H. Pylori Treatment Updates and Considerations for People with HIV

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Last Updated: June 26, 2025

Disclosures

No conflicts of interest or relationships to disclose.

Disclaimer

Funding for this presentation was made possible by 1 TR7HA53202-01-00 from the Human Resources and Services Administration HIV/AIDS Bureau. The views expressed do not necessarily reflect the official policies of the Department of Health and Human Services nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government. *Any trade/brand names for products mentioned during this presentation are for training and identification purposes only.*

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Sample Cases

- 46-year-old patient from Latin America with well controlled HIV, chronic abdominal pain/GERD, referred for EGD, pathology with H pylori gastritis
- 43-year-old patient from Southern Africa with recent break from ART due to move, labs with iron deficiency anemia, asymptomatic, H pylori stool antigen+
- 42-year-old patient, has never left the US, not taking ART, CD4 count 23 (3%), admitted for abdominal pain and dysphagia; EGD: diffuse mucosal changes and scarring in the entire esophagus, large scar in the distal esophagus ("semi-circumferential fashion, similar to an ulcer")
  - Major concern for candida, HSV, or CMV
  - Pathology findings: H pylori

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H. Pylori Infection: Some Basics

- H. pylori: spiral shaped gram-negative bacteria, can survive acidic environments
- Most common chronic bacterial infection of humans; global prevalence >40%
  - Most common infectious cause of cancer
- Prevalence in PWH:
  - West Africa – 81%
  - East Africa – 40% to 77%
  - Asia – 32%
  - Latin America – 37%
  - US – 14%
- Higher prevalence if HIV seropositive compared to seronegative

Sources: Abadi T et al, 2025. Mesfun MG et al, 2022. Ebule A et al, 2020. Fialho ABC et al, 2011. Nkuize M et al, 2021. Collins C et al, 2011.

H. Pylori Infection: Some Basics

- Transmission: contaminated food/water, poor hygiene, oral-oral, fecal-oral
- Signs/symptoms:
  - 50-75% asymptomatic
  - Dyspepsia, chronic gastritis, peptic ulcer disease, iron deficiency anemia
  - #1 risk factor for gastric cancer
- Diagnostic tests: serology (not preferred), stool antigen test, breath test, biopsy
- Higher treatment failure rate for PWH:
  - Drug resistance, pill burden, drug-drug interactions
  - Lower immunologic response

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Indications for H. pylori testing
Peptic ulcer disease
Marginal zone B-cell lymphoma, MALT type
Functional dyspepsia
Adult household members of individuals who have positive non-serological test
Patients taking long-term NSAIDs or starting long-term treatment with low-dose aspirin
Uninvestigated dyspepsia in patients under the age of 60 years
Unexplained iron deficiency anemia
Idiopathic (autoimmune) thrombocytopenic purpura
Primary and secondary prevention of gastric adenocarcinoma
High risk for gastric adenocarcinoma (first degree relative with gastric cancer, history of gastric adenomas or hyperplastic polyps, immigrants from high incidence regions)

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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H. pylori Antibiotic Resistance Rates in the US

