

Shifting the Cost Gap: Economic Benefits of Early-Stage Colon Cancer Presentation in a South African Tertiary Hospital

Kelechi Nnene ¹, Jennifer Moodley ¹, Adam Boutall ¹, John Ataguba ², Claire Warden ¹, Bavesh Nagar ³, Lucy Cunnama ¹
¹ University of Cape Town, South Africa, ² University of Manitoba, Canada, ³ Groote Schuur Hospital, South Africa

Early-stage treatment of colon cancer could *reduce per-patient treatment costs by over 40%*, highlighting the economic value of investing in screening programs that promote early presentation.

BACKGROUND

Colon cancer represents a significant health and economic burden in South Africa. While early detection via screening can improve survival and potentially lower costs, there is a lack of local data quantifying these savings. This study aims to fill that gap by estimating the stage-specific treatment costs of colon cancer from a healthcare provider's perspective at a tertiary academic hospital in South Africa, thereby assessing the potential cost savings from earlier-stage presentation.

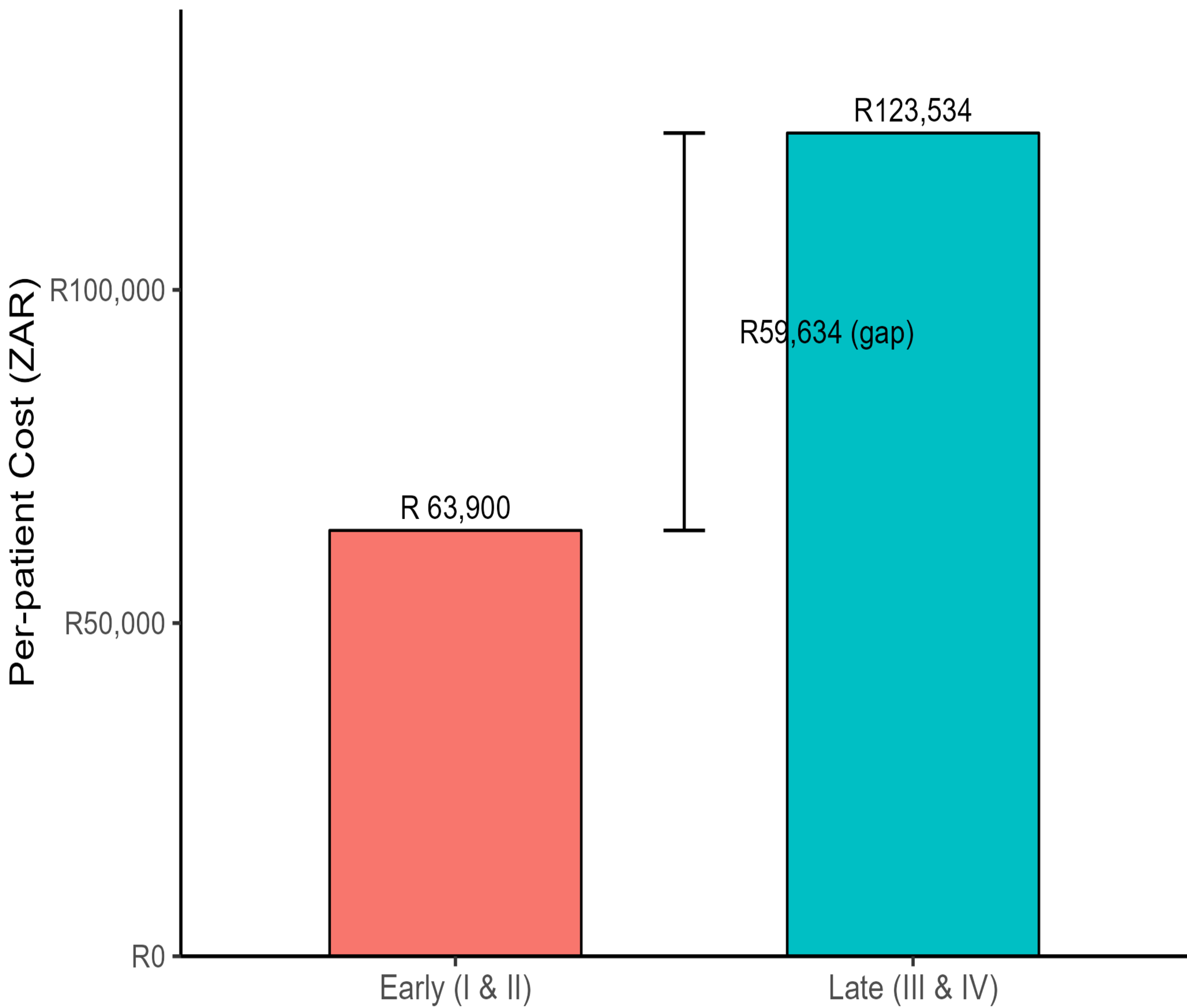
METHODS

Using a bottom-up costing approach, we estimated stage-specific colon cancer treatment costs at Groote Schuur Hospital. This method, informed by treatment guidelines, included costs for personnel, building space, equipment, consumables, and pharmaceuticals. Capital items were annuitized at a 3% discount rate. We aggregated per-stage costs to determine overall costs for early and late-stage colon cancer, with equal weighting. A simple sensitivity analysis was performed. Costs are presented in 2024 ZAR and average USD equivalent.

RESULTS

The mean per-patient treatment cost was R63,900 (\$3,417) for early-stage cases (stages I & II) and R123,534 (\$6,605) for late-stage cases (stages III & IV) and a difference of R59,634 (\$3,188) per patient (figure 1). Surgery and associated inpatient admissions were the primary treatment cost drivers. Sensitivity analysis revealed that reducing postoperative inpatient stay by 25% could result in approximately a 10% reduction in late-stage treatment costs.

Figure 1: Colon cancer treatment cost gap



CONCLUSIONS

Colon cancer treatment cost is substantial and increases with advancing disease. Early-stage treatment could reduce per-patient treatment costs by over 40%, alongside likely survival benefits. This highlights the economic and clinical value of investing in early colon cancer detection. Expanding colon cancer screening programs will lead to earlier presentation, generate substantial cost savings, and improve patient outcomes, making it a high-value investment for South Africa's health system.

Table 1: Unit cost per treatment component

Treatment component	Unit cost ZAR(USD)
Consultation(per visit)	397 (23)
Chemotherapy (per cycle)	
CAPOX	3,744 (213)
CAPIRI	1,259 (71)
Surgery (per procedure)	
Single-sided colectomy	31, 082 (1,662)
Open colectomy	36, 254 (1,938)
Inpatient stay (per day)	2198 (118)



Scan for references and to read research blog

This research is funded by the NHIR (GHRUG NIHR133231) using UK international development funding from the UK Government to support global health research. The views expressed in this presentation are those of the authors and not necessarily those of the NHIR or the UK government.