



Reflux and Refractory GERD

What You Should Know

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Disclosures and Conflicts



- Advisory (Pharma/Device):
 - Ironwood, Phathom, ISOThrive, Sanofi, Bayer
 - Medtronic, Bethanamist, Ellodi, Diversatek healthcare
- Patent:
 - Mucosal Integrity Testing (Diversatek)
- Legal:
 - Consultation in litigations relating to acid suppressive agent





“Reflux”??

- 64 yr-old-male with 40-yrs of HB/ regurg. doing well on once daily PPI.
- 45 yr-old male with HB/regurg. only partially better on PPI therapy.
- 32 yr-old-female with bloating and epigastric pain unresponsive to therapy.
- 54 yr-old-female with chronic cough not better on bid PPI therapy.





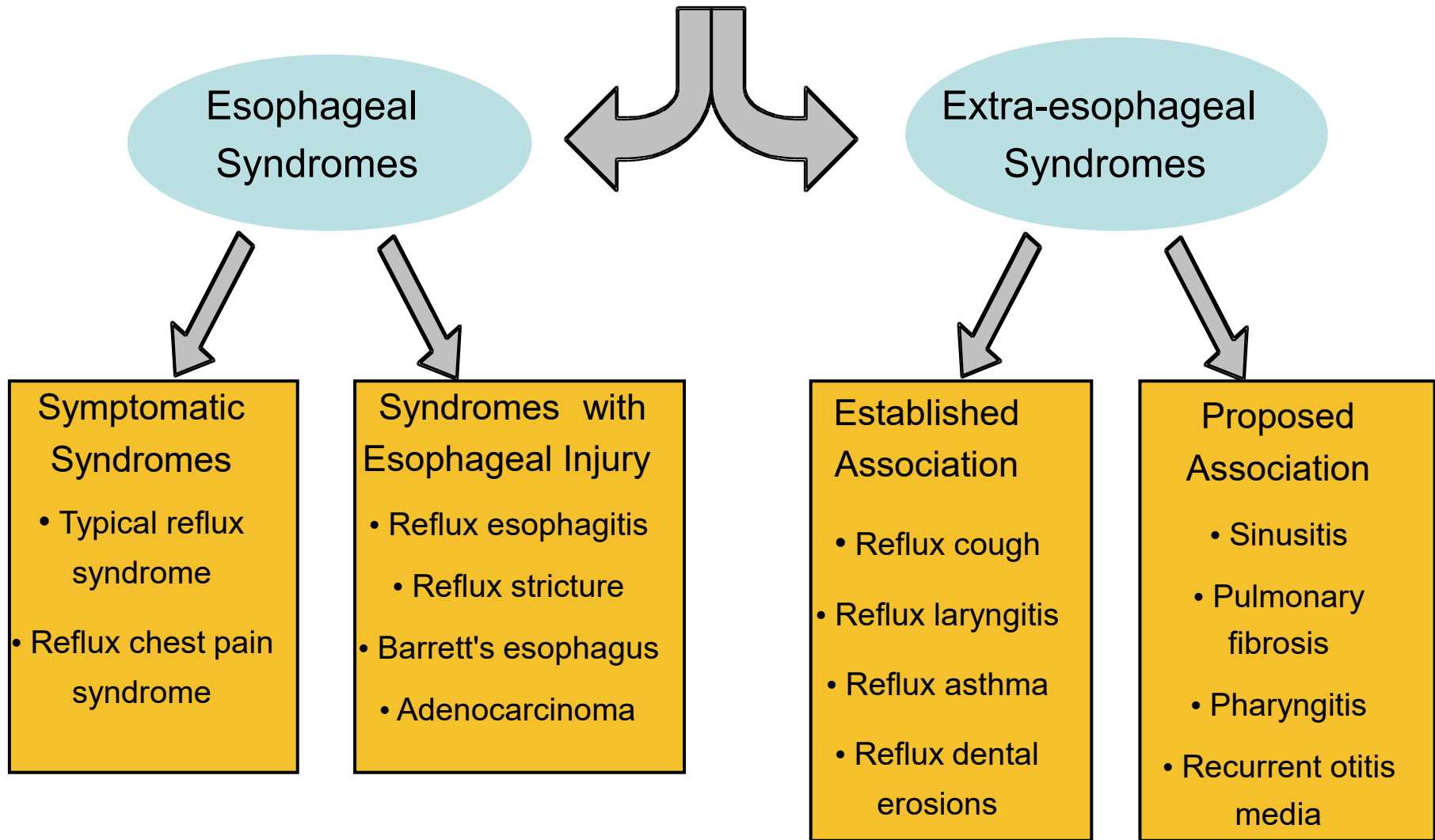
