Patient preferences: minimum likely benefits required from cardiovascular preventative medication

A systematic review looked at the evidence on what the minimum cardiovascular risk reduction would have to be before a person would be willing to take daily preventative medication. When presented with a hypothetical scenario many people required a substantial risk reduction before they would consider taking the medication. How the risk reduction was expressed influenced this, as did the size of the expected benefit. The authors of the review discuss the need for clinicians to explore patient preferences and for guidelines to include tools to promote shared decision making, such as those on the NICE shared decision making page.

Overview and current advice

Cardiovascular disease is the leading cause of mortality in England and Wales, accounting for nearly one-third of deaths. In 2010, approximately 180,000 people died from cardiovascular disease, of which around 25% occurred in people aged less than 75 years (NICE guideline on cardiovascular disease: risk assessment and reduction, including lipid modification). The NICE guideline on cardiovascular disease: risk assessment and reduction, including lipid modification recommends that people should be given information about their absolute risk of cardiovascular disease and about the absolute benefits and harms of an intervention over a 10-year period. This information should be in a form that:

- presents individualised risk and benefit scenarios and
- presents the absolute risk of events numerically and
- uses appropriate diagrams and text.

Interventions recommended by the NICE guideline to reduce the risk of cardiovascular disease include a cardioprotective diet, physical activity, smoking cessation and lipid modification. NICE has produced a patient decision aid to support this guideline. A patient decision aid is a tool that presents evidence-based estimates of the benefits and risks of the available treatment options in sufficient detail that people are better able to judge their value (Stacey et al. 2017).

Studies have investigated the benefits a person would expect before they would be willing to take daily preventative medication. Two studies conducted in the UK and the US found a wide range of attitudes among people as to the amount of benefit a fictional daily tablet would have to produce to offset the inconvenience of taking it. More than a quarter of people in the UK sample required a greater increase in lifespan than a statin is likely to produce to justify daily medication. The results of these studies are discussed in more detail in a NICE Medicines Evidence Commentary.
The NICE interactive flowchart on cardiovascular disease prevention brings together all related NICE guidance and associated products on this topic in a set of interactive topic-based diagrams.

**New evidence**

A systematic review has summarised the current evidence on the minimum acceptable risk reduction of a cardiovascular event that a person would accept before they would be willing to take daily preventative medication (Albargouni et al. 2017).

The systematic review included published quantitative studies that involved adults making decisions about cardiovascular preventative medication, irrespective of study design. The authors conducted a citation analysis on 5 key articles, tracking forward and backward citations. This method of searching is intended to avoid the time-consuming and complex nature of standard search strategies in areas where indexing is unlikely to retrieve relevant articles with an acceptable accuracy rate.

The review included 22 studies (total number of participants 17,751), with sample sizes ranging from 58 to 2,978 participants. The studies were published between 1995 and 2014. Three studies were internet based, and the remaining 19 studies were conducted in 7 different countries, including 6 studies in the UK. For each included study the investigators extracted or calculated the prolongation of life, average 5-year absolute risk reduction (ARR) or number needed to treat (NNT) required by participants before they would be willing to start preventative medication. Heterogeneity in study methods or outcomes prevented meta-analysis being performed; results for each measure of treatment benefit were reported separately.

In studies that reported benefits to treatment as prolongation of life, an average of 54% of participants (range 39% to 73%) would consider taking cardiovascular disease preventative medication. The willingness to take medication varied by the size of the benefit. If the medication prolonged life for less than 8 months fewer people were willing to take it (average 48%, range 39% to 54%) compared with if the medication prolonged life for 8 months or more (average 64%, range 56% to 73%).

A similar pattern was reported for the other methods of reporting treatment benefit. In studies that reported benefits in terms of 5-year ARR, an average of 60% of participants (range 42% to 89%) would consider taking preventative medication. This dropped to 54% (range 42% to 72%) if the 5-year ARR was less than 3%, and increased to 77% (range 50% to 89%) if the 5-year ARR was more than 3%. Finally, in studies that reported benefit of cardiovascular disease preventative medication as NNT over 5 years, 64% of participants (range 31% to 87%) would consider taking medication. As before the willingness to take preventative medication was dependent on the size of the benefit. If the NNT was more than 30, fewer people were willing to consider treatment (60% willing to take, range 31% to 81%) compared with if the NNT was 30 or less (71% willing to take, range 46% to 87%).

**Commentary**

Commentary provided by NICE

The authors of this study (Albargouni et al. 2017) concluded that many people require a substantial cardiovascular risk reduction before they would consider taking a daily medication, even if the treatment was provided for free and had no side effects. The study also revealed a wide range of answers, suggesting that some people will accept any health benefit, while some people would not be willing to take preventative medication whatever the benefits.

The authors discussed some factors that may affect a person’s decision on whether to start cardiovascular disease preventative medication. These factors include positive versus negative
framing, where people may be more likely to accept treatment if the risk reductions are framed negatively (description of the harm of not being treated) rather than positively (description of the benefit of treatment). The certainty of benefit may also be a factor, as people might be more willing to take preventative medicine for a short but certain benefit (1 year guaranteed life-gain) compared with a longer, but less certain benefit (10% chance of a 10 year life-gain). Whether a person has a history or high risk of cardiovascular disease may affect their decision to take medication, as some studies found people with hypertension, high cholesterol or a history of myocardial infarction were more likely to take treatment. How risks are presented may also be a factor, with 1 study reporting people were more likely to take medication when the benefit was presented as either ARR or NNT compared with prolongation of life.

This systematic review has some limitations that should be considered. The use of citation analysis rather than a traditional literature search may have missed some publications. However, the authors noted that studies in other areas that used citation analysis found about 94% of all papers identified using traditional search methods. In addition to this, most of the included studies were not designed primarily to assess the research question of the review. Finally, although the investigators also wanted to include studies that looked at real-life decision-making, only studies that reported on hypothetical scenarios were included in the review. We do not know whether such hypothetical decisions translate to real-world decisions made in clinical practice.

The authors of the review state that clinicians often fail to accurately identify patient preferences and that guidelines should include tools to support shared decision making. For information on how NICE supports shared decision making through our guidance and tools see the shared decision making page on the NICE website. This page includes links to the published NICE patient decision aids.

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### References


### About this Medicines Evidence Commentary

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