College of Registered Nurses of Saskatchewan

Helicobacter Pylori: Adult

Gastrointestinal

Clinical Decision Tools for RNs with Additional Authorized Practice [RN(AAP)s]

Effective Date: September 16, 2025

Background

Helicobacter pylori (H. pylori) is the most prevalent chronic bacterial infection worldwide (Crowe, 2019a; Crowe, Feldman & Grover, 2019; Thomas, 2019) and plays a key role in the pathogenesis of peptic ulcer disease, chronic gastritis, gastric adenocarcinoma, and mucosa-associated lymphoid tissue (MALT) lymphoma (Crowe, 2019a). *H. pylori* causes ulceration (predominantly duodenal) of the mucous membrane of the upper digestive tract (Crowe et al., 2019; Thomas, 2019). Most infections of *H. pylori* are acquired before the age of five (Crowe, 2019a) with 30-50% of the world's population colonized with this pathogen (Thomas, 2019). Studies suggest that *H. pylori* is most readily cultured from emesis or diarrhea suggesting that transmission occurs during periods of illness (Crowe et al., 2019). In absence of such illness, children who regularly swim in rivers, streams, pools, drink stream water or eat uncooked vegetables are more likely to be infected (Crowe et al., 2019).

Immediate Consultation Requirements

The RN(AAP) should seek immediate consultation from a physician/NP when any of the following circumstances exist:

- dyspepsia with alarming symptoms (vomiting, bleeding, abdominal mass, dysphagia, weight loss);
- uninvestigated, recurrent or ongoing dyspepsia;
- previous *H. pylori* diagnosis;
- 60 years or older with new or persistent symptoms (> 3 months);
- pain radiates to the back, neck, jaw, left arm or shoulder;
- protracted vomiting;
- active gastrointestinal bleeding (black stools, hematemesis);
- abdominal mass;
- unintended weight loss (> 5% over 6-12 months) ;
- long term ASA or NSAID use with history of Peptic Ulcer Disease;
- unexplained Iron Deficiency Anemia;

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- dysphagia;
- pregnant or breastfeeding client;
- alcohol use disorder; and/or,
- prior treatment for *H. pylori* (Interprofessional Advisory Group [IPAG], personal communication, October20, 2019).

Predisposing and Risk Factors

Predisposing and risk factor for *H. pylori* is related to socioeconomic status and poor living conditions in early life (Crowe et al., 2019). Density of housing, overcrowding, increased number of siblings, sharing a bed, ingesting unwashed and/or uncooked contaminated foods, unreliable supply of clean water, and close contact with individuals with *H. pylori* have all been linked to a higher rate of infection (Crowe et al., 2019; Thomas, 2019).

Health History and Physical Exam

Subjective Findings

The circumstances of the presenting complaint should be determined. These include:

- epigastric tenderness;
- nausea and vomiting;
- epigastric pain worse when stomach is empty (described as aching or burning);
- indigestion, bloating, and fullness;
- flatulence;
- hematemesis;
- loss of appetite/weight loss;
- pain at nighttime; and/or,
- melena stools (Crowe et al., 2019; Thomas, 2019).

Objective Findings

In uncomplicated *H. pylori* clinical findings are few and nonspecific but may include:

- halitosis;
- epigastric/abdominal tenderness on palpation;
- stool positive for occult blood; and/or,
- frequent flatus (Crowe et al., 2019; Thomas, 2019).

Differential Diagnosis

The following should be considered as part of the differential diagnosis:

- nonsteroidal anti-inflammatory drug induced peptic ulcer disease;
- esophagitis;
- functional dyspepsia;

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- gastritis;
- gastroenteritis;
- gastroesophageal reflux disease;
- celiac disease;
- cholangitis;
- cholecystitis;
- cholelithiasis;
- esophageal perforation;
- inflammatory bowel disease;
- irritable bowel syndrome;
- abdominal aortic aneurysm;
- acute coronary syndrome;
- Barrett's esophagus;
- gastric cancer;
- viral hepatitis; and/or,
- Zollinger-Ellison syndrome (Crowe et al., 2019; Thomas, 2019).

Making the Diagnosis

Presumptive diagnosis can be made based on history and physical findings.

Investigations and Diagnostic Tests

Any one of the following tests can be used to diagnose *H. pylori* and should only be used in clients suspected of having the infection and when treatment is planned (RxFiles Academic Detailing Program, 2021).

The stool antigen test (SAT) is preferred as it yields fewer false positive results and can be performed in an outpatient setting. To avoid false negative results, the client must be advised they:

- cannot have taken antibiotics for a minimum of 28 days;
- must hold proton-pump inhibitors and bismuth preparations (i.e., Pepto Bismol ®) for a minimum of 14 days; and,
- hold histamine H2-receptor antagonists (i.e., famotidine) and antacids (i.e., Diovol ®) for a minimum of one day.

The stool sample must not come in contact with water or urine and should be taken to the laboratory within 18 hours of collection and refrigerated until it is brought to the laboratory (RxFiles Academic Detailing Program, 2021).

The urea breath test (UBT) has a 90% sensitivity but requires referral to tertiary care facility. Preparation for this test varies and will be provided by the department conducting the test (RxFiles Academic Detailing Program, 2021).

Biopsy with histological examination requires a referral to a gastroenterologist or general surgeon for gastroscopy (Crowe, 2019b; Thomas, 2019). A physician/NP must make the referrals for UBT

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and/or biopsy.

