THE PATHCARE NEWS

HELICOBACTER PYLORI IN SOUTH AFRICA

DISEASE BURDEN, DIAGNOSIS, RESISTANCE-AWARE TREATMENT AND CONFIRMATION OF CURE

H. pylori is common in South Africa, but management should not necessarily be routine and empiric. Identify high-risk patients who require endoscopy. Confirm **active** infection: the non-invasive stool antigen test performs well in this scenario. Consider PCR-based H. pylori detection with clarithromycin susceptibility determination on invasive samples where indicated, and **document eradication after every course of therapy.**

H. pylori in adults: chronic infection and cancer risk matter

African populations have among the world's highest *H. pylori* prevalence. Prevalence in South Africa is documented between 50–80% in most population groups. Although treatment is routinely recommended in infected adults, a test-and-treat approach is not currently recommended in the paediatric population. Although reported gastric cancer incidence has been low in Africa, a 6-fold increase in gastric cancer burden is predicted in Sub-Saharan Africa[8]

50–80%	1–3%	Up to 31%
Estimated prevalence	Lifetime gastric adenocarcinoma risk in infected persons	Clarithromycin resistance in PathCare testing data

Clinical spectrum and cancer pathway

Persistent infection produces chronic active gastritis and may progress through atrophy, intestinal metaplasia, and dysplasia to adenocarcinoma, as outlined by the Correa cascade[3]. CagA-positive strains, documented in some South African isolates, confer a greater carcinogenic risk and the VacA allelic variation, especially s1/m1, modifies epithelial injury and immune evasion. Common disease associations and lifetime manifestations include: chronic gastritis (100%), peptic ulcer disease (15-20%), gastric mucosa-associated lymphoid tissue lymphoma (MALT, <1%), gastric adenocarcinoma (1-3% risk), unexplained iron-deficiency anaemia and immune thrombocytopaenia.

- Although eradication is disease-modifying, the risk does not fully normalise once advanced atrophy or intestinal metaplasia is established. Histological risk stratification and endoscopic surveillance may remain necessary.

Who to test, and who needs endoscopy?[2]

Non-invasive test-and-treat approach is reasonable when:

- The patient has uninvestigated dyspepsia without alarm features and is at low clinical risk.
- A reliable test for active infection is performed: preferably a monoclonal stool antigen test (SAT). Urea breath test (UBT) is not currently routinely available in South Africa[2,3].

Endoscopy is always recommended when alarm features are present, age ≥50 years, or high risk of malignancy

- Alarm features include gastrointestinal bleeding or melaena, progressive dysphagia, persistent vomiting, unintentional weight loss, iron-deficiency anaemia, epigastric mass, or other features suggesting malignancy or structural disease.
- Endoscopy is also recommended for persistent or recurrent symptoms of dyspepsia, a strong family history of upper gastrointestinal malignancy, or failure of an appropriate treatment strategy.
- Endoscopy-guided rapid urease testing (RUT) has excellent performance, (sensitivity 85-95%, specificity 95%) for active *H. pylori* infection detection, but performance varies according to assay utilised, *H. pylori* culture is not routinely available or performed due to suboptimal sensitivity (25-70%).

IMPORTANT

Age risk stratification differs across African guidance, with some guidelines suggesting an age >45 years and others an age ≥50 years[2,3]. Consider the patient's overall cancer risk and use your clinical discretion rather than relying on age alone.