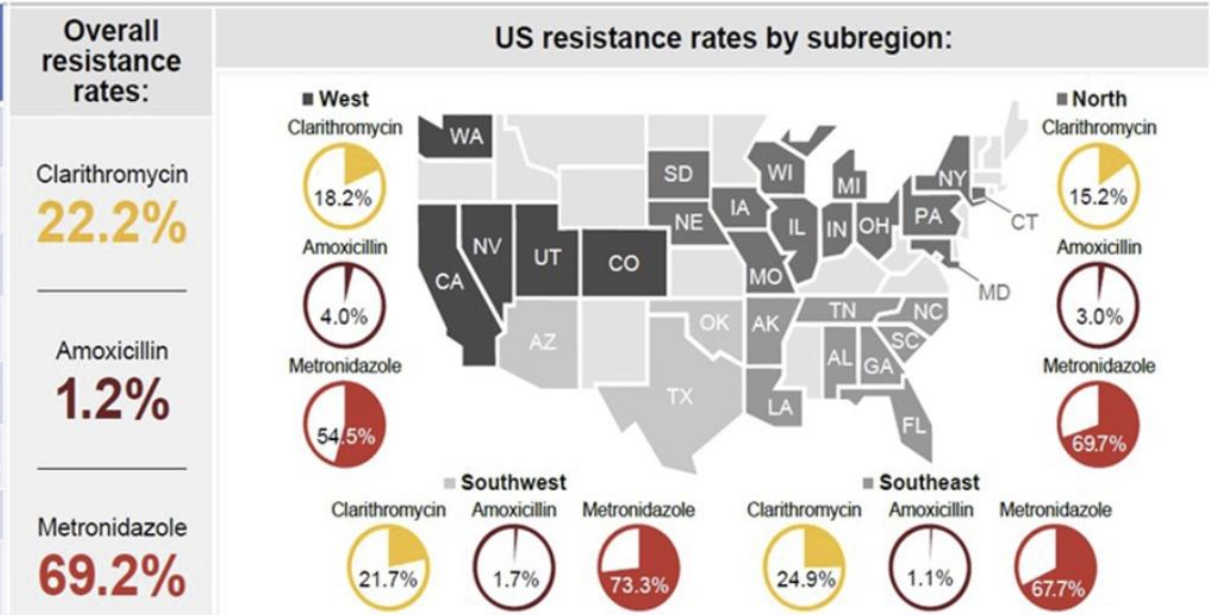
a

Antibiotic(s)	% Resistant (N=2669 strains)
Clarithromycin	31.5
Levofloxacin	37.6
Metronidazole	42.1
Tetracycline	0.9
Amoxicillin	2.6
Rifabutin	0.2
Dual Metronidazole /Clarithromycin	11.7

Antibiotic susceptibility testing performed on 2669 strains from the US between 2011-2021

Ho J et al, Am J Gastroenterol 2022;117:1221

b



381 patients with *H. pylori* from the US underwent antibiotic sensitivity testing between 12/2019-1/2021

Megraud et al. Am J Gastroenterol 2023;118:269–275

(**a**) Meta-analysis of antibiotic susceptibility testing performed on 2,669 *H. pylori* strains from the United States between 2011 and 2021 ([58]). (**b**) US regional antibiotic resistance rates among 381 patients with *H. pylori* infection ([57]).

Factors associated with treatment failure: adherence, drug resistance, inadequate acid suppression

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Key Treatment Concepts in 2024 ACG Guidelines

- Determination of when to test for—and treat—*H. pylori* should be viewed as a single, rather than 2 separate and distinct, decisions
- Treatment-naïve: **optimized BQT** recommended first-line (strong recommendation; moderate quality evidence)
  - **Bismuth salt (subcitrate or subsalicylate), metronidazole, tetracycline, PPI**
    - High eradication rates: 14 days (87%), 10 days (77%)
    - Superior efficacy when compared to clarithro + amox + PPI
    - With doxycycline: 14 days (70%), 10 days (67%) – not recommended
    - Disadvantages: pill burden, GI side effects, cost of tetracycline

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Key Treatment Concepts in 2024 ACG Guidelines

- "Optimized" Bismuth Quadruple Therapy (BQT):
  - Tetracycline & metronidazole doses more aggressive; higher or more frequent dosing
  - Metronidazole ≥500 mg three or four times daily (instead of twice daily)
  - Tetracycline 500 mg four times daily (instead of twice daily)
  - Duration 14 days (instead of 10 days)
  - Standard PPI twice daily instead of daily, or higher dose
  - Adjustments associated with higher eradication rates

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Key Treatment Concepts in 2024 ACG Guidelines

- Treatment-naïve: **rifabutin triple therapy** also a first-line option (conditional recommendation; low quality evidence)
  - PPI + rifabutin (TID) + amoxicillin
  - Advantages: low rates of resistance
  - No RCT comparing to BQT
  - Meta-analysis: mean eradication rate 73% (range 66-79%)

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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H. Pylori Treatment: Improving Acid Suppression