Industrial Strength Reflux

Silent GERD



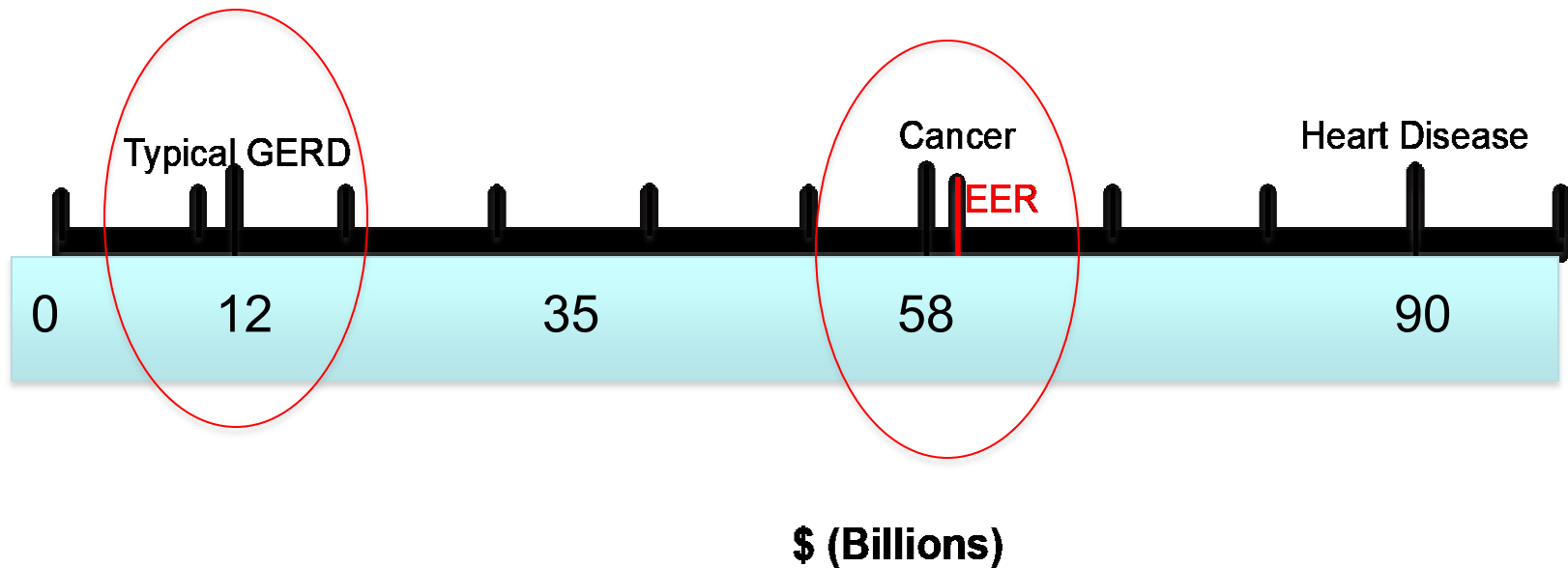


Montreal Classification GERD





Estimated Economic Burden of Reflux



Pathophysiology



Defensive



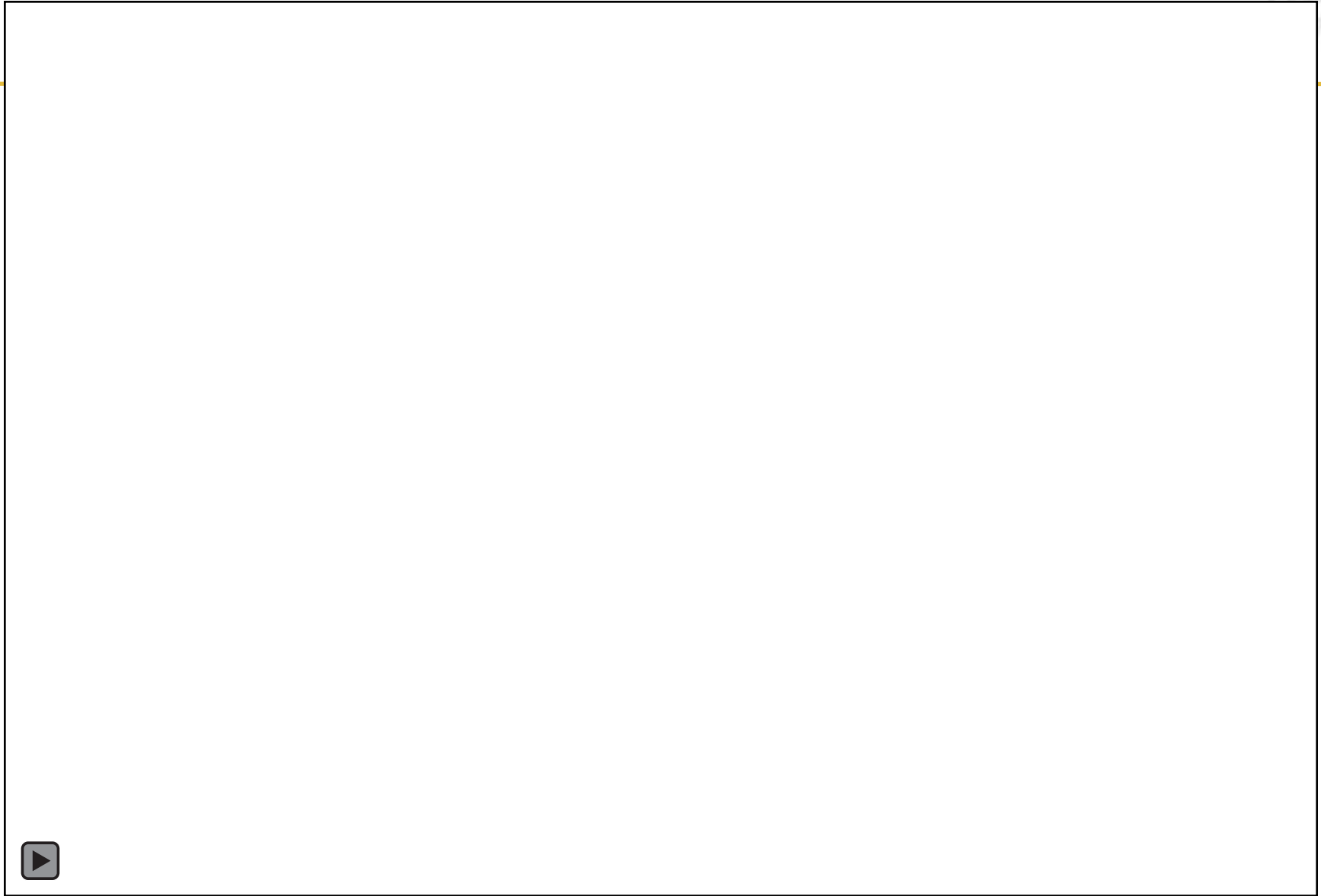
Factors

Aggressive



LES
UES
Peristalsis
Saliva
Bicarbonate

Acid
Pepsin
Bile acids
Trypsin
Alcohol
Acidic foods



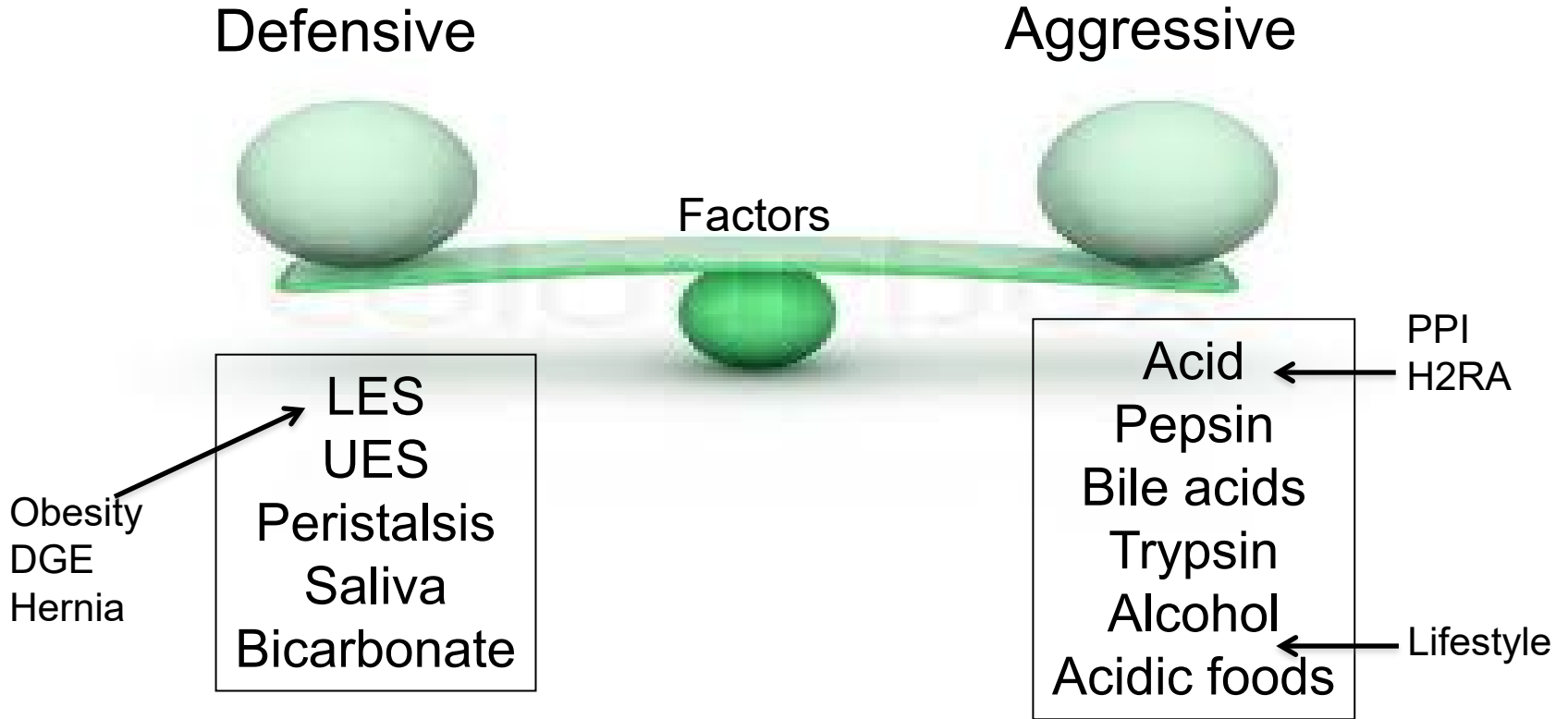
GERD THERAPIES



- Lifestyle changes
- Antacids
- H2RA's
- PPI's
- Surgery
- Endo Therapy

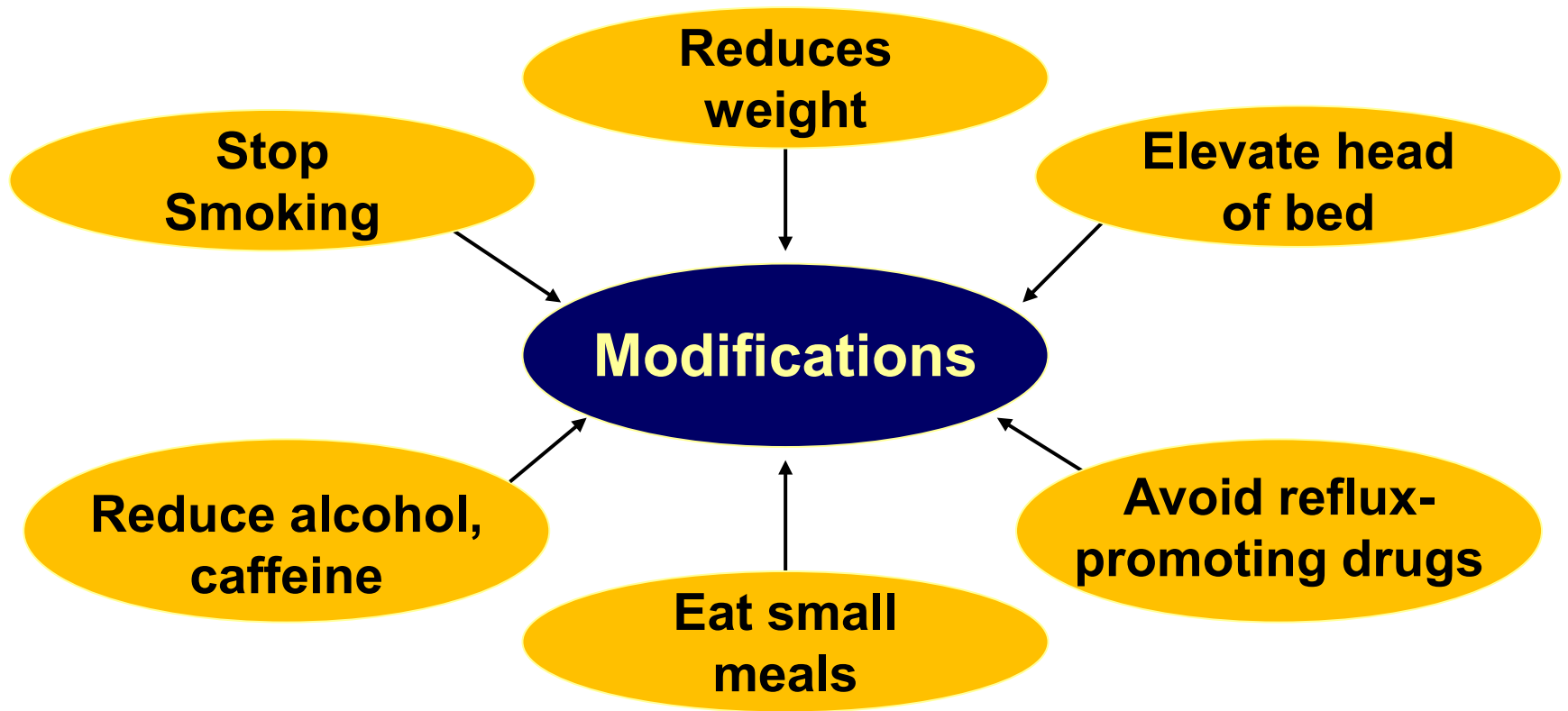


Pathophysiology of GERD



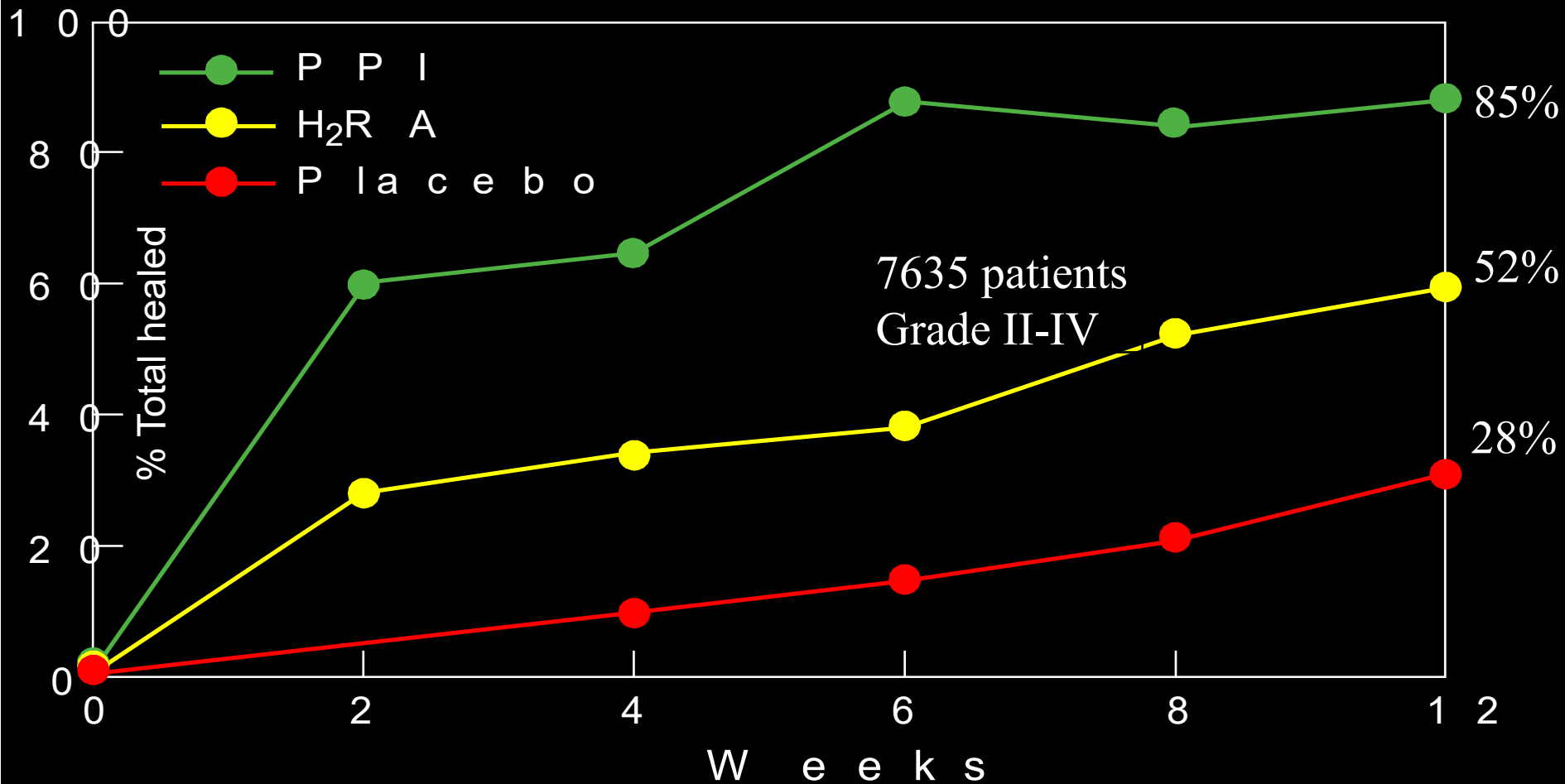


LIFESTYLE MODIFICATIONS IN GERD



META-ANALYSIS

E N D O S C O P I C H E A L I N



E a r n e s t e t a l . A J G - N o v e m b e r , S u p p l . , 1 9 9 9 .



