

Evaluating the success of the pioneering Prehab4Cancer (P4C) Programme using innovative, collaborative methodology



Authors

Zoe Bristow (1), Catherine Neck (1), David Cullum (1), Brian Lau (1), Kirsty Rowlinson Groves (2), Alison Foxley (3), Chris Repperday (3), Philip Graham (3), Lisa Galligan Dawson (3), Zoe Merchant (3, 4), John Moore (3, 4, 5).

- (1) NHS South, Central and West (SCW), Bristol.
- (2) GM Active, Manchester.
- (3) GM Cancer alliance, Manchester.
- (4) Manchester University NHS Foundation Trust, Manchester.
- (5) University of Manchester, Manchester.

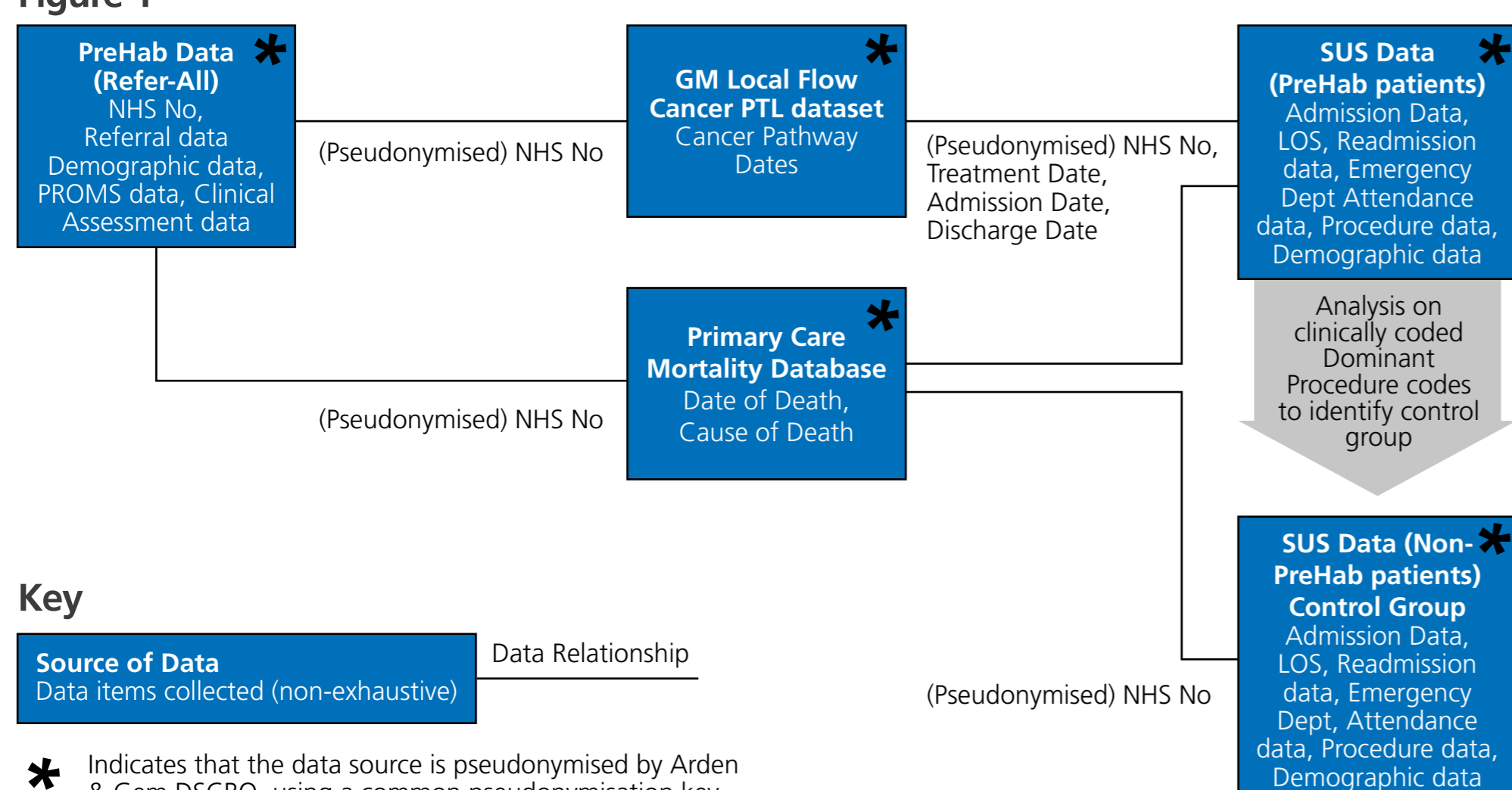
Background and Aims

Prehabilitation (Prehab) aims to better prepare people, both physically and mentally, before the start of their cancer treatments. To support the introduction of prehab programmes it is vital that we understand their value. Prehab4Cancer (P4C) [1] is the UK first system level prehabilitation and recovery programme for cancer patients implemented in April 2019 and delivered across the Integrated Care System (ICS) (previously the Health & Social Care Partnership - GMHSCP) of Greater Manchester (GM). P4C patient cohorts include oesophago-gastric, colorectal and lung cancer. The prehabilitation literature generally focuses on single hospital prehabilitation solutions, rather than multiple hospitals utilising a system level service. 10 NHS Trusts refer participants into the Prehab4Cancer and recovery programme. To understand the impact of P4C and to make the case for sustained funding we required an independent evaluation of the project, measuring the outcomes for patients in each of these GM hospitals.

Methods

As part of an independent evaluation of the P4C programme, performed by the NHS South, Central and West (SCW) Commissioning Support Unit [2], business intelligence teams from SCW and GM Cancer worked together with the P4C team. A combination of datasets were utilised; Prehab4Cancer Refer-All exercise referral system, GM Local Flow Cancer Patient Tracking List (PTL), SUS [3] data, Primary care mortality, with linkage and pseudonymisation provided by Arden and Gem [4] DSCRO (Data service for commissioners regional offices). Data permissions have been developed in GM, that allow local flows of data to be enabled to support analysis of healthcare across multiple hospitals within the GM system. Data flow was as shown in figure 1, with the procedure codes of cancer patients in Prehab4Cancer used to generate a matched, control group in SUS of patients that hadn't undergone Prehab.

Figure 1



From April 2019 to March 2021, 1534 patients were identified from the Prehab4Cancer Refer-All as undergoing a P4C evaluation. Of these, 1329 patients were identified as having cancer surgical episodes in SUS, of which 1066 were agreed as appropriate procedure codes. From these surgical codes a comparable group of non-prehab cancer surgical patients was generated from SUS hospital data. Reliable information was then generated to support evaluation.

