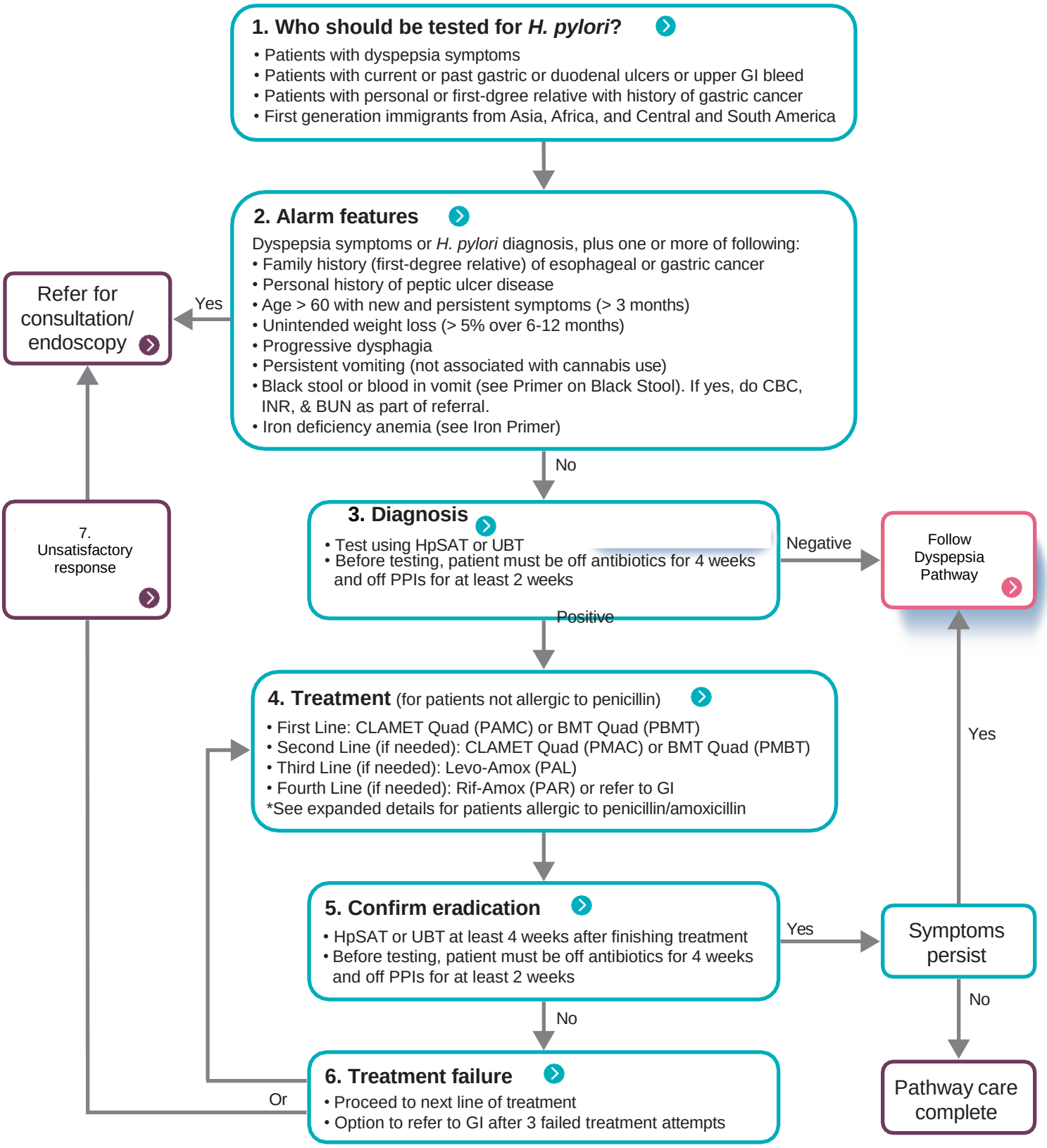
# *Helicobacter Pylori* (*H. pylori*) Primary Care Pathway




