ENHANCING HELICOBACTER PYLORI PATIENT OUTCOMES WITH ULTRA-FAST UREASE TESTING

Case study from an NHS trust endoscopy department

Endoscopy is a vital medical procedure used to examine the interior surfaces of an organ or tissue. The process involves the insertion of a flexible tube – with a light and camera attached – into a natural opening such as the mouth, allowing the visualisation and identification of any abnormalities. Upper gastrointestinal endoscopy plays a particularly important role in diagnosing and monitoring gastrointestinal conditions, such as cancer, inflammation and coeliac disease, as well as being able to diagnose infections caused by *Helicobacter pylori (H. pylori)*. The endoscopy and minor operations unit at the Nelson Health Centre – part of St George's University Hospitals NHS Foundation Trust – relies on transnasal endoscopies to investigate symptoms of the upper gastrointestinal tract and retrieve biopsies for testing when necessary. Tissue samples are assessed using the ULTRA-FAST UFT300 *H. pylori* Quick Test, a near-patient rapid urease test from BIOHIT HealthCare that can be used to confirm or rule out *H. pylori* infection in gastric biopsies.

H. pylori: a threat to digestive health

H. pylori is a Gram-negative bacterium that colonises the stomach lining of over half of the world's population[1,2] and approximately one third of individuals in the UK. While most colonised individuals are asymptomatic, many will develop an infection that can lead to inflammation and disrupt the protective mucus layer of the stomach, leaving them susceptible to ulcers, gastrointestinal bleeding and symptoms including stomach pain, bloating, nausea, vomiting, loss of appetite and weight loss. More severe or prolonged infections can also lead to more serious digestive disorders. For example, *H. pylori* infection causes up to 95 per cent of duodenal ulcers and 80 per cent of gastric ulcers,[3] and it is also a leading cause of atrophic gastritis,[4] a pre-cancerous condition characterised by a decrease in function and marked loss of cells in the gastric mucosa. If untreated, more virulent strains of the bacterium can heighten the risk of developing gastric cancer. *H. pylori* is therefore recognised as a group 1 (carcinogenic) pathogen, and must be eradicated in patients with gastrointestinal issues who are confirmed to be infected with the bacterium.

> *"The UFT300 H. pylori Quick Test contributes to a speedy discharge process, as we can complete the surgical report on the spot and discharge patients immediately."*
>
> *Christina Finn*

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Effectively identifying H. pylori infection

Several methods are available to test for *H. pylori* infection in symptomatic patients, and different tests are selected depending on the clinical setting and the patient's age, presentation and medical history. In primary care settings, minimally invasive blood tests are commonly used for initial screening, but detecting the bacterium reliably can be challenging due to the non-specific symptoms that it causes. Active infections are typically diagnosed using a C^{13} urea breath test or stool antigen test, but the accuracy of these traditional methods can be impacted by proton pump inhibitor (PPI) use, previous antibiotic therapy and certain conditions of the gastric mucosa. Such tests also tend to be resource intensive, and can be quite inconvenient for patients.

The current gold standard for diagnosing *H. pylori* infection is biopsy histology, which involves the microscopic detection of the bacterium on a section of tissue. Rapid urease tests are therefore often compared to this method. These tests are performed on gastric biopsy samples, and rely on the bacterium's production of urease, an enzyme which reacts with urea in the test kit to produce ammonia. The resulting increase in pH is indicated by a colour change. In the case of BIOHIT's UFT300 *H. pylori* Quick Test, results are obtained in just 5 minutes. This method is highly effective due to its sensitivity, specificity, and faster turnaround time compared to alternative biopsy analysis techniques like tissue culture or histology.

Enhanced recovery and rapid results

Endoscopists at the Nelson Health Centre rely on the UFT300 *H. pylori* Quick Test to analyse biopsy samples in approximately [percentage] of the patients that they examine. While tissue samples have historically been obtained via traditional gastroscopy – in which the endoscope is passed through the mouth and throat – the health centre has introduced a transnasal technique into its endoscopy suite, navigating the digestive tract via the nasal passages. This method has the significant advantage of bypassing the gag reflex, often eliminating the need for sedation. Patients can remain awake and alert, and can communicate with the medical team during the procedure, resulting in a more comfortable and efficient examination. The reduced reliance on anaesthesia also shortens recovery times from 45 minutes to a nearly immediate patient discharge.

The rapid results obtained from the UFT300 *H. pylori* Quick Test also contributes to a streamlined flow of patients through the department. Previously, patients were encouraged to wait for their biopsy results in the recovery room, where nurses would receive reports from the clinician and communicate the findings. However, early or self-discharges could easily complicate this process. Rapid urease testing allows endoscopists to confidently provide reliable results to individuals within a few minutes, minimising waiting times and reducing the stress and inconvenience that can result from potential delays. Direct reporting also optimises staff productivity and helps to avoid communication errors or paperwork complications associated with multiple handovers and information exchanges.

A streamlined solution for optimal patient outcomes

The UFT300 *H. pylori* Quick Test is essential for assisting endoscopists in swiftly diagnosing or ruling out *H. pylori* infection during transnasal endoscopies. Prompt communication of results enables infected patients to quickly pursue necessary treatments, preventing long-term gastric inflammation and improving clinical outcomes. By enhancing patient recovery and preventing related digestive disorders, the UFT300 *H. pylori* Quick Test ensures the highest standard of care at the Nelson Health Centre.

> *"One of the main benefits of transnasal endoscopy is that the method of entry through the nose avoids irritating the gag reflex. Patients therefore don't require sedation, and this reduces recovery time significantly."*
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> *Christina Finn*

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