

# Managing Dyspepsia for college health providers

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# Objectives

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- q Review **differential diagnosis** for patients with upper abdominal sx, including dyspepsia
- q Discuss a **cost-effective evaluation** of a dyspeptic patient in college health setting
- q Review **treatment strategies** for the various etiologies of dyspepsia

# Consider a case...

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- q 20 y/o college junior with burning pain in subxyphoid region off & on for a few months, particularly worse in last week or so with looming midterm exams.

# Differential Dx: upper abd pain

- q Peptic ulcer disease
- q Nonulcer dyspepsia, aka functional dyspepsia (60%)
- q GERD



- q Biliary/hepatic
- q Pancreatitis
- q Gastroparesis
- q GI malabsorptive d/o (lactose intol, celiac)
- q Abd wall pain
- q **Meds**, esp NSAIDs though many
  
- q Ischemic, infiltrative, metabolic, malignancy...

# Definition: Dyspepsia

## □ Rome III criteria

- ⇒ Post-prandial fullness &/or
- ⇒ Early satiation &/or
- ⇒ Epigastric pain or burning
- ⇒ (Rome II included heartburn)

## □ AGA

- ⇒ Chronic or recurrent pain or discomfort centered in the upper abdomen
- ⇒ Does not include reflux if heartburn is ONLY symptom
- ⇒ Does not include acute abdomen

# Dyspepsia definition for today

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- q Upper abdominal discomfort w/ or w/o reflux sx
- q Specifically will address evaluation of:
  - è GERD
  - è Undifferentiated dyspepsia
- q And management and treatment of:
  - è GERD
  - è PUD
  - è Functional dyspepsia

# Epidemiology: Dyspepsia

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- q Prevalence in US of ~25% (weekly sx)
  - è Rises to 40% if include heartburn
  - è Fewer than half seek medical care
- q Likely lower in college population
  - è US householder survey: prevalence of 13%
    - When IBS sx and GERD excluded, 3%
  - è Abdominal sx common in stress, eating d/o

# Clinical approach: History



## q PQRST

- È Provocation/**P**alliation
- È **Q**uality
- È **R**egion, **R**adiation
- È **S**everity, associated **S**x
- È **T**iming

## q **Red Flag** Sx

- È Age >55 (some say 45)
- È Unintended wt loss
- È Persistent vomiting
- È Dysphagia,  
odynophagia
- È Sx of GI bleeding:  
hematemesis, melana,  
BRBPR

# Clinical approach: PE

- q VS, including wt
  - È Orthostatics only if ill
- q Pertinent system
  - È Abdominal exam
- q System above/system below
  - È Chest: heart/lungs
  - È Back: CVAs, M/S
  - È Consider u/a, esp female pt

## q Red Flag Signs

- È GI bleed: heme+ stool or Fe Def anemia
- È Orthostasis
- È Peritoneal signs
- È Abdominal mass
- È Jaundice



# Classic GERD

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- q Heartburn: substernal pain that may be associated with sense of acid regurgitation &/or sour taste
- q Epigastric pain radiating to chest
- q Sx worse w/ large meal, bending forward or lying down; sx better w/ antacids
- q PE usually completely normal

# Classic PUD/FD

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- q Burning pain in epigastric region
  - è Possibly radiating to back
- q Better w/ eating, antacids; perhaps worsened by spicy/acidic foods
- q PE w/ mild subxyphoid or RUQ tenderness,

# How helpful is H&P?

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- q Patients do not always present as text book cases...
- q *Individual s/sx* are not very helpful
  - è Mostly b/c DDX so broad
  - è Symptoms so nonspecific

