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[Intervention Review]

# Community screening for visual impairment in older people

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## ABSTRACT

### Background

Visual problems in older people are common and frequently under-reported. The effects of poor vision in older people are wide reaching and include falls, confusion and reduced quality of life. Much of the visual impairment in older ages can be treated (e.g. cataract surgery, correction of refractive error). Vision screening may therefore reduce the number of older people living with sight loss.

### Objectives

The objective of this review was to assess the effects on vision of community vision screening of older people for visual impairment.

### Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (which contains the Cochrane Eyes and Vision Trials Register) (2017, Issue 10); Ovid MEDLINE; Ovid Embase; the ISRCTN registry; ClinicalTrials.gov and the ICTRP. The date of the search was 23 November 2017.

### Selection criteria

We included randomised controlled trials (RCTs) that compared vision screening alone or as part of a multi-component screening package as compared to no vision screening or standard care, on the vision of people aged 65 years or over in a community setting. We included trials that used self-reported visual problems or visual acuity testing as the screening tool.

### Data collection and analysis

We used standard methods expected by Cochrane. We graded the certainty of the evidence using GRADE.

### Main results

Visual outcome data were available for 10,608 people in 10 trials. Four trials took place in the UK, two in Australia, two in the United States and two in the Netherlands. Length of follow-up ranged from one to five years. Three of these studies were cluster-randomised trials whereby general practitioners or family physicians were randomly allocated to undertake vision screening or no vision screening. All studies were funded by government agencies. Overall we judged the studies to be at low risk of bias and only downgraded the certainty of the evidence (GRADE) for imprecision.

Seven trials compared vision screening as part of a multi-component screening versus no screening. Six of these studies used self-reported vision as both screening tool and outcome measure, but did not directly measure vision. One study used a combination of self-reported vision and visual acuity measurement: participants reporting vision problems at screening were treated by the attending doctor, referred to an eye care specialist or given information about resources that were available to assist with poor vision. There was a similar risk of

"not seeing well" at follow-up in people screened compared with people not screened in meta-analysis of six studies (risk ratio (RR) 1.05, 95% confidence interval (CI) 0.97 to 1.14, 4522 participants high-certainty evidence). One trial reported "improvement in vision" and this occurred slightly less frequently in the screened group (RR 0.85, 95% CI 0.52 to 1.40, 230 participants, moderate-certainty evidence).

Two trials compared vision screening (visual acuity testing) alone with no vision screening. In one study, distance visual acuity was similar in the two groups at follow-up (mean difference (MD) 0.02 logMAR, 95% CI -0.02 to 0.05, 532 participants, high-certainty evidence). There was also little difference in near acuity (MD 0.02 logMAR, 95% CI -0.03 to 0.07, 532 participants, high-certainty evidence). There was no evidence of any important difference in quality of life (MD -0.06 National Eye Institute 25-item visual function questionnaire (VFQ-25) score adjusted for baseline VFQ-25 score, 95% CI -2.3 to 1.1, 532 participants, high-certainty evidence). The other study could not be included in the data analysis as the number of participants in each of the arms at follow-up could not be determined. However the authors stated that there was no significant difference in mean visual acuity in participants who had visual acuity assessed at baseline (39 letters) as compared to those who did not have their visual acuity assessed (35 letters,  $P = 0.25$ , 121 participants).

One trial compared a detailed health assessment including measurement of visual acuity (intervention) with a brief health assessment including one question about vision (standard care). People given the detailed health assessment had a similar risk of visual impairment (visual acuity worse than 6/18 in either eye) at follow-up compared with people given the brief assessment (RR 1.07, 95% CI 0.84 to 1.36, 1807 participants, moderate-certainty evidence). The mean composite score of the VFQ-25 was 86.0 in the group that underwent visual acuity screening compared with 85.6 in the standard care group, a difference of 0.40 (95% CI -1.70 to 2.50, 1807 participants, high-certainty evidence).

### Authors' conclusions

The evidence from RCTs undertaken to date does not support vision screening for older people living independently in a community setting, whether in isolation or as part of a multi-component screening package. This is true for screening programmes involving questions about visual problems, or direct measurements of visual acuity.

The most likely reason for this negative review is that the populations within the trials often did not take up the offered intervention as a result of the vision screening and large proportions of those who did not have vision screening appeared to seek their own intervention. Also, trials that use questions about vision have a lower sensitivity and specificity than formal visual acuity testing. Given the importance of visual impairment among older people, further research into strategies to improve vision of older people is needed. The effectiveness of an optimised primary care-based screening intervention that overcomes possible factors contributing to the observed lack of benefit in trials to date warrants assessment; trials should consider including more dependent participants, rather than those living independently in the community.

## PLAIN LANGUAGE SUMMARY

### Community screening for visual impairment in older people

#### What was the aim of this review?

The aim of this review was to find out if community screening for visual impairment (sight loss) in older people results in improvements in vision. Cochrane Review authors collected and analysed all relevant studies to answer this question and found 10 studies.

#### Key message

There is no evidence that community screening for visual impairment in older people reduces the level of visual impairment in people living independently in the community. Further research on the barriers to accessing care at older ages is needed, as well as research investigating the effect of vision screening on more dependent populations of older people.

#### What was studied in the review?

Vision problems are common in older people and are associated with an increased chance of falls and lower quality of life. Many older people have undiagnosed vision problems and therefore do not receive appropriate treatment. Community vision screening of older people could lead to improvements in vision by helping to find people with vision problems and putting them in contact with appropriate health care services that can provide treatment for the vision problem. The screening may consist of simple questions about vision (self-reported vision problems) or an eye test involving reading letters on a chart.

Cochrane Review authors wanted to find out if vision screening results in an improvement in vision in people over 65 years old.

#### What are the main results of the review?

Cochrane Review authors found 10 relevant studies. Four studies were from the United Kingdom, two studies from Australia, two from the United States and two from the Netherlands. These studies compared vision screening with no vision screening in people of 65 years of age or older. People taking part in these studies were followed up for between one and five years. All studies were funded by government agencies.

The review shows that:

- communities that had vision screening did not have improved vision, on average, compared with communities who did not receive vision screening;
- it did not make a difference if vision problems were self-reported or identified by a vision test (reading letters on a chart);
- it did not make a difference if the vision screening was done by itself, or as part of a broader health assessment.

Cochrane Review authors assessed how certain the evidence was for each review finding. They looked for factors that can make the evidence less certain, such as problems with the way the studies were done, very small studies, and inconsistent findings across studies. They also looked for factors that can make the evidence more certain, including very large effects. They graded each finding as very low certainty, low certainty, moderate certainty or high certainty. This review included mostly high-certainty evidence.

**How up to date is this review?**

Cochrane Review authors searched for studies that had been published up to 23 November 2017.