HELICOBACTER PYLORI (H. *pylori*) PRIMARY CARE PATHWAY

1. Diagnostic criteria

- Patients with dyspepsia symptoms
- Patients with current or past gastric or duodenal ulcers or upper GI bleed
- Patients with personal or first-degree relative with history of gastric cancer
- First generation immigrants from Asia, Africa, and Central and South America

2. Alarm features

Dyspepsia symptoms or H. *pylori* diagnosis, plus one or more of following:

- Family history (first-degree relative) of esophageal or gastric cancer
- Personal history of peptic ulcer disease
- Age > 60 with new and persistent symptoms (> 3 months)
- Unintended weight loss (> 5% over 6-12 months)
- Progressive dysphagia
- Persistent vomiting (not associated with cannabis use)
- Black stool or blood in vomit (see information on Black Stool). If yes, do CBC, INR, & BUN as part of referral.
- Iron deficiency anemia (see Iron Primer)

YES → **7. Refer to Gastroenterology**
Click here for Referral letter

NO

3. Diagnosis

- Test using IHA H. Pylori Testing protocol (Appendix 1)
- Before testing, patient must be off antibiotics for 4 weeks and off PPIs for at least 2 weeks
- Confirmed family history (first degree) of Barrett's esophagus or esophageal cancer

Negative → **Follow dyspepsia pathway**
Click here for pathway

Positive

4. Treatment (for patients not allergic to penicillin)

- First Line: CLAMET Quad (PAMC) or BMT Quad (PBMT)
- Second Line (if needed): CLAMET Quad (PMAC) or BMT Quad (PMBT)
- Third Line (if needed): Levo-Amox (PAL)
- Fourth Line (if needed): Rif-Amox (PAR) or refer to GI

*See expanded details for patients allergic to penicillin/amoxicillin

5. Confirm eradication

- Stool antigen at least 4 weeks after finishing treatment (ensure "test of cure' is written on the requisition).
- Before testing, patient must be off antibiotics for 4 weeks and off PPIs for at least 2 weeks

YES → **Symptoms persist**

NO

6. Treatment failure

- Proceed to next line of treatment
- Option to refer to GI after 3 failed treatment attempts

TABLE OF CONTENTS

Helicobacter Pylori (H. *pylori*) - What is it?

- 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 non-steroidal 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.

Expanded Details of the H. *pylori* Clinical Pathway

2. Alarm features

If any of the following alarm features are identified, refer for consultation/endoscopy. Include any and 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)
    - Unintended weight loss (> 5% over 6-12 months)
    - Progressive dysphagia
    - Persistent vomiting (not associated with cannabis use)
    - Black stool or blood in vomit (see information on Black Stool)
        - If yes, do CBC, INR, and BUN as part of referral.
    - Iron deficiency anemia (see Iron information)

3. Diagnosis

- Test with the IHA H *Pylori* Testing protocol (Appendix 1)
- False positive results 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.
- Pregnant and nursing women should not be treated for H. pylori.
- For all other patients, treat as follows:

TREATMENT OPTIONS FOR PATIENTS NOT ALLERGIC TO PENICILLIN		
First line	**CLAMET Quad (PAMC) for 14 days** PPI standard dose BID Amoxicillin 1000mg BID Metronidazole 500mg BID Clarithromycin 500mg BID	**OR** **BMT Quad (PBMT) for 14 days** PPI standard dose BID Bismuth subsalicylate 2 tabs (524mg) QID Metronidazole 500mg QID Tetracycline 500mg QID
Second line (After failing first treatment)	• If CLAMET Quad (PAMC) was used as initial treatment, use BMT Quad (PBMT) for second round • If BMT Quad (PBMT) was used as initial treatment, use CLAMET Quad (PAMC) or consider LevoAmox (PAL)	
Third line (After failing initial and subsequent treatment)	**Levo-Amox (PAL) for 14 days** • PPI standard dose BID • Amoxicillin 1000mg BID • Levofloxacin 500mg daily	
Fourth line (after failing the 3 options above)	• Refer to GI	