*Thank you to Alberta Health Services-GI Central Access and Triage for their contribution of this form*

*This primary care pathway was co-developed by primary and specialty care in Calgary Alberta and includes input from multidisciplinary teams. Wide adoption of primary care pathways can facilitate timely, evidence-based support to physicians and their teams who care for patients with common low-risk GI conditions and improve appropriate access to specialty care, when needed. To learn more about primary care pathways visit https://www.specialistlink.ca/clinical-pathways-and-specialty-access*

## *HELICOBACTER PYLORI* (*H. pylori)* PRIMER

- Overall prevalence in Canada is about 20-30%, depending on age.
- Prevalence is considerably higher in First Nations communities and in immigrants from developing countries in South America, Africa, and Asia. Prevalence of antibiotic resistant strains of *H. pylori* is higher in certain immigrant populations (Southeast Asia, Africa, Central America, and South America).
- Infection most commonly occurs during childhood.
- About 5-15% of patients with *H. pylori* will develop duodenal or gastric ulcers. This is higher in patients who chronically use nonsteroidal anti-inflammatory drugs (NSAIDs), including low-dose aspirin.
- *H. pylori* increases the risk of gastric adenocarcinoma and MALT lymphoma, but overall, the lifetime risk of this is very low at < 1%.
- There is an increased risk of gastric cancer among First Nations people and immigrants from developing countries such as South America and Asia.
- For an overview of how to use this pathway to diagnosis and treat *H. pylori*, watch the following short video: How the *H.pylori* Pathway Changed my Practice.

## EXPANDED DETAILS

### 1. Who should be tested for *H. pylori*?

- Patients with dyspepsia, characterized by epigastric pain or discomfort that may be triggered by eating and may be accompanied by a sense of abdominal distention or “bloating”, early satiety, or loss of appetite.
    - For patients with dyspepsia symptoms, testing for *H. pylori* may be completed prior to trial of proton pump inhibitor (PPI) or after PPI treatment.
    - See Dyspepsia pathway.
- Patients with current or past gastric or duodenal ulcers or upper GI bleed.
- Patients who have a personal or first-degree relative with history of gastric cancer should be considered for testing once in adulthood.
- First generation immigrants from high prevalence areas (Asia, Africa, Central America, and South America).
- **Note:** many *H. pylori* infected patients are asymptomatic.
- Most studies suggest that *H. pylori* does not play a role in gastro-esophageal reflux disease (GERD) and patients are understandably disappointed when their GERD does not improve after eradication of *H. pylori*.
    - See GERD pathway.

### 2. Alarm features

If any of the following alarm features are identified, refer for consultation/endoscopy. Include all identified alarm features in the referral to ensure appropriate triage.

- Dyspepsia symptoms or *H. pylori* diagnosis, accompanied by one or more of the following:
    - Family history (first degree relative) of esophageal or gastric cancer
        - For these patients, it is appropriate to test for *H. pylori* while they are waiting for consultation/gastroscopy and to initiate treatment if there is a positive result
    - Personal history of peptic ulcer disease

- Age > 60 with new and persistent symptoms (> 3 months)[1]
- Unintended weight loss (> 5% over 6-12 months)
- Progressive dysphagia
- Persistent vomiting (not associated with cannabis use)
- Black stool or blood in vomit (see Primer on Black Stool).
  - If yes, do CBC, INR, and BUN as part of referral.
- Iron deficiency anemia (see Iron Primer)

## 3. Diagnosis

- Depending on local availability, test with the *H. pylori* Stool Antigen Test (HpSAT) or the Urea Breath Test (UBT).
- False positive results with both UBT and HpSAT are rare, but false negatives may result from recent use of antibiotics or anti-secretory drugs (PPI or H2-receptor antagonists).
- Accurate test results depend on proper preparation:
  - Patients should be **off antibiotics for at least 4 weeks before the test**.
  - Patients should not take bismuth preparations (e.g. Pepto Bismol) for **2 weeks before the test**.
  - Patients should be **off PPIs for at least 2 weeks before the test**.
  - Patients with symptoms may take antacids up to 24 hours before their test.

