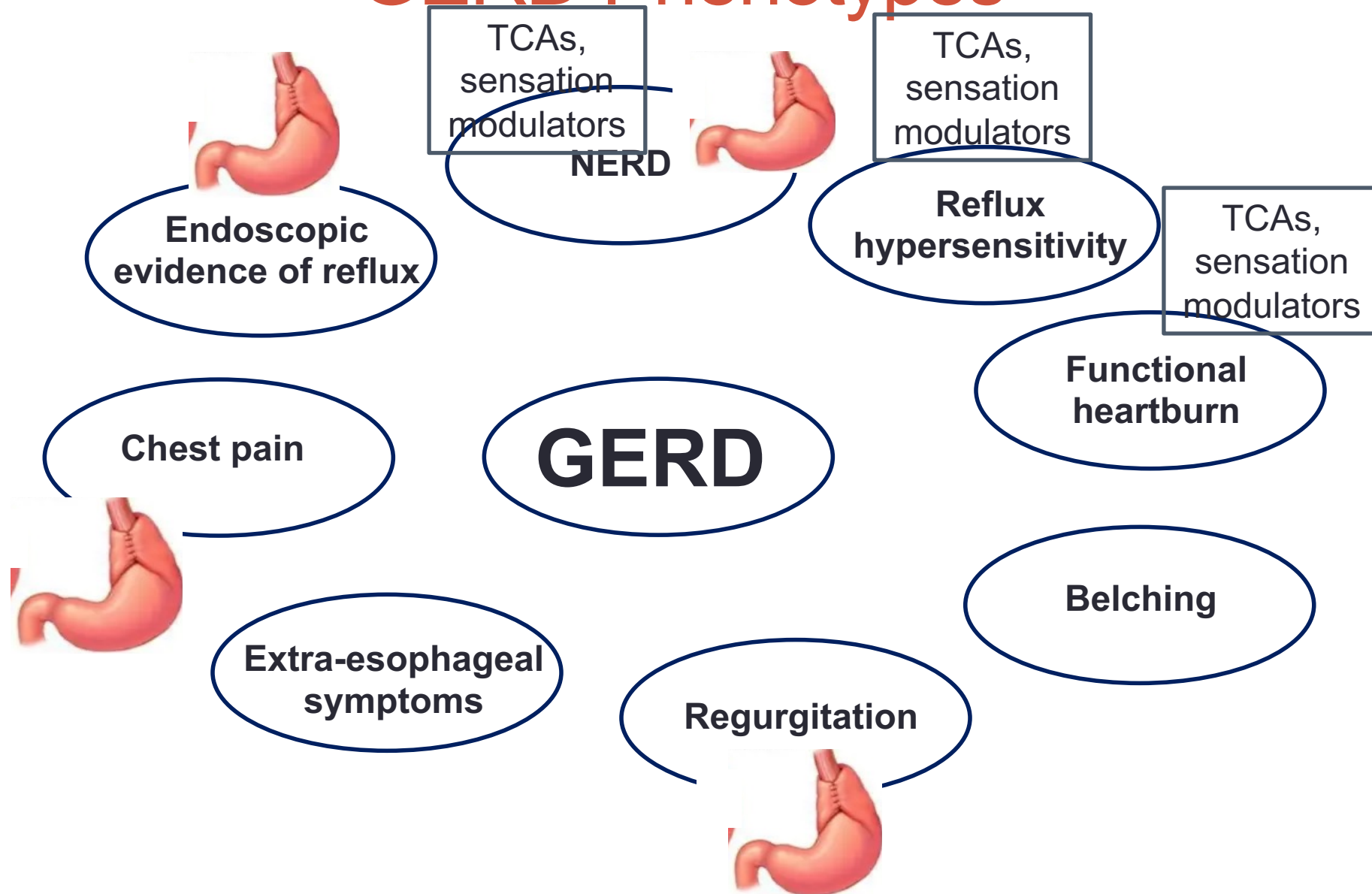




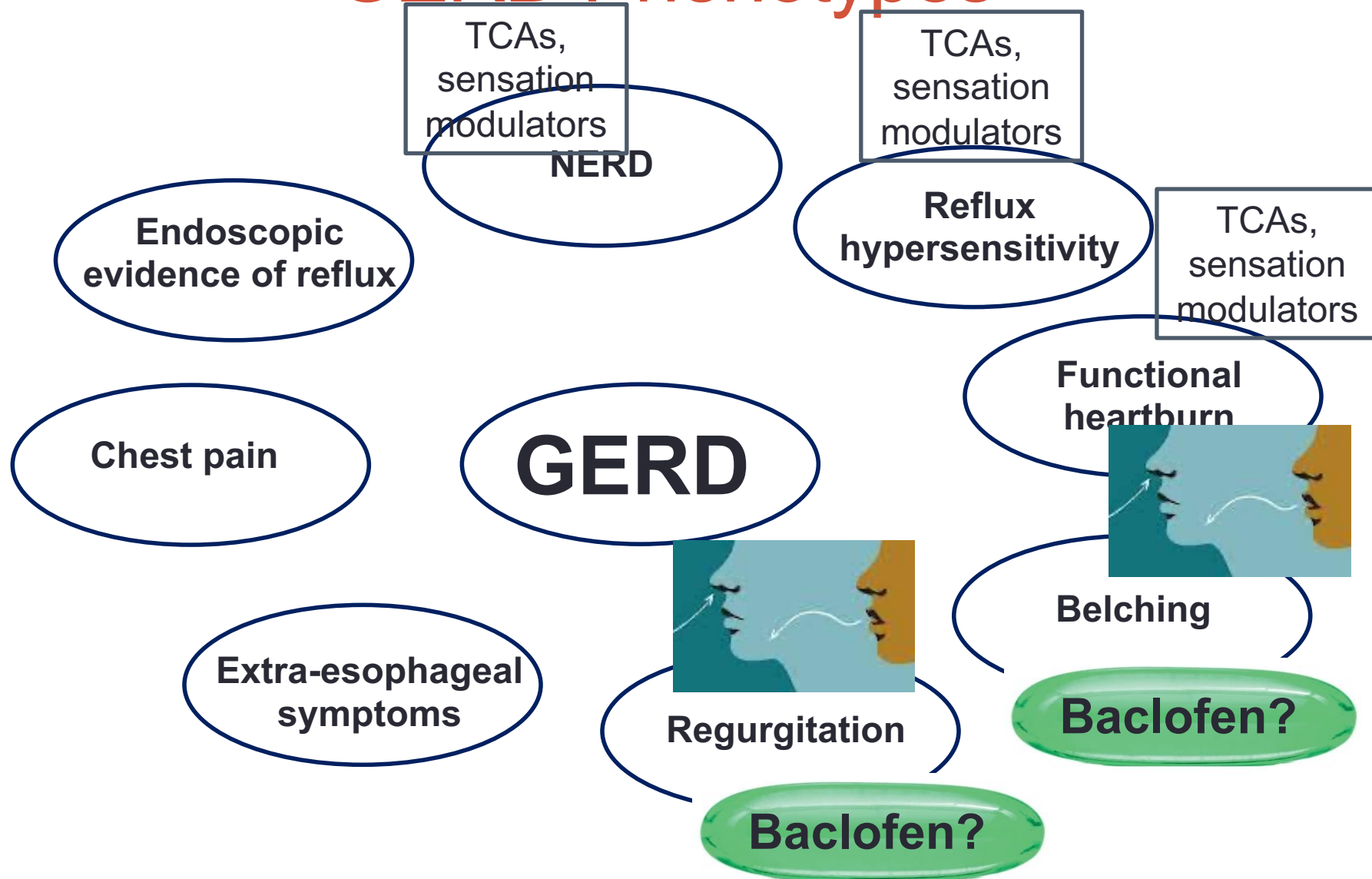
# GERD Phenotypes



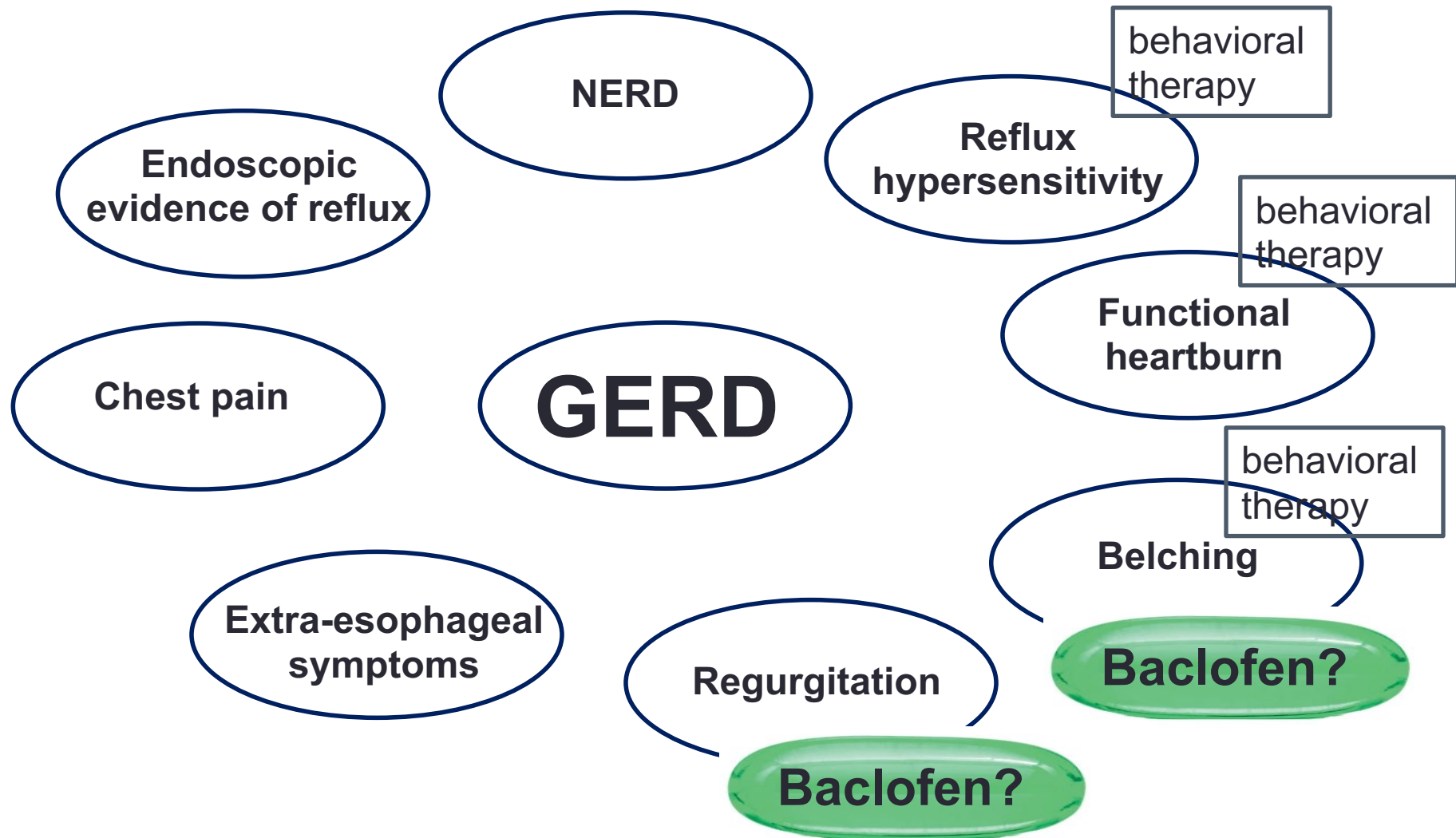