TREATMENT OPTIONS FOR PATIENTS ALLERGIC TO PENICILLIN	
First line	**BMT Quad (PBMT) for 14 days** • PPI standard dose BID • Bismuth subsalicylate 2 tabs (524mg) QID • Metronidazole 500mg QID • Tetracycline 500mg QID
Second line (After failing first treatment, consider PCM therapy or referral for allergy testing)	**Modified Triple Therapy (PCM) for 14 days** • Pantoprazole 40 mg BID • Clarithromycin 500 mg BID • Metronidazole 500 mg BID

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.

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.

CHECKLIST TO GUIDE IN-CLINIC REVIEW OF YOUR PATIENT WITH H. *PYLORI* AFTER TREATMENT	
☐	Re-test with the H. p***ylori*** Stool Antigen Test (HpSAT) • Off antibiotics for 4 weeks or more; off PPIs for 2 weeks or more
☐	If stool antigen remains positive, use an alternative treatment and retest again following treatment.
☐	If stool antigen 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. Refer for consultation and/or endoscopy

- If alarm features are identified
- After three rounds of failed treatment
- 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.

More Information on Black Stools and Iron Levels

Black Stool

- Possible causes of black stool
    - Upper GI bleed
    - Slow right-sided colonic bleed
    - Epistaxis or hemoptysis with swallowed blood
- Melena is dark/black, sticky, tarry, and has distinct odour
- Patient history should include:
    - Any prior GI bleed or ulcer disease
    - Taking ASA, NSAIDs, anticoagulants, antiplatelets, Pesto Bismol, SSRIs, or iron supplements
    - Significant consumption of black liquorice
    - Significant alcohol history of hepatitis factors
    - Any other signs of bleeding (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

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 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 their ferritin is low, it is diagnostic of iron deficiency with high specificity (98%)
- 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 ferrite is less than 100ug/L and there is no concurrent significant chronic renal insufficient, iron deficiency is very unlikely - even in the contact of acute inflammation/infection

The second step is to evaluate **transferritin 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 (less than 10%) demonstrate low iron stores in conjunction with a ferritin less than 100ug/L

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

Additional Information About this Pathway

About this pathway

This primary care pathway was created using resources from Alberta Health Services and Alberta Primary Care Networks and further adapted by gastroenterologists at Kelowna Gastroenterology Associates from Kelowna, British Columbia. 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.

- 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 GI and the Calgary Zone's speciality integration group, which includes medical leadership and staff from Calgary and area Primary Care Networks, the Department of Family Medicine and Alberta Health Services.
- This pathway has been reviewed by the Kelowna Gastroenterology Associates and its physicians for content and use.

Disclaimer and Terms of Use

This pathway represents evidence-based best practices as of January 2022 but does not override the individual responsibility of health care professionals to make decisions appropriate to their patients based on the health care professional's own clinical judgement given their patients 'specific clinical conditions. The pathway is not a substitute for clinical judgement or advice of a qualified health care professional. This pathway is intended solely for use by appropriately qualified and regulated healthcare professionals practicing within their scope of practice and professional competence. This pathway, other than the Patient information Sheet, is not intended for patient use; patients should direct questions related to this pathway to their primary care provider. No material on this pathway is intended to be a substitute for professional medical advice, diagnosis or treatment. By making use of this pathway, you agree to waive any claims and any liability against Kelowna Gastroenterology Associates or its physicians related to the use of this pathway.

REFERENCES

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Patient Information Sheet for Managing Helicobacter pylori

1. What is H. p*ylori*?

- A type of bacteria which can infect the stomach.
- Having this bacteria increases the risk of pain or discomfort in the stomach, ulcers, and rarely stomach cancer.
- Usually cared for by healthcare providers in your family doctor's office.

