

# The Economics of Health: How do we decide?



## But is it cost effective?

New improved treatment!

A new drug, Treatment A, has become available. Preliminary advertising mentions better quality of life and better survival rates for patients than Drug D which is the existing recommended treatment for the condition. However A costs more than D, so does it offer sufficient additional benefit to be recommended by NICE?

*NICE uses an ICER (Incremental Cost Effectiveness Ratio) threshold of 30,000 in evaluating new treatments. If the ICER for a new treatment is more than 30,000 it would require strong justification to be approved.*

$$ICER = \frac{C_A - C_D}{q_A - q_D}$$

where  $C_A$  and  $C_D$  are the costs of drugs A and D respectively, and  $q_A$  and  $q_D$  are the Health (QALY) gains for A and D respectively.

	<b>D</b>	<b>A</b>
Cost per patient per year (£)	2,100	
Gain in QALY (compared to doing nothing)	0.42	0.46

1. At what price would A be acceptable to NICE?
2. What percentage increase is this on the cost of D?
3. What is the increase in QALYs? What is this as a percentage increase on the QALYs afforded by D?
4. If A is priced at an additional 75% of the cost of D, what gain in QALY (compared to D) would it need to be acceptable?
5. If you were a journalist covering health issues for a quality paper or the BBC, what would you want to include in your story? What would your headline be?
6. How about if you were a tabloid journalist?

## The Economics of Health: Is it cost effective?

<https://motivate.maths.org/content/MathsHealth/HealthEconomics>

Produced by Motivate, part of the Millennium Mathematics Project at the University of Cambridge, with grant funding from the Wellcome Trust (c) University of Cambridge 2011.

Permission is granted to reproduce this sheet for non-commercial educational uses only; for any other use please contact us:

[mmp@maths.cam.ac.uk](mailto:mmp@maths.cam.ac.uk) [www.mmp.maths.org](http://www.mmp.maths.org)