## 4. Treatment

- Standard triple therapy regimens (PAC (PPI + clarithromycin + amoxicillin), PMC (PPI + metronidazole + clarithromycin), and PAM (PPI + amoxicillin + metronidazole)) are **no longer recommended** due to changing resistance.[2]
- Pregnant and nursing women should not be treated for *H. pylori*.
- Patient handouts are available for each treatment regimen
- For all other patients, treat as follows:

Table 1: Treatment Regimens

| **Helicobacter pylori treatment regimens for patients NOT ALLERGIC to penicillin*** | | | |
|---|---|---|---|
| First line | **CLAMET Quad (PAMC) for 14 days**<br>• PPI standard dose BID<br>• Amoxicillin 1000 mg BID<br>• Metronidazole 500 mg BID<br>• Clarithromycin 500 mg BID | **OR** | **BMT Quad (PBMT) for 14 days**<br>• PPI standard dose BID<br>• Bismuth subsalicylate 2 tabs (524 mg) QID<br>• Metronidazole 500 mg QID<br>• Tetracycline 500 mg QID |

[1] There is some variation between guidelines about the age at which dyspepsia symptoms are more concerning and warrant stronger consideration of gastroscopy. Choosing Wisely Canada now uses age 65. However, age is only one element of a risk assessment related to the need for gastroscopy to investigate dyspepsia symptoms.

[2] The Toronto Consensus for the Treatment of Helicobacter pylori Infection in Adults. cag-acg.org/images/publications/*H. pylori*_Toronto_Consensus_2016.pdf.

| | |
|---|---|
| Second line<br>(after failing initial treatment) | • If CLAMET Quad (PAMC) was used as initial treatment, use BMT Quad (PBMT) for second round<br>• If BMT Quad (PBMT) was used as initial treatment, use CLAMET Quad (PAMC) or consider Levo-Amox (PAL) |
| Third line<br>(after failing initial and subsequent treatment) | **Levo-Amox (PAL) for 14 days**<br>• PPI standard dose BID<br>• Amoxicillin 1000mg BID<br>• Levofloxacin 500mg daily |
| Fourth line<br>(after failing the 3 options above) | If *H. pylori* has not been eradicated after three rounds of treatment, the family physician may:<br>• Provide Rif-Amox (PAR) treatment as noted below, if comfortable doing so<br>  • **Note:** Rifabutin may require special authorization for patients with Alberta Blue Cross coverage<br>• Consult with GI through Specialist LINK, ConnectMD, or Advice Request (as locally available)<br>• Refer to GI<br>**Rif-Amox (PAR) for 10 days**<br>• PPI standard dose BID<br>• Amoxicillin 1000mg BID<br>• Rifabutin 150mg BID<br>**IMPORTANT: Rifabutin has rarely been associated with potentially serious myelotoxicity (low white cell or platelet count)**. The pros and cons of fourth-line therapy should be decided on a case-by-case basis. |

| **Helicobacter pylori treatment regimens for patients ALLERGIC to Penicillin/Amoxicillin** | |
|---|---|
| First line | **Bismuth Quadruple Regimen (PBMT) for 14 days**<br>1. PPI standard dose BID<br>2. Bismuth subsalicylate 2 tabs (524 mg) QID<br>3. Metronidazole 500 mg QID<br>4. Tetracycline 500 mg QID |
| Second line<br>(after failing initial treatment, consider PCM therapy or referral for allergy testing)[3] | **Modified Triple Therapy (PCM) for 14 days**<br>1. Pantoprazole 40 mg BID<br>2. Clarithromycin 500 mg BID<br>3. Metronidazole 500 mg BID |

* It is recommended to give all *H. pylori* treatments in a blister pack to improve adherence.