2. What symptoms does H. *pylori* cause?

- Pain or discomfort in the upper part of the stomach, often after meals
- Feeling uncomfortably full after eating
- Loss of appetite
- Some people have no symptoms

3. Tests that may be done to diagnose H. *pylori*

- Stool test
- Other tests are rarely needed

4. Treatment for H. *pylori*

- You will be given medications, including antibiotics and an acid blocker to clear the H. pylori infection.
- It is important you complete the full treatment.
- If you have side effects, speak to your healthcare providers before stopping.
- When treatment is complete, follow up with your healthcare providers to confirm the H. pylori is gone
- Multiple rounds of treatment with different medications may be required.

5. Tell your healthcare provider if you have these symptoms:

- Stool that is black in colour or has blood in it
- Trouble swallowing or pain while swallowing food
- Feeling that food gets stuck while swallowing
- Vomiting that doesn't stop
- Vomiting with blood in it
- Losing weight without meaning to

Talk to your healthcare providers if your symptoms do not improve, get worse, or keep interfering with your everyday activities.

6. Talk to your primary care provider about being referred to a specialist if:

- Your symptoms continue or get worse following multiple rounds of treatment and management options in the H. pylori pathway.
- Symptoms continue even after the H. pylori infection has been successfully cleared.
- You and your healthcare providers identify concerning symptoms or test results.

You can find more information with this resource:

- Canadian Digestive Health Foundation

Https:/cdhf.ca/en/digestive-conditions/peptic-ulcer-hpylori/

You can find more information at:

- Dietician services https://www.healthlinkbc.ca/health-services/healthlink-bc-811-services/dietitian-services

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Interior Health
Every person matters

IMPORTANT LAB UPDATE

January 25th, 2021 21-07

To: **IH Physicians, IH Clinical Staff, IH Long Term Care**
From: **Hope Byrne, Director, Microbiology Working Group**
Dr. Amanda Wilmer, Medical Director, Microbiology

Re: ***Helicobacter pylori* (*H. pylori*) antigen testing on stool specimens**

Effective January 26th all regional microbiology laboratories in Interior Health will begin performing Helicobacter pylori (*H.pylori*) antigen testing on stool specimens, if specific criteria are met.

Patients with initial suspected *H.pylori* should have serology testing as a first line test, followed by *H.pylori* stool antigen if serology is equivocal or positive. For those that are treated, *H.pylori* stool antigen should also be used as a test of cure.

