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## **Screening for Amblyopia: a contentious issue**

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## **Abstract**

(61 words)

The appropriateness of screening for amblyopia is an emotive issue, both within the United Kingdom (UK) and worldwide. Recommendations within the UK state that children should be screened for visual impairment; yet there is evidence to suggest that such programmes are not cost-effective. We aim to identify possible reasons as to why clinicians find the prospect of removing screening programmes unacceptable.

Current UK recommendations state children should be screened for visual impairment, including amblyopia. [1] Amblyopia is a condition which occurs in childhood and if left untreated will remain detectable throughout adult life. The reported prevalence of amblyopia ranges from 2-5%. [2] Despite evidence suggesting screening for amblyopia is not cost-effective [2], the prospect of removing screening programmes is unacceptable from a clinician's standpoint. We consider possible reasons for this.

Consider this hypothetical question:

Imagine the UK is preparing for a disease outbreak which may cause 600 fatalities.

You have to choose between two vaccination schedules: Program A which will save 200 people; and Program B which has a probability of saving all 600 people. Which will you choose?

Most people choose Program A. However, if the question is framed differently a different response is received.

You now have to choose between two different vaccination schedules: Program C will allow 400 people to die; and Program D which will let no people die with probability 1 in 3, and a probability of 2 in 3 that all 600 will die. Which will you choose?

Most people choose Program D. [3] The situations are identical in quantitative terms, but in the second question the decision-maker is losing instead of saving lives. Setting zero lives

lost as the status quo from which losses are measured makes the loss of 400 people more loathsome than the probable loss of 600. This is known as loss aversion.

Now consider the same example but with vision screening.

Imagine two programmes for vision screening where up to 600 children could develop amblyopia. Programme A will prevent 200 of these children becoming amblyopic; and Programme B will prevent all 600 becoming amblyopic with a probability of 1 in 3.

Most people will choose Program A. However, if the question is framed differently a different response is received.

You now have to choose between two different screening options: Programme C will fail to prevent 400 children becoming amblyopic; and Programme D will prevent all 600 becoming amblyopic with a probability of 1 in 3, and all 600 will become amblyopic with a probability of 2 in 3. Which will you choose?

Most people choose Program D. Again, the situations are identical in quantitative terms, but in this scenario we are considering the number of children developing amblyopia if we stop screening. The fact screening programmes already exist makes the prospect of removing them unappealing. If there were no screening programme in place, any reduction would seem positive. Policy makers are not keen to make active decisions which appear to increase harm.

Secondly, availability heuristic may be applied. Clinicians can often draw to mind “one that would have got away”, but ignore the numerous people tested without reason. The only people that benefit from screening are those with the condition. Whilst clinicians may provide evidence and recall experiences of patients they have seen and treated, these occurrences must be put into context. Think of all the people that haven’t been seen, investigated and treated. Removing screening allows those resources to be allocated to cost-effective treatments.

The final element may relate to benevolence – the belief that it is better to do too many, than to miss a few. Here the availability of treatment requires that it is given, regardless of the capacity to benefit the individual.

Decisions of healthcare allocation ultimately involve cost, and the value that is placed upon health. Frequently clinical and economic opinions differ – understanding the reasoning behind these beliefs may address why such polarity in opinion occurs.

Competing Interests: Nil

References:

- 1 UK National Screening Committee. <http://www.screening.nhs.uk/vision-child>. Accessed 21<sup>st</sup> April 2010
- 2 Carlton J, Karnon J, Czoski-Murray C, et al. The clinical effectiveness and cost-effectiveness of screening programmes for amblyopia and strabismus in children up to the age of 4–5 years: a systematic review and economic evaluation. *Health Technol Assess.* 2008 Jun;**12**(25):iii, xi-194.
- 3 Tversky A, Kahneman, D. The framing of decisions and the psychology of choice. *Science.* 1981; **211**:453-458.