- Esomeprazole and rabeprazole → higher drug levels than omeprazole, pantoprazole, or lansoprazole (less metabolized by CYP2C19)
- Rapid or ultra-rapid metabolizers versus slow metabolizers (higher drug levels)
  - Asian ancestry: more likely slow metabolizer phenotype (higher eradication rates)
- Recommendation: increase dose of omeprazole, pantoprazole, or lansoprazole (by 50-100%), or use esomeprazole, or rabeprazole, or vonoprazan (P-CAB)

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Key Treatment Concepts in 2024 ACG Guidelines

- Treatment-naïve: **dual therapy with PCAB and amoxicillin** also a first-line option (conditional recommendation; moderate quality evidence)
  - PCAB: potassium competitive acid blocker
    - Bind to gastric H+/K+ ATPase (the proton pump)
  - Antisecretory effect more rapid, robust, and prolonged than PPIs
  - Only approved PCAB: vonoprazan
  - Two *H. pylori* treatment regimens approved by FDA in 2022:
    - Vonoprazan dual therapy (vonaprazan-amoxicillin); Voquezna DualPak
    - Vonaprazan triple therapy (vonoprazan-clarithromycin-amoxicillin): Voquezna TriplePak
    - Dual regimen superior to clarithro triple therapy; eradication rates 77% vs. 69%
      - Superior efficacy if clarithro resistant: 70% vs. 32%

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Key Treatment Concepts in 2024 ACG Guidelines

- Clarithromycin- and levofloxacin-containing regimens should be **avoided** in the absence of demonstrated susceptibility
- Penicillin allergy: use optimized BQT; consider allergy testing

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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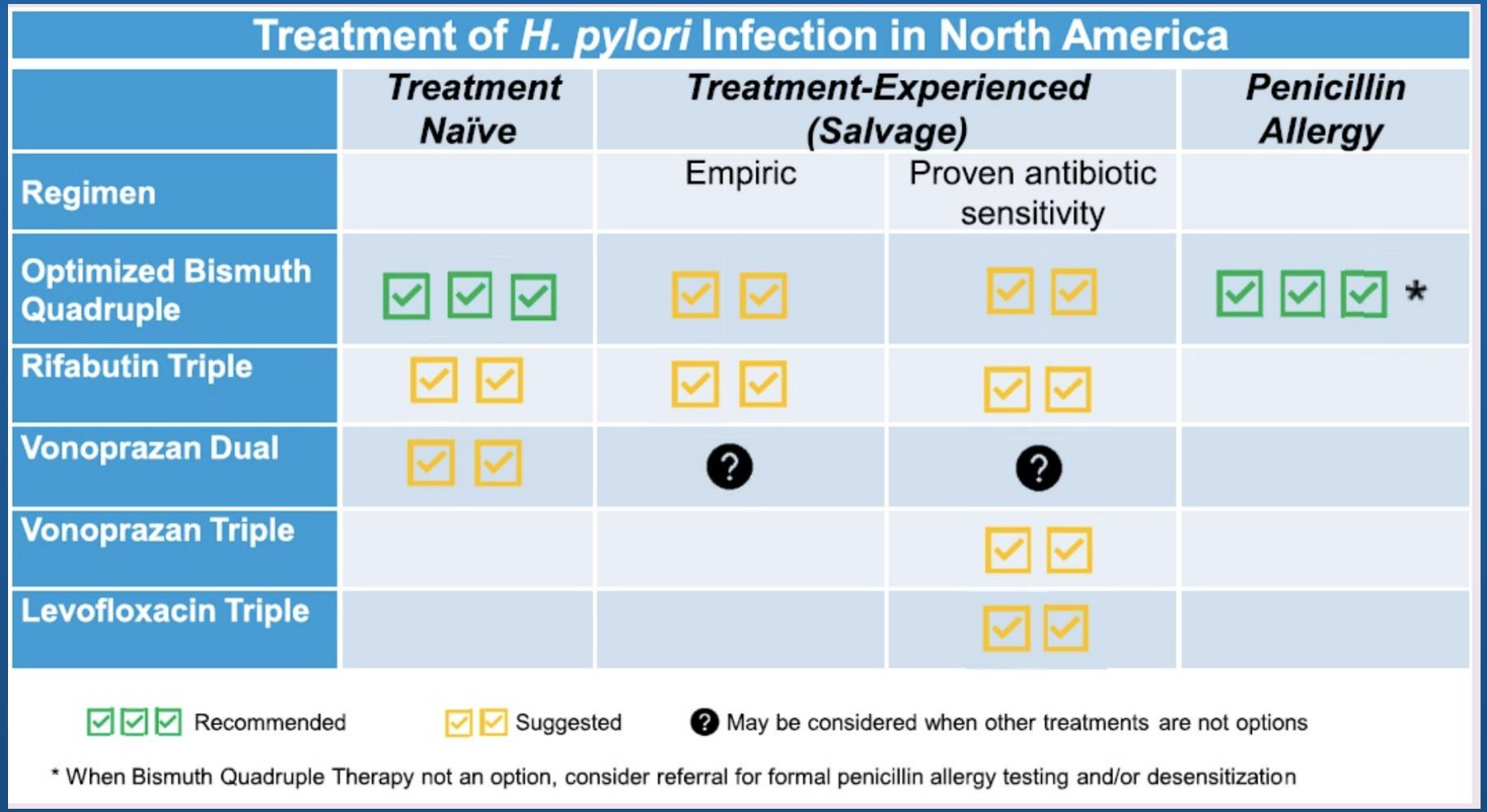
Regimen	Drugs (doses)	Dosing frequency	FDA Approval	Recommendation
Optimized bismuth quadruple	PPI (standard dose)	b.i.d.	No	Strong (moderate quality of evidence)
	Bismuth subcitrate (120 - 300 mg) or subsalicylate (300 mg)	q.i.d.		
	Tetracycline (500 mg)	q.i.d.		
	Metronidazole (500 mg)	t.i.d. or q.i.d.		
Rifabutin triple (Talicia)	Omeprazole (10 mg)	4 capsules t.i.d.	Yes	Conditional (low quality of evidence)
	Amoxicillin (250 mg)			
	Rifabutin (12.5 mg)			
PCAB dual (Voquezna DualPak)	Vonoprazan (20 mg)	b.i.d	Yes	Conditional (moderate quality of evidence)
	Amoxicillin (1,000 mg)	t.i.d		
PCAB triple (Voquezna TriplePak)	Vonoprazan (20 mg)	b.i.d	Yes	Conditional (moderate quality of evidence)
	Clarithromycin (500 mg)			
	Amoxicillin (1,000 mg)			

