



H. PYLORI

with Karen and Lori!

Karen Lourence, M.S., R.N., PCCN

and

Lori Newman, M.D., Ph.D.

Learning Goals

01

Explain how to test for active *H. pylori* infection

02

Describe how to administer a PPI to someone with a feeding tube as part of *H. pylori* treatment

03

Recognize how to test for clearance of active *H. pylori* infection

CASE

Ms. K is 95-year-old woman who presented with pneumonia. A few days into her hospitalization she developed dysphagia of unclear etiology. As part of her workup she had an upper endoscopy which showed a large oozing duodenal ulcer.

Discuss

What are possible causes of her duodenal ulcer?

CASE

Ms. K notes no history of NSAID or aspirin use and there were no abnormal masses on endoscopy. A workup for *H. pylori* was initiated.

Helicobacter pylori

- The most prevalent chronic bacterial infection in the world
- Resides only in gastric epithelium.
- Associated with gastric and duodenal ulcer disease, chronic gastritis, adenocarcinoma, and gastric MALT (mucosa associated lymphoid tissue) lymphoma.



Duodenal Bulb Ulcer due to *H. pylori*

Discuss

How do you test for active *H. pylori* infection at Brigham and Women's Hospital?

H. pylori Investigation

Non-
invasive

Invasive

Non-Invasive Testing: Stool Antigen Assay for *H. pylori*

Stool Antigen Assay

- Sensitivity 94%, Specificity 97%
- Testing performed daily at BWH Microbiology Laboratory (on average, 10 – 20 are received per day)
- Turn around time: Same Day
- **Most cost-effective**

How to obtain a stool sample for stool Ag test:

1. Collection Hat



2. Lab Assay Kit

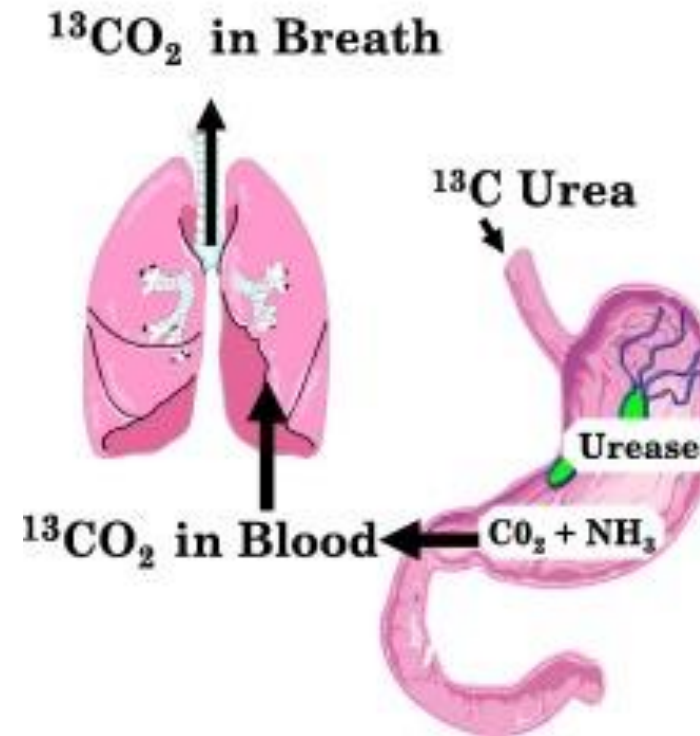


Rapid Immunoassay for *H. pylori* antigens in stool (courtesy of Robin Rodriquez, MT, ASCP)