PPI Trial



PPI' s - q day

H2RA' s - BID

**H2RA' s-q day
Antacids
Life Style Modification**





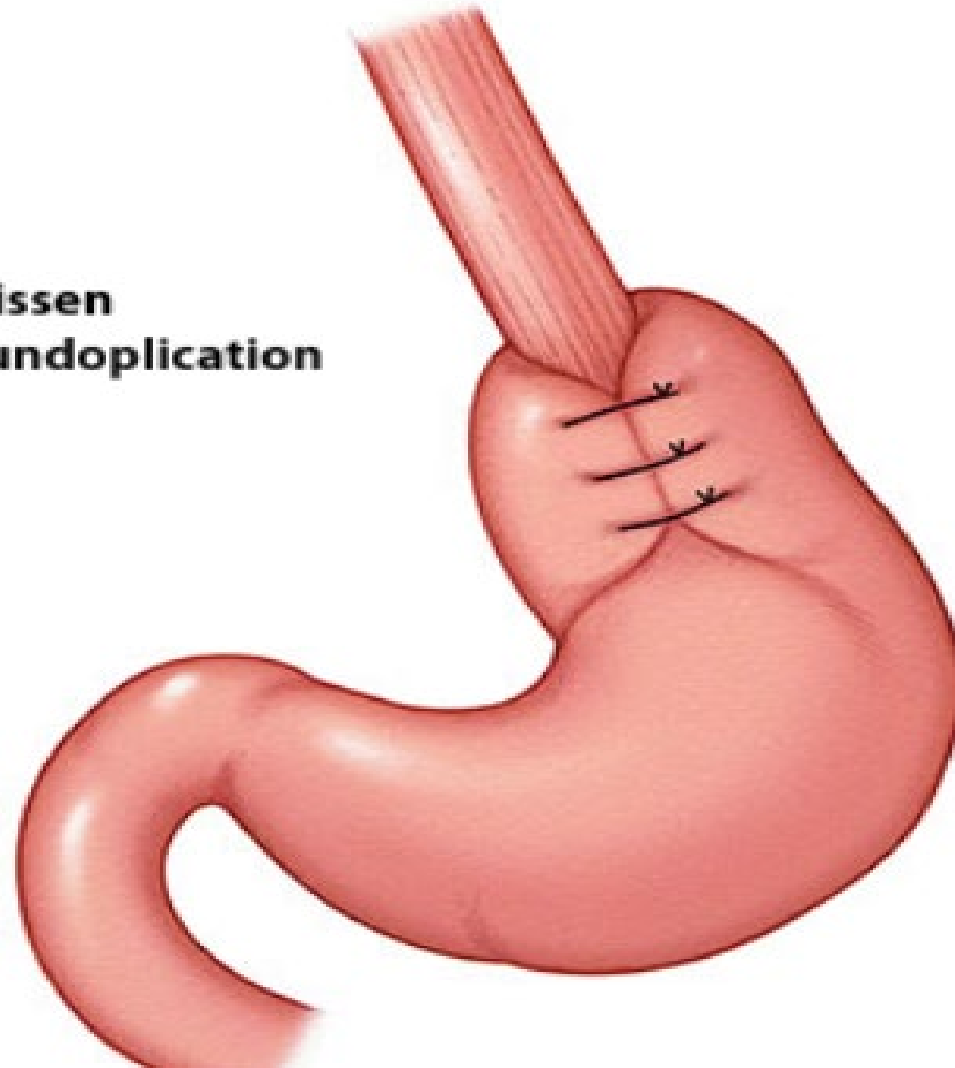
ACID SUPPRESSION

| H2RA | | PPI' s |
|--|------------|---|
| <ul style="list-style-type: none">- Cimetidine (Tagament)<ul style="list-style-type: none">• 400 mg BID- Ranitidine (Zantac)<ul style="list-style-type: none">• 150 mg BID- Famotidine (Pepcid)<ul style="list-style-type: none">• 20 mg BID- Nizatidine (Axid)<ul style="list-style-type: none">• 150 mg BID | DR | <ul style="list-style-type: none">- Omeprazole (Prilosec)<ul style="list-style-type: none">• 20 mg QD- Lansoprazole (Prevacid)<ul style="list-style-type: none">• 30 mg QD- Rabeprazole (Aciphex)<ul style="list-style-type: none">• 20 mg QD- Pantoprazole (Protonix)<ul style="list-style-type: none">• 40 mg QD- Esomeprazole (Nexium)<ul style="list-style-type: none">• 40 mg QD |
| | IR | <ul style="list-style-type: none">- Omeprazole + bicarb (Zegerid)<ul style="list-style-type: none">• 40 mg QD |
| | DDR | <ul style="list-style-type: none">- Dexlansoprazole (Kapidex)<ul style="list-style-type: none">• 60 mg QD |

