CARILION CLINIC
Antimicrobial Stewardship

H. Pylori Treatment Guidelines

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Disclaimer: These guidelines are not intended to replace clinical judgment. An Infectious Diseases consultation is always available for complex patients and should be strongly considered for severe infections and immunocompromised patients.

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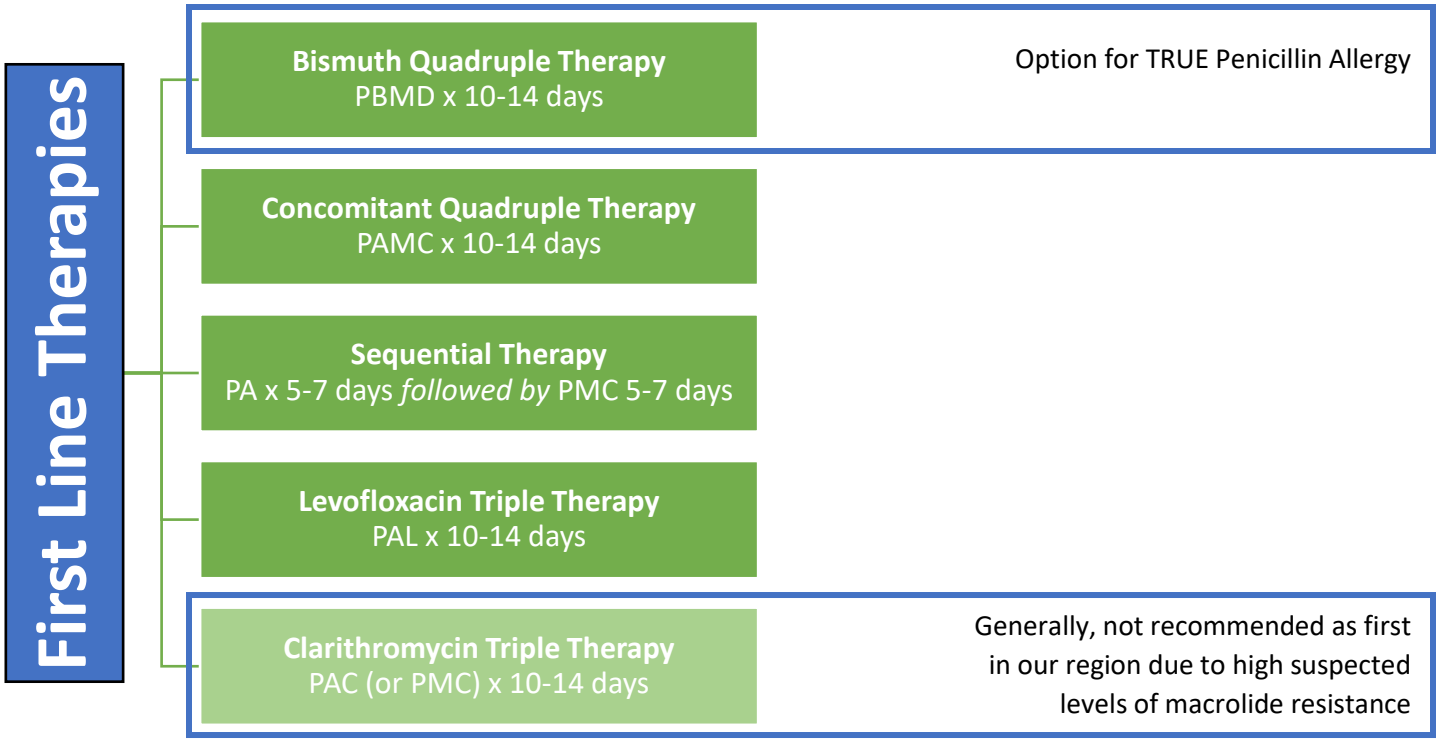
Medications used in H. pylori Regimens		
Medication	***H. pylori* Treatment Dosing**	**Abbreviation**
Amoxicillin	1,000 mg PO twice daily	A
Bismuth subsalicylate (PEPTO BISMOL)	30 mL (262mg/15mL) PO four times daily 2 chewable tablets PO four times daily	B
Clarithromycin	500 mg PO twice daily	C
Doxycycline (used in place of tetracycline due to improved tolerability)	100 mg PO twice daily	D
Levofloxacin	500 mg PO daily	L
Metronidazole	500 mg PO three times daily	M
Rifabutin	300 mg once daily	R
Proton Pump Inhibitor	**See below**	P