Selecting the correct diagnostic test

ROUTINELY AVAILABLE PATHCARE TESTING OPTIONS:

Test (code)	Performance	Best use	PathCare test frequency/ Turnaround time
Stool antigen test (MFHPAG)	Sensitivity 90–95%; Specificity 90–98%	Practical, preferred first-line test and confirmation of cure	Performed daily. 6 hours from receipt at testing laboratory
Histology *gold standard	Sensitivity >95%; Specificity 100%	Endoscopy indicated with Sydney gastric tissue protocol sampling recommended; allows assessment of *H. pylori* infection, gastritis, atrophy and intestinal metaplasia.	Performed daily
PCR on gastric biopsy (V5813), or stool (E6255)	Sensitivity 90-95% Specificity 95-99%	*H. pylori* detection plus clarithromycin resistance detection. Gastric tissue is the preferred specimen type.	Batch-tested twice/week (Monday & Thursday). Expected TAT: 3-5 days from receipt at testing laboratory.
Serology (ZXSHEL)	Sensitivity 80-95% Specificity 70-85%	**Not recommended** to diagnose active infection. Useful for confirming H. pylori exposure & population surveys. Unable to distinguish active from past infection or confirm cure.	Performed daily. 24 hours from receipt at testing laboratory

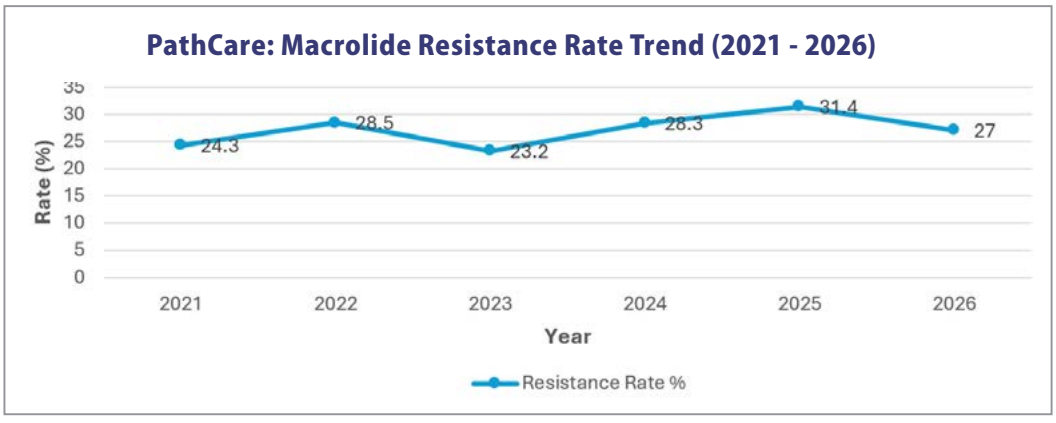
Avoiding false negative results

Simple antacids such as calcium carbonate, aluminium hydroxide or magnesium-containing antacids generally do not interfere with *H. pylori* stool antigen test. However, PPI-based acid suppressants, bismuth and antimicrobials suppress bacterial load and may cause **up to 33% false-negative** SAT, Urea breath test (UBT), Rapid urease test (RUT), and histology results. It is recommended to obtain biopsies from appropriate gastric sites when endoscopy is performed and to communicate recent antimicrobial and acid-suppressive exposures to the laboratory. Current guidance, including Maastricht VI, advises discontinuation of PPIs for 2 weeks and antibiotics or bismuth for 4 weeks prior to testing, where it is clinically safe to do so.[3,4] Where PPIs cannot be stopped, a negative test should be interpreted with caution.

TEST OF CURE: AN IMPERATIVE

Confirm successful ***H. pylori*** eradication with SAT at least 4 weeks after antibiotic completion. The patient should be off PPIs for 14 days, long enough to avoid suppression-related false negative results. Serology is unsuitable in this setting.

OPTIMISING ANTIMICROBIAL STEWARDSHIP: Use resistance-aware therapy



*Resistance data represent a **specialist-referred biopsy cohort** and may not reflect resistance in patients in primary health care. National clarithromycin resistance findings, in this cohort, are above the 15-20% threshold above which empiric clarithromycin-based therapy is not recommended. The A2143G mutation predominates, over 70% of resistant isolates, and confers the highest level of resistance. The trend is rising, which underscores the need for susceptibility-guided therapy in South Africa. Unpublished PathCare laboratory data.*

Scan QR Code or click hyperlink to "Add special instruction: add-on *H pylori*/macrolide resistance testing PCR on histopathology *H. pylori* positive tissue specimens"

ANTIBIOTIC STEWARDSHIP RULE

Do not use clarithromycin triple therapy empirically when known local clarithromycin resistance is >20% at your level of care, or when the patient has failed previous treatment with a macrolide-containing regimen. Where feasible, use molecular PCR results and previous antibiotic exposure to guide selection of an appropriate regimen.