Results

- P4C prepares people with cancer for the physical and psychological demands of their surgery
- They experience long-lasting health benefits following rehabilitation
- There are improvements in quality of life, functional ability (including physical activity) and long-term behavioural change
- Improvements are seen in both 'ward' and 'critical care' bed usage - patients are able to be discharged home quicker, with a better recovery
- Efficiency improvements for NHS clinical care pathways - including the opportunity for improved capacity and flow
- People who took part in the P4C programme had better rates of survival after one year than those who did not
- The service provision is cost-effective, with approximately 3x return on investment

	Number per Prehab Patient	Value	TOTAL (based on 1000 participants)
Bed Days released	1.5	£342 per day*	£513,000
Critical Care Bed Days released	0.4	£1214 per day*	£485,000
ED attendance prevented	0.39	£375 per attendance*	£146,250
Emergency Readmissions prevented	0.29	£342 per admission*	£99,180
Estimated Financial Benefit			£1,244,030
P4C programme Delivery Cost	-	£400 per participant	£400,000
Balance			£844,030

Conclusions

This independent evaluation demonstrated measurable impact and improvements for participants of the P4C programme. The evidence from this evaluation underpinned the GM financial system's decision to approve sustained funding for P4C. It supports the scoping of expanding P4C to other cancer cohorts including non-surgical pathways.

1. Moore J et al. Implementing a system-wide cancer prehabilitation programme: The journey of Greater Manchester's 'Prehab4cancer'. Eur J Surg Oncol. 2021 Mar;47(3):524-532
2. scwscu.nhs.uk/case-studies/evaluating-the-success-of-the-prehab4cancer-programme
3. digital.nhs.uk/services/secondary-uses-service-sus
4. www.ardengemcsu.nhs.uk

Acknowledgements

We would like to thank each of the Prehab4Cancer cohort clinical leads for the clinical speciality expertise and input into this evaluation: Mrs Gemma Faulkner (Colorectal), Mr Javed Sultan (OG) and Dr Matt Evison (Lung). Huge thanks to all of the P4C steering group members for contributions to the co-design and co-delivery of the service, particularly our user involvement representatives Steve Sweeney and Tony Collier.

And finally we are hugely grateful to all the GM Active Prehab4Cancer staff who through their hard work, knowledge and commitment have worked with P4C participants to achieve the outcomes as demonstrated in this evaluation.

E-mail contact details

Zoe.merchant@nhs.net @prehab4cancer @ZoeMerchantOT
John.moore@mft.nhs.uk @mysurgeryandme