## 5. Confirm eradication

- After treatment, patients should be retested for *H. pylori*, no sooner than 4 weeks after completing treatment. Retesting too soon risks a false negative test.
- The patient must be off all antibiotics (including antibiotics for *H. pylori* treatment) for at least 4 weeks and off PPIs for at least 2 weeks.
- Once cured, re-infection rate is < 2%.
- If symptoms persist, refer to the Dyspepsia pathway for additional treatment options.

[3] Chey, W.D., Leontiadis, G.I., Howden, C.W., et al. (2017) ACG Clinical Guideline: Treatment of *Helicobacter pylori* Infection. *Am J Gastroenterol*, 112:212–238. Available online at: https://pubmed.ncbi.nlm.nih.gov/28071659/

## 6. Treatment failure

- Treatment failure may be due to antibiotic resistance, but intolerance or non-adherence must also be explored with the patient.
- After treatment failure, there is no point in retrying the same treatment line - see Table 1 for next option.
- Referral to GI may be made after three failed rounds of treatment if the family physician does not feel comfortable assessing for/prescribing Rif-Amox treatment. In the referral, outline testing and treatment provided to date.

| Checklist to guide in-clinic review of your patient with *H. pylori* AFTER treatment | |
|---|---|
| ☐ | Re-test with the *H. pylori* Stool Antigen Test (HpSAT) or the Urea Breath Test (UBT).<br>• HpSAT is the primary test for *H. pylori* in the Edmonton, Calgary, and South Zones<br>• Off antibiotics ≥ 4 weeks; off PPIs ≥ 2 weeks |
| ☐ | If HpSAT/UBT remains positive, use an alternative treatment and retest again following treatment. |
| ☐ | If HpSAT/UBT is negative, but symptoms persists, refer to the Dyspepsia pathway and/or reassess diagnosis. |
| ☐ | Specialist consultation may be made after three failed rounds of treatment if the family physician does not feel comfortable assessing for or prescribing PPI-Amoxicillin-Rifabutin treatment. |

## 7. When to refer for consultation and/or endoscopy

- If alarm features are identified
- After three rounds of failed treatment
    - **Note**: Consider using an advice service before referring
- Provide as much information as possible on the referral form, including identified alarm feature(s), important findings, and treatment/management strategies trialed with the patient.

### Still concerned about your patient?

The primary care physician is typically the provider who is most familiar with their patient's overall health and knows how they tend to present. Changes in normal patterns, or onset of new or worrisome symptoms, may raise suspicion for a potentially serious diagnosis, even when investigations are normal and typical alarm features are not present.

There is evidence to support the importance of the family physician's intuition or "gut feeling" about patient symptoms, especially when the family physician is worried about a sinister cause such as cancer. A meta-analysis examining the predictive value of gut feelings showed that the odds of a patient being diagnosed with cancer, if a GP recorded a gut feeling, were 4.24 times higher than when no gut feeling was recorded.[4]

When a "gut feeling" persists in spite of normal investigations, and you decide to refer your patient for specialist consultation, document your concerns on the referral with as much detail as possible. Another option is to seek specialist advice (see Advice Options) to convey your concerns.

# PRIMERS

### Primer on Black Stool

- Possible causes of black stool
    - Upper GI bleeding
    - Slow right-sided colonic bleeding
    - Epistaxis or hemoptysis with swallowed blood
- Melena is dark/black, sticky, tarry, and has a distinct odour
- Patient history should include:

[4] Friedemann Smith, C., Drew, S., Ziebland, S., & Nicholson, B. D. (2020). Understanding the role of General Practitioners' gut feelings in diagnosing cancer in primary care: A systematic review and meta-analysis of existing evidence. *British Journal of General Practice*, 70(698), e612-e621.

    - Any prior GI bleeds or ulcer disease
    - Taking ASA, NSAIDs, anticoagulants, antiplatelets, Pepto Bismol, SSRIs, or iron supplements
    - Significant consumption of black licorice
    - Significant alcohol history or hepatitis risk factors
    - Any other signs of bleeding (e.g. coffee ground emesis, hematemesis, hematochezia, or bright red blood per rectum)
    - Any dysphagia, abdominal pain, change in bowel movements, constitutional symptoms, or signs/symptoms of significant blood loss
- Physical exam should include vitals (including postural if worried about GI bleeding) and a digital rectal exam for direct visualization of the stool to confirm, in addition to the remainder of the exam
- Initial labs to consider include CBC, BUN (may be elevated with upper GI bleeding), INR
- If the patient is actively bleeding, suggest calling GI on call and/or the ED for assessment, possible resuscitation, and possible endoscopic procedure.

