Project Title

A Cost-Effectiveness Comparison of Delayed Versus Immediate Coloanal Anastomosis Following Ultralow Anterior Resection for Rectal Cancer

Project Lead and Members

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Organisation(s) Involved

Singapore General Hospital

Healthcare Family Group(s) Involved in this Project

Medical

Applicable Specialty or Discipline

Colorectal Surgery

Project Period

Start date: Not indicated

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Aim(s)

This study aims to determine if DCAA is more cost effective than ICAA over despite the additional cost and longer initial hospital stay

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Applied/ Translational Research

Systemic Review

Keywords

Colorectal Cancer, Ultralow Anterior Resection (LAR), Immediate Coloanal Anastomosis (ICCA), Delayed Coloanal Anastomosis (DCAA), Cost-Effectiveness

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A cost-effectiveness comparison of delayed versus immediate coloanal anastomosis following ultralow anterior resection for rectal cancer

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Introduction

- Colorectal cancer is the most common type of cancer in Singapore with >3500 cases a year
- For patients with low rectal cancer, usual surgery involves low anterior resection (LAR), immediate coloanal anastomosis (ICAA) and a temporary defunctioning ileostomy (DI), which is reversed on average 3 months later

PROBLEM: why a new method is needed?

- Patients need a second surgery to reverse the stoma
- 1/5 patients are readmitted for stoma complications
- The presence of a stoma is associated with a lower quality of life

SOLUTION: DCAA

- Delayed coloanal anastomosis (DCAA) is an alternative surgical approach
- The last part of the initial surgery (coloanal anastomosis) is delayed by 6 days
- With this approach patients do not need a temporary stoma as leak rates are reduced
- However initial surgery is more expensive and length of hospital is longer due to these additional 6 days compared to ICAA

AIM: Assess cost-effectiveness

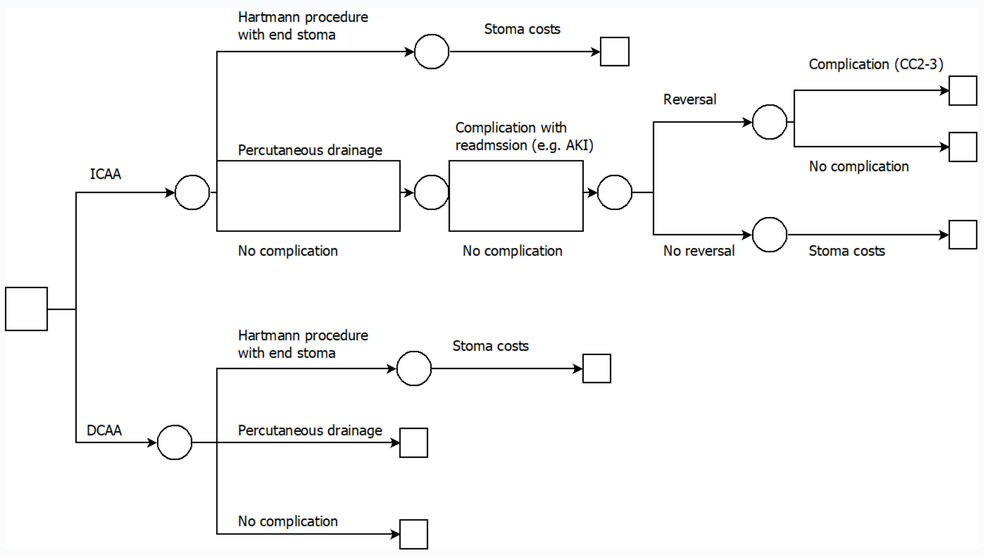
- This study aims to determine if DCAA is more cost effective than ICAA over despite the additional cost and longer initial hospital stay

Methods

Analytical approach: decision tree cost effectiveness analysis comparing the two strategies of ICAA and DCAA in management of low rectal cancer

Data sources:

- 2019-2020 UK NHS reference costs
- Model probabilities from literature review



Results

DCAA is more cost-effective than ICAA

- DCAA: £13,541 (or £12,600*)
- ICAA: £14,856

*Avoiding use of total parenteral nutrition (TPN) as shown in more recent studies

