IS IT COST-EFFECTIVE TO SCREEN FOR ANAL CANCER?

Cost-effectiveness of screening for anal cancer using regular digital ano-rectal examinations in men who have sex with men living with HIV

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INTRODUCTION

Anal cancer in men who have sex with men (MSM) living with HIV is an important issue but there are no consistent guidelines for how to screen for this cancer. In settings where screening with anal cytology is unavailable, regular anal examinations (by visualizing the peri-anal area plus a digital ano-rectal examination) are proposed in some guidelines but its cost- effectiveness is unknown.

METHODS

We estimated the cost-effectiveness of regular anal examinations to screen for anal cancer in HIV-positive men MSM living in Australia using a probabilistic Markov model (Figure 1). Data sources were based on the medical literature and a clinical trial of MSM living with HIV receiving an annual anal examination in Australia[1]. The main outcome measures were undiscounted and discounted (at 3%) lifetime costs, life years gained, quality adjusted life years (QALY) gained and incremental cost-effectiveness ratio (ICER). We compared 10 different screening strategies of regular digital ano-rectal examinations by varying the age of screening commencement (35 years vs. 50 years) and frequency of screening (yearly to 5 yearly).

RESULTS

Base-case analysis estimated the average cost of screening for and management of anal cancer ranged from $195 for no screening to $1,915 for lifetime annual screening of men aged ≥ 50 years.

By conventional standards, an intervention with an incremental cost-effectiveness ratio (ICER) of less than $50,000 per QALY is considered as "cost-effective". Screening of men aged ≥ 50 years generated ICERs of $29,760 per QALY gained (for screening every 4 years), $32,222 (every 3 years), and $45,484 (every 2 years) (Figure 2).

Factors to make a screening strategy using regular anal examinations even more cost-effective include:

- *reducing the cost (financially and decrease in quality of life) from a false positive result*
- *training health professionals to distinguish early anal cancer from other anal pathologies*

CONCLUSION

Screening for anal cancer by incorporating regular anal examinations into routine HIV care for MSM aged ≥ 50 years is most likely to be cost-effective by conventional standards. Given that anal pap smears are not widely available yet in many clinical settings, regular anal exams for MSM living with HIV to detect anal cancer earlier should be implemented.

