CYTOPRIME
Evaluation overview

Context

A non-endoscopic capsule-sponge test, like the Cytosponge, can drive the earlier detection of oesophageal cancer and transform the care pathway for people at risk.

Project CYTOPRIME has piloted the Cytosponge test in primary and community care to support the recovery of endoscopy services across the North West Coast (NWC), testing 150 patients within the 5-month pilot timeframe.

By offering patients an alternative diagnostic option that can be provided in a primary care setting, CYTOPRIME sought to reduce the demand for secondary care resources and decrease waiting times between referral and diagnosis.

Key results

107
endoscopies avoided

15
patients prioritised for urgent endoscopy

31%
reduction in patients waiting more than 6 weeks from referral to procedure

£3.9m
net system savings modelled for ICS rollout over 5 years

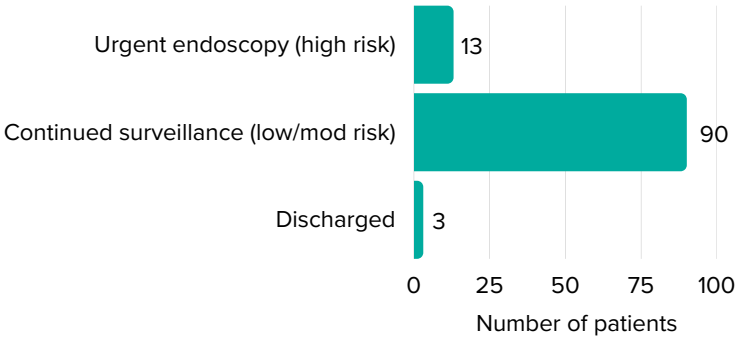
81%
of patients who responded would have the Cytosponge test again

75%
of relevant staff surveyed were satisfied with the use of the Cytosponge

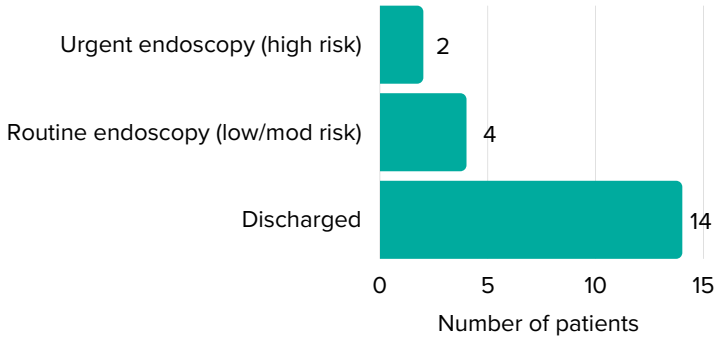
Quantitative findings

Appointments and procedures were conducted to a high level of success, with 93.9% (n=168) of patients attending their appointments, and 89.3% of attendees having successful procedures (n=150).

Barrett's surveillance patient outcomes



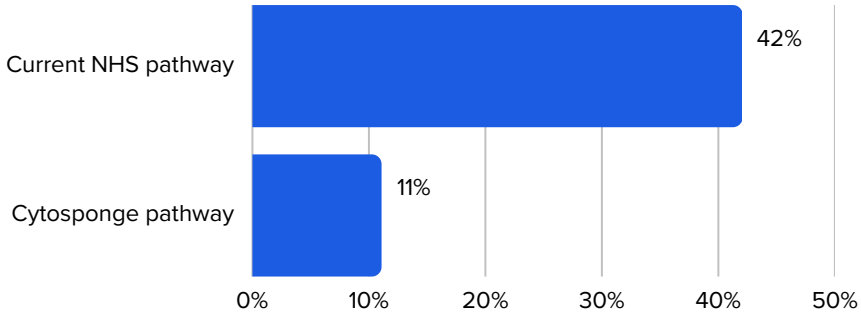
Reflux patient outcomes



Around 84.9% of Barrett's surveillance patients were deemed low/moderate risk. Those at moderate risk were recommended a planned endoscopy in 12-18 months, and those at low risk were recommended to continue surveillance in 3-5 years, in line with BSG guidelines. Therefore, it can be inferred that the need for endoscopy was diverted for the majority by at least 12 months. Discussions are ongoing as to whether this next surveillance procedure would need to be an endoscopy or whether Cytosponge could be appropriate.

Within the pilot, waiting times from referral to appointment were 21 days for the Cytosponge test, compared to current endoscopy waiting list times of 44 days for the same region. On average, patients received the results from their Cytosponge test 19 days after their appointment. Research suggests that waiting times for endoscopy results can vary between same day of the procedure and up to two months following.

Percentage of patients waiting for more than 6 weeks from referral to procedure



Around 11% of patients waited for six weeks or more from their referral to having a Cytosponge test. This compares favourably with current endoscopy waiting times where 42% have been on the endoscopy waiting list within Lancashire, South Cumbria, Cheshire, and Merseyside for six weeks or more.

