EE278

Cost-effectiveness of Supportive Exercise Interventions for Colorectal Cancer Surgery: an Economic Evaluation of the PREPARE-ABC Trial

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Introduction

Postoperative complications and reduced quality-of-life, are common following colorectal cancer surgery.[1,2]

Objective: To estimate the cost-effectiveness of hospital-supervised and home-supported exercise interventions, compared with standard care, in patients undergoing colorectal cancer surgery.

Methods

Design: Three-arm, multicentre randomised controlled trial – *SupPoRtive Exercise Programmes for Accelerating REcovery after major Abdominal Cancer surgery (**PREPARE-ABC**)*.[3]

Population: Patients undergoing colorectal cancer surgery across 25 UK NHS units.

Economic evaluation: within-trial analysis comparing costs and QALYs over 12 months from an NHS and Personal Social Services perspective (base-case).

Intervention:

Participants received one of:

- *Hospital-supervised exercise* – preoperative cycle ergometer sessions with monthly postoperative boosters
- *Home-supported exercise* – targeted aerobic activity with weekly telephone support pre- and post-operatively
- *Standard care.*

Both interventions included home-based resistance training and standard care.

Outcomes:

- Cost per QALY (EQ-5D-5L at baseline, 30-days post-surgery, six and 12 months (Primary outcome)
- Cost per additional participant without post-operative complications (≤30 days)

Resource use and costing:

Data from hospital records and participant questionnaires at baseline, 6 and 12 months, covering secondary, primary, community, and non-healthcare services. Costs valued using published UK unit costs (2021/22 £).

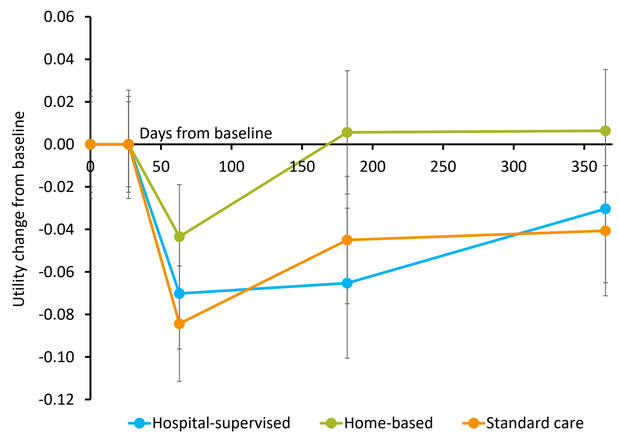
Analysis

Incremental cost-utility analysis with seemingly unrelated regression (sureg), adjusting for baseline covariates and accounting for costs/outcomes correlation. Multiple imputation (MI) with predictive mean matching used to address missing data.

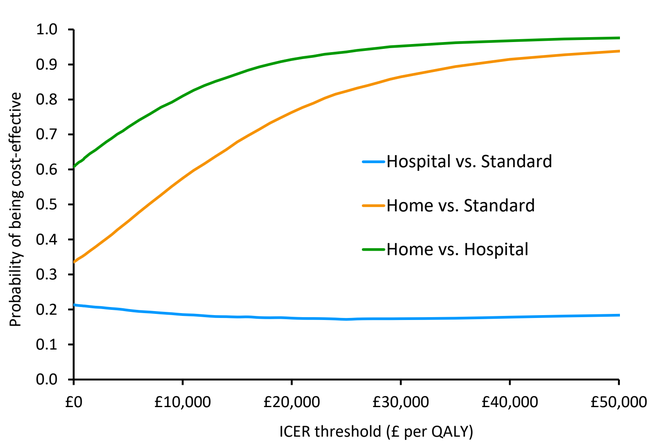
Results

645 patients were analysed: 197 hospital-supervised, 222 home-based, 226 standard care. Mean age 67 years; 66% male. A pre-COVID subgroup included 186 home-based and 188 standard care participants.

A **Utility change from baseline to 12 months (MI)**



B **Cost-effectiveness acceptability curve (CEAC)**



C **Incremental cost-effectiveness ratios (ICERs) for all comparisons**

	Hospital vs standard		Home vs standard		Home vs hospital	
	ICER (£)	n	ICER (£)	n	ICER (£)	n
CUA: quality-adjusted life-years (QALYs)						
Base-case, MI	↖	385	6,760	448	↘	383
SA1, CCA	↖	133	↘	147	↘	114
SA2, wider societal, MI	73,997	385	↘	448	15,340	383
CEA: odds of no complications						
MI	13,531	385	4,856	448	3,473	383

↖: dominated ↘: dominant

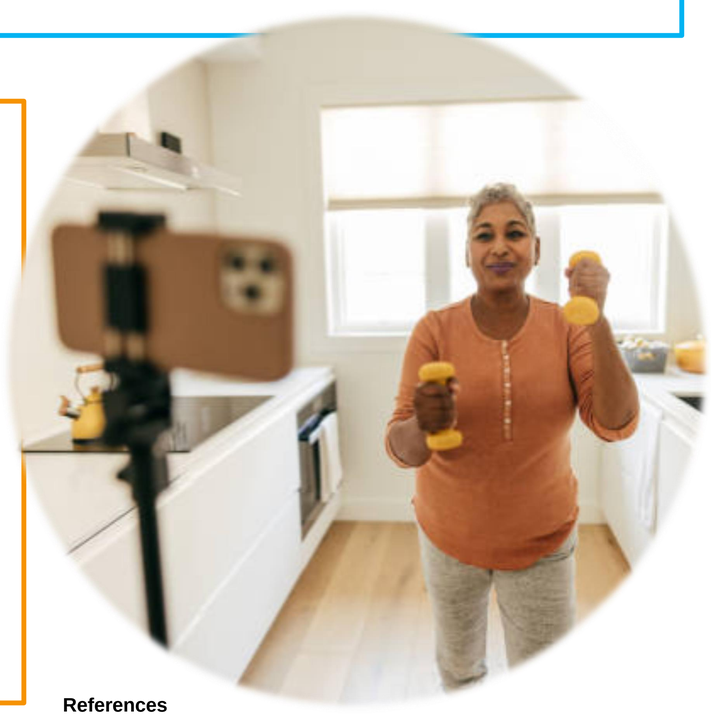
CCA, complete case analysis; CEA, cost-effectiveness analysis; CUA, cost-utility analysis; MI, multiple imputation; SA, sensitivity analysis.
All presented analyses adjusted for age, sex, site and baseline utility, costs and SF-36 PCS.

Cost utility analysis

Home-supported exercise was cost-effective compared with standard care (£6,760/QALY) and dominated hospital-supervised exercise (B). The probability of cost-effectiveness at the £30,000/QALY NICE threshold was 86% (C). Hospital-supervised exercise was dominated by standard care (B). For home-supported vs. standard care, cost per additional participant without complications was £4,856.

Conclusions

- Home-supported pre- and post-operative exercise is a cost-effective addition to standard care for colorectal cancer surgery.
- Hospital-supervised exercise is not cost-effective in the tested format.
- These results support integrating structured home-supported exercise into pre- and post-operative care pathways.



References

1. National Bowel Cancer Audit (NBOCA). *State of the Nation Report 2025*.
2. McNair AGK, Wistance RN, Forsythe RO, *et al. PLoS Med.* 2016;13:e1002071.
3. PREPARE-ABC Trial Collaborative. *Colorectal Dis.* 2021;23:2750-2760.

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