# GERD Phenotypes



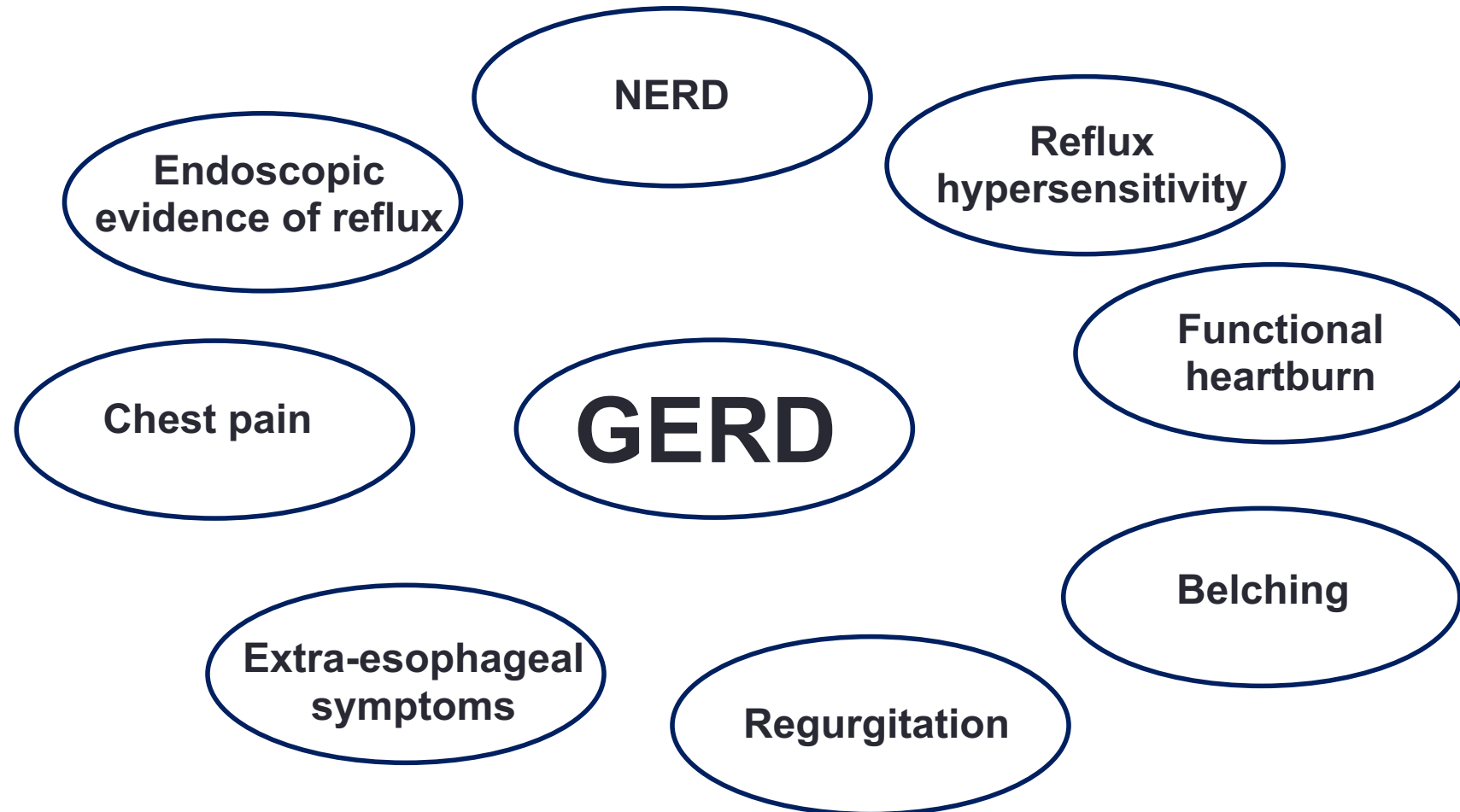
# GERD Phenotypes



# GERD Phenotypes



# GERD Phenotypes



# Summary

- GERD phenotypes – way of thinking about different presentations of GERD
- GERD phenotypes are determined by a combination of
  - Symptoms
  - Endoscopic appearance
  - Reflux testing- pH, pH impedance
- GERD phenotypes can help guide
  - Additional evaluation
  - Treatment selection
  - Expectations for improvement

# Questions?