# Accuracy of individual sx to dx GERD

<i>Symptom</i>	<i>Sensitivity</i>	<i>Specificity</i>	<i>LR +</i>	<i>LR -</i>
<i>Heartburn</i>	68	52	1.4	0.6
<i>Pharyngeal pain</i>	19	85	1.3	1.0
<i>Acid regurgitation</i>	60	52	1.3	0.8
<i>Odonophagia</i>	10	92	1.3	1.0
<i>Retrosternal burning</i>	61	51	1.2	0.8
<i>Belching</i>	49	60	1.2	0.9
<i>Nausea</i>	38	68	1.2	0.9
<i>Epigastric pain</i>	54	47	1.0	1.0
<i>Retrosternal pain</i>	57	39	0.9	1.1

# ...But overall gestalt not too bad

Overall Clinical impression	Sensitivity	Specificity	LR +	LR -
GERD	0.59	0.83	3.5	0.5
PUD	0.37	0.83	2.2	0.7
FD	0.43	0.69	1.4	0.8
Malignancy	0.13	0.97	4.3	0.9

# Diagnostic tests

- q Esophageal manometry
- q Bernstein test
- q Ba swallow
- q Endoscopy: EGD
- q pH monitoring
- q Upper GI
- q Omeprazole challenge



# Useful tests Dx GERD

Test	SN	SP	LR+	LR-
<b>Omeprazole challenge</b>	0.78	0.85	5	0.3
<b>Endoscopy</b>	0.22	0.74	0.9	1.1
<b>24hr pH monitoring</b>	0.80	0.73	3	0.3

# Diagnosing GERD



- q Clinical gestalt usually suffices
  - è Omeprazole test (~ treatment trial) wins gold star!
  - è More cost effective than pH or EGD
  
- q Consider additional testing if:
  - è Red flag symptoms present: EGD or Ba swallow/UGI
  - è Considering GERD as etiology of atypical sx presentation
    - chronic cough or laryngitis: pH probe
    - chest pain: omeprazole challenge
  - è Lack of response to acid suppression therapy

# Dx Tests: dyspepsia

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- q Two categories of nonGERD dyspepsia
  - è Those w/ identifiable cause: ulcer, malignancy
  - è Those w/o identifiable cause: functional dyspepsia (FD)
    - aka nonulcer dyspepsia (NUD) or idiopathic dyspepsia
- q FD is dx of exclusion

# Useful tests to dx PUD

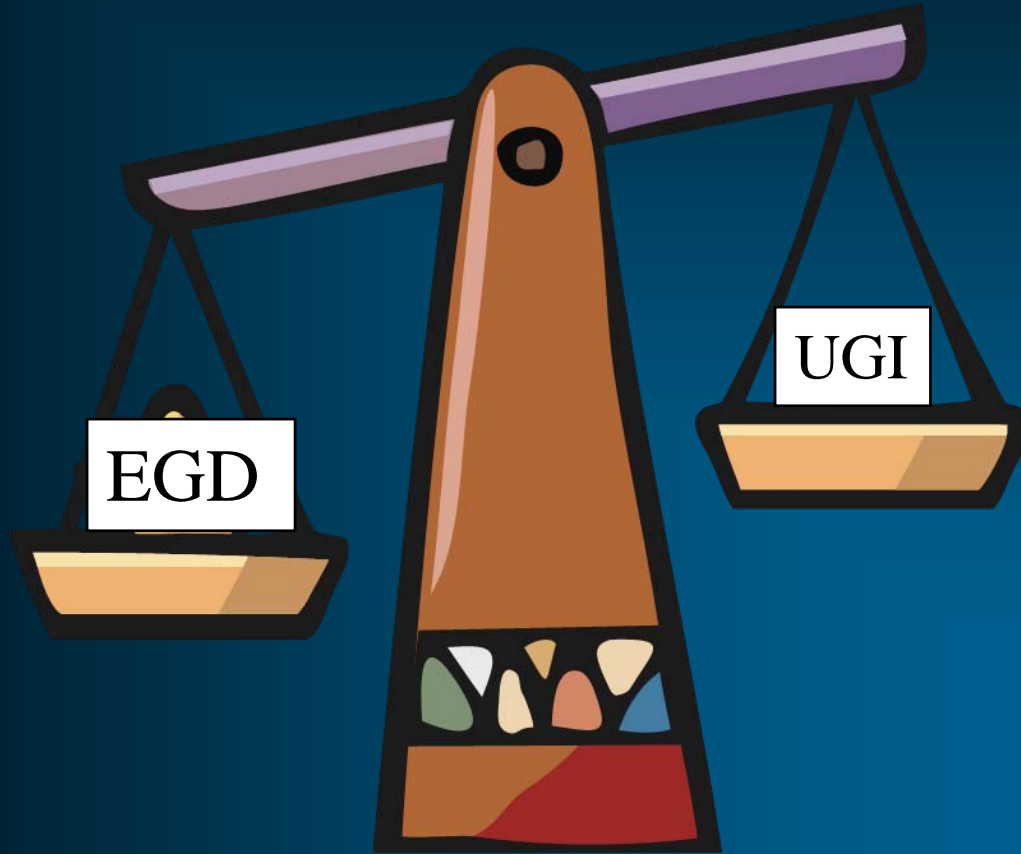
Disease	Test	SN	SP	LR+	LR-
PUD	EGD	0.92	0.99	92	0.1
	UGI	0.54	0.91	6	0.5
Gastric ulcer	EGD	0.85	0.98	42	0.1
	UGI	0.91	0.99	91	0.1
Duodenal ulcer	EGD	0.99	1.00	99	0
	UGI	0.50	0.99	50	0.5

