EE161

COSA Exercise guidelines: What is the Value of Implementation?

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Introduction

Australia's national clinical oncology association, COSA, has a position statement on Exercise in Cancer Care:

Discuss Recommend Refer

Objective: To use the Value of Implementation framework to determine the value of implementing these guidelines into clinical practice?

Methods

What is **Value of Implementation** (VOIM)?

100% of population = Perfect Implementation

33% of population = Current/imperfect Implementation

Less than imperfect implementation = reduced efficiency

The difference between perfect implementation and current implementation is the value we have to improve

Current Implementation → Perfect Implementation.

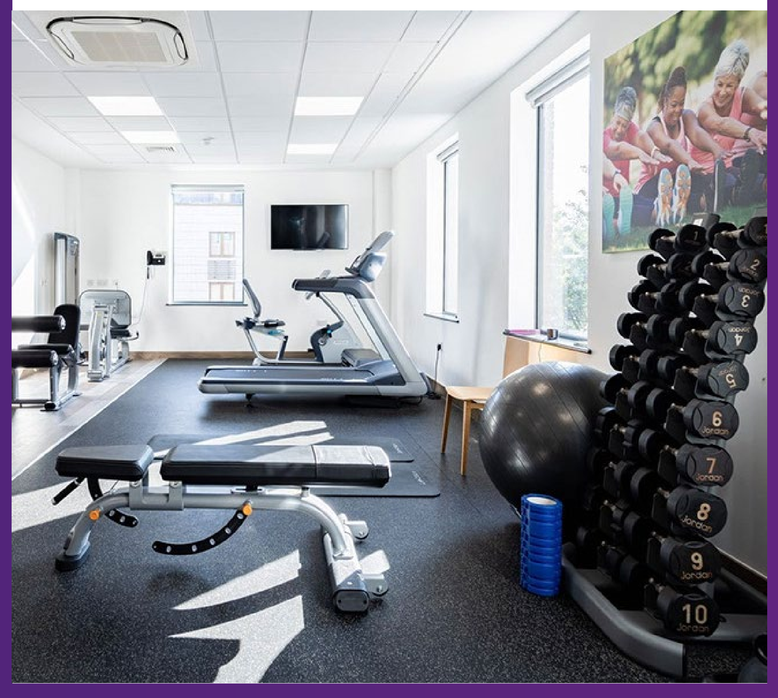
i. Information Needs for VOIM analysis

- Incidence of oncology patients
- **Adherence** to the guidelines by **healthcare professionals** and **patients** (Wang 2023 elicitation; Gordon 2020 & Edmunds 2022; Exercise Executive survey)
- The **net monetary benefit** of cost-effective Australian exercise oncology interventions
- The **cost** of implementation strategies

Our analysis

Rapid review

Australian modelled economic evaluations of exercise oncology that were cost-effective. Wang et al. (2023) systematic review of economic evaluations of exercise oncology. Updated search conducted - March 2022-March 2024. One Australian study found: Wang et al. (2023).



Methods cont'd

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MDPI

Article

Cost-Effectiveness Analysis from a Randomized Controlled Trial of Tailored Exercise Prescription for Women with Breast Cancer with 8-Year Follow-Up

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check for updates

Abstract: Studies show conflicting results on whether exercise interventions to improve outcomes for women with breast cancer are cost-effective. We modelled the long-term cost-effectiveness of the *Exercise for Health* intervention compared with usual care. A lifetime Markov cohort model for

