



Title	The Clinical Effectiveness and Cost Effectiveness of Screening for Open Angle Glaucoma: A Systematic Review and Economic Evaluation
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Aim

To assess the extent to which screening for open angle glaucoma (OAG) would meet the United Kingdom (UK) National Screening Committee criteria for a screening program.

Conclusions and results

The criteria address the condition, test, treatment, and screening program. The specific objectives were to: 1) identify risk factors for developing OAG and determine the prevalence and incidence of OAG; 2) review the accuracy of screening tests for OAG; 3) review treatment effectiveness and extrapolate these effects to long-term visual outcome; 4) identify potential benefits and harms of screening and subsequent management; 5) determine the relative clinical and cost effectiveness of alternative screening strategies; 6) describe the impact on the NHS and other groups of screening for OAG; and 7) identify and prioritize areas for future research.

The prevalence of OAG in the UK is estimated at 2% (95% CI 1.6 to 2.3), ranging from 0.3% to 3.2% in people aged 40 to 70 years respectively. Incidence is estimated to be between 30 and 181 per 100 000 person-years for ages 50 and 70 years respectively. Of an estimated half million people affected, about 65% have not been identified; certain groups are at increased risk of developing OAG. For ages 40 to 75 years, OAG prevalence estimates are: myopics 2.7%, diabetics 3.3%, and family history in a first-degree relative 6.7%. The risk is 4 times higher among those of black ethnicity. For a low-prevalence disease, a screening test should be highly specific. Most potential screening tests reviewed had an estimated specificity of 85% or higher. However, due to the strongly heterogeneous nature of the data, and the relatively small number of studies, it was not possible to conclude whether any one test was clearly superior. Prevalence was the main determinant of cost effectiveness. The prevalence level would have to be about 3% to 4% in 40-year-olds, with a screening interval of 10 years, before it might be considered cost-effective to screen. Screening

might be cost effective in a 50-year-old cohort at a prevalence of 4% with a 10-year screening interval. General population screening at any age appears unlikely to be cost effective. Selective screening of groups with higher prevalence (black ethnicity and family history) might be worthwhile, although 6% of the population would be eligible.

Recommendations

See Executive Summary link at www.hta.ac.uk/project/1446.asp.

Methods

See Executive Summary link at www.hta.ac.uk/project/1446.asp.

Further research/reviews required

Further research should aim to develop and provide quality data to populate the economic model; by conducting a feasibility study of interventions to improve detection, by obtaining further data on costs of blindness, risk of progression, and health outcomes, and by conducting a randomized controlled trial of interventions to improve the uptake of glaucoma testing.