# Weighing pros & cons

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EGD more accurate

EGD allows for add'l testing

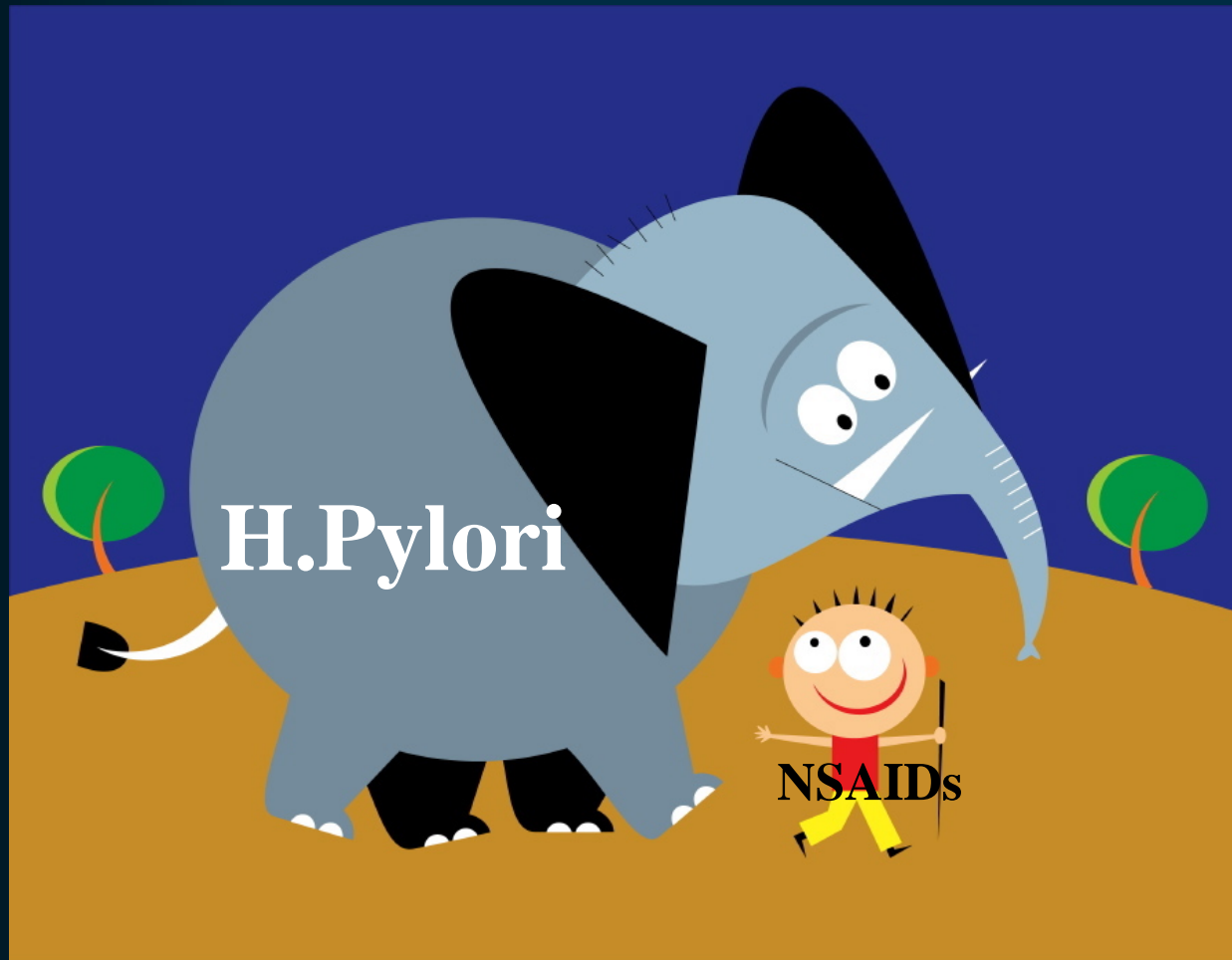


UGI less expensive

UGI has fewer complications

# The elephant in the room...

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# Etiology of ulcers

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- q Most PUD caused by H. pylori &/or NSAIDs
  - è Other factors are synergistic: tobacco, ETOH, other meds
  - è 75% of pt w/ DU, GU have H.pylori
  - è Only 15% w/ H.pylori will develop ulcer
- q Eradicating H.pylori cures ulcer

# Diagnosing H. Pylori

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## Invasive tests

(ie req's GI involvement, EGD)

- q Biopsy urease test
- q Histology
- q Bacterial culture

## Noninvasive tests

- q Urea breath test
- q Serology
- q Stool antigen

# Urea breath test

- q Carbon labeled urea is hydrolyzed by H.Pylori →  $\text{CO}_2 + \text{NH}_3$
- q Sn ~ 88-95% ; Sp ~ 95-100%
- q False neg if on abx, acid suppression, bismuth
- q Costs \$50-100
- q Check on local availability (ie not available at SU)



# Serology

- q Detection of IgG antibodies
- q Sn 90-100%; Sp 76-96%
- q Serology can remain + even after eradication
  - è 40% still + after 18 months
  - è Thus, not so useful for f/u testing
  - è Useful if low probability and never tested
- q Cost: ~\$30



# Stool antigen test



- q Enzyme immunoassay of fecal sample
- q Sn ~94%; Sp 86-92
- q Newer rapid stool Ag tests developed but lower sn
- q Cost ~\$80

# Diagnosing H.Pylori?

- q Serology is appropriate 1<sup>st</sup> line H.Pylori test in college pop
  - È Lower prevalence of H. Pylori in younger people
  - È Lower cost as first line test
  - È Likely better compliance vs stool Ag collection
  
- q **Bottom line:**
  - È if testing for HP, order serology unless known past +
  - È if testing for eradication (after treatment, or recurrent sx) then use stool Ag test, or breath test

# Undifferentiated dyspepsia

(ie no alarm s/sx & r/o GERD dominant clinically)

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Possible approaches:

1. Empirical acid suppression
2. Noninvasive HP test, scope positives
3. Noninvasive HP test, treat positives
4. Empirical HP eradication w/o testing
5. Endoscopy directly

# And the cost effective winner is...

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1. Empirical acid suppression
2. Noninvasive HP test, scope positives
3. Noninvasive HP test, treat positives
4. Empirical HP eradication w/o testing
5. Endoscopy directly