Surgery

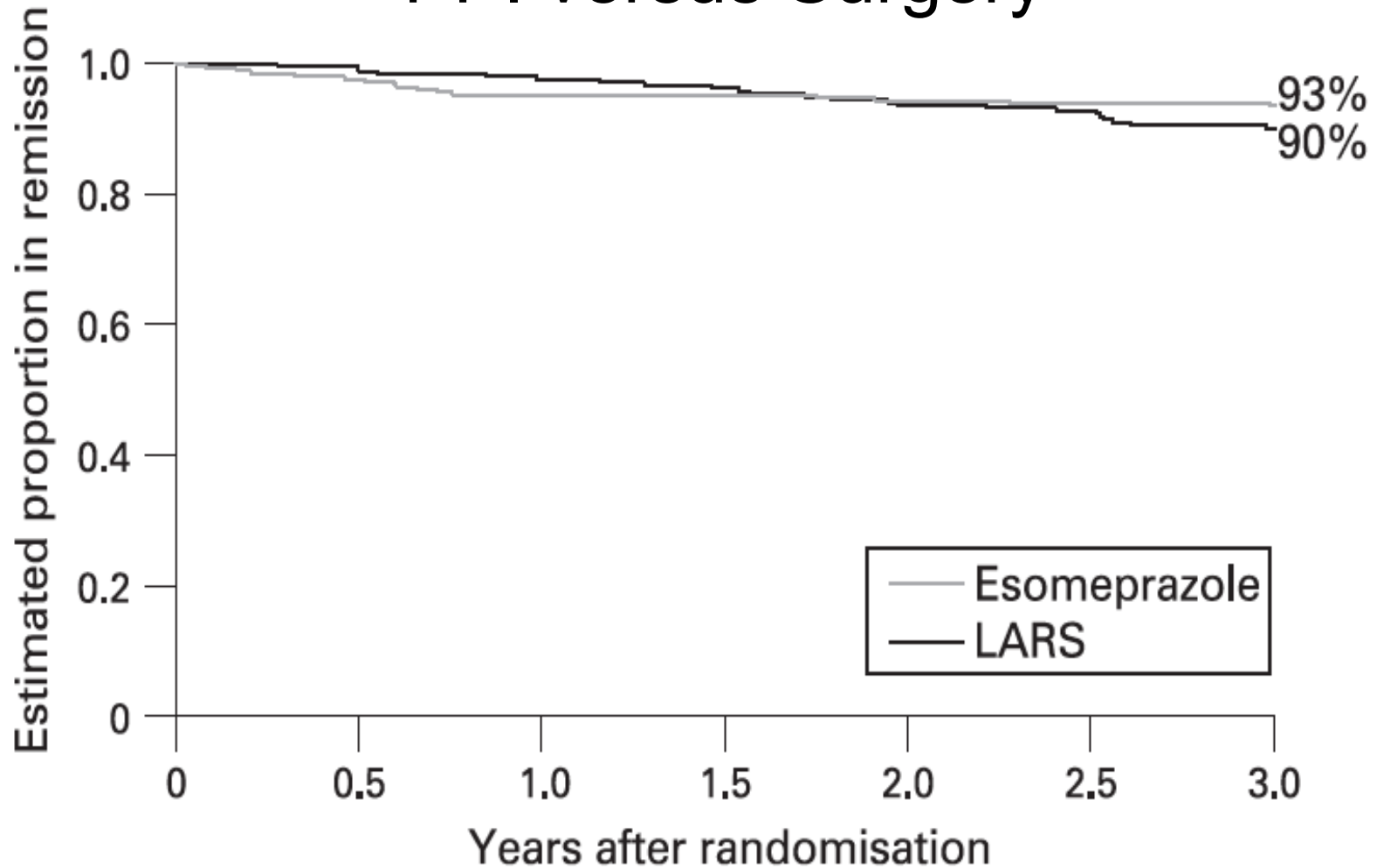


**Nissen
Fundoplication**



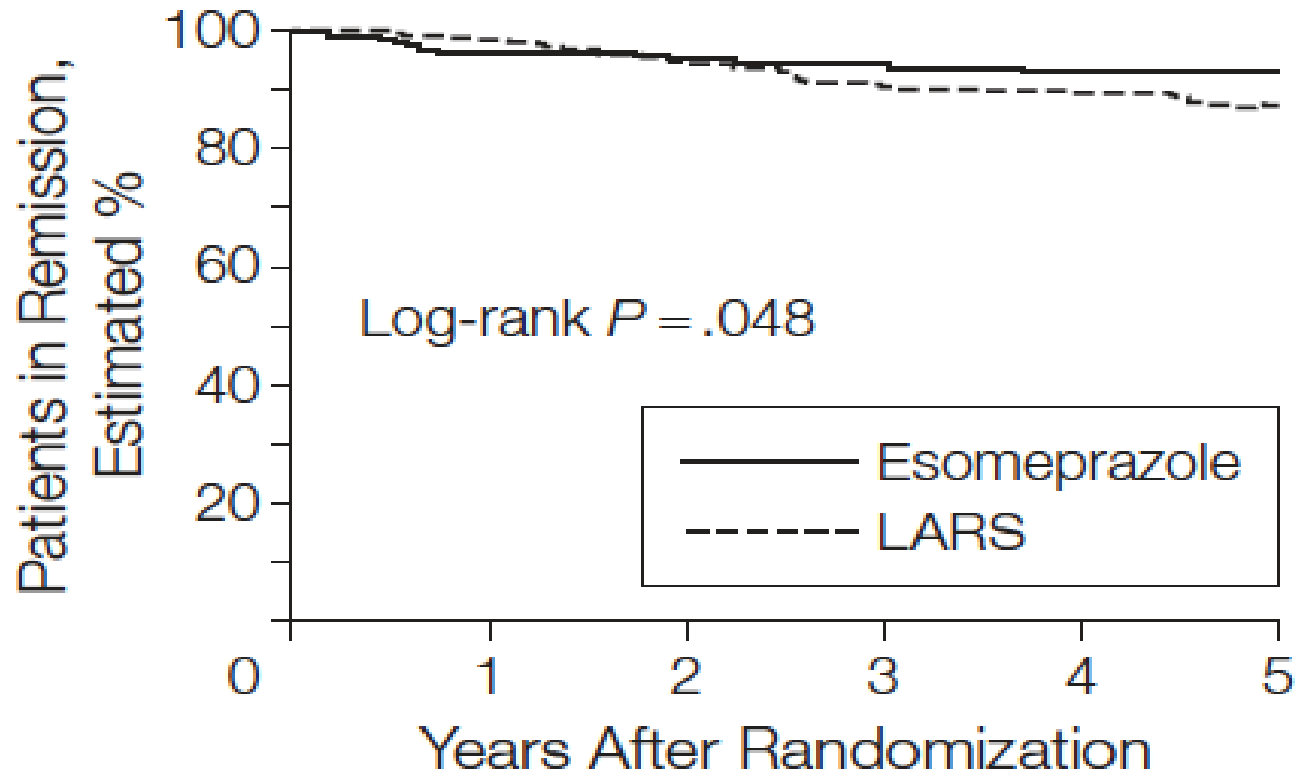


Long-Term Efficacy PPI versus Surgery



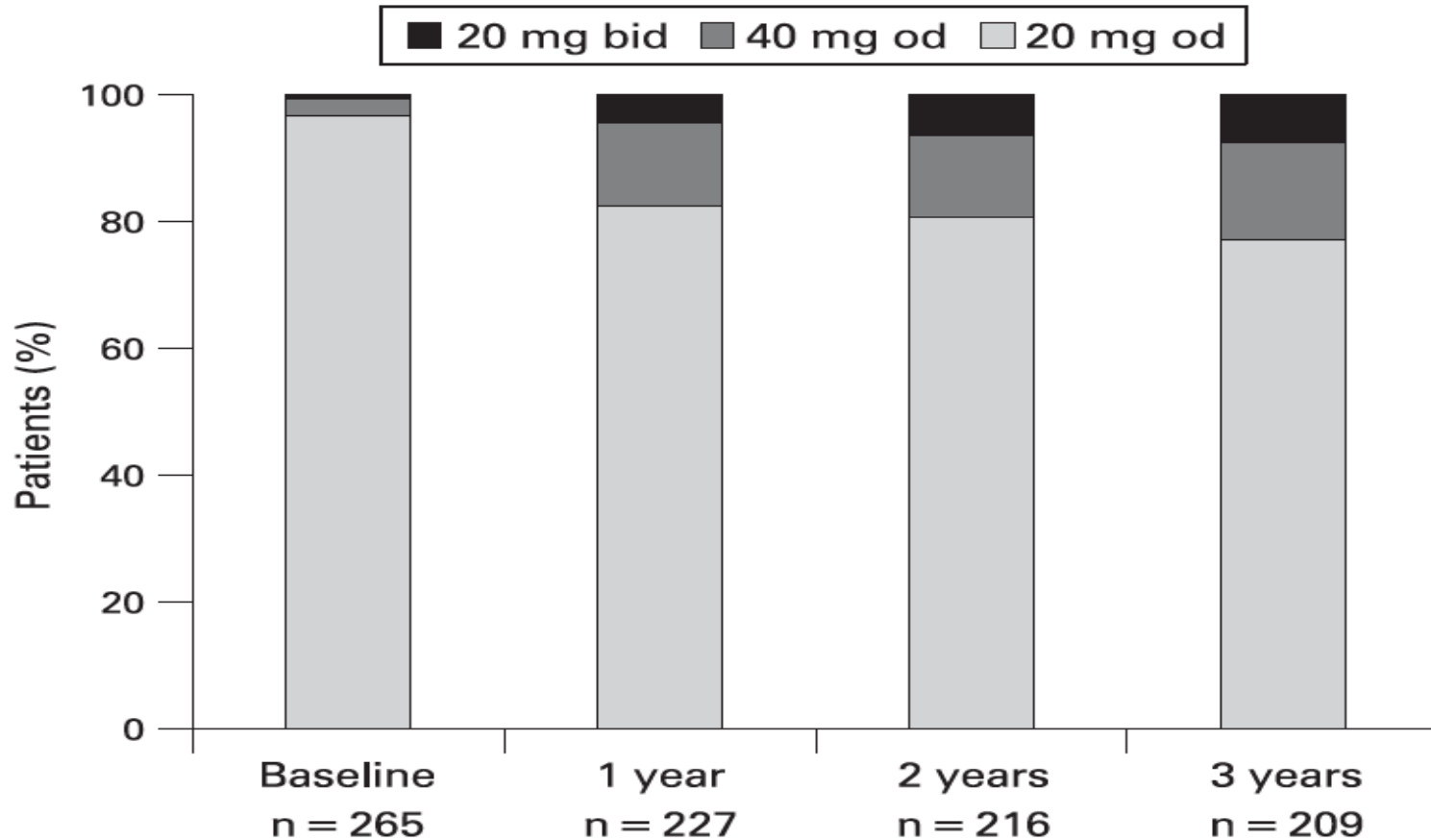


Long-Term Efficacy PP versus Surgery





Long-Term Efficacy of PPI