Serology tests for H. pylori are no longer considered clinically useful for diagnosing active infections. While they can detect the presence of antibodies, indicating past or present infection, they cannot differentiate between the two and are prone to false positives (Chey et al., 2024).

Management and Interventions

Goals of Treatment

The primary goals of immediate treatment are to relieve symptoms, treat the infection, prevent complications, and prevent transmission (Thomas, 2019).

Non-Pharmacological Interventions

The RN(AAP) should recommend, as appropriate, non-pharmacological options including smoking cessation and reduction or cessation of alcohol ingestion (Thomas, 2019).

Pharmacological Interventions

The pharmacological interventions recommended for the treatment of *H. pylori* are in accordance with *RxFiles: Drug comparison charts (*RxFiles Academic Detailing Program, 2021) and *Anti-Infective Guidelines for Community-acquired Infections* (Anti- Infective Review Panel, 2019).

H. Pylori Treatment Regimens

Treatment of *H. pylori* includes a 14-day quadruple therapy. Avoid bismuth subsalicylate if client has severe renal dysfunction (CrCl < 30 mL/min). To calculate glomerular filtration rate (GFR) see the following GFR calculator.

	Drug	Dose	Route	Frequency	Duration
Adult not allergic to penicillin (option one)					
	Esomeprazole	40 mg	p.o.	b.i.d.	14 days
OR	Lansoprazole	30 mg	p.o.	b.i.d.	14 days
OR	Omeprazole	20 mg	p.o.	b.i.d.	14 days
OR	Pantoprazole	40 mg	p.o.	b.i.d.	14 days
OR	RABEprazole	20 mg	p.o.	b.i.d.	14 days
PLUS	Amoxicillin	1000 mg	p.o.	b.i.d.	14 days
PLUS	Metronidazole	500 mg	p.o.	b.i.d.	14 days

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	Drug	Dose	Route	Frequency	Duration
PLUS	Clarithromycin	500 mg	p.o.	b.i.d.	14 days
Adult allergic to penicillin (option two)					
	Esomeprazole	40 mg	p.o.	b.i.d.	14 days
	Drug	**Dose**	**Route**	**Frequency**	**Duration**
OR	Lansoprazole	30 mg	p.o.	b.i.d.	14 days
OR	Omeprazole	20 mg	p.o.	b.i.d.	14 days
OR	Pantoprazole	40 mg	p.o.	b.i.d.	14 days
OR	RABEprazole	20 mg	p.o.	b.i.d.	14 days
PLUS	Bismuth subsalicylate (Pepto Bismol)	2 caplets (524 mg)	p.o.	q.i.d.	14 days
PLUS	Metronidazole	500 mg	p.o.	q.i.d.	14 days
PLUS	Tetracycline	500 mg	p.o.	q.i.d. ac meals	14 days

Client and Caregiver Education

The RN(AAP) provides client and caregiver education as follows:

- Counsel about appropriate use of medications (dose, frequency, application, compliance, etc.).
- Advise that it is imperative to complete the entire course of therapy to ensure eradication of *H. pylori*.
- Recommend alternatives to nonsteroidal anti-inflammatory drugs, smoking cessation, and minimizing the use of alcohol (Anti-Infective Review Panel, 2019).
- Prior to any stool antigen test for H. Pylori, patients must be off PPI and bismuth preparations for 14 days and antibiotic for 28 days.
- Patients with symptoms can take antacids (e.g., calcium carbonate [Tums®], aluminum hydroxide /magnesium trisilicate [Gaviscon ®] up to 24 hours prior to their test (Alberta Health Services, 2021).
- Practice good hygiene to reduce the risk of transmission (i.e., hand washing and safe food handling).

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Monitoring and Follow-Up

The RN(AAP) will:

- Advise follow-up after therapy is completed or if symptoms progress despite therapy or if symptoms fail to respond to therapy.
- Order post-treatment retesting for *Helicobacter pylori* Infection as:
    - Persistent infection can lead to serious complications such as peptic ulcer disease, gastric mucosa-associated lymphoid tissue (MALT) lymphoma, and gastric cancer.
    - Treatment failure is not uncommon, especially in the context of increasing antibiotic resistance.
    - Symptom resolution does not reliably indicate eradication, as symptoms may improve even if the infection persists (Chey et el., 2024).
    - Ensure *H. pylori* eradication following treatment, the following will be observed:
    - **Retesting**:
        - Retesting should be conducted no earlier than four weeks after the completion of therapy. Testing before this interval may yield false-negative results due to residual suppression of the bacteria.
    - **Medication Restrictions Prior to Testing**:
        - Patients must be off all antibiotics, including those used in the *H. pylori* treatment regimen, for a minimum of four weeks.
        - Proton pump inhibitors (PPIs) must be discontinued for at least two weeks prior to testing, as they can interfere with test accuracy.
    - **Testing Methods**:
        - Recommended diagnostic tools for confirming eradication include the urea breath test (UBT) or the stool antigen test (HpSAT).
    - **Reinfection Risk**:
        - Once eradication is confirmed, the risk of reinfection is low, typically less than 2% in most populations (Alberta Health Services, 2021).

Complications

Persistent infection with *H. pylori* can lead to serious complications such as peptic ulcer disease, gastric mucosa-associated lymphoid tissue (MALT) lymphoma, and gastric cancer (Chey et al., 2024).

Referral

Refer to a physician/NP if client presentation is consistent with those identified in the *Immediate Consultation Requirements* section, where there is diagnostic uncertainty, or who has not responded to treatment (IPAG, personal communication, October 20, 2019).

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