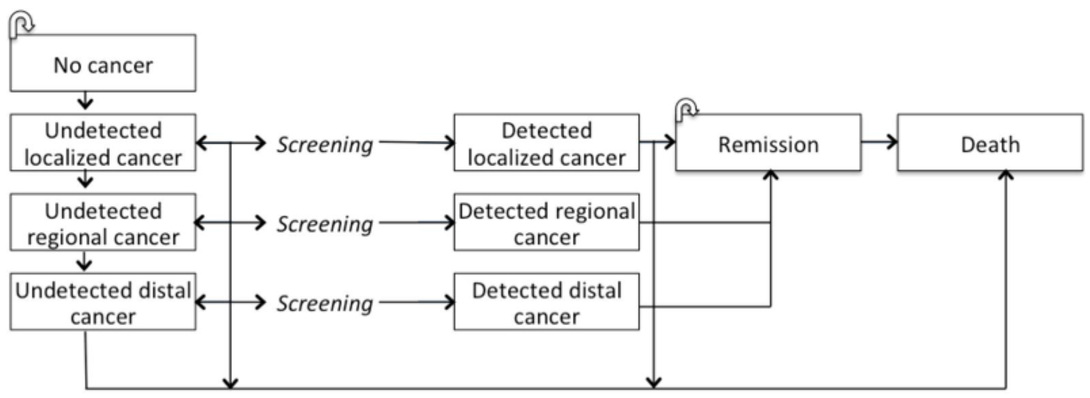
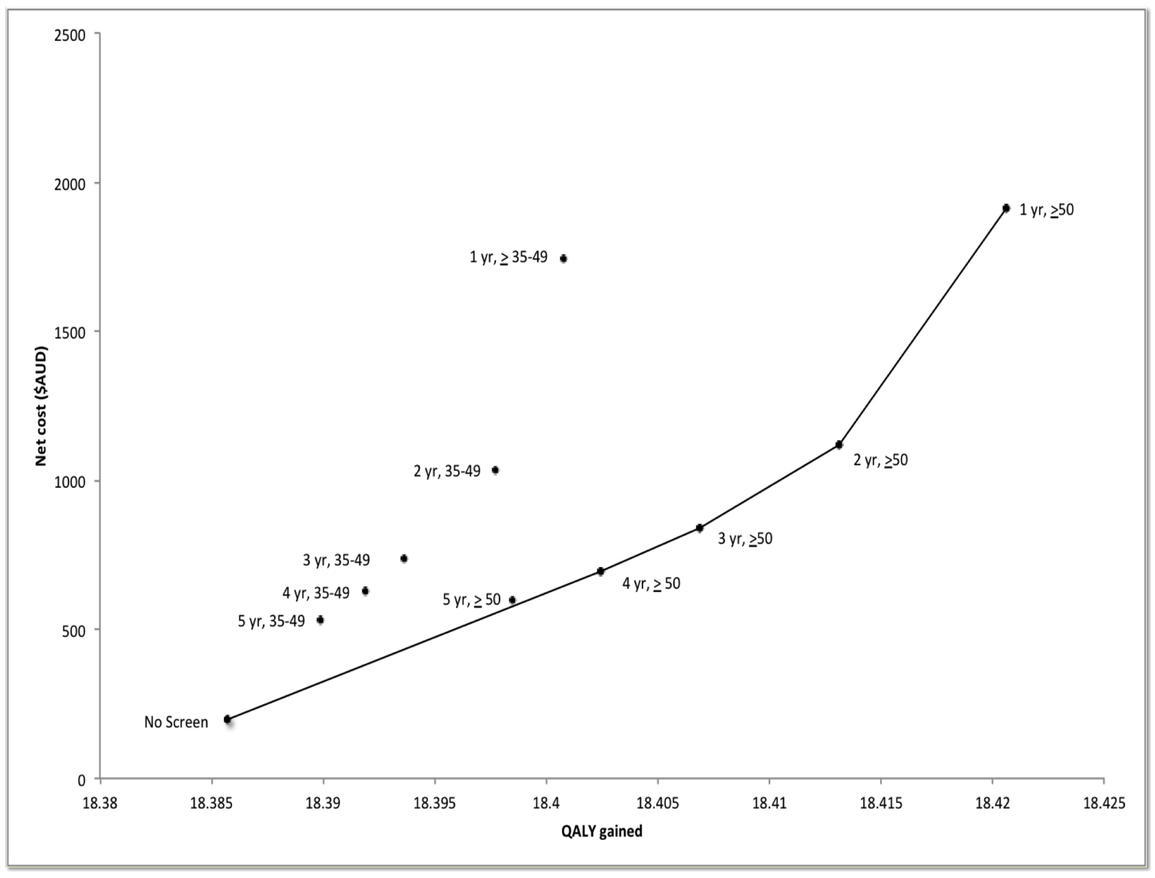


Figure 1: Markov states for the natural history of anal cancer. Individuals transition to different Markov health states (straight arrows) or remain in their current health state (curved arrows)



Key for interpreting Figure 2

- *Each strategy is represented by frequency of screening (5 yr = 5 yearly DARE), followed by age of screening (≥50 = starting screening after aged 50 years)*
- *Strategies above the connected line are those that are less cost-effective i.e. cost more to get the equivalent gain in quality adjusted life years (QALY).*

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REFERENCE:

[1] *Ong J, et al. Anal cancer screening using digital ano-rectal examination in HIV-positive men who have sex with men: baseline findings from the Anal Cancer Examination (ACE) study. Journal of Medical Screening (accepted 10th August 2015)*