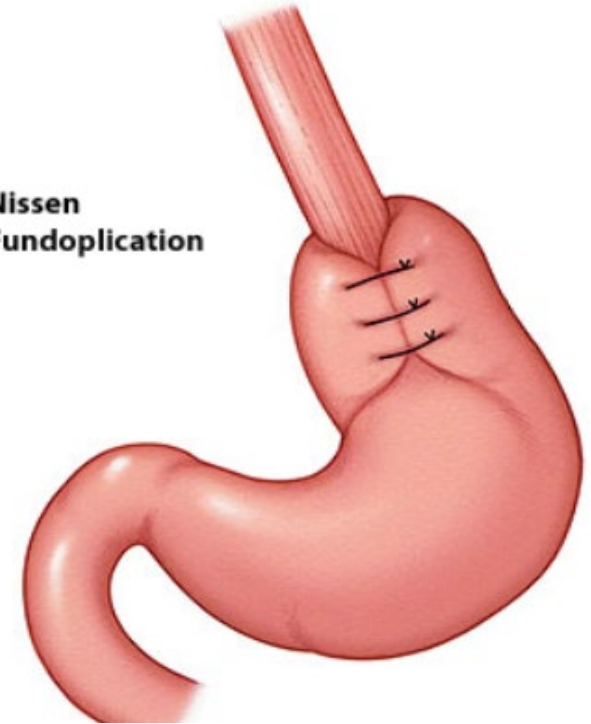


Fundoplication Candidate

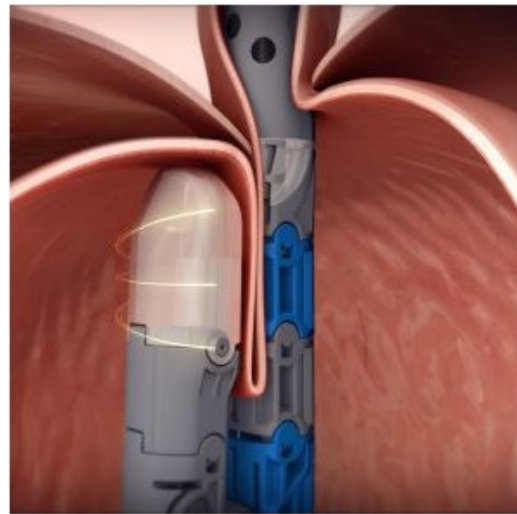
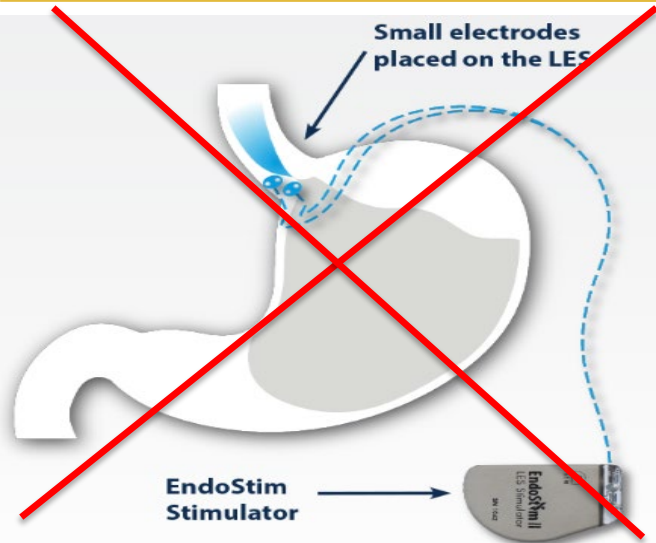


- HB doing well on once daily PPI therapy.
 - Expense
 - Age
 - long-term use
- HB better on PPI therapy but not regurg.
- Large hernia