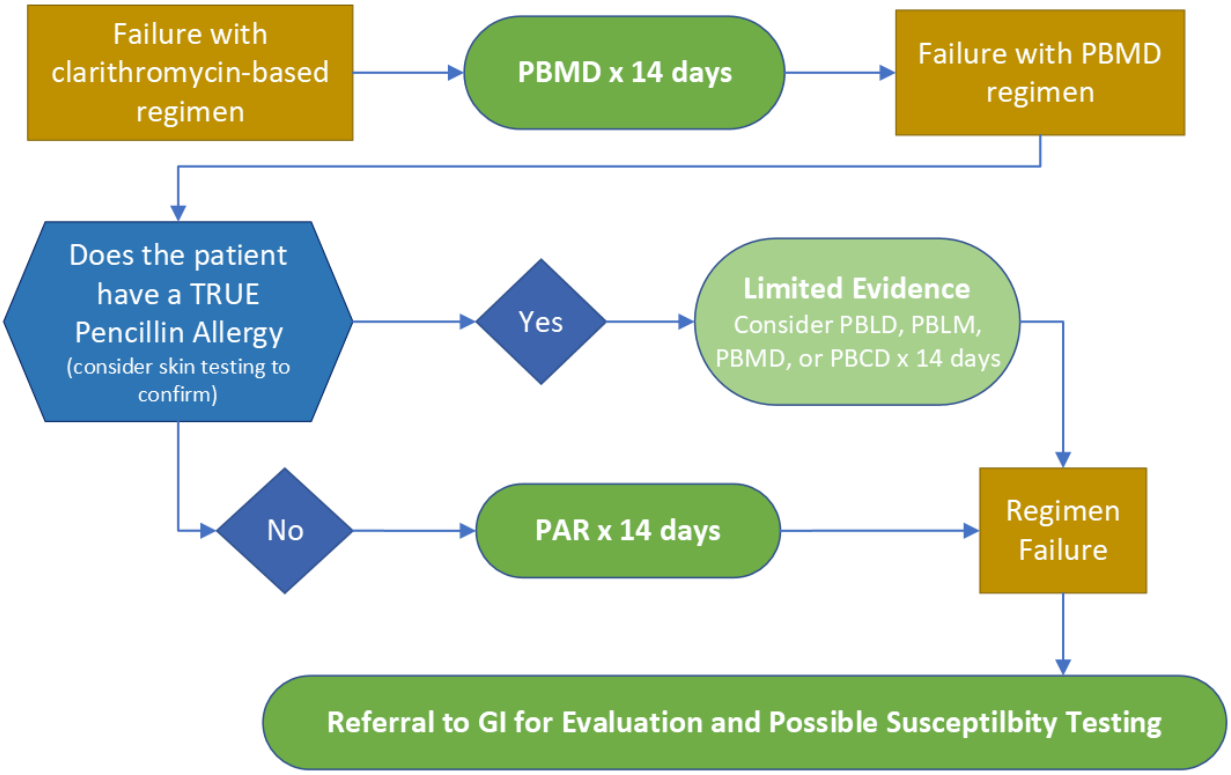
Proton Pump Inhibitors		
Medication	**Dose/Frequency**	**Inpatient Formulary product**
Pantoprazole	40 mg twice daily	**Y**
Omeprazole	20 mg twice daily	N
Esomeprazole	40 mg once daily	N
Lansoprazole	30 mg twice daily	N

Combination Medications	
Prevpac	Amoxicillin, Clarithromycin, Lansoprazole
Pylera	Bismuth subcitrate, Metronidazole, Tetracycline
Talicia	Omeprazole, Amoxicillin, Rifabutin

Antibiotic resistance: Clarithromycin triple therapy is the recommended treatment in regions where *H. pylori* clarithromycin resistance is known to be <15% and in patients with no previous macrolide exposure.[1] A recent clinical trial reported clarithromycin resistance by region in 2018. The Eastern region of the US demonstrated the highest resistance of 23.2%.



Treatment Failure Pathway



Additional Considerations

Test for cure after therapy
Utilization of a urea breath test, fecal antigen test, or biopsy-based testing is recommended at least 4 weeks after antibiotic therapy has been completed. PPI therapy should be held for at least 1-4 weeks prior to testing.
Susceptibility testing
The treatment for H. pylori is most commonly empiric and not formulated with susceptibilities to tailor medication management. Susceptibilities should be considered once patients have failed treatment with two different regimens, however, there are multiple limitations with obtaining accurate and useful cultures.[9] **If patients experience multiple failures consider consultation to GI in order for endoscopic specimen obtainment for culture and susceptibility testing.**
Can clarithromycin be switched to azithromycin?
Azithromycin has many appealing traits, including a longer half-life and readily accumulating in human gastric mucosal tissue following administration. A meta-analysis demonstrated eradication rates of azithromycin and non-azithromycin containing regimens were 72 % and 70 % respectively. Azithromycin was also associated with a lower incidence of *H. pylori* therapy-related side effects (nausea, diarrhea, taste disturbances) compared to clarithromycin.[2] Unfortunately, rates of H. pylori resistance to clarithromycin continue to increase, and the resistance to clarithromycin can be extrapolated to all macrolides, including azithromycin.
What to do when patient isn't taking PO and we need an IV regimen?
Gomez and colleagues demonstrated an 82% (42/51) eradication rate of H. pylori using an intravenous 3-day course of pantoprazole 40 mg every 12 hours, metronidazole 500 mg every 8 hours, and amoxicillin/clavulanic acid 1,000/200 mg every 8 hours. Of note, eradication was achieved in 88% (35/40) with duodenal ulcers, and 63% (7/11) with gastric ulcers.[8] Amini and Tajik compared a 5-day intravenous regimen to a 14-day orally administered regimen in patients with peptic ulcers with and without active gastric bleeding, respectively. Components of the 5-day intravenous regimen included ranitidine 50 mg every 4 hours, metronidazole 500 mg every 6 hours, ampicillin 25 mg/kg every 6 hours, and orally administered bismuth 120 mg every 6 hours. Components of the 14-day orally administered regimen included ranitidine 150 mg every 6 hours, metronidazole 250 mg every 6 hours, amoxicillin 500 mg every 6 hours, and bismuth sub-citrate 120 mg every 6 hours. Treatment success was seen in 62% (16/26) and 55% (16/29) patients in the intravenous and oral groups respectively.[5] When patients cannot tolerate oral medications, it is reasonable to treat with intravenous formulations and transition to oral once appropriate. These studies and others have shown that eradication of *H. pylori* using intravenous formulations when patients cannot tolerate oral options is feasible, but not always reliable. **Possible IV interchanges:** PO Amoxicillin -> IV Ampicillin PO Metronidazole -> IV Metronidazole PO Clarithromycin -> IV Azithromycin PO Doxycycline -> IV Doxycycline PO PPI -> IV Pantoprazole

References:

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