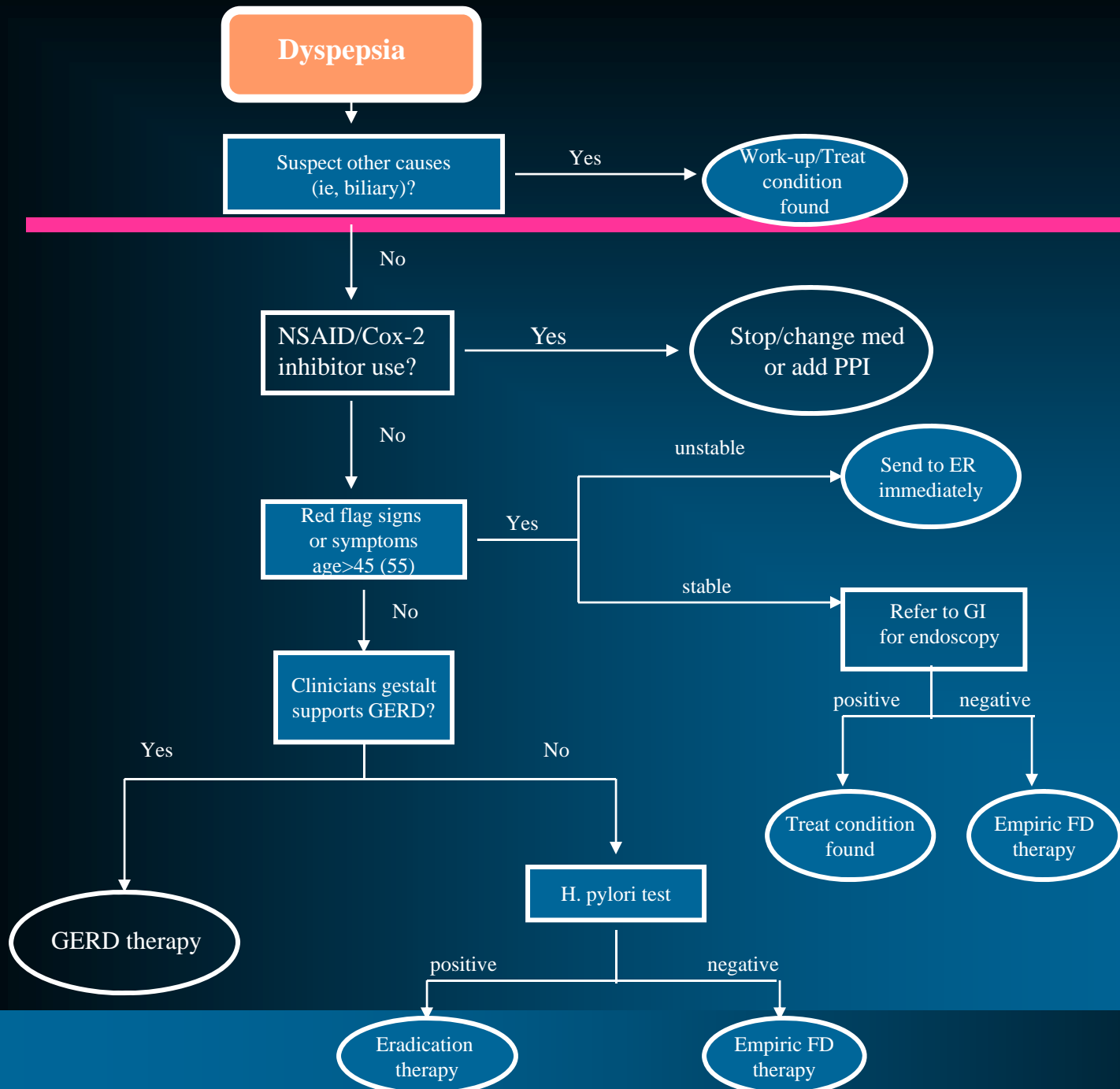
# Why?