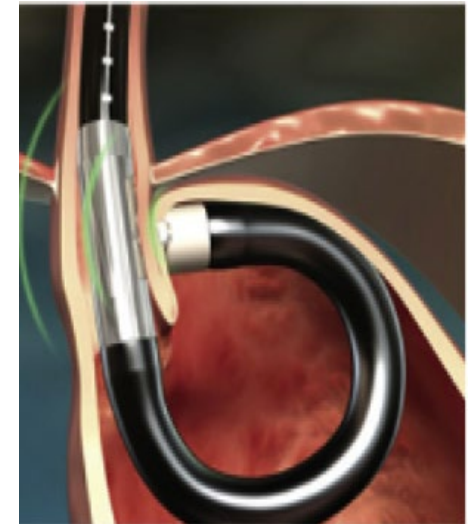
Nissen
Fundoplication



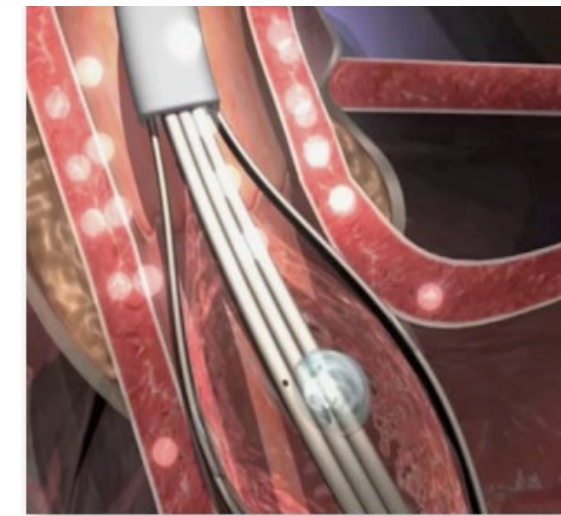
Endo/Surgical Options



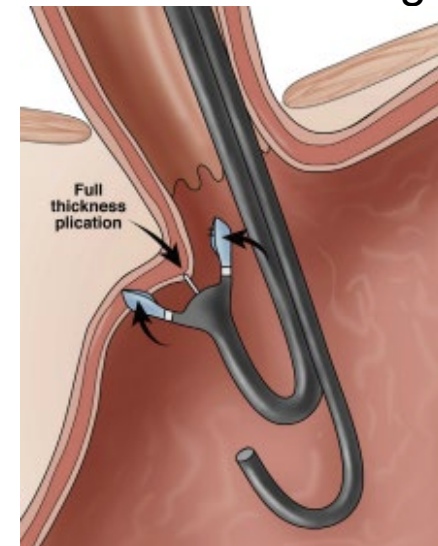
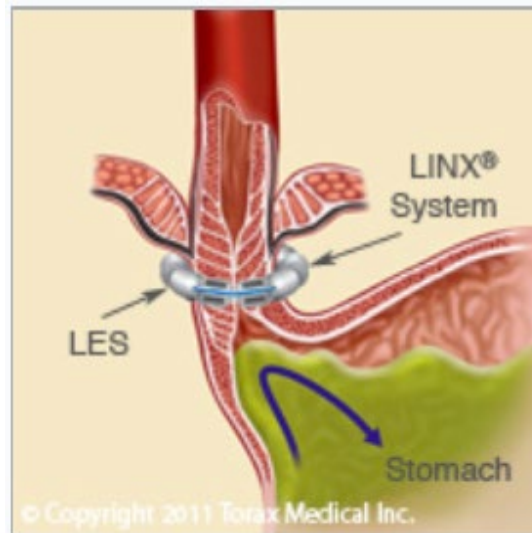
Esophyx (TIF)



Medigus (MUSE)



Stretta (RFA)



Full Thickness



SYMPTOMS

~~“Refractory GERD”~~

Poor response to *bid* PPI



What to Consider if PPI's Don't Help?



- Do they have GERD?
 - Bloating
 - Burping
 - Abdominal pain
 - Regurgitation
 - Dysphagia



What to Consider if PPI's Don't Help?

- Is the pt taking their medication?
 - Compliance
 - Dosing and frequency



What to Consider if PPI's Don't Help?

- Is there a mechanical defect?
 - Hernia
 - Regurgitation



“Refractory GERD”

Improve acid suppression

- H2RA's
- PCAB's
- Alginates

Restore Barrier

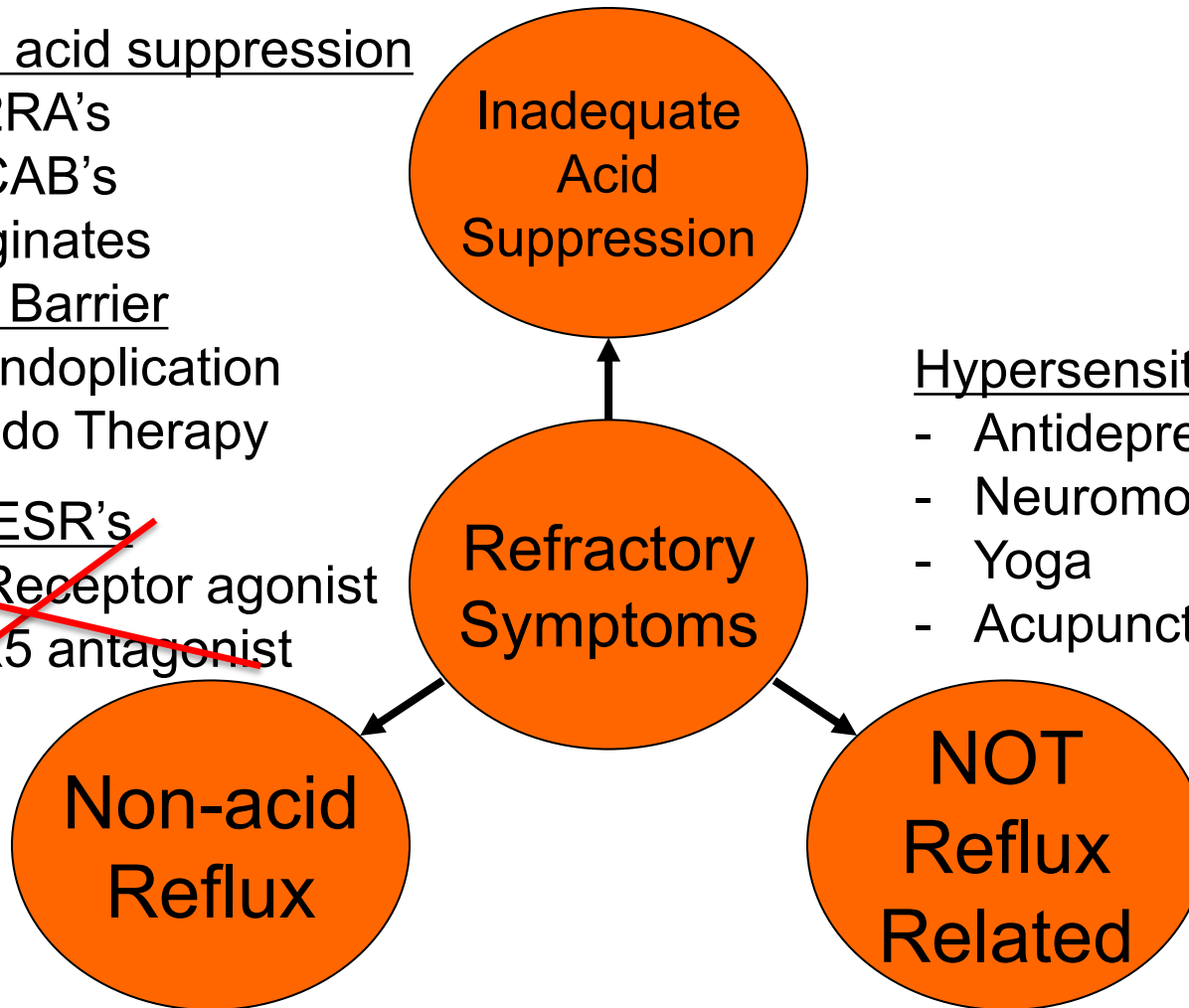
- Fundoplication
- Endo Therapy

~~Decrease TLESR's~~

- ~~- GABA-Receptor agonist~~
- ~~- mGLUR5 antagonist~~

~~Bile Binders~~

- ~~- IW3718~~



Hypersensitivity/Functional

- Antidepressants
- Neuromodulators
- Yoga
- Acupuncture



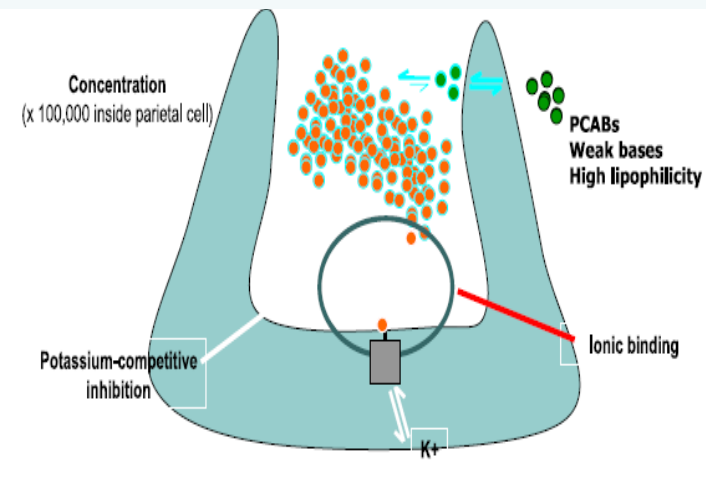
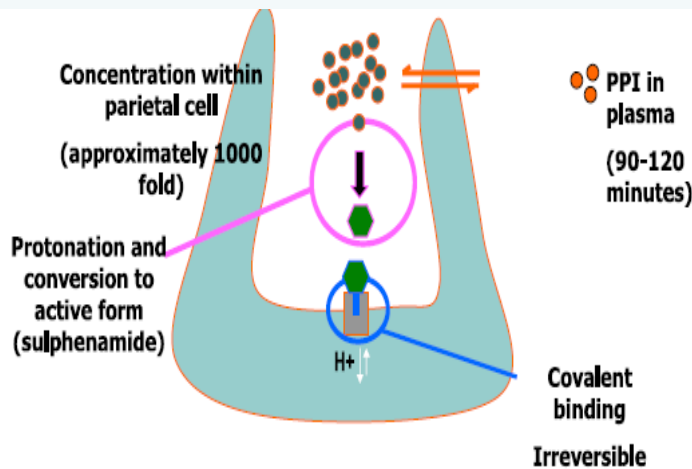
Potassium Competitive Acid Blockers (PCAB's)

PPI

P-CAB

Activated PPI binds **irreversibly** and **covalently** to the gastric H⁺,K⁺-ATPase via disulfide bond.