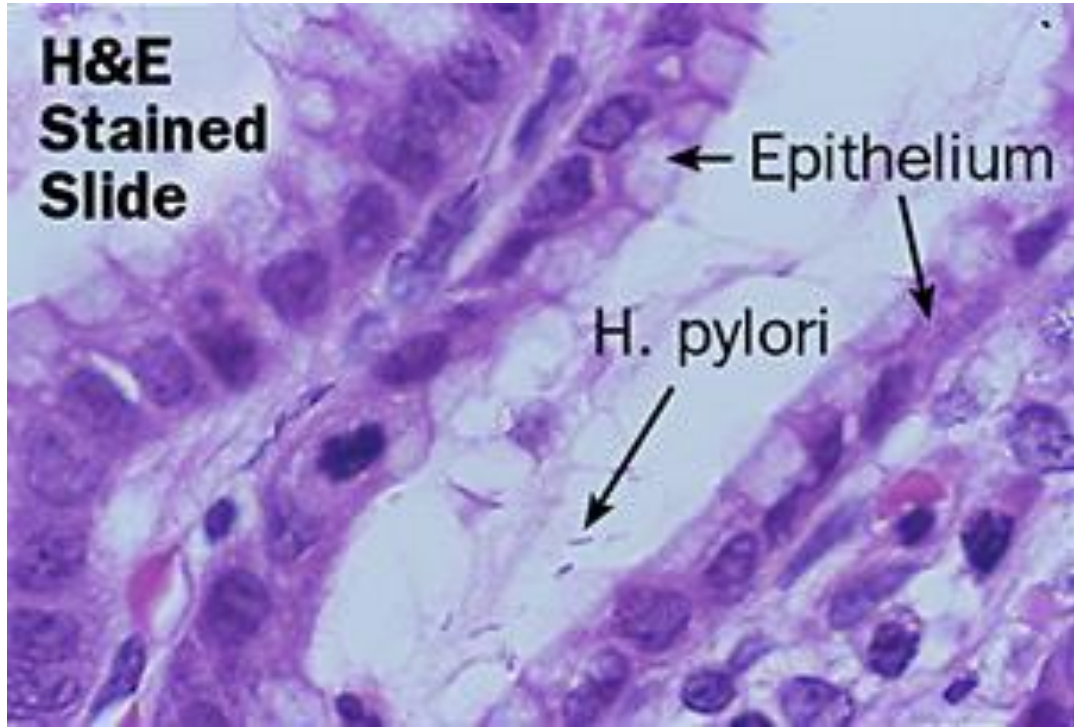
Non-Invasive Testing: Urea Breath Test for *H. pylori*

Urea Breath Test

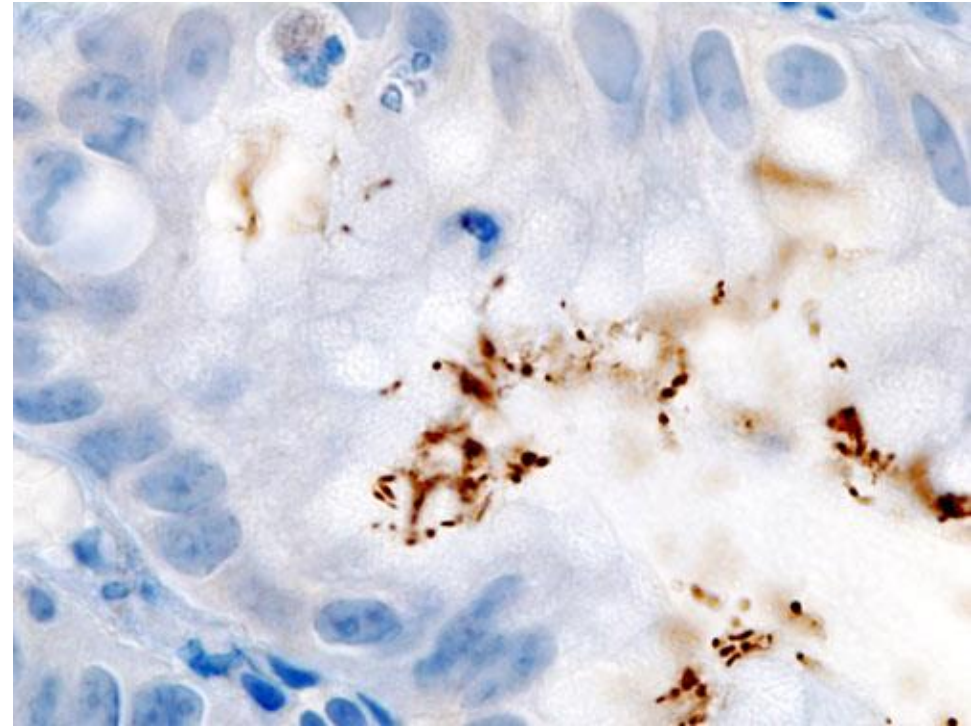
- Sensitivity 88-95%, Specificity 95-100%
- Testing performed at GI Lab at 850 Boylston Street (may take one to two months to get an appointment)
- Urea Breath Test based on the presence of active *H. pylori* organisms producing the enzyme urease
- Turn around time: Several Days