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

Updated Treatment Recommendations



Treatment of *H. pylori* Infection in North America

	Treatment Naïve	*Treatment-Experienced (Salvage)*		*Penicillin Allergy*
Regimen		Empiric	Proven antibiotic sensitivity	
Optimized Bismuth Quadruple	☑☑☑	☑☑	☑☑	☑☑☑ *
Rifabutin Triple	☑☑	☑☑	☑☑	
Vonoprazan Dual	☑☑	?	?	
Vonoprazan Triple			☑☑	
Levofloxacin Triple			☑☑	

☑☑☑ Recommended ☑☑ Suggested ? May be considered when other treatments are not options

* When Bismuth Quadruple Therapy not an option, consider referral for formal penicillin allergy testing and/or desensitization

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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H. Pylori Therapy: Confirmation of Eradication After Treatment

- Always do test of cure with urea breath test, fecal antigen test, or biopsy-based test at least 4 weeks after completion of therapy
  - Don’t use a serologic test
  - Stop PPIs at least 2 weeks before the test for eradication
  - Probably the same need for PCABs, but not well studied
  - H2 blockers and other antacids are ok

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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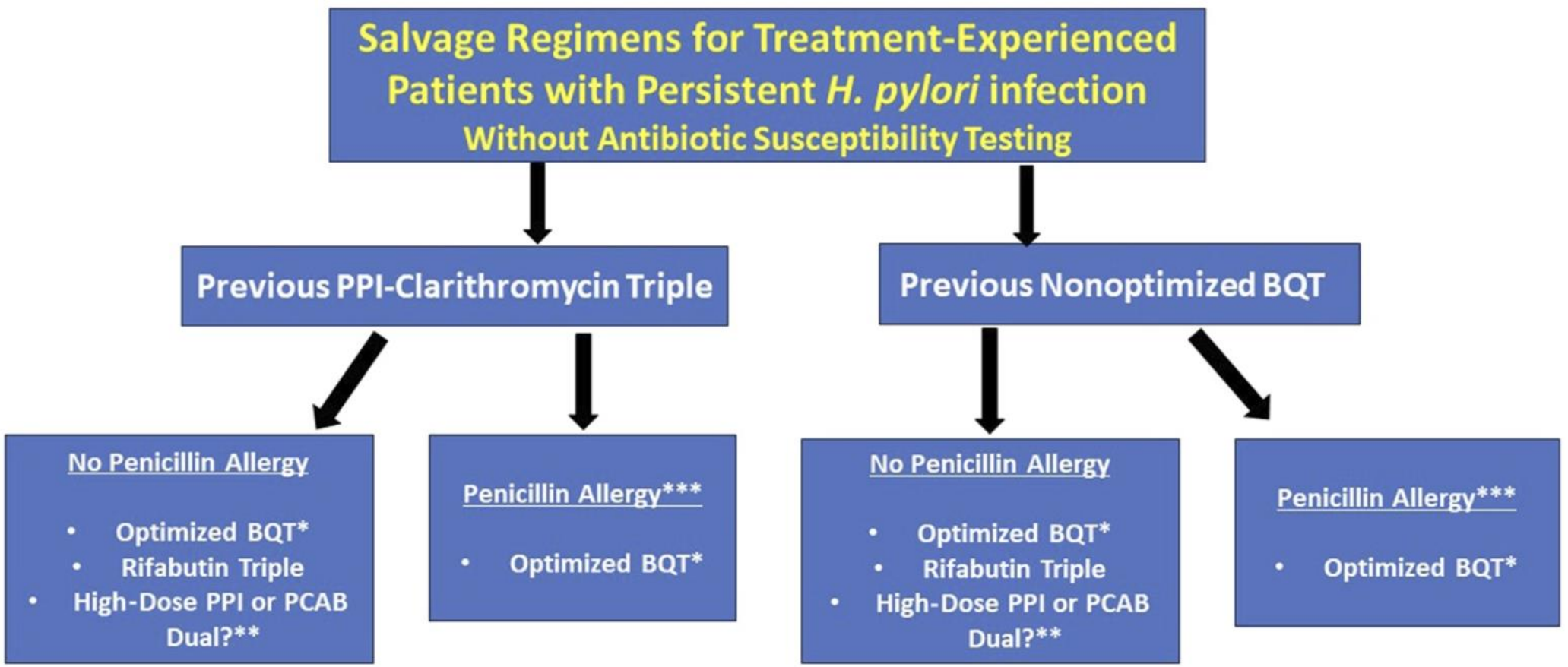
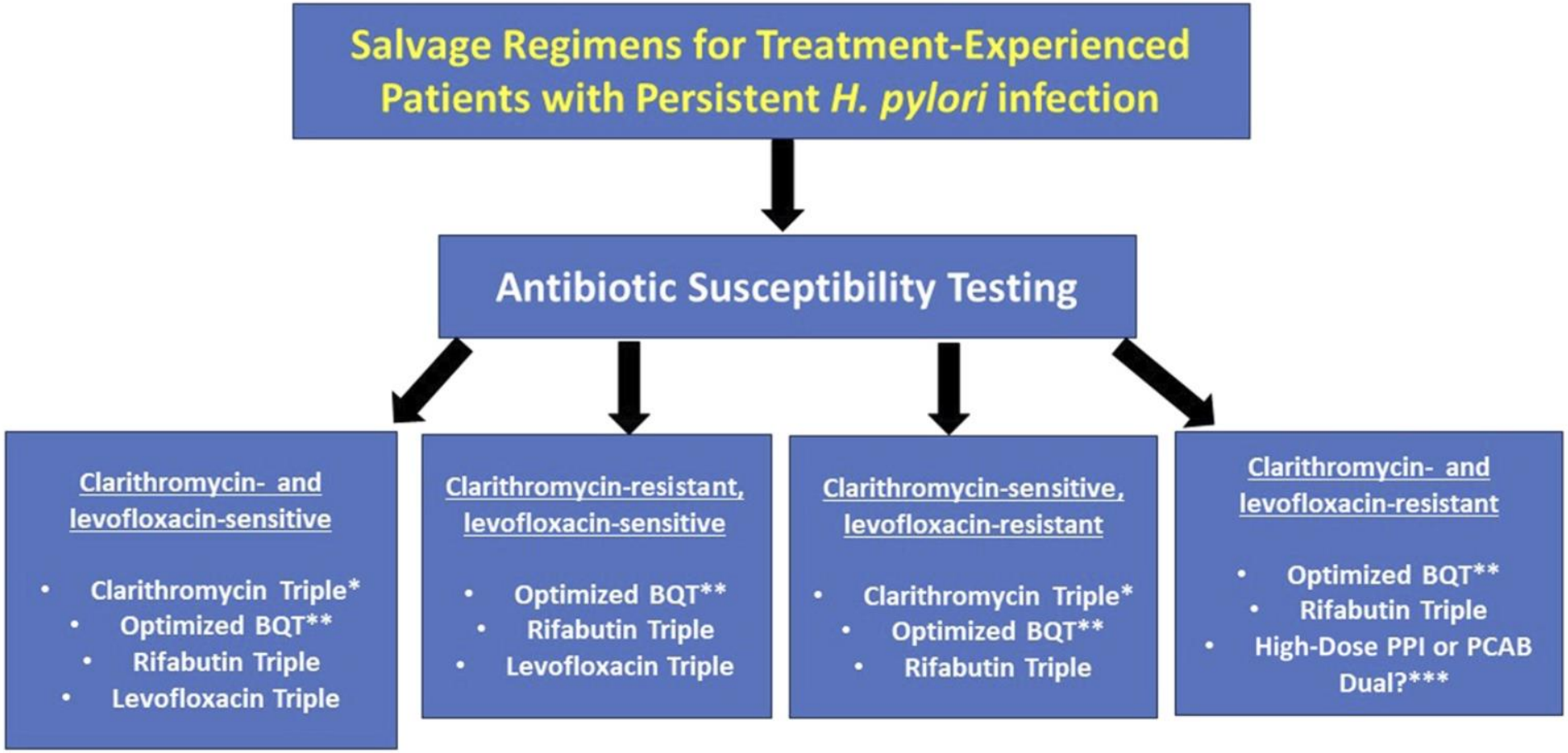