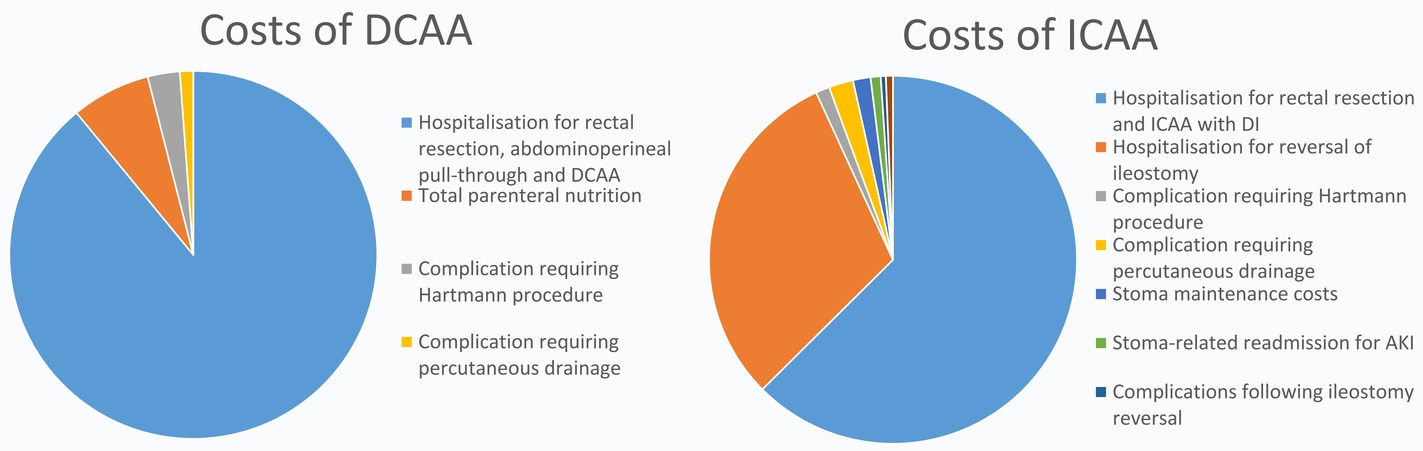


Figure 2. Breakdown and proportion of average cost contributors of DCAA versus ICAA with DI for low rectal cancer.

Results are consistent across sensitivity analysis

Univariate and probabilistic sensitivity analyses demonstrates the robustness of the results across variations in model parameters

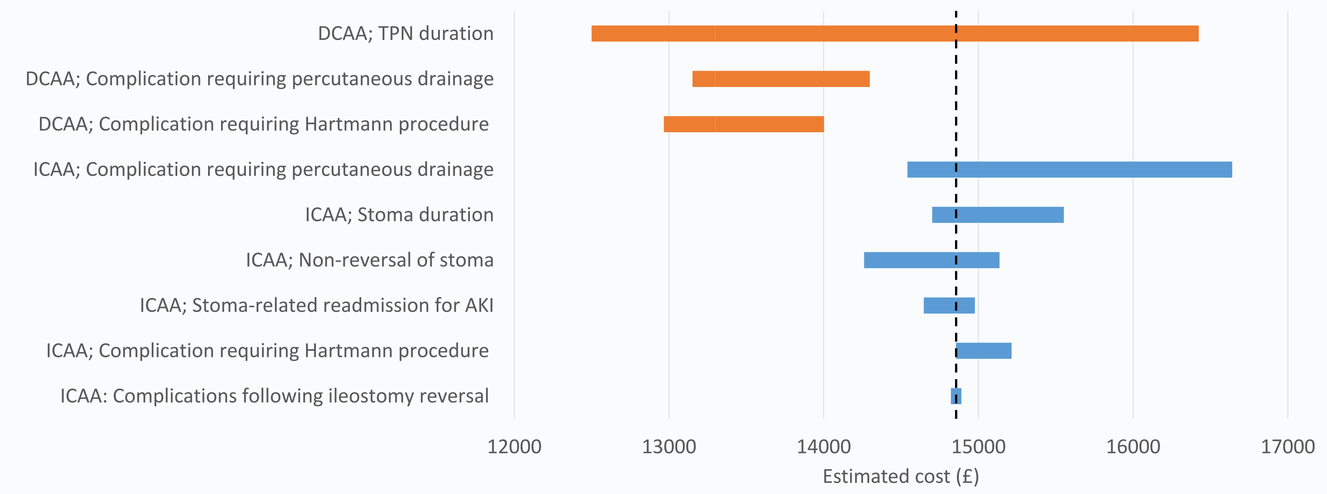


Figure 3. Tornado diagram of the results of one-way sensitivity analysis of model probabilities for DCAA (orange) and ICAA (blue). Model variables are arranged in descending order of impact on cost-effectiveness.

Conclusion

Despite a longer index hospitalisation with higher initial costs, this economic analysis demonstrates that DCAA is overall more cost-effective compared to ICAA with DI following ultralow anterior resection.

DCAA	ICAA
✓ Cheaper overall	✗ More expensive overall
✓ Avoids a stoma	✗ Need for a temporary stoma
✓ Settles everything in one admission	✗ Possible readmissions for stoma complications
✗ Longer initial stay	✗ Need for second admission for stoma reversal surgery
	✓ Shorter initial stay