Health economic results

Scenario 1 - Pilot data
2022/23 (5 months)

-£18.9k
5-month net present value (NPV) estimate

£0.83
return for every £1 invested

Scenario 2: Pilot sites over 5 years
Forecast based on Scenario 2 population

£196k
5 year (NPV) estimate

£1.14
return for every £1 invested

Scenario 3: ICS rollout over 5 years
Forecast based on Scenario 2 population

£3.86m
5 year (NPV) estimate

£1.20
return for every £1 invested

A total of 150 Cytosponge tests were successfully completed during CYTOPRIME. To evaluate the health economic impact of delivering this service, Unity Insights conducted three scenario models.

Scenario 1 is an ex-post analysis assessing the impact of the CYTOPRIME project during the evaluation timeframe of the pilot. Scenario 2 extrapolates this data to evaluate impact over a 5-year time horizon with the same sites deploying this service as during the pilot. Scenario 3 further extrapolates how this would impact at the Integrated Care System level, using current procedure and waiting list figures within Lancashire and South Cumbria.

Scenarios 2 and 3 display a positive NPV, showing that implementation of a non-endoscopic capsule sponge clinic can provide net financial benefits to the health system. This indicates that while initial investment is required to set up the service in the short term (Scenario 1), within the first year financial benefits can already be realised (Scenario 2 shows a positive NPV across each of the five years). It should be noted that the benefits modelled here do not capture the wider social and economic benefits of the intervention, such as improved patient care and quality of life and reduced downstream intervention costs.

Patient and staff feedback

Patient feedback

Fifty patients provided feedback, 42 had the Cytosponge test and 8 did not. Reasons for uptake included shorter waiting times, the speed/ease of the procedure, the less invasive nature of the test, and the convenience of attending the appointment alone. Reasons for declining the Cytosponge test included the lack of sedation, worry of sponge detaching, issues with swallowing/gag reflex, and belief that an endoscopy was a more thorough option. Overall, patient feedback was positive and praised staff for their reassurance and answering concerns.

"...a quick test and I could go back home straight away"
"would definitely prefer this to the camera every time"
"Everything was really good, short waiting list, straight in when I arrive, all helpful and put me at my ease. I thought it was great."

When specifically compared to an endoscopy, patient feedback was also mostly positive, noting that the Cytosponge test was quicker/easier, more preferable, less invasive, and convenient in clinic location and lack of sedation. Around 81% of patients that responded would have a Cytosponge again, and after reflecting on further information, four of the eight surveyed patients that declined the Cytosponge would have it in the future, highlighting the importance of the information leaflets.

Staff feedback

Staff praised the offer of an alternative test for patients, and highlighted the impact of clearing the Barrett's surveillance endoscopy backlog at four NWC trusts. The co-design and collaboration across the project was a key enabler.

Key challenges included additional administrative burden and accessing staff training; future use of a train-the-trainer model could help alleviate this.

Health inequalities

Although limited by sample size, demographics of the patient population within CYTOPRIME were largely in line with those typically affected by oesophageal cancer, and that of the local region. The broad majority of patients seen were between 60-84 years, in line with the disease profile, with 64% of CYTOPRIME patients male, similar to the 69% seen across all oesophageal cancer cases. Around 99% of CYTOPRIME patients identified as “white”, with “Asian/Asian British” patients slightly more prevalent in the local area than seen within the pilot. Larger studies should be undertaken to understand how this varies across geographies. In terms of deprivation indices (IMD) and ethnicity, 56% of CYTOPRIME patients fell within the most deprived areas (IMD 1-4) in comparison to 49% within the Lancashire population as a whole.

Recommendations

1. Training: consider additional trainer availability and a ‘train the trainer’ model to facilitate upskilling of staff. Include a feedback loop on un-successful tests to improve efficiency and reduce waste.
2. Sustainable implementation: define the standard operating procedure early to guide clinical pathways and identify required resources for effective cost management.
3. Time & resources: reduce admin processes to decrease staff burden and streamline pathways from triage to results.
4. Patient information: share information leaflets before patients have to make a decision to drive informed uptake and possibly increase attendance and reduce appointment length.
5. Feedback: continue to adopt feedback where appropriate, e.g., changing the term ‘string’ to ‘thread’.

Conclusion

The results of this evaluation into the pilot of the Cytosponge test across the North West Coast suggest that the implementation and operating costs of the Cytosponge test are outweighed by the benefits it contributes to staff, patients, and the wider health and social care system.

A positive return on investment is seen when modelling implementation and outcomes of the project over a 12-month period, with a further increase seen over a period of 5 years.

Patients were happy to have an alternative option to an endoscopy, within a community rather than a secondary care setting, which came with shorter waiting times and felt less invasive. Staff praised the collaboration across teams and opportunities for upskilling, and the impact on the system in clearing the Barrett’s surveillance endoscopy backlog at four trusts. Stakeholders' efforts in addressing staff and patient feedback to improve the future implementation and delivery of Cytosponge tests is promising for future spread and adoption.

Project partners

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The AHSN Network

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