Empiric salvage regimens for treatment-experienced patients with persistent *H. pylori* infection (no antibiotic susceptibility testing).

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.



Antibiotic susceptibility testing guided salvage regimens for treatment-experienced patients with persistent *H. pylori* infection.

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

Table 6. Recommended salvage regimens for treatment-experienced patients with persistent *H. pylori* infection

Regimen	Drugs (doses)	Dosing frequency	AST required?	Recommendation
Optimized bismuth quadruple[a]	PPI (standard dose)[b] Bismuth subcitrate (120–300 mg) or subsalicylate (300 mg) Tetracycline (500 mg) Metronidazole (500 mg)	b.i.d. q.i.d. q.i.d. t.i.d. or q.i.d.	No	Conditional (very low quality of evidence)
Rifabutin triple	PPI (standard to double dose)[b] Amoxicillin (1,000 mg) Rifabutin (50–300 mg)[c]	b.i.d. b.i.d. or t.i.d. q.d., b.i.d., or (Talicia which contains 50 mg t.i.d.)[c]	No	Conditional (low quality of evidence)
Levofloxacin triple[d]	PPI (standard dose)[b] Levofloxacin (500 mg)[d] Amoxicillin (1,000 mg) or metronidazole[e] (500 mg)	b.i.d. q.d. b.i.d.	Yes	Conditional (low quality of evidence)
P-CAB triple (Voquezna TriplePak)[f]	Vonoprazan (20 mg) Clarithromycin (500 mg) Amoxicillin (1,000 mg)	b.i.d	Yes	No recommendation (evidence gap)
High-dose dual therapy[g]	Vonoprazan (20 mg)[h] or PPI (double dose) Amoxicillin (1,000 mg)	b.i.d. or t.i.d. t.i.d	No	No recommendation (evidence gap)

Source: ACG Clinical Guideline: Treatment of *Helicobacter Pylori* Infection, September 2024.

