

Framework for Cost-Effectiveness Threshold Values: The Case of Oman

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INTRODUCTION

The economic value of health technologies can be judged by comparing incremental cost-effectiveness ratios (ICERs) against explicit threshold values. As part of the development of methodological guidelines for health technology assessment (HTA), we aimed to set cost-effectiveness threshold (CET) framework in the Sultanate of Oman.

Cost-effectiveness Threshold Calculation

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Key findings of a recently conducted literature review were explored during a multistakeholder workshop in March 2024. Participants at the workshop were invited to anonymously vote via an online survey on the structure of the CET framework and its actual values.

RESULTS

METHODS

21 survey respondents agreed that multiple threshold values based on cost per QALYs should be introduced in Oman, which are linked to the economic status of the country.

Cost-effectiveness threshold criteria

The baseline CET multiplier was chosen to be 1.00 times the GDP per capita. The CET in Oman will vary based on the relative health gain, disease rarity, and priority disease areas. (Figure 1).



As illustrated in Figure 3, the multiplier will be based on the **IRQG** of the technology, whether the disease is rare or not, and whether the disease is considered a **priority** or not-



Figure 3: Multiplier Calculation

Hypothetical Examples

Example	IRQG Value	Rare disease?	Priority disease?	Multiplier	CET (OMR)*
1	0.2	No	No	1.4	12,540
2	0.5	No	Yes	4	35,828
3	0.8	Yes	Yes	10.4	93,153

*The GDP per capita in Oman is 8,957 Omani Riyal (OMR) based on the



Figure 1: Multiple Threshold Criteria (Voting Results)

The relative health gain of health technology was measured using the incremental relative quality-adjusted life years (QALY) gain (IRQG) where a maximum multiplier of 3X the baseline threshold was based on a continuous scale (Figure 2). Furthermore, rare diseases and priority disease areas were assigned a fixed multiplier of 2X the baseline threshold.

World Bank database (exchange rate 2023).

Figure 4 represents the CETs of the examples presented in the previous table.



Figure 4: Cost-effectiveness Plane

CONCLUSION



IRQG= (QALYnew technology – QALYcomparator technology) / QALYnew technology

The proposed CET in Oman is dynamic, considering the disease rarity, priority disease areas, and relative health gain. The CET then aligns with the broader societal perspective, allowing for a higher willingness to pay for technologies addressing rare diseases to promote equity, prioritizing areas like cancer with unmet medical needs, and valuing interventions that offer QALYs improvements.

A tool for calculating the CET is found in the following QR code:



REFERENCE

Fasseeh AN, Korra N, Elezbawy B, Sedrak AS, Gamal M, Eldessouki R, Eldebeiky M, George M, Seyam A, Abourawash A, Khalifa AY, Shaheen M, Abaza S, Kaló Z. Framework for developing cost-effectiveness analysis threshold: the case of Egypt. J Egypt Public Health Assoc. 2024. 99(1). 12.

Al Rashdi, I., S. Al Balushi, A. Al Shuaili, S. Al Rashdi, N. Ibrahim Al Bulushi, A. Ibrahim Al Kindi, Q. Al Salmi, H. Al Sabti, N. Korra and S. Abaza (2024). "A roadmap towards implementing health technology assessment in Oman." Journal of Health Organization and Management 38(9): 241-257.