## The thinking:

- q Prevalence of PUD (~15%) is much lower than FD (50-70%) in primary care pop
  - è Likely even lower in college pop
- q Proven benefit of H Pylori eradication eliminating sx & curing ulcer (level 1a) AND preventing relapse

## The evidence:

- q Multiple cost-effective analyses support
- q Few RCTs do
  - è Metaanalysis of 5 trials shows equivalent cure, more cost
- q AGA guidelines concur
- q No studies specifically in college health
- q If no funding for HP testing, empiric acid suppression not unreasonable



# Pulling it all together...

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- Upper abdominal sx
  - ⇒ H&P to direct what is highest on DDx list
- If left w/ Dyspepsia
  - ⇒ On NSAIDs? If so, stop; if not...
  - ⇒ Red flag sx? If so, refer; if not...
  - ⇒ Does clinical gestalt suggest GERD? If so, tx GERD; if not, test for H.Pylori
  - ⇒ If pos for H. Pylori, eradicate; if negative, treat as functional dyspepsia

# Treatment

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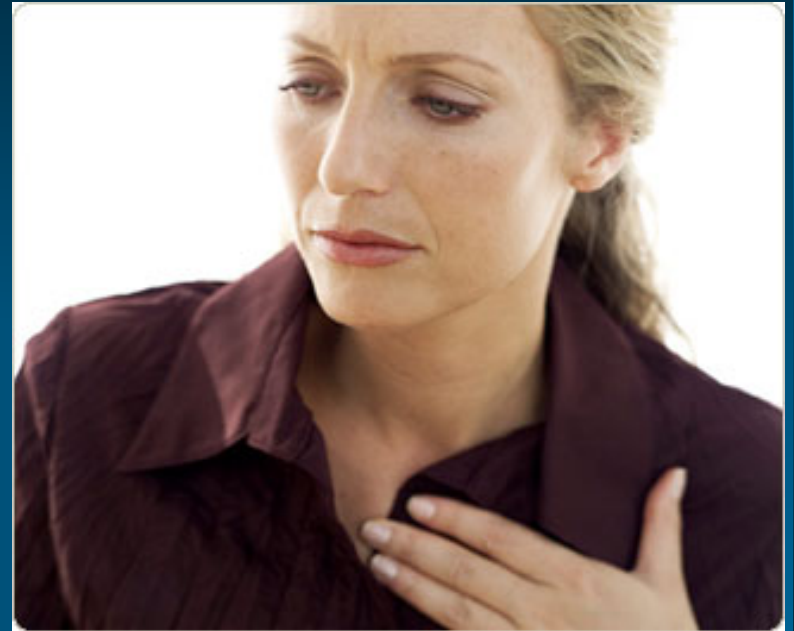
- q GERD
- q H. Pylori
- q Functional dyspepsia
  
- q Discuss recurrent sx, lack of response

# Treatment: GERD

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## Goal:

- q symptom relief
- q healing of esophageal erosions
- q prevent complications



# GERD: Nonpharm Tx

## q Lifestyle modification

- è Elevated head of bed, esp if nocturnal sx\*
- è Avoid tight fitting clothes
- è Don't eat before bed; remain elevated after eating
- è Decrease/quit smoking
- è Lose weight\*

## q Dietary modification

- è Limit ETOH
- è Chew gum/use lozenges to promote salivation
- è Avoid triggering foods
  - Some specific triggers: fatty foods, chocolate, peppermint, acid beverages (OJ, soda)

Only \* has evidence to demo benefit

# Med Tx: GERD

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- q Antacids (B)
- q Acid suppression medications (A)
  - è **H2Blockers** are consistently effective
  - è All H2Bs are equivalent
  - è **Proton pump inhibitors** consistently better than H2Bs
  - è All PPIs are also equivalent

# Med Tx: GERD

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q Acid suppression meds lower acidity

è Lessen sx; allow esophageal healing

è Do NOT prevent actual refluxing

q Pro-motility agents (C)