Invasive Testing: Endoscopic Biopsy and Histology for *H. pylori*



H&E Stained Slide showing *H. pylori* organisms in gastric epithelium




H. pylori shown by silver stain in the gastric epithelium

Discuss

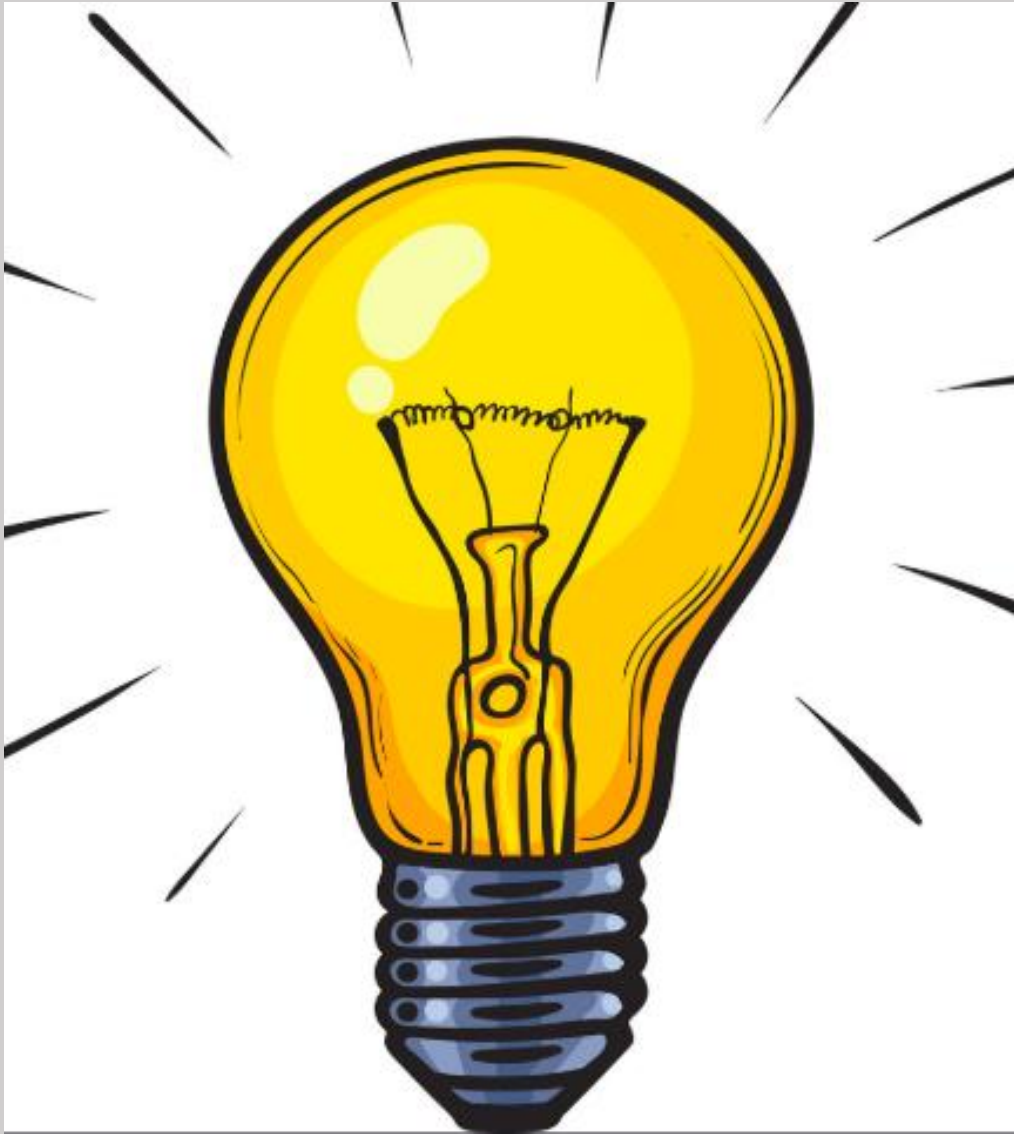
A serology (blood test) for *H. pylori* IgG was sent for Ms. K. Do you agree or disagree with this decision?

