



Integrated care for older people (ICOPE) Guidelines on community-level interventions to manage declines in intrinsic capacity

Evidence profile: visual impairment

Scoping question:

For older people with visual impairment, does case finding, provision of care or referral produce any benefit and/or harm compared with controls?

The full ICOPE guidelines and complete set of evidence profiles are available at:

who.int/publications/i/item/9789241550109

Painting: "Wet in Wet" by Gusta van der Meer. At 75 years of age, Gusta has an artistic style that is fresh, distinctive and vibrant. A long-time lover of art, she finds that dementia is no barrier to her artistic expression. Appreciated not just for her art but also for the support and encouragement she gives to other artists with dementia, Gusta participates in a weekly art class. Copyright by Gusta van der Meer. All rights reserved

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Background

Worldwide, approximately 185 million people aged 50 years and over are visually impaired (1). More than half of all people with visual impairment live in low- and middle-income countries, with India having the highest number of blind people: 8.3 million (2, 3). In older people, visual impairment influences their ability to live an independent life (4), and increases the need for social care (5). Moreover, there is a strong association between vision impairment and undesirable outcomes, including depressive symptoms (6), lower life satisfaction (7), poor quality of life (8, 9) and reduced social interaction and function (10–12). Poor vision in older people increases the risk of falls (13–22) and mortality (23–29).

Among the causes of visual impairment, cataract and refractive errors are most common in older people. Cost-effective interventions, such as cataract surgery and provision of corrective glasses, have shown consistent benefit in reducing disability, limitation in activities, anxiety, depression, risk of falls and fractures (30–34). Despite the availability of cost-effective treatments, eye care utilization by older adults has been found to

be infrequent: only 10%, 24%, 22% and 37% of older people living in low-, lower-middle-, upper-middle- and high-income countries, respectively, reported having had an eye exam during the preceding year, while approximately 61% of older people living in low-income countries had never had an eye exam. Research evidence suggests that community case-finding and immediate provision of eye care or referral for cataract surgery might reduce the substantial treatment gap for vision impairment in older people. However, the majority of intervention trials were conducted in high-income countries, and the feasibility of implementing this approach in a resource-poor setting is unclear. Further, mass community-based screening of asymptomatic older people has been reported to produce no benefits in reducing visual impairment (35, 36). The lack of effectiveness found by studies may be due to the absence of immediate provision of a subsequent intervention to treat the detected problem or to the fact that the majority of studies have been carried out in high-income countries, where vision testing is available and accessible, and the unmet need is relatively small. Therefore, this review has been conducted to synthesize the evidence for community case-finding and provision of care or referral for visual impairment in older people.

Part 1: Evidence review

Scoping question in PICO format (population, intervention, comparison, outcome)

Population

- Older people (both male and female) aged 60 years and over with refractive errors or cataract

Interventions

- Case-finding and referral for refractive error or cataract
- Case-finding and immediate provision of care for refractive error

Comparison

- Usual care control

Outcomes

- Critical: Visual acuity, vision-related quality of life, self-reported improvement
- Important: Social function, depression

Setting

- Community care/primary care

Search strategy

The search strategy is provided in Annex 1 (page 20).

List of systematic reviews (and individual studies) identified by the search process

Included in GRADE¹ tables or footnotes

Coleman AL, Yu F, Keeler E, Mangione CM. Treatment of uncorrected refractive error improves the vision-specific quality of life. *J Am Geriatr Soc.* 2006;54(6):883–90. (32)

Moore AA, Siu AL, Partridge JM, Hays RD, Adams J. A randomized trial of office-based screening for common problems in older persons. *Am J Med.* 1997;102(4):371–8. (33)

Owsley C, McGwin G Jr, Scilley K, Meek GC, Seker D, Dyer A. Effect of refractive error correction on health-related quality of life and depression in older nursing home residents. *Arch Ophthalmol.* 2007;125(11):1471–7. (34)

Smeeth LL, Iliffe S. Community screening for visual impairment in the elderly. *Cochrane Database Syst Rev.* 2006;(3):CD001054. [Review was updated by WHO in 2015]. (35)

Laidlaw DAH, Harrad RA, Hopper CD, Whitaker A, Donovan JL, Brookes ST et al. Randomized trial of effectiveness of second eye cataract surgery. *Lancet.* 1998;352:925–9. (37)

Harwood RH, Foss AJE, Osborn F, Gregson RM, Zaman A, Masud T. Falls and health status in elderly women following first eye cataract surgery: a randomised controlled trial. *Br J Ophthalmol.* 2005;89:53–9. (38)

Foss AJE, Harwood RH, Osborn F, Gregson RM, Zaman A, Masud T. Falls and health status in elderly women following second eye cataract surgery: a randomised controlled trial. *Age Ageing.* 2006;35:66–71. (39)

Excluded reviews and trials

Skelton DA, Howe TE, Ballinger C, Neil F, Palmer S, Gray L. Environmental and behavioural interventions for reducing physical activity limitation in community-dwelling visually impaired older people. *Cochrane Database Syst Rev.* 2013;(6):CD009233. (Reason: no eligible trials were found) (40)

¹ GRADE: Grading of Recommendations Assessment, Development and Evaluation. More information: <http://gradeworkinggroup.org>