### Iron Primer

Evaluation of measures of iron storage can be challenging. Gastrointestinal (occult) blood loss is a common cause of iron deficiency and should be considered as a cause when iron deficiency anemia is present. Menstrual losses should also be considered.

There are two serological tests to best evaluate iron stores (ferritin, transferrin saturation) - neither of which are perfect.

The first step is to evaluate **ferritin**:

- If the ferritin is below the lower limit of normal (lower limit of normal is 30 µg/L for men and 20 µg/L for women), it is diagnostic of iron deficiency with high specificity (98% specificity).
- Ferritin is an acute phase reactant which may be elevated in the context of acute inflammation and infection. If ferritin is normal or increased, and you suspect it may be acting as an acute phase reactant, order a transferrin saturation test (see below).
    - However, if the ferritin is > 100 µg/L and there is no concurrent significant chronic renal insufficiency, iron deficiency is very unlikely - even in the context of acute inflammation/infection.

The second step is to evaluate **transferrin saturation**:

- The transferrin saturation is a calculated ratio using serum iron and total iron binding capacity. Serum iron alone does **not** reflect iron stores.
- Low values (< 16%) demonstrate low iron stores in conjunction with a ferritin < 100 µg/L.

In the absence of abnormal iron indices, anemia may be from other causes other than GI (occult) blood loss (e.g. bone marrow sources, thalassemia, and sickle cell anemia).

## BACKGROUND

### About this Pathway

- Digestive health primary care pathways were originally developed in 2015 as part of the Calgary Zone's Specialist LINK initiative. They were co-developed by the Department of Gastroenterology and the Calgary Zone's specialty integration group, which includes medical leadership and staff from Calgary and area Primary Care Networks, the Department of Family Medicine and Alberta Health Services.
- The pathways were intended to provide evidence-based guidance to support primary care providers in caring for patients with common digestive health conditions within the medical home.
- Based on the successful adoption of the primary care pathways within the Calgary Zone, and their impact on timely access to quality care, in 2017 the Digestive Health Strategic Clinical Network (DHSCN) led an initiative to validate the applicability of the pathways for Alberta and to spread availability and foster adoption of the pathways across the province.

### Authors & Conflict of Interest Declaration

This pathway was reviewed and revised under the auspices of the DHSCN in 2019, by a multi-disciplinary team led by family physicians and gastroenterologists. For more information, contact the DHSCN at Digestivehealth.SCN@ahs.ca.

### Pathway Feedback and Review Process

Primary care pathways undergo scheduled review every three years, or earlier if there is a clinically significant change in knowledge or practice. The next scheduled review is April 2024, however, we welcome feedback at any time. Click on the Provide Feedback button to provide your feedback.

### Copyright Information



### Disclaimer

This pathway represents evidence-based best practice but does not override the individual responsibility of health care professionals to make decisions appropriate to their patients using their own clinical judgment given their patients' specific clinical conditions, in consultation with patients/alternate decision makers. The pathway is not a substitute for clinical judgment or advice of a qualified health care professional. It is expected that all users will seek advice of other appropriately qualified and regulated health care providers with any issues transcending their specific knowledge, scope of regulated practice or professional competence.