P-CAB binds **reversibly** and **ionically** to the gastric H⁺,K⁺ ATPase.



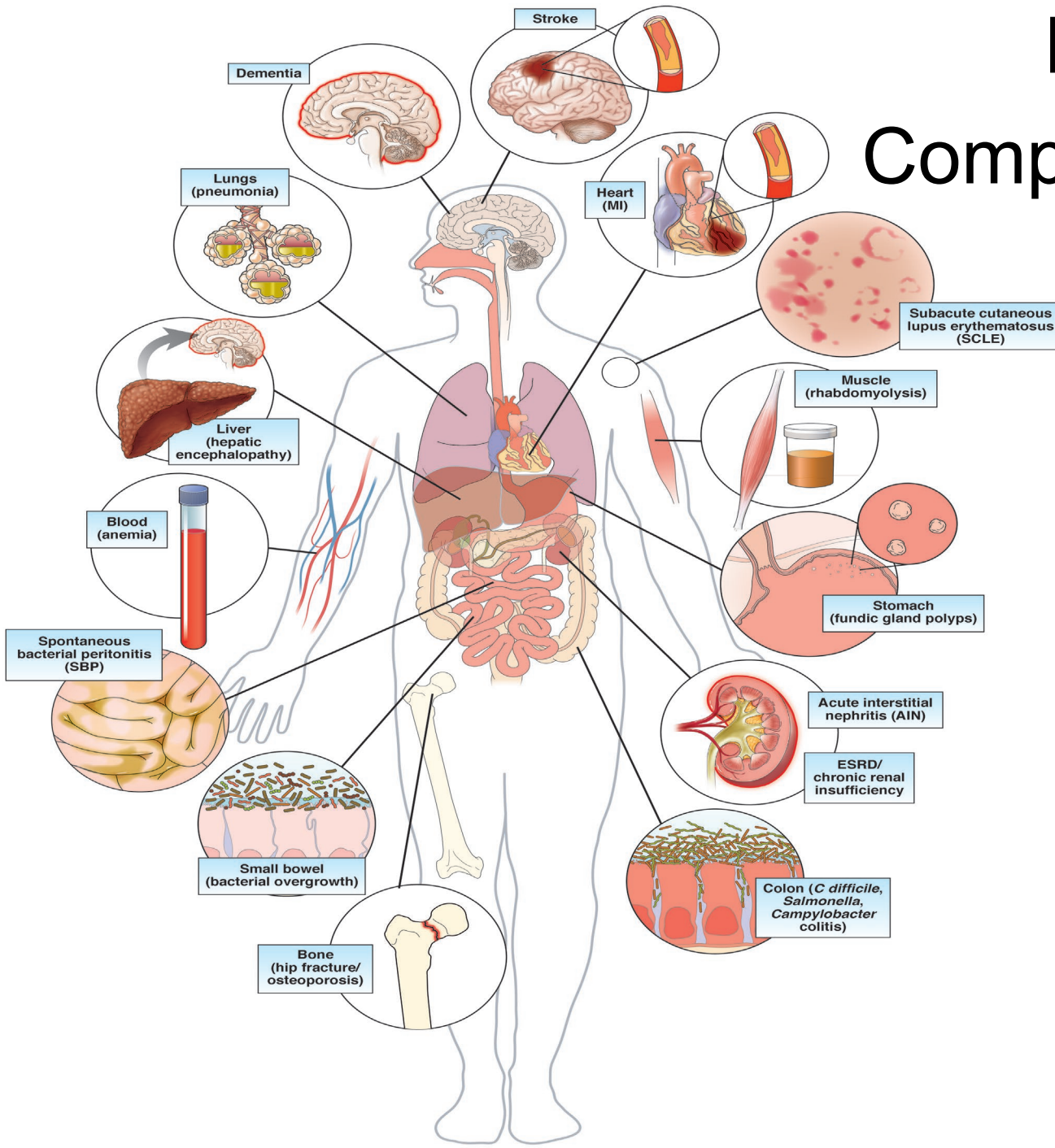
- Prodrug (activated by acid)
- Unstable in canaliculi and short half-life
- Inhibit activated proton pump only

- No need for activation → **Fast onset**
- Stable in canaliculi (high pKa) / long half-life
- Inhibit both resting and activated pump
→ **Prolonged acid suppression**



PPI

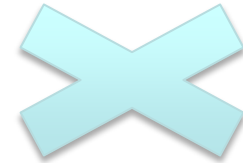
Complications

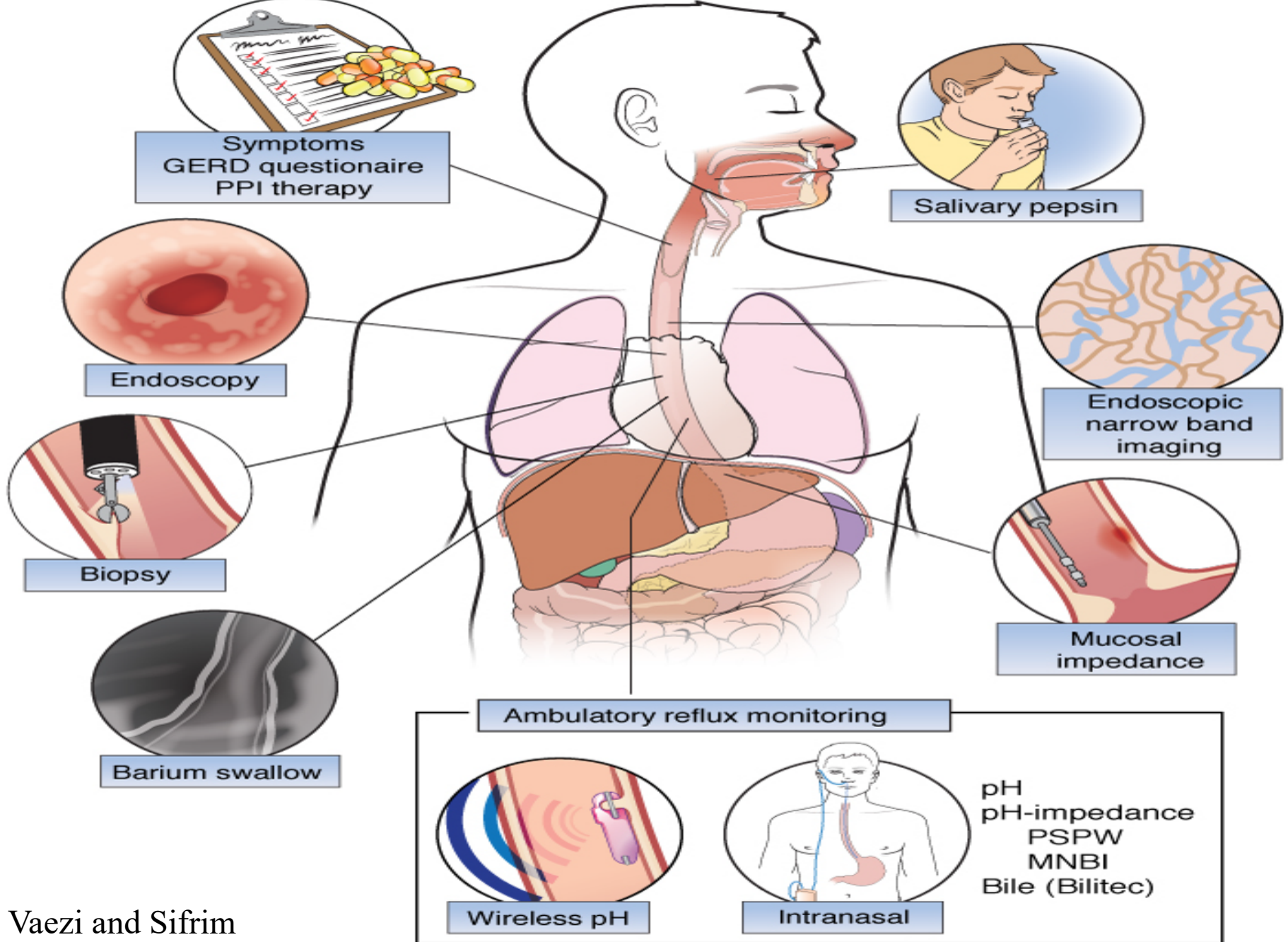


INDICATIONS FOR TESTING



- Incomplete / lack of response to therapy.
- Prior to anti-reflux intervention.





