



AI for supporting Prostate MRI: One-Page Summary of Real World Evaluation of Pi at Musgrove Park Hospital

Prostate cancer (csPCa) is the second most common cause of cancer-related death in males in the UK. Currently only 53% of cases are diagnosed early (stages 1-2) in England (1). Late diagnosis drives mortality: 5-year survival is only 50% for men diagnosed at stage 4 (2).

‘Pi’ (Prostate Intelligence) is an AI software solution developed and managed by Lucida Medical (Lucida) that aims to speed up diagnosis for higher-risk cases. It interprets prostate MRI, risk stratifies each case, automatically books cases with high risk scores for the next available biopsy and provides automated outputs that support urology and radiology functions.

Health Innovation South West worked with Lucida Medical and Musgrove Park hospital to evaluate the implementation and impacts of PI in its real-world setting. Insights were drawn from:

- quantitative data: n=1,091 anonymised hospital records (referred to on this page using )
- qualitative data from eight staff interviews (referred to on this page using )



Impacts on practice



Radiologists and urologists have high trust and confidence in Pi. (Strong accuracy supported by quantitative ROC analysis )

Radiologists use it to:

- Prioritise which MRI reports to do first
- Improve time (~1 min per patient) and confidence measuring prostate volume
- Validate interpretations (cutting the need for a second radiologist read)

Urologists use Pi’s 3D heatmap images for support with locating lesions and improving internal communications and training.

Nurses who manage incoming prostate cases are responsible for checking Pi’s automated bookings and reported negative impacts on their other clinical duties (they cover all urology) and lower trust in the tool.



Impacts on wait times



Comparison of control (Nov 2023 to Feb 2024) and test (Nov 2024 to Feb 2025) periods found:

- > Patient numbers increased in the test period by 15%
- > Pathway times (referral to diagnosis) also increased (40.5 median days to 50: +23%)
- > However, the periods that Pi support remained stable (MRI scan to MRI report stayed at 2 days, MRI report to biopsy increased from 26 to 28 days - +8%)
- > Wait times for Pi-supported periods increased for those without csPCa, remaining stable for those with csPCa, suggesting the automated bookings and prioritisation are helping triage those most at risk.

Recommendations

(Elaborated on in full report).



- > Integrate better data systems and automations for manual data related tasks
- > Utilise administrative support for non-clinical tasks
- > Deploy dedicated data/IT staff within urology if feasible
- > Consider removing nurse checks if false positive rate is acceptably low
- > Provide ongoing feedback to Lucida Medical to continue to improve accuracy of Pi
- > Clinical staff can use the ROC analyses in decisions around Pi thresholds to use
- > Any lower threshold would need rethink of team structures and workflows
- > Address bottlenecks elsewhere in the pathway (i.e., MRI report to biopsy)

Other uses of Pi have been cited by staff to help standardise clinical practice and reduce biopsy in the future – specifically and in general. *“It’s very much at the beginning of it’s journey, you know, we’re the first in the country, and we’re exploring its potential uses as we go along.”* (Radiologist).

About Health Innovation South West We are one of 15 local health innovation networks across England, established by NHS England in 2013 to spread innovation at pace and scale. We help to find, test, evaluate and prepare solutions in health and social care in Cornwall and the Isles of Scilly, Devon, Somerset, and in some cases, nationally. For further information and to read the full report, contact matthew.gidman-rowse@healthinnovationsouthwest.com

(1) NHS England (2022), Cancer Registration Statistics, England, 2022.
(2) Cancer Research UK (2022), Prostate Cancer Statistics, Cancer Research UK.