

PHARMAC has no cost-effectiveness threshold

Regarding recent discussion in the *Journal* about treatments for insomnia,¹ we clarify that PHARMAC has no cost-effectiveness threshold for the funding of medicines.

PHARMAC funds medicines within a fixed budget, and as cost-effectiveness is only one of its nine decision criteria used to inform decisions,² thresholds cannot be inferred or calculated. Thresholds also inadequately account for opportunity cost and affordability, and are incompatible with budgets and maximising health gains. PHARMAC's medicines investments can only be considered 'cost-effective' when prioritised against other proposals at the time; imputed threshold levels must inevitably vary with available funds and the other decision criteria.^{3,4}

The authors of the article refer to an historical weighted-average imputed cost per QALY of \$6,865 (for the 1999 to 2005 financial years), stating this to be a cost-effectiveness threshold for PHARMAC's funding decisions for new medicines over that time.¹ However, this \$6,865/QALY value is an average, which spans a range of investments that were funded—including investments that were more cost-effective (and even cost-saving to the health sector) and investments that were less cost-effective.⁵ PHARMAC has never had cost-effectiveness thresholds.

PHARMAC's 'Prescription for Pharmacoeconomic Analysis' (<http://www.pharmac.govt.nz/2007/06/19/PFPAFinal.pdf>),⁵ the source of the cited average cost-effectiveness figure,¹ stresses that the cost-effectiveness of new investments varies widely each year, reflecting both the mix of investment opportunities and the funding available at any one time.

For example, between the 1999 and 2007 financial years,⁶ individual new investments made by PHARMAC varied between 25 QALYs gained for every \$1 million (\$1M) saved by the New Zealand health sector (i.e. cost savings with health gains) and less than 5 QALYs gained for every \$1 million spent. Expressed as costs per QALYs, these investments varied between saving \$40,000 per QALY gained (\$-40,000/QALY) and spending over \$+200,000 per QALY. Investments also varied widely each year.

How budgets can relate to health gains and affect the overall cost-effectiveness of funding decisions can be seen in the following diagram:

Example budget	Investment 1: \$1M, 100 QALYS <small>(i.e. \$10k/QALY)</small>	Investment 2: \$1M, 50 QALYS <small>(i.e. \$20k/QALY)</small>	Investment 3: \$1M, 20 QALYS <small>(i.e. \$50k/QALY)</small>	Cumulative total QALYs	Cumulative average QALYs gained per \$1M
	Invest?				
\$1M	√ - Yes	X - No	X - No	100	100
\$2M	√ - Yes	√ - Yes	X - No	150	75
\$3M	√ - Yes	√ - Yes	√ - Yes	170	57

We note that the QALYs per \$1M measure (i.e. the incremental QALY gains per \$1 million net expenditure to the health sector, when compared with the comparator) is interchangeable with cost per QALYs.⁷ The QALYs per \$1M measure better expresses opportunity cost within funding, and has mathematical advantages over cost per QALYs.⁸

We found the article¹ overall to be informative; our observations relate to one particular aspect of the article and we are not commenting on the article in full.

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