Important Information

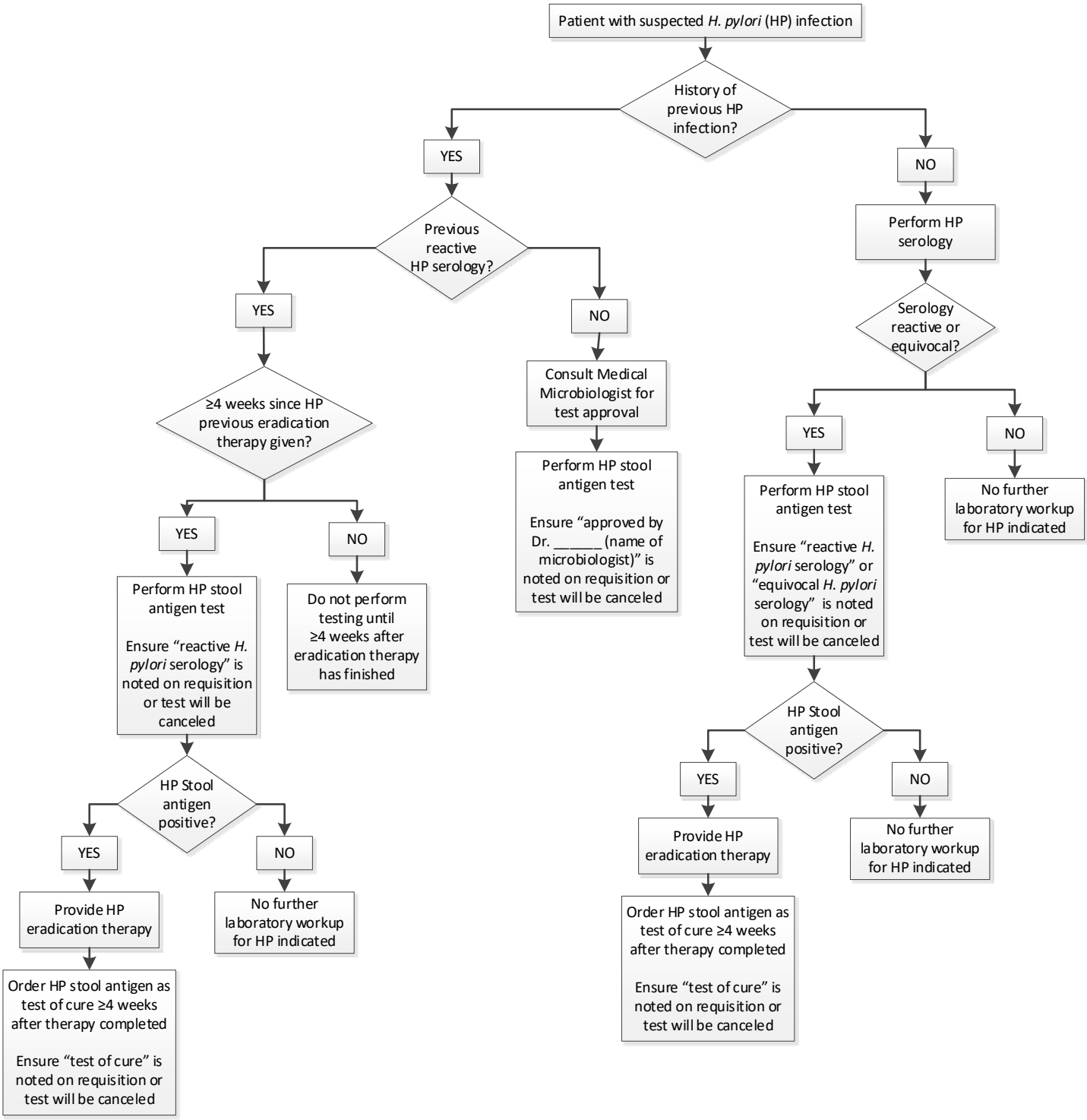
- Patients with initial suspected *H.pylori* should have serology testing, followed by *H.pylori* stool antigen if serology is positive or equivocal.
- For patients with known positive or equivocal serology and suspected recurrent infection, *H.pylori* stool antigen should be performed. Do not repeat serology.
- Patients with confirmed active *H.pylori* should undergo a test of cure with *H.pylori* stool antigen ≥4 weeks after eradication therapy is completed.
  Note: Ensure PPIs and antibiotics are stopped at least 2 weeks before testing.
- *H.pylori* stool antigen can only be ordered if *H.pylori* serology is Reactive or Equivocal, or as test of cure.
  - requisitions **must** indicate "Positive Serology" or "Equivocal Serology" or "test of cure" to avoid cancellation
- *H.pylori* serology will still be performed by BCCDC
- Refer to the algorithm on the next page for testing recommendations.

Action Required

- Stool specimens for *H.pylori* antigen testing must be collected in sterile, screw top container (specimens submitted in a formalin or alcohol based fixative will be rejected)
  - order: H.pylori Stool Antigen
- Forward stool specimens for *H.pylori* antigen testing to local IH Microbiology laboratory for testing
- Stool specimens for *H.pylori* should be refrigerated at 2-8°C and transported to the lab within 12 hours
- *H.pylori* serology requests will be forwarded to BCCDC for testing

For inquiries and feedback please contact:
Krysta Neary, Technical Specialist, Microbiology
(250)-862-4300 ext. 7388

Process for *Helicobacter pylori* (HP) testing in Interior Health



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