Gordon et al. 2020

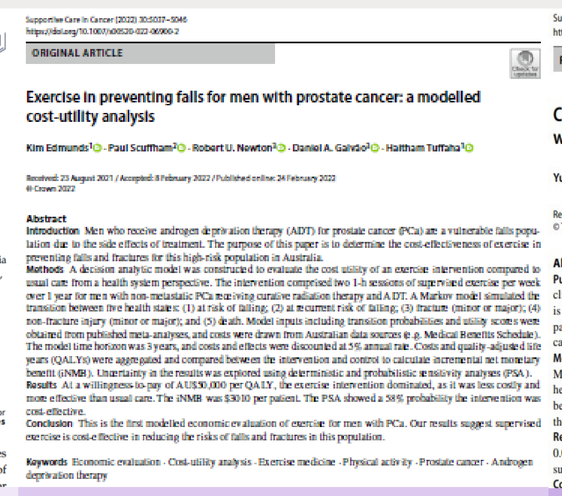
Population: early stage (I&II) BrCa

Exercise intervention: 16 supervised sessions to encourage 4 x 45 mins/week

Intervention duration: 8 mos

Model time horizon: Lifetime (8 year follow up)

Perspective: societal



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ORIGINAL ARTICLE

Exercise in preventing falls for men with prostate cancer: a modelled cost-utility analysis

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Abstract
Introduction Men who receive androgen deprivation therapy (ADT) for prostate cancer (PCa) are a vulnerable falls population due to the side effects of treatment. The purpose of this paper is to determine the cost-effectiveness of exercise in preventing falls and fractures for this high-risk population in Australia.
Methods A decision analytic model was constructed to evaluate the cost utility of an exercise intervention compared to usual care from a health system perspective. The intervention comprised two 1-h sessions of supervised exercise per week over 1 year for men with non-metastatic PCa receiving curative radiation therapy and ADT. A Markov model simulated the transition between five health states: (1) at risk of falling; (2) at recurrent risk of falling; (3) fracture (minor or major); (4) non-fracture injury (minor or major); and (5) death. Model inputs including transition probabilities and utility scores were obtained from published meta-analyses, and costs were drawn from Australian data sources (e.g. Medical Benefits Schedule). The model time horizon was 3 years, and costs and effects were discounted at 5% annual rate. Costs and quality-adjusted life years (QALYs) were aggregated and compared between the intervention and control to calculate incremental net monetary benefit (iNMB). Uncertainty in the results was explored using deterministic and probabilistic sensitivity analyses (PSA).
Results At a willingness-to-pay of AU$30,000 per QALY, the exercise intervention dominated, as it was less costly and more effective than usual care. The iNMB was $3010 per patient. The PSA showed a 58% probability the intervention was cost-effective.
Conclusion This is the first modelled economic evaluation of exercise for men with PCa. Our results suggest supervised exercise is cost-effective in reducing the risks of falls and fractures in this population.

Keywords Economic evaluation · Cost-utility analysis · Exercise medicine · Physical activity · Prostate cancer · Androgen deprivation therapy

Edmunds et al. 2022

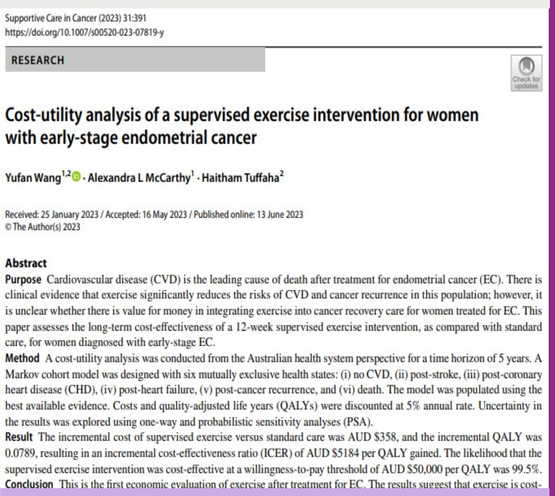
Population: early stage (I&II) PCa receiving RT & ADT

Exercise intervention: supervised sessions 2 x 60 mins/week

Intervention duration: 12 mos

Model time horizon: 3 years

Perspective: health care



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RESEARCH

Cost-utility analysis of a supervised exercise intervention for women with early-stage endometrial cancer

Yufan Wang[1,2] · Alexandra L McCarthy[1] · Haitham Tuffaha[2]

