

# STREAMLINING *HELICOBACTER PYLORI* DIAGNOSIS WITH ULTRA-FAST UREASE TESTING CASE STUDY FROM AN NHS TRUST ENDOSCOPY NETWORK

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*Helicobacter pylori* (*H. pylori*) is a Gram-negative bacterium that colonises the stomach of approximately half of the world's population,<sup>1</sup> and approximately 30 per cent of individuals in the UK. Although the majority of infected individuals are asymptomatic,<sup>1</sup> many will develop inflammation and disruption to the protective mucus layer of the stomach. This increases the risk of gastrointestinal bleeding and also leaves sufferers more susceptible to a range of severe and potentially life-threatening digestive disorders.

Studies indicate that *H. pylori* infection is responsible for 95 per cent of duodenal ulcers, 70-80 per cent of gastric ulcers,<sup>2</sup> and 90 per cent of atrophic gastritis cases.<sup>1</sup> Research also suggests that some more virulent strains of the bacterium can increase the risk of developing gastric cancer if left untreated.<sup>3</sup> The Northern Care Alliance NHS Foundation Trust (NCA) is one of the largest NHS Trusts and provides comprehensive healthcare services to over one million people across Salford, Oldham, Rochdale and Bury in North West England. The trust also delivers specialist medical care to patients from Greater Manchester and its surrounding areas. NCA provides a full range of endoscopy services across all four of its hospital sites, and carries out approximately 40,000 procedures every year on both inpatients and outpatients, making it one of the busiest endoscopy networks in the country. The endoscopy team at NCA uses the ULTRA-FAST UFT300 *Helicobacter pylori* Quick Test from BIOHIT HealthCare to detect the presence of *H. pylori* during gastroscopy procedures. The rapid urease test has become a part of the diagnostic pathway and long-term monitoring for various chronic gastrointestinal diseases. It is also vital for the fast identification or rule-out of infection in acute cases that present at the trust's emergency departments.



**Stephanie Slater**, *Point-of-care training coordinator*

**“** We know we can rely on BIOHIT HealthCare to be responsive whenever we have a query. The team has a wealth of knowledge and experience, and is always enthusiastic about supporting us with our training needs. **”**

*Stephanie Slater, Point-of-care training coordinator*

## Barriers to detecting *H. pylori* infection

Once diagnosed, *H. pylori* infection can be treated through eradication therapy with proton pump inhibitors and antibiotics. However, definitively detecting the bacterium early on and in primary care can be difficult due to availability of tests and symptom profiles that are not always clear. Active infections can be diagnosed using a C<sup>13</sup> urea breath test or stool antigen test if conditions are optimum, but these traditional methods are affected by the use of proton pump inhibitors and can also give false negative results in patients with advanced mucosal diseases such as atrophic gastritis – conditions that cannot be determined from a clinical assessment alone.

The current gold standard in *H. pylori* diagnosis is to perform histological analysis on biopsy samples taken from the gastric mucosa. Rapid urease tests (RUTs) can also be used in this setting as they deliver cost and time efficiency to diagnosing *H. pylori* from biopsies taken during endoscopy. The bacterium produces the enzyme urease in large quantities, which breaks down urea in the RUT to form ammonia, causing a rise in pH that is indicated by a colour change. This method is generally regarded as one of the most effective options for the diagnosis of *H. pylori* due to its high sensitivity and specificity, as well as its fast turnaround time in comparison to alternative culture or histology techniques. However, there are a number of different RUT tests available, and all have slightly different procedures and times to results ranging from 5 minutes up to 24 hours. It can be challenging to monitor and standardise the time that tests are given to react due to the rapid turnover of patients during an endoscopy list, and patients are often discharged before their test results are ready. However, test timings are critical for delivering accurate results. Therefore training and education across multiple hospital sites and team members ensures consistency in results interpretation and reporting.

## An ultra-fast route to confident diagnoses at the point of patient care

The UFT300 Quick Test is a near-patient RUT from BIOHIT HealthCare that confirms or rules out *H. pylori* infection while patients are undergoing gastroscopy. Practitioners at the NCA routinely use the UFT300 Quick Test at the point of patient care on antrum and

**“** The UFT300 Quick Test provides on-the-spot results, so our patients can start treatment as soon as possible. It also acts as a fast rule-out test, providing individuals testing negative with much-needed reassurance that they are not infected. **”**

*Carly Jones, Endoscopist*

corpus mucosal biopsies. Endoscopists often make the decision to perform the test beforehand based on the presence of certain clinical indications, or when test results from primary care indicate the likelihood of *H. pylori* infection. They may also decide to perform the test while carrying out the endoscopy procedure if gastrointestinal damage is visible to the endoscopist.

UFT300 Quick Test results are available in five minutes, and this short time to result enables practitioners to confidently provide reliable results to individuals before they even leave the operating theatre. Patients can then commence eradication therapies immediately in the event of a positive result, supporting faster recovery and clinical outcomes. Receiving an outcome immediately, rather than waiting for results from the hospital long after the patient has been discharged, also minimises waiting times for patients. This is crucial in reducing stress and inconvenience, and allowing individuals to go about their day as soon as possible after their examination, enhancing the overall patient experience. A fast turnaround time has the additional knock-on benefit to the NCA of greatly optimising staff time and helping to avoid complications with paperwork and follow-up that may be caused by delayed results or post-procedure report editing.

## Upholding the highest testing standards

Quality control is crucial for all tests designed to be used at the point of patient care, but RUTs may be excluded by quality control protocols that cover other point-of-care tests in some institutions. The NCA takes a proactive approach to quality control by validating the UFT300 Quick Test on a weekly basis using BIOHIT HealthCare's urease *H. pylori* Control+ solution.

The trust collects, monitors and reports this validation data, and the NCA has consistently demonstrated 100 per cent compliance. The test's high accuracy, sensitivity and specificity,<sup>2</sup> together with the trust's stellar quality control protocols, provide NCA clinicians with confidence in the results they use to make clinical decisions and advise patients.

### Expert technical support when it is needed most

The NCA's Point of Care Testing team coordinates the various aspects of compliance and governance surrounding the UFT300 Quick Test by providing quality documents, performing equipment audits, and coordinating the annual training provided by BIOHIT HealthCare to key designated staff members. The Point of Care Testing team is then responsible for ensuring this training is quickly and effectively disseminated to all other users in the trust. This is critical for making sure that all test users are confident and competent in performing the UFT300 Quick Test correctly and efficiently. The endoscopy network is also supported by BIOHIT HealthCare's informative online training module for the UFT300 Quick Test, and regularly benefits from the company's scientific expertise and fast response time.

“ Transitioning from a gel-based to solution-based test has made the screening process far easier for the NCA endoscopy staff and reduces opportunities for error, further simplifying our diagnostic workflow. ”

Paula Pendry, Endoscopy sister

“ We needed a standardised, easy-to-use and rapid testing solution that could be used concurrently with gastroscopy to streamline the diagnosis or rule out this common bacterial infection. ”

Paula Pendry, Endoscopy sister

The UFT300 Quick Test has become a valuable tool in supporting endoscopists within the NCA to rapidly diagnose or rule out *H. pylori* infection near to the patient, without the need for time-consuming laboratory investigations. Decentralising diagnostics like this has helped the endoscopy network to progress towards a standardised, efficient and consistent reporting workflow, minimising the time and administrative burden on personnel. These benefits also support doctors in prescribing suitable *H. pylori* eradication treatments as soon as possible if needed, aiding the prevention of related digestive disorders and ensuring the highest quality of care possible for patients.



### References:

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