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Introduction to Organisation and Reason for Submission

We are an interdisciplinary academic research team at Lancaster University based in the Faculty of Health and Medicine. We are conducting a study called PARITY - *Prehabilitation for Cancer Surgery: Quality and Inequality*, which is funded by the National Institute for Health and Care Research (NIHR). Prehabilitation is the practice of improving a patient's fitness before surgery, with the aim of improving their postoperative outcomes[1].

Whilst many NHS organisations offer prehabilitation, services vary widely between providers. The PARITY Study is researching problems of variation and inequality in prehabilitation before cancer surgery. The study is led by Dr Cliff Shelton and the project team comprises Dr Lisa Ashmore, Dr Laura Wareing, Dr Yasemin Hirst, Professor Andrew Smith, Dr Chris Gaffney, Ms Andrea Partridge, and Professor Jo Rycroft-Malone. On behalf of the PARITY Study team, we are submitting evidence in response to the question '*is the impact of innovations in cancer diagnosis and treatment on health inequalities being sufficiently taken into account'*? Our submission outlines the research planned for the ongoing study into national prehabilitation provision, quality, and inequalities. Initial findings relating to the impact on health inequalities made by innovations in prehabilitation treatment before cancer surgery are also described.

Prehabilitation for Cancer Surgery

Prehabilitation often focuses on physical activity, diet, and psychological support for patients. Interventions are increasingly being developed and implemented in the United Kingdom and have become an accepted part of the cancer surgery pathway. Prehabilitation offers an innovative approach to reduced hospital length of stay[2], inequalities and improved treatment option for patients who receive a late-stage cancer diagnosis.

The PARITY study has uncovered the following initial findings with implications for ongoing research, practice, and policy:

- Prehabilitation is currently not well defined by either patients or healthcare practitioners.
- The location of existing prehabilitation provisions varies across the UK. Some locations have no suitable services at all.

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[1] Banugo and Amosko, 2017. *Prehabilitation*, BJA Education, 17(12):p 401-405. Available at: https://academic.oup.com/bjaed/article/17/12/401/4083340

[2] Lambert, Hayes, Keegan, Subar and Gaffney, 2021. *The Impact of Prehabilitation on Patient Outcomes in Hepatobiliary, Colorectal, and Upper Gastrointestinal Cancer Surgery*: *A PRISMA-Accordant Meta-analysis. Annals of Surgery,* 274(1):p 70-77. Available at: https://journals.lww.com/annalsofsurgery/Abstract/2021/07000/The_Impact_of_Prehabilitation_on_Patient_Outcomes.17.aspx

- Prehabilitation does not currently address inequalities and variable provision, including different options for different people, with different cancers, living in different locations may worsen health inequalities,
- Currently little is known about what patients want from prehabilitation.

Prehabilitation offers an innovative approach to reducing inequalities and improving treatment options for patients who receive a late-stage cancer diagnosis. However, these challenges make it difficult to translate research and innovation into frontline clinical practice.

This unique perspective on prehabilitation is informed by our ongoing study, focusing on understanding the quality of prehabilitation provision across the UK. Despite being in the early stages of this research, PARITY has identified low awareness of prehabilitation in cancer care even though there is support for healthier lifestyles and improving cancer diagnosis outcomes. Unlike cancer screening programmes, there is currently no evaluation of prehabilitation programmes in the UK. The PARITY Study is tackling this through research that will generate a case for change, innovation, and evaluation.

The PARITY Study is focused on addressing an important gap in knowledge on the problems of variation and inequality in prehabilitation before cancer surgery. PARITY is conducting research that responds to calls made by the National Institute for Health Research, Royal College of Anaesthetists and Macmillan to 'gather examples of how local areas have had prehabilitation commissioned as part of the cancer pathway'[3].

Evidence from the study will contribute to evidence to support the UK Government's focus on fighting cancer through increasing cancer survival rates, reducing pressure on the NHS, reducing cancer inequalities, improving the cancer patient journey and increasing the speed in which innovations make an impact on frontline clinical practice[4]. The study has the potential to impact NHS *core purposes*, including improving health outcomes, tackling inequalities in outcomes, experience and access, and enhancing value for money[5]. The study will also deliver insights into improving the patient experience of prehabilitation, patient input into treatment and how communities should be involved in 'co-production in design and decision-making' about services, as highlighted by the recent Hewitt Review (2023, p. 37).

Study Innovation and Initial Findings:

The PARITY Study team has worked with both groups of patients and clinicians to co-design a set of criteria for prehabilitation provision that sets out what is important about prehabilitation. The wider social determinants of health[6] and drivers of health inequalities[7] were used to understand barriers to

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[3] Macmillan Cancer Support, 2020, *Principles and guidance for prehabilitation within the management and support of people with cancer.* p.13. Available at: https://www.macmillan.org.uk/healthcare-professionals/news-and-resources/guides/principles-and-guidance-for-prehabilitation

[4] House of Commons, Health and Social Care Committee, *Cancer Services*, 2022. Available at: https://committees.parliament.uk/committee/81/health-and-social-care-committee/publications/reports-responses/

[5] Hewitt, 2023. An independent Review of Integrated Care Systems. Available at: https://www.gov.uk/government/publications/the-hewitt-review-an-independent-review-of-integrated-care-systems

[6] Dahlgreen and Whitehead, 1991. *The Concepts and Principles of Equity and Health*, Health promotion international, 6(3):p.217-228. Available at: https://academic.oup.com/heapro/article/6/3/217/742216

[7] he Health Foundation, 2022. *Evidence Hub: What drives health inequalities*? Available at: https://www.health.org.uk/evidence-

prehabilitation service access. This approach enabled participants to articulate what was valuable to them as part of cancer diagnosis, treatment and how patient experience affects the lives of individuals.

The criteria, which are in the final stages of development at the time of writing, state what is critical for quality prehabilitation services and measures for addressing unequal access. They include factors that the patients and healthcare professionals felt are most important to include, such as *emotional health, exercise, nutrition, community support*, *access to information* and *equality and inclusion*. *Personalised care* has emerged as a common theme in our research. As a result, we aim to build further knowledge in best-practice for personalised care in prehabilitation, which is informed by individuals' backgrounds and capabilities. This will create principles for best practice, which can be transformed into clinical practice implementation guidance.

Recommendations for Government Action:

The PARITY Study recommends action on the following:

1. Consider the forthcoming findings and future recommendations from the PARITY tudy, which we will make accessible as soon as available.
2. Commit to implementing measures to address inequalities in prehabilitation, including equitable access to service provision across the UK and for underrepresented people.
3. Provide universal access to measures that reduce the peri-operative risk for patients awaiting cancer surgery, which will be outlined in future work as part of this study.
4. Commit to the appropriate resourcing of service provision for prehabilitation, which would increase capacity in peri-operative care. Subsequently the concurrent delivery of multifaceted interventions could reduce opportunity costs, e.g., the number of appointments needed.
5. Support a drive to increase awareness about prehabilitation innovations before cancer surgery among patients, carers, and healthcare professionals. In the long-term, prehabilitation may promote healthy behaviour change in individuals and the prevention of cancers in the future.

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