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Abstract
Purpose Cardiovascular disease (CVD) is the leading cause of death after treatment for endometrial cancer (EC). There is clinical evidence that exercise significantly reduces the risks of CVD and cancer recurrence in this population; however, it is unclear whether there is value for money in integrating exercise into cancer recovery care for women treated for EC. This paper assesses the long-term cost-effectiveness of a 12-week supervised exercise intervention, as compared with standard care, for women diagnosed with early-stage EC.
Method A cost-utility analysis was conducted from the Australian health system perspective for a time horizon of 5 years. A Markov cohort model was designed with six mutually exclusive health states: (i) no CVD, (ii) post-stroke, (iii) post-coronary heart disease (CHD), (iv) post-heart failure, (v) post-cancer recurrence, and (vi) death. The model was populated using the best available evidence. Costs and quality-adjusted life years (QALYs) were discounted at 5% annual rate. Uncertainty in the results was explored using one-way and probabilistic sensitivity analyses (PSA).
Result The incremental cost of supervised exercise versus standard care was AUD $358, and the incremental QALY was 0.0789, resulting in an incremental cost-effectiveness ratio (ICER) of AUD $5184 per QALY gained. The likelihood that the supervised exercise intervention was cost-effective at a willingness-to-pay threshold of AUD $50,000 per QALY was 99.5%.
Conclusion This is the first economic evaluation of exercise after treatment for EC. The results suggest that exercise is cost-

Wang et al. 2022

Population: early stage endometrial Ca

Exercise intervention: supervised sessions 18 x 60 mins

Intervention duration: 3 mos

Model time horizon: 5 years

Perspective: health care

* **Heterogeneous studies:** duration and type of exercise intervention; assumptions about maintenance of exercise effect; model time horizon (how long effect/benefit is extrapolated) => Separate analyses

Results

1. Value of Implementation for three CUAs in Australia

AUD 2024	Gordon et al. (2020) BrCa	Edmunds et al. (2022) PCa	Wang et al. (2023) Endo. Ca
iNMB	$12,311	$3,702	$4,127
Incidence 2023-2027 (adj. to study pop.)	91,740	52,465	10,513
Adherence HCPs/patients	**0.3/0.33**	**0.3/0.33**	**0.46/0.45**
Perfect Implementation	$1,026,340,699	$176,510,296	$39,428,811
Current Implementation	101,607,729	$17,474,519	$8,043,493
EVPIM	**$924,732,969**	**$159,035,777**	**$31,385,317**

It is cost-effective to use **this amount** to invest in implementation strategies to improve current implementation.

2. Implementation Strategy Costs

1. **Hypothetical Implementation Strategy: HCPs**

National education program for 295 hospitals and cancer centres (Hunter et al. 2019) based on 10 min video, F2F introduction to guideline and exercise oncology (2 hours) conducted by two AEPs with accompanying hardcopy research reference list & local AEP/physio contact list.

Development cost + implementation cost over 5 years delivered to 600 radiation oncologists

Cost = **$5,000,000** EVPIM = **$159,035,777** **Cost-effective to implement**

Mean effectiveness of education type programs in improving uptake = 15%

Total net benefit of strategy **~ $13 million**

2. **Hypothetical Implementation Strategy: PCa Patients**

Motivation program: 3 AEP/Physio sessions - i. Introduction to exercise oncology; ii. teaching technique in the gym; supervising technique in gym; patients keep weekly exercise diary and success is reinforced in next gym session (2 sessions per patient/week for 12 months – 15 mins/week F2F with AEP/Physio to discuss diary).

Development cost + implementation cost over 5 years delivered to 50% PCa patients

Cost = **$25,000,000** EVPIM = **$159,035,777** **Cost-effective to implement**

Mean effectiveness of patient motivation programs in improving uptake = 35%

Total net benefit of strategy **~ $18 million**

Conclusion

Our VOIM analysis showed that the COSA exercise guidelines generate value in the implementation of exercise oncology. Add cost-effective strategies that increase adherence and improve efficiency and that value increases. Providers can compare the total net benefit of implementing one strategy against another so they can implement the strategy that provides best value for money. Decision makers can use this information to decide which interventions to fund or reimburse.

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