è ie bethanechol, metoclopramide

è No longer used/recommended b/c of significant adverse effects, drug interactions with very limited efficacy

# Other considerations

- q Step up vs step down approach as initial mng
- q Managing chronic sx
  - È Intermittent—sx resolved; resume last effective dose when sx recur
  - È Chronic—maintain on acid suppressive that manages sx if relapse within 3 months of stopping meds
- q When to refer
  - È Double to triple std dosing of PPI, and failure to respond
  - È Surgery for recalcitrant, chronic, severe GERD (A)

See GERD algorithm in handout

# Costs of Acid Suppression Meds

## H2-receptor blockers

- q **Ranitidine 150mg bid**  
(\$12/ month)
- q Famotidine 20 mg QD  
(\$20)
- q Cimetidine 800mg bid  
(\$36)



## Proton Pump Inhibitors

- q **Omeprazole 20mg QD**  
(\$13 generic; >\$200 if brand)
- q Lansoprazole 30mg QD (\$15 generic; \$80+ if brand)
- q Pantoprazole 40mg QD (~\$100 not generic yet)

# Treatment: PUD



- Goal of treatment
  - È Sx relief
  - È Eradication of H. Pylori infection to heal ulcer, prevent relapse
  - È Manage sx following HP cure (equiv to functional dyspepsia tx)

# Treatment: HP+ dyspepsia

- H pylori eradication requires abx + acid suppression
  - È 10-14 day better efficacy vs 7 d or shorter
  - È Complicated strategies, numerous RCTs, drug resistance
  - È Changes frequently, so worthwhile to update at least annually: AGA or Sanford guide
- Specific factors affecting choice:
  - È Efficacy of eradication
  - È Cost
  - È Compliance: ease of regimen and side effects

# Categories of HP eradication Tx

- q Dual therapy = PPI + one abx
  - È Not recommended now b/c of low efficacy rates
- q **\*Triple therapy** = PPI + 2 abx
  - È Usually preferred for efficacy + compliance
- q Quadruple therapy = PPI + 2 abx + bismuth
- q **\*\*Sequential therapy** = PPI + 1 abx x 5 days followed by PPI + 2 new abx for next 5 days
  - È Newer, proven effective; newly used to address resistance

**\*AGA rec'd 1<sup>st</sup> line; \*\*Sanford rec'd 1<sup>st</sup> line**

# 1<sup>st</sup> line in HP eradication

Triple therapy x 10-14d

1. PPI (doesn't matter which one, just std dosing bid)

È Omeprazole 20mg bid or (\$26 generic)

+

2. Amoxicillin 1 g bid (\$15)

+

3. Clarithromycin 500mg bid (\$100)

If allergic to PCN or macrolide, substitute metronidazole 500mg bid

Note: prevpac = prevacid + amox + clarithro;  
convenient ordering but cost is \$360

# Sequential therapy option

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- q PPI std dose bid x 10 days
- q Amoxicillin 1g bid x 5days (day 1-5)  
**followed by**
- q Clarithromycin 500mg bid + tinidazole 500mg bid x 5days (day 6-10)
- q Rec'd by Sanford due to higher rates of cure
- q Not 1<sup>st</sup> line rec'd in US; used for failed eradication

# Test of cure?

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- q Upwards of 20% HP not successfully eradicated
  - è Drug resistance, noncompliance
- q Insufficient evidence to warrant routine test of cure
  - è Cost effective analyses suggesting not valuable

# When/how should I retest for HP?

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- Treat w/ full course of eradication tx and sx have not responded
  - È Question compliance w/ regimen
  - È Check stool antigen to ensure HP infx resolved
- Known h/o +HP, responded to treatment with sx resolution &/or healing via EGD
  - È If sx recur, check stool antigen for re-infection.