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Drug-Drug Interaction Considerations

H. Pylori Treatment	Interactions with Commonly Prescribed Antiretrovirals
Bismuth salts	Minimal systemic absorption → few direct interactions May interfere with absorption of INSTIs → ideally use spacing strategy
Clarithromycin	Boosted PI: decrease clarithromycin dose Rilpivirine: consider replacing clarithro with azithro, or use alternate regimen Caution with prolonged QTc
PPIs or PCAB	Avoid rilpivirine, atazanavir
Rifabutin	Avoid bictegravir, injectable cabotegravir/rilpivirine Dolutegravir, raltegravir ok at standard dose Increase doravirine, rilpivirine dose Increase dose of injectable cabotegravir (for PrEP) Boosted PI: decrease rifabutin dose
Tetracycline Levofloxacin Metronidazole	Chelate dolutegravir, bictegravir (ideally take INSTs 2 hours before or 6 hours after) Consider risk of prolonged QTc

Source: Lexicomp, Liverpool

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Quiz

- Which Helicobacter species causes bacteremia and rash in PWH?
  - *H. pylori*
  - *H. cinaedi*
  - *H. typhonicus*
  - *H. cholecystis*
  - *H. rodentium*

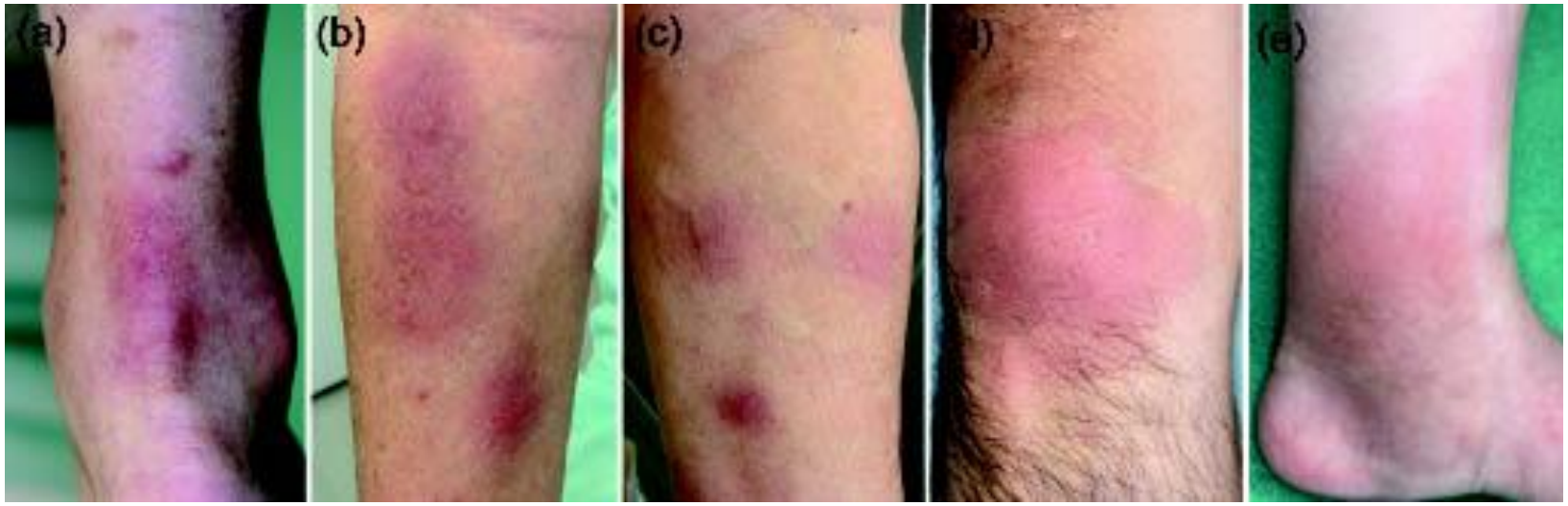

Image sources: 1) Matsumoto A, et al. 2017. 2) Shimizu S, et al. 2012.

Acknowledgment

This Mountain West AIDS Education and Training (MWAETC) program is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $2,982,063 with 0% financed with non-governmental sources.

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