Rapid cancer diagnosis for patients with vague symptoms

Welsh Health Economics Support Service and Swansea Bay University Health Board supporting value-based health care

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A collaborative project

- → Wales Cancer Network provided funds to establish two pilot rapid diagnosis centres (RDC) for people with vague symptoms suspicious of cancer.
- → WHESS researchers, based at Swansea University, gave initial advice (funded by HCRW) and undertook a health economic evaluation of the RDC at Swansea Bay University Health Board.
- → The evaluation was funded by Cancer Research UK.

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Health and Care Research Wales

Rhwydwaith Canser Cymru
Wales Cancer Network

The RDC…

- Pilot evaluations for a ‘one-stop’ clinic based on a Danish model of care coordinated via the Wales Cancer Network
- The RDC model in SBUHB is based at NPT hospital within selected GP clusters
  - Rapid access via GP referral for vague symptoms suspicious of cancer not meeting criteria for urgent referral
  - MDT service including access to CT
  - Patients receive diagnosis, refer back to GP or specialist onwards referral on ‘same day’

The aim of the economic evaluation

To estimate the **costs and consequences of the Rapid Diagnosis Centre** in improving outcomes compared to usual care for people with vague/non-specific symptoms that could be due to cancer (but do not fit USC referral pathway)

Methods – Overview

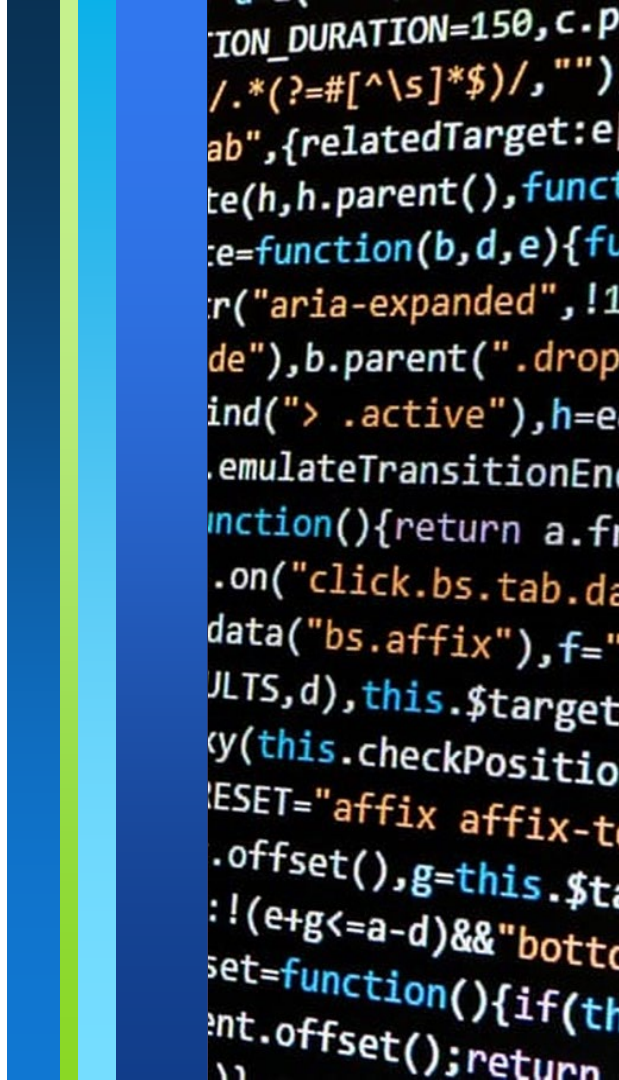
- Build a discrete event simulation model to estimate the **costs, waiting times and impact on patient quality of life** of the RDC in the diagnosis of patients with non-specific symptom suspicious of cancer **between referral and diagnosis.**
- Identify a suitable and **relevant comparator** together with the RDC team.
- Undertake a patient flow analysis to estimate the **impact of changes to the service on patient waiting time** during their RDC appointment.

Working Together to Deliver

- This was the **first of its kind** evaluation.
- The challenges of getting real-world data required **extensive collaboration between researchers and the RDC team**.
- Working in partnership enabled the researchers to design and deliver a **research-led, analysis-driven evaluation** for a local service.
- Our shared learning was fed back through a range of events across Wales and the UK with **joint presentations** given.

Methods – Input parameters

- **Routine data from all RDC NPT patients up to May 2018 (n = 189):**
  - RDC attendance, tests, outcome, further investigations, follow up
  - Cost of running RDC on a monthly basis
- **Comparator data (n = 85):**
  - Healthcare resource use and costs of all investigations between referral and diagnosis (hospital data hand-searched)
- **Patient quality of life** (from published literature)



The results of the economic evaluation

The RDC addresses an unmet need and provides excellent value for money.

Results – Time spent at RDC

- **Patients spend just over 3 hours at RDC clinic (if they have a suspicion of cancer diagnosis)**
- **Just under 2 ¾ hours** if they either have a different diagnosis, the doctors need to investigate further or if they are discharged to the GP.
- Queuing times are between **0.28 minutes and 37 minutes** (95% CI: 15.20 to 15.53) depending on number of patients seen per clinic.
- Patients diagnosed with cancer wait on average **15.29 minutes (95% CI: 14.50 to 16.08) for the CNS appointment** post cancer diagnosis.

Results – Time to diagnosis

	Time to diagnosis (SD)	Derived from:
Mean time to RDC diagnosis (days)	5.90 (3.44)	RDC routine data (up to May 2018)
Mean time to diagnosis RDC + further investigations (days)	40.76* (27.96)	RDC routine data (up to May 2018)
Mean time to diagnosis comparator arm (days)	84.22 (65.27)	NPT hospital records

***If 4 outliers are removed, this decreases to 33.85 days.**

SD=standard deviation

Results – Implementation costs

Including total staff costs per half-day clinic, CT scan, any additional tests (including blood, urine and faecal tests, echocardiograms, electrocardiograms and MRIs)

Number of patients per clinic	RDC cost per patient
1 patient	£2,758.05
2 patients	£1,438.13
3 patients	£998.16
4 patients	£778.17
5 patients	£646.18

Healthcare cost between referral and diagnosis

Outcome category	Mean cost per RDC patient (SD) n=189	Cost per comparator patient (SD) n=85	Difference
Based on 5 patients per clinic			
Cancer diagnosis	£646.18	£2,396.99 (£2,106.96)	-£1,750.81
Other diagnosis	£646.18	£871.43 (687.69)	-£225.25
No serious pathology found	£646.18	£515.01 (£138.94)	£131.17
Further investigations	£1,036.28 (£214.27)	£953.07 (£381.42)	£83.20

Cost-effectiveness of the RDC

RDC is less costly and more effective compared to usual care (referral to USC pathway followed by downgrade).

Summary: The RDC…

- **Addresses an unmet need and provides excellent value for money.**
- **Is less costly and more effective** than usual care when run at (or near) full capacity.
- R**educes mean time until diagnosis** by 78 days for patients diagnosed during RDC and 43 days for patients requiring further investigations after their RDC appointment.

The Benefits of This Work

- The RDC was **established as a permanent service** within SBUHB - with our evidence key to the business case made.
- Patients and GPs now have access to a new service which can help to **improve outcomes for people with cancer** within the local region.
- Demonstrates how **health economics can support our NHS colleagues** in informing the value of new innovations.

Thanks!

Any questions?