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Prognostic factors for a change in eye health or vision: A rapid review

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SURE
Specialist Unit for Review Evidence

Prognostic factors for a change in eye health or vision: A rapid review RR0010 (January 2024)

EXECUTIVE SUMMARY

What is a Rapid Review?

Our rapid reviews (RR) use a variation of the systematic review approach, abbreviating or omitting some components to generate the evidence to inform stakeholders promptly whilst maintaining attention to bias.

Who is this summary for?

This Rapid Review is intended for use by clinical leaders and decision makers in Wales' primary eye care services. The evidence in this Review is intended to be used to examine the risk of a person experiencing a change in their ocular health, vision, or systemic health that affects their eyes so that guidance can be produced on how often people should attend for routine eye examinations based on their individual risk factors.

It is also intended to identify gaps in the evidence to determine where further research is required for certain risk factors or patient groups.

Background / Aim of Rapid Review

The general public are advised to have regular routine eye examinations to check their vision and ocular health; however current UK guidance on how often to have eye examinations is not evidence-based and was issued in 2002.

This Rapid Review aims to provide an evidence base that stakeholders can use to form updated guidance for Wales by asking the question "What are the prognostic factors for a change in ocular status in the general population attending routine eye examinations?"

Results

Recency of the evidence base

- The review included evidence available from January 2009 up until August 2023. Evidence was included from 2011 up until 2023.

Extent of the evidence base

- 19 studies were included: two systematic reviews; nine prospective cohort studies; three retrospective cohort studies; two longitudinal studies; two case-control studies; and one cross-sectional study were included.

Key findings and certainty of the evidence

- Demographic prognostic factors: age, sex, ethnicity, and household net worth are potential prognostic factors for a change in ocular health or vision.
- Ocular prognostic factors: intraocular pressure, family history of glaucoma, visual acuity, visual field mean deviation, spherical equivalent refraction, high myopia, age-related macular degeneration, glaucoma, and cataract are potential prognostic factors for a change in ocular health or vision.

- Lifestyle/behaviour prognostic factors: diet, alcohol intake, smoking, time spent outdoors, and time spent reading are potential prognostic factors for a change in ocular health or vision.
- Systemic health prognostic factors: hypertension, heart disease, cholesterol, diabetes, peripheral arterial disease, hypercoagulable state, stroke, pregnancy, age at menarche, oral contraceptive use, and atopy are potential prognostic factors for a change in ocular health or vision.
- Increasing length of time between eye examinations is a potential prognostic factor for a change in ocular health or vision.
- The level of certainty for all prognostic factors is low as there was generally only one study reporting for each individual outcome.
- Studies were often performed in specific populations, meaning the results cannot be applied to the general population, particularly due to low study numbers per outcome.

Research Implications and Evidence Gaps

- Future research to inform appropriate eye examination intervals should be narrower in focus to ensure as much relevant and useful evidence as possible is gathered. Prognostic factors or specific ocular conditions of interest potentially need to be investigated individually for their effect on a change in ocular status.
- There are large amounts of evidence on prevalence and prognostic factors for prevalent conditions, which did not meet the inclusion criteria of this rapid review which looks at incident or changing conditions. Further evidence generation could be conducted in this area.
- Very little evidence was identified in a UK setting, more primary evidence generation may be required.
- There is a notable lack of evidence in younger adults aged under 40 years.

Policy and Practice Implications

- Caution should be taken if using this review for decision making on appropriate eye examination intervals due to low certainty and generalisability.
- This review should be used to identify key prognostic factors and suggesting these for further targeted research and evidence synthesis.

Economic considerations

- Sight loss costs the UK economy £25 billion per annum, with more than 2 million people in the UK currently living with sight loss.
- The economic implications of appropriate or inappropriate testing intervals for different causes of vision loss will be different.
- A new case of age-related macular degeneration (AMD) in an adult aged 50 or over, costs the UK economy £73,350 over the person's lifetime. Lifetime costs to the UK economy for a person diagnosed with glaucoma are approximately £49,800 per person. Reducing the prevalence of these conditions by just 14 or 20 cases respectively could save the UK economy £1 million in lifetime costs.
- On economic grounds, early detection of AMD in eye care services and the eye care pathway may be of benefit due to the high level of prevalence and associated long term costs to the NHS as the condition causes irreversible, life limiting damage.
- When captured at a population wide scale, the earlier detection of conditions through examination can result in significant economic savings.