Treatment regimen

Prescribing considerations

- Verify true penicillin allergy. De-labelling penicillin allergy, where appropriate, preserves amoxicillin-containing options.
- Review all previous macrolide, metronidazole, fluoroquinolone and rifamycin exposure.
- Check interactions, pregnancy status, QT prolongation risk and organ dysfunction where relevant. Explain dosing complexity and adverse effects before initiation.
- Provide the full course and adherence plan.
- Consider **adding probiotics** to reduce adverse effects and improve tolerability, adherence and treatment completion[3].

	Regimen and doses	Duration	Eradication	Consideration
First-line (preferred, when Bismuth available)	**Bismuth quadruple:** PPI BD + bismuth subcitrate / subsalicylate QID + tetracycline 500 mg QID + metronidazole 400 mg TDS	14 days	>85-90%	Preferred where clarithromycin resistance is >20%.
First-line (alternative)	**Clarithromycin triple:** PPI BD + clarithromycin 500 mg BD + amoxicillin 1 g BD	14 days	70-85%	Only where clarithromycin resistance is known to be <15–20%; not when resistance is unknown. In penicillin allergy, substitute metronidazole for amoxicillin.
First-line (alternative)	**Non-bismuth concomitant:** PPI BD + amoxicillin 1 g BD + clarithromycin 500 mg BD + metronidazole 400 mg BD	14 days	~85-90%	If bismuth is unavailable and clarithromycin resistance is >20%.
Second-line	**Bismuth quadruple** (as above), or **levofloxacin triple:** PPI BD + levofloxacin 500 mg OD + amoxicillin 1 g BD	14 days	70-85%	Bismuth quadruple preferred after failed clarithromycin therapy. Caution advised with levofloxacin in TB-endemic settings.
Second-line	**High-dose dual:** high-dose PPI + amoxicillin 1 g TDS/QID, or **rifabutin triple:** PPI BD + rifabutin 150 mg BD + amoxicillin 1 g BD	14 days	~81% (dual)	Consultation with gastroenterologist/ microbiologist recommended after two failures. Caution with rifabutin in TB-endemic settings.
Salvage	**Vonoprazan-based dual or triple** therapy: vonoprazan 20 mg BD + amoxicillin 1 g TDS (with or without clarithromycin 500 mg BD)	14 days	84-97%	No local South African efficacy data due to limited PCAB availability and high cost.

Bismuth-containing products have been difficult to obtain in South Africa since 2020, which limits the preferred first-line option. Where bismuth is unavailable, a molecular clarithromycin result helps to choose between clarithromycin-based and concomitant regimens. Doses above summarise published guidance and should be checked against current product information and local formularies.

Summary care pathway

1 STRATIFY	Dyspepsia history, medication exposure, alarm features, family history and gastric-cancer risk.
2 TEST	SAT advised for low-risk patients; endoscopy with biopsies (and tissue PCR) when clinically indicated.
3 TREAT	Choose a 14-day, resistance-aware regimen; consideration for clarithromycin-based triple therapy prescribed at primary health care setting.
4 CONFIRM	Document eradication using SAT at least 4 weeks after completing antibiotics, and at least 2 weeks off PPIs.
5 ESCALATE	After failure, review adherence and prior antibiotics; if not already done, obtain biopsies or request add-on gastric tissue **PCR + macrolide resistance.**

IMPORTANT: INTERPRET LOCAL LABORATORY DATA CAUTIOUSLY

The PathCare 2021–2026 results are derived from a predominantly specialist-referred cohort. They are clinically important as a resistance signal, but may not be representative of primary health care macrolide susceptibility data.

References

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