## PROVIDER RESOURCES

### Advice Options

The Ontario eConsult program is a secure web-based tool that allows physician or nurse practitioner timely access to specialist advice for all patients and often eliminates the need for an in-person specialist visit.:

- To sign up use your ONEID and get same day access, go to https://otnhub.ca visit the OTNhub sign up page https://otnhub.ca/signup-info to register.
- For physicians without a ONEID, you can register for one through your CPSO Member Portal. If you are a nurse practitioner or need assistance getting a ONEID please email us at eConsultCOE@toh.ca.

| References |
|---|
| The Toronto Consensus for the Treatment of Helicobacter pylori Infection in Adults. cag-acg.org/images/publications/*H. pylori*_Toronto_Consensus_2016.pdf. |
| El-Serag, H. B., Kao, J. Y., Kanwal, F., Gilger, M., Lovecchio, F., Moss, S. F., … Graham, D. Y. (2018). Houston Consensus Conference on Testing for Helicobacter pylori Infection in the United States. *Clinical Gastroenterology and Hepatology*, *16*(7). ncbi.nlm.nih.gov/pubmed/29559361 |
| Chey, W.D., Leontiadis, G.I., Howden, C.W., et al. (2017) ACG Clinical Guideline: Treatment of *Helicobacter pylori* Infection. *Am J Gastroenterol*, 112:212–238. Available online at: pubmed.ncbi.nlm.nih.gov/28071659/ |

## PATIENT RESOURCES

### Information

- Patient information sheets on each treatment regimen are below.
- See the *Helicobacter Pylori* Bacteria section at MyHealth.Alberta.ca

## PATIENT PATHWAY

- *H. pylori* patient pathway

# Taking CLAMET-PPI (PAMC) Treatment

## What is CLAMET-PPI?

Your doctor has prescribed CLAMET-PPI treatment because you have an infection of the stomach (*H. pylori*). CLAMET-PPI treatment gets its name from the medicine in it (**cl**arithromycin, **a**moxicillin, **met**ronidazole, and a **p**roton **p**ump **i**nhibitor). It is sometimes called PAMC (**p**roton pump inhibitor, **a**moxicillin, **m**etronidazole, **c**larithromycin).

## How do I take CLAMET-PPI?

- Most people take CLAMET-PPI treatment without having any problems. If you're pregnant or breastfeeding, you can't take CLAMET-PPI treatment.
- You'll need to take the medicine listed below for **14 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. CLAMET-PPI treatment costs about $130 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **CLAMET-PPI Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Clarithromycin | 500 mg (take 1 capsule) | 2 times a day |
| Amoxicillin | 1000 mg (take 2 capsules) | 2 times a day |
| Metronidazole | 500 mg (take 1 tablet) | 2 times a day |
| Proton pump inhibitor | take 1 pill | 2 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.

# Taking BMT-PPI (PBMT) Treatment

## What is BMT-PPI?

Your doctor has prescribed BMT-PPI treatment because you have an infection of the stomach (*H. pylori*). BMT-PPI treatment gets its name from the medicine in it (**b**ismuth subsalicylate, **m**etronidazole, **t**etracycline, and a **p**roton **p**ump **i**nhibitor). It is sometimes called PBMT (**p**roton pump inhibitor, **b**ismuth subsalicylate**, m**etronidazole, **t**etracycline).

## How do I take BMT-PPI?

- Most people take BMT-PPI treatment without having any problems. If you're pregnant or breastfeeding, you can't take BMT-PPI treatment.
- You'll need to take the medicine listed below for **14 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. BMT-PPI treatment costs about $80 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **BMT-PPI Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Bismuth subsalicylate (Pepto-Bismol®) | 524 mg (take 2 caplets) | 4 times a day |
| Metronidazole | 500 mg (take 1 tablet) | 4 times a day |
| Tetracycline | 500 mg (take 1 capsule) | 4 times a day |
| Proton pump inhibitor | take 1 pill | 2 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.

# Taking LevoAmox-PPI (PAL) Treatment

## What is LevoAmox-PPI?

Your doctor has prescribed LevoAmox-PPI treatment because you have an infection of the stomach (*H. pylori*). LevoAmox-PPI treatment gets its name from the medicine in it (**levo**floxacin, **amox**icillin, and a **p**roton **p**ump **i**nhibitor). It is sometimes called PAL (**p**roton pump inhibitor, **a**moxicillin, **l**evofloxacin).