PICO table

	Intervention/ Comparison	Outcomes	Systematic reviews and individual studies used for GRADE	Explanation
1	Visual screening and referral of eye care vs control (usual care)	<ul style="list-style-type: none"> • Visual acuity • Quality of life • Social function • Depression • Activities of daily living (ADLs) 	<p>Smeeth LL, Iliffe S. Community screening for visual impairment in the elderly. Cochrane Database Syst Rev. 2006;(3):CD001054. (35)</p> <p>Moore AA, Siu AI, Partridge JM, Hays RD, Adams J. A randomized trial of office-based screening for common problems in older persons. Am J Med. 1997;102(4):371–8. (33)</p>	<p>Systematic review relevant to the area</p> <p>Individual study relevant to the area</p>
2	Vision screening and provision of service vs control (usual care)	<ul style="list-style-type: none"> • Visual acuity • Quality of life, • Social function, • Depression, • ADLs 	<p>Coleman AL, Yu F, Keeler E, Mangione CM. Treatment of uncorrected refractive error improves vision-specific quality of life. J Am Geriatr Soc. 2006;54(6):883–90. (32)</p> <p>Owsley C, McGwin G Jr, Scilley K, Meek GC, Seker D, Dyer A. Effect of refractive error correction on health-related quality of life and depression in older nursing home residents. Arch Ophthalmol. 2007;125(11):1471–7. (34)</p>	<p>Individual study relevant to the area</p> <p>Individual study relevant to the area</p>

Narrative description of the studies that went into the analysis

Screening and referral

The Cochrane systematic review by Smeeth and Iliffe was carried out to assess the effectiveness of community screening for visual impairment in older people for improving vision (35). The authors searched the Cochrane Eyes and Vision Group Trials Register, The Cochrane Library, the National Research Register, MEDLINE, Embase, PubMed, SciSearch and additional sources for published data. There were no language or date restrictions on the search for trials. Also, they contacted investigators to identify additional unpublished studies or further information not included in the published reports of the trials. Both authors worked independently to extract data and assess trial quality. The authors included randomized trials (RCTs) comparing visual or multicomponent assessment for visual impairment with usual care in older adults who were not identified as belonging to a particular risk group.

Moore et al. conducted a cluster RCT at a community-based practice in the United States America to evaluate the effectiveness of a 10-minute office-staff administered screening to assess several conditions including visual impairment (33). They enrolled 261 patients aged 70 years and older and compared screening with usual care. The intervention consisted of a question to assess difficulty performing everyday activities followed by use of a Snellen eye chart if impairment was indicated by the answer to the question. Six months after enrolment, authors contacted the participants through a mailed questionnaire that addressed, among

others, changes in self-reported vision. No differences were noted between the intervention (screening) and control (usual care) groups regarding changes in self-reported problems with vision.

The study by Coleman et al. was carried out in the United States to evaluate the benefits of eyeglasses and magnifiers in elderly patients with uncorrected refractive errors (32). In this RCT, the authors assessed the effects of immediate versus delayed corrective lenses. They enrolled 131 community-dwelling people aged 65 years and older whose distant visual acuity, near visual acuity or both could be improved with eyeglasses, a magnifier or both. The primary outcome of the study was vision-specific functioning, measured using the 25-item National Eye Institute Visual Functioning Questionnaire (NEI-VFQ-25). Results showed improvements in vision-related quality of life in the participants who received a prescription and voucher for eyeglasses immediately. Moreover, they had significant improvement in perception of their general vision, distance visual acuity, near visual acuity and mental health.

The study by Owsley et al. was also an RCT on the effects of immediate versus delayed provision of corrective lenses (34). The authors evaluated 151 patients aged 55 years and older having uncorrected refractive error and residing in nursing homes in the USA. The study reported that dispensing spectacles to treat uncorrected refractive error led to improved vision-targeted health-related quality of life, fewer reported difficulties in the visual activities of daily living (ADLs) and decreased depressive symptoms.

GRADE table 1: Vision screening and referral compared with standard care for older people

Author: WHO systematic review team
Date: 20 October 2015
Question: What is the effectiveness of vision screening as part of multicomponent screening packages compared with standard care for older people?
Setting: Primary care or community
Bibliography: Smeeth LL, Iliffe S. Community screening for visual impairment in the elderly. Cochrane Database Syst Rev. 2006;(3):CD001054 (35). [Systematic review was updated by WHO in 2015]

Quality assessment							Number of patients		Effect		Quality	Importance
Number of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Vision screening as part of multicomponent screening packages	Standard care	Relative (95% CI)	Absolute (95% CI)		
Self-reported improvement in vision (follow-up 20 months to 4 years; assessed with direct question)												
5	randomized trials	serious ^a	not serious	serious ^b	not serious	none	430/1656 (26.0%)	426/1838 (23.2%)	RR 1.03 (0.92 to 1.15)	7 more per 1000 (from 19 fewer to 35 more)	●●○○ LOW	CRITICAL
Visual acuity less than 6/18 in either eye (follow-up 3–5 years)												
1	randomized	serious ^c	not applicable	serious ^b	not serious	none	307/829	339/978	RR 1.07	24 more	●●○○	CRITICAL

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