H. pylori Serology Testing

- 
- **In general is not recommended**
 - Inexpensive and noninvasive, however, it does not distinguish between **active** and past infection

CASE

While awaiting pathology results the GI team recommended that Ms. K start on *H. pylori* quadruple therapy (two antibiotics, bismuth, and PPI). Ms. K had continued dysphagia and required the placement of a gastrostomy tube.



An order was placed for Ms. K to receive omeprazole. What are some factors to consider when administering medications through a feeding tube?

Factors to Consider when Administering Medications through a Feeding Tube

Types of Feeding Tubes



Are the Meds crushable?



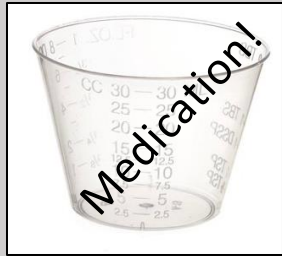
Flushing the Tubes



Unique Challenges of PPI Administration Through Feeding Tubes

Let's Experiment!

Experiment



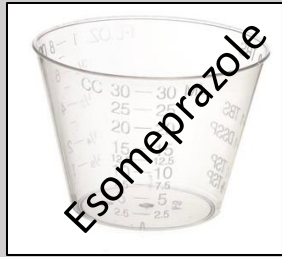
Demonstration by two volunteers:
Open the capsule, pour the pellets into the medicine cup, pass around.

What do you notice about the size of the pellets?

Experiment:

Now, add water and swirl. **What do you notice about how it behaves in the water?**

Experiment



You Have:

1 Cup of Esomeprazole

1 Piece of Gastrostomy Tube

Your Task:

Open the capsule and pour the pellets into the medicine cup. Add water and swirl!

What do you notice about the size?
What do you notice about how it behaves in the water?

Question

Which one do you think would go through the tube more easily?



Pharmacy Collaboration for PPI via Feeding Tubes

Esomeprazole:
granules are smaller
than omeprazole so
less likely to clog tube

Omeprazole RX First: a
commercially available
liquid preparation that
can be used in specific
cases.

Changing the Order Route in Epic

The screenshot shows the Epic medication order form for omeprazole (PRILOSEC) 20 MG capsule. The form includes fields for Reference (1. Knowledge Link), Product (OMEPRAZOLE 20 MG CAPSULE, DELAYED R), Sig Method (Specify Dose, Route, Frequency), Dose (20 mg), Prescribed Dose (20 mg), Prescribed Amount (1 capsule), Route (Oral), Frequency (Daily), Duration (Days), Starting (10/31/2019), Ending, Dispense (Full (0 Days)), Quantity (30 capsule), Total Supply (180 Days), and Patient Sig (Take 1 capsule (20 mg total) by mouth daily.). A 'Category Select' dialog box is open over the Route field, showing a list of routes: Gastrostomy Tube, Jejunostomy Tube, Nasal-Jejunal Tube, Nasogastric Tube, Oral, and Orogastric Tube. The 'Gastrostomy Tube' option is highlighted. A red arrow points from the text 'Click on search icon' to the search icon in the Route field. Another red arrow points from the text 'Select appropriate route' to the 'Gastrostomy Tube' option in the dialog box.

omeprazole (PRILOSEC) 20 MG capsule ✓ Accept ✗ Cancel

Reference: 1. Knowledge Link
Links:
Product: OMEPRAZOLE 20 MG CAPSULE, DELAYED R

Sig Method: Specify Dose, Route, Frequency Use Free T

Dose: 20 mg 20 mg 40 mg
Prescribed Dose: 20 mg
Prescribed Amount: 1 capsule

Route: Oral Oral

Frequency: Daily Daily

Duration: Doses Days

Starting: 10/31/2019 Ending:

Dispense: Days/Fill: Full (0 Days) 30 Days 90 Days

Quantity: 30 capsule
Total Supply: 180 Days
 Dispense As Written

Mark long-term: OMEPRAZOLE

Patient Sig: Take 1 capsule (20 mg total) by mouth daily.
[+ Add additional information to the patient](#)

Category Select

Search:

Title

- Gastrostomy Tube
- Jejunostomy Tube
- Nasal-Jejunal Tube
- Nasogastric Tube
- Oral
- Orogastric Tube

6 categories loaded.