TESTING EXPECTATIONS



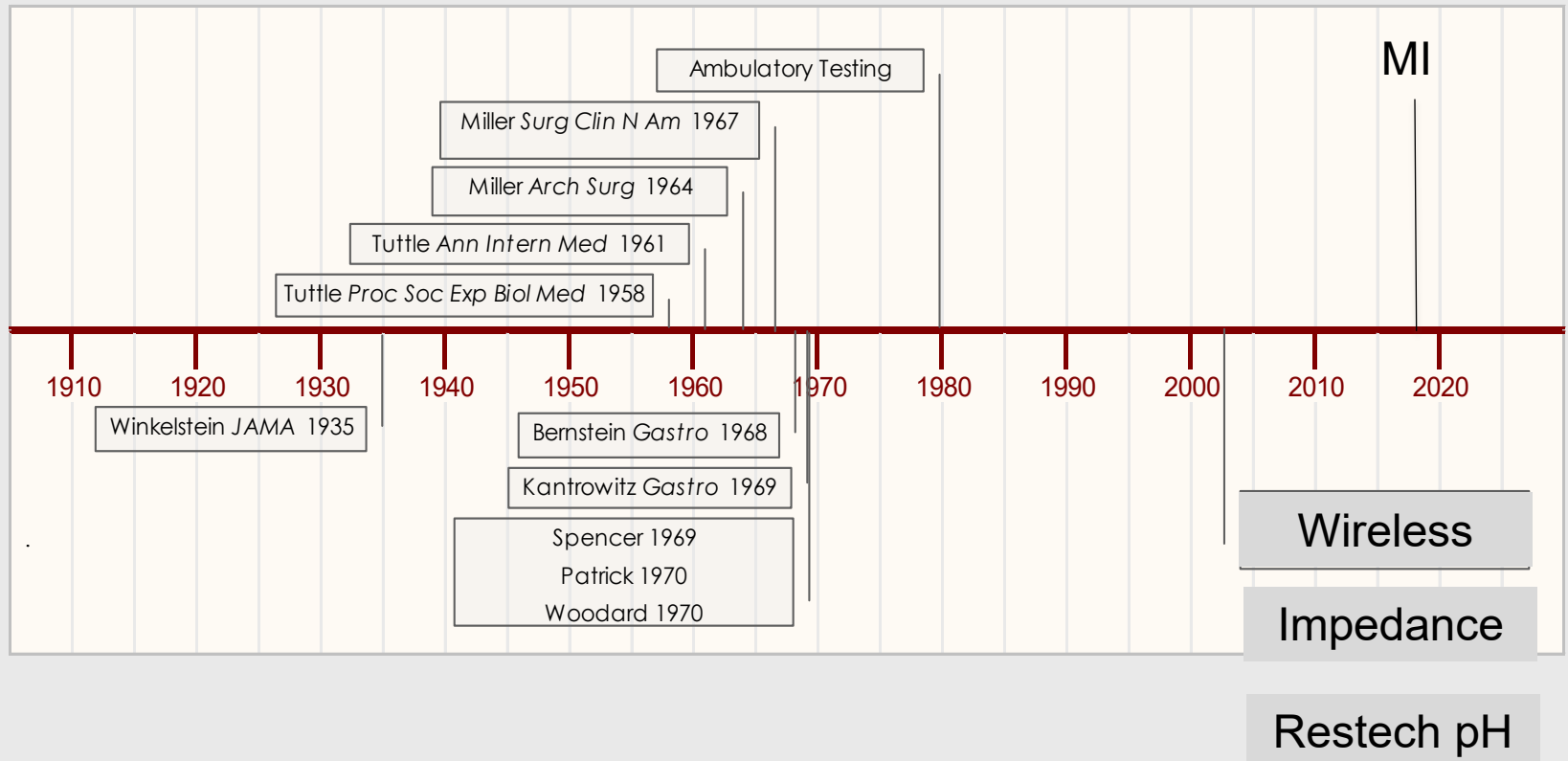
NORMAL FINDINGS

- *EGD* -----→ > 80%
- *pH on therapy* -----→ > 90%
- *Impedance/pH:*
 - *On bid PPI therapy*-----→ 70%
 - *Off PPI therapy*-----→ 60%

Old Technology



Ambulatory Esophageal pH





046412758

Stanley

Sex: Age:

12/10/2019

10:11:25

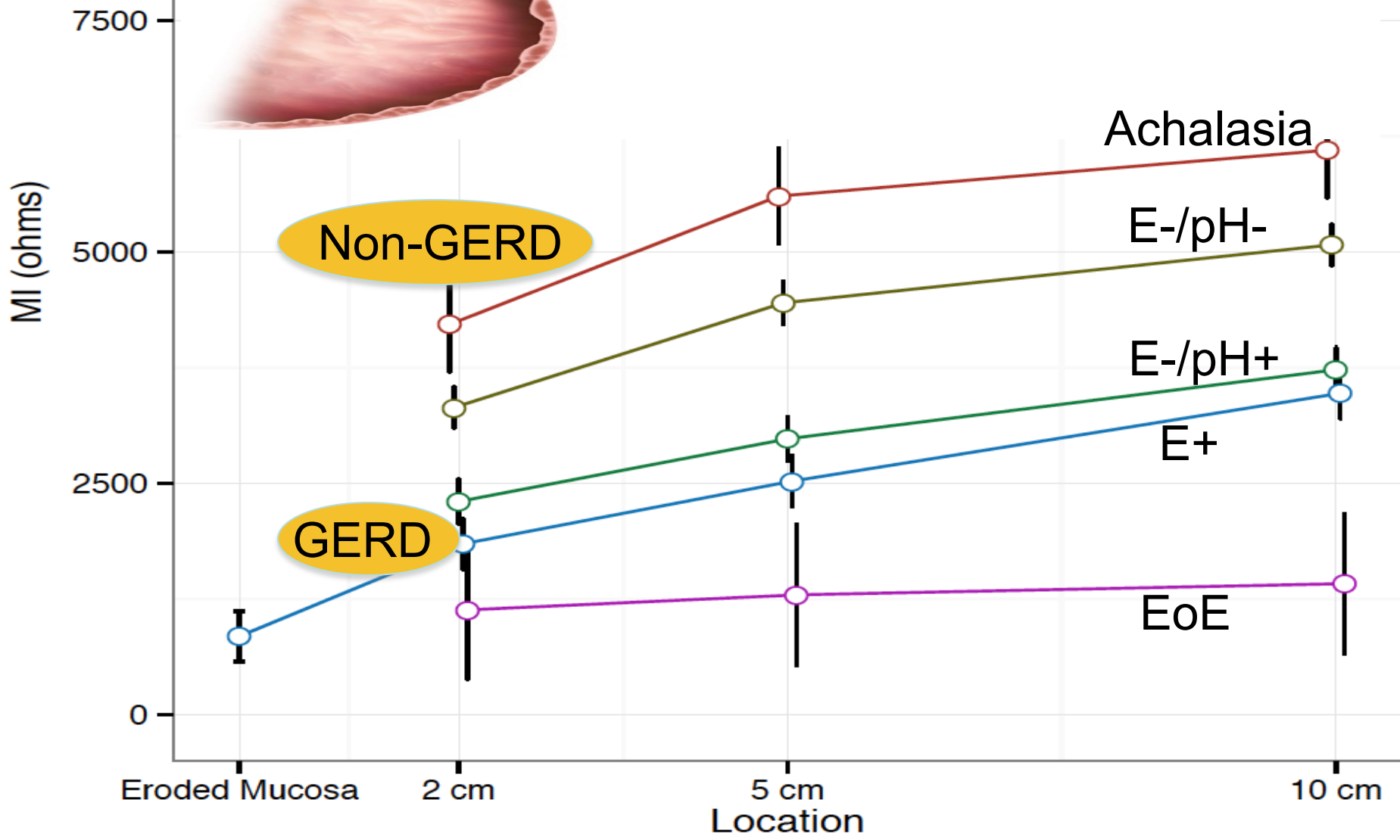
D.F:1

■■■/---(0/1)

Eh:A5 Cm:1

Comment:





Non-GERD

GERD

MI Pattern



Normal



GERD



Clinical Pearls



- Post empiric therapy if improved:
 - Always taper to the lowest dose of acid suppressive therapy.
- If not better
 - Discontinue acid suppressive therapy
 - Search for alternative diagnoses
 - Presence of mechanical defects (if regurg.)
- Surgical/endoscopic alternatives:
 - Only in those responsive to PPI therapy or proven objective GERD



BEWARE



- “Refractory GERD.”
- “Intractable esophagitis.”
- Normal endoscopy.
- Normal LES.
- pH monitoring without manometry.
- Bloaters, nausea and vomiting.
- Depression / morbid obesity