## How do I take LevoAmox-PPI?

- Most people take LevoAmox-PPI treatment without having any problems. If you're pregnant or breastfeeding, you can't take LevoAmox-PPI treatment.
- You'll need to take the medicine listed below for **14 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. LevoAmox-PPI treatment costs about $100 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **LevoAmox-PPI Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Levofloxacin | 500 mg (take 1 tablet) | Once a day |
| Amoxicillin | 1000 mg (take 2 capsules) | 2 times a day |
| Proton pump inhibitor | take 1 pill | 2 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.

# Taking RifAmox-PPI (PAR) Treatment

## What is RifAmox-PPI?

Your doctor has prescribed RifAmox-PPI treatment because you have an infection of the stomach (*H. pylori*). RifAmox-PPI treatment gets its name from the medicine in it (**rif**abutin, **amox**icillin, and a **p**roton **p**ump **i**nhibitor). It is sometimes called PAR (**p**roton pump inhibitor, **a**moxicillin, **r**ifabutin).

## How do I take RifAmox-PPI?

- Most people take RifAmox-PPI treatment without having any problems. If you're pregnant or breastfeeding, you can't take RifAmox-PPI treatment.
- You'll need to take the medicine listed below for **10 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. RifAmox-PPI treatment costs about $170 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **RifAmox-PPI Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Rifabutin | 150 mg (take 1 tablet) | 2 times a day |
| Amoxicillin | 1000 mg (take 2 capsules) | 2 times a day |
| Proton pump inhibitor | take 1 pill | 2 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.

# Taking Bismuth Quadruple (PBMT) Regimen

## What is Bismuth Quadruple Regimen?

Your doctor has prescribed Bismuth Quadruple Regimen treatment because you have an infection of the stomach (*H. pylori*) and an allergy to penicillin. The Bismuth Quadruple Regimen includes the following medications: a **p**roton pump inhibitor, **b**ismuth subsalicylate, **m**etronidazole, and **t**etracycline.

## How do I take Bismuth Quadruple Regimen?

- Most people take Bismuth Quadruple Regimen treatment without having any problems. If you're pregnant or breastfeeding, you can't take Bismuth Quadruple Regimen.
- You'll need to take the medicine listed below for **14 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. The Bismuth Quadruple Regimen treatment costs about $80 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **Bismuth Quadruple Regimen Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Proton pump inhibitor | take 1 pill | 2 times a day |
| Bismuth Subsalicylate (Pepto-Bismol®) | 524 mg | 4 times a day |
| Metronidazole | 500 mg | 4 times a day |
| Tetracycline | 500 mg | 4 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.

# Taking Modified Triple (PCM) Regimen

## What is Modified Triple Regimen?

Your doctor has prescribed Modified Triple Regimen treatment because you have an infection of the stomach (*H. pylori*) and an allergy to penicillin. The Modified Triple Regimen includes the following medications: a proton pump inhibitor known as **p**antoprazole, **c**larithromycin, and **m**etronidazole.

## How do I take Modified Triple Regimen?

- Most people take Modified Triple Regimen treatment without having any problems. If you're pregnant or breastfeeding, you can't take Modified Triple Regimen.
- You'll need to take the medicine listed below for **14 days**. To make it easier, ask your pharmacist to put your prescriptions in a bubble pack. The Modified Triple Regimen treatment costs about $100 if generic medicine is used.
- If you don't take the treatment as recommended, it will not work as well.

| **Modified Triple Regimen Treatment** | | |
|---|---|---|
| **Medicine** | **Dose** | **How Often** |
| Pantoprazole | 40 mg | 2 times a day |
| Clarithromycin | 500 mg | 2 times a day |
| Metronidazole | 500 mg | 2 times a day |

## Do I need to know anything else about taking antibiotics?

Please speak to your pharmacist when you pick up your medicines to treat the *H. pylori* infection. You can expect your pharmacist to provide you with information relating to each of these medicines. You can discuss the benefits, potential interactions (food and medications to avoid), and potential side effects with your pharmacist.