✓ Accept ✗ Cancel

Click on search icon

Select appropriate route

Flushing the Tubes with Water to Prevent Clogging

Free water feeding tube bolus Q4H Bolus amount: 30cc ✓ Accept ✗ Cancel

Frequency: Once **Q4H** Q6H Q8H PRN

For: **Occurrences** Hours Days Weeks

Starting: **Today** Tomorrow

First Occurrence: **Include Now** As Scheduled

First Occurrence: **Today 1200**

[Scheduled Times](#) [Adjust Schedule](#)

10/31/19 1200

Bolus amount

Comments: [+ Add Comments \(F6\)](#)

ⓘ Next Required Link Order ✓ Accept ✗ Cancel

Frequency = Every 4 Hours

Bolus Amount = At Least 30cc

CASE

The GI team recommended Ms. K have a test for clearance of *H. pylori* after she completed her treatment.

QUESTION 1:
Who should be tested for H.pylori clearance?

A. All patients with gastric ulcers

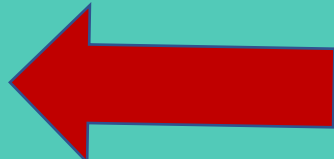
B. All patients who have been treated for H. pylori

C. All patients with ulcers larger than 1 cm

D. No patients

QUESTION 1:
Who should be tested for H.pylori clearance?

A. All patients with gastric ulcers

B. All patients who have been treated for H. pylori 

C. All patients with ulcers larger than 1 cm

D. No patients

QUESTION 2:
When should
you test for
clearance?

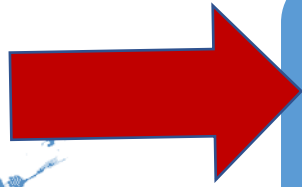
A. 4 weeks after completion of
therapy

B. 6 months after completion of
therapy

C. 1 week after completion of
therapy

D. 1 year after completion of
therapy

QUESTION 2:
When would
you test for
clearance?



A. 4 weeks after completion of
therapy

B. 6 months after completion of
therapy

C. 1 week after completion of
therapy

D. 1 year after completion of
therapy

QUESTION 3:
What test would you do to test for clearance?

A. *H. pylori* serology

B. Endoscopic healing of ulcer

C. Stool Antigen or Urea Breath test

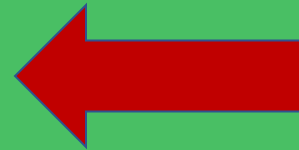
D. pH testing of stomach acid

QUESTION 3:
What test would you do to test for clearance?

A. H. pylori serology

B. Endoscopic healing of ulcer

C. Stool Antigen or Urea Breath test



D. pH testing of stomach acid

QUESTION 4:

What medication would you hold prior to testing for clearance and for how long?

A. Famotidine for one week

B. Famotidine for two weeks

C. Proton Pump Inhibitor for one week

D. Proton Pump Inhibitor for two weeks

QUESTION 4:

What medication would you hold prior to testing for clearance and for how long?

A. Famotidine for one week

B. Famotidine for two weeks

C. Proton Pump Inhibitor for one week

D. Proton Pump Inhibitor for two weeks

H Pylori with Karen and Lori!

Karen Lourence, M.S., R.N., PCCN and Lori Newman, M. D., Ph.D.

Urea Breath Test

- Sensitivity 88-95%
- Specificity 95-100%
- Non-radioactive C-13 is used
- Urea Breath Test based on the presence of active *H. pylori* organisms producing the enzyme urease
- Turn around time: Several Days

Stool Antigen Assay

- Sensitivity 94%
- Specificity 97%
- Testing performed daily at BWH Microbiology Laboratory (on average, 10 – 20 are received per day)
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Urea Breath Test

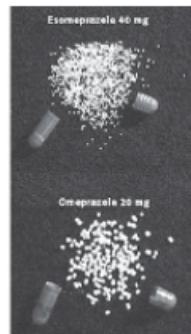


Testing for Clearance

- EVERY treated patient after **four weeks**
- Urea Breath Test or Stool Ag Assay
- Stop PPI for two weeks prior to test

H. pylori Serology

- **In general, serology is not recommended**
- Inexpensive and noninvasive, however, it does not distinguish between active and past infection



PPI Treatment for *H. pylori* in Patients with Feeding Tubes

- Esomeprazole: granules are smaller than omeprazole so less likely to clog tube
- Omeprazole RX First: a commercially available liquid preparation that can be used in specific cases.

team work

listening

interprofessional

understanding

communication

appreciation

collegiality

mutual respect

patient care

learning together

collaboration

Thank you for joining us!