**If HP+, treat again,  
perhaps w/ sequential or  
quadruple tx**

**If HP-, treat with PPIs  
x 4 wk more**

**If no response, refer  
to GI for EGD**

Refer to algorithms in handout for dyspepsia

# Treatment: Functional Dyspepsia

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Goal:

q Decrease sx

Delayed goal...

q Accept/cope with sx if  
not resolving and  
become more chronic



# FD: pharm approach

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- q Following the original algorithm...
  - è Actually 1<sup>st</sup> stage: treating H.Pylori negative dyspepsia
  - è FD is a dx of exclusion and we have not yet fully excluded other causes.
  
- q 1<sup>st</sup> line HP negative dyspepsia:
  - 4 wk trial of PPIs

# If no response...

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- q Reassess diagnosis
  - è Are there new sx to suggest different dx or raise concern?
  - è Address stress/functioning issues
- q Consider trial of higher dosing PPI
  - è Not proven to aid, but at this point, EGD still most likely neg
  - è Double dose (ie 20 bid omeprazole)
- q If sx particularly troubling, refer to GI for scope to r/o other etiology

Refer to algorithms in handout for dyspepsia

# Options to manage *documented* FD

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1. Cont'n GI treatments
2. Cont'n exploring other dx
3. other “nonGI” treatments

# 1. GI treatments

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- q Mild benefit noted in RCTs of FD for:
  - è H2Bs (B)
  - è PPIs (A-)
  - è Prokinetic agents (C)
  - è Antispasmodics (B)
- q Most short term studies, heterogeneous population
- q Benefit found relative small; more apt to reduce, not resolve sx

## 2. Other dx options?

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- q Always re-evaluate
  - È Delayed gastric emptying? IBS? Celiac?
  - È Panic/anxiety/other psychological issues
- q May be more helpful to introduce this concept *before* referral to GI for scope
  - È Introduce mind-body connection
  - È Sx diary to help id personal triggers

# 3. Other “non-GI” options

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## q Lifestyle modification

- È Dietary changes to limit triggers

- È Nutrition consult

## q Psychotherapy

- È Important to *not* convey message “this is in pt’s head”

- È Useful to id/manage triggers, aid in coping with chronic physical sx

# 3. “non-GI” options cont’n

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## q Antidepressants

- è Limited RCT data, some negative
- è May help if associated sx such as insomnia
- è Taking approach of “chronic pain management”
- è Low dose tricyclics (10mg amitriptyline QHS), or trazadone (25mg QHS)

# Summary: key points

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- q H&P to sort dyspepsia from other etiologies
- q Follow algorithm
  - è Clinical dx of GERD dominant
  - è If not GERD, test/treat HPylori
  - è Refer to GI if significant alarm s/sx or failure to respond
- q Most dyspepsia in college students will not require GI involvement/referral

# Case discussions

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# Case 1

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- q 20 y/o college junior with burning pain in subxyphoid region off & on for a few months, particularly worse in last week or so with looming midterm exams. Eats lots of junk food; binge ETOH on weekends
- q PMHx: no GI problems; recurrent knee injury uses rx naprosyn prn
- q Exam basically negative

# Case 2

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- q 26 yo female grad student w/ mid upper abd pain, radiates upwards; occ wakes her from sleep. nausea, no vomiting; no alarm sx
- q PMHx: neg
- q SHx: no tob, ETOH social, max of 3 drinks; is sexually active w/ same partner of 2 years
- q Exam benign

# Case 3

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- q 20 y/o pledging a sorority notes worsening upper abdominal pain, nausea but no vomiting. Worse when eats so has decreased intake; tolerates low fat food better. Lost ~5# in last month but is happy w/ that
- q PMHx: past abd sx but never evaluated
- q Exam: pt thin, mild epigastric tenderness, no mass; noted to have Fe Def anemia

# Case 4

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- q 47y/o veteran returning to grad work noting new onset RUQ pain, occ feeling like food sticks with swallowing. OK w/ liquids. No bleeding, no change in weight.
- q PMHx: mild HTN controlled behaviorally
- q SHx: former smoker; ETOH usually beers w/ dinner
- q Exam negative