Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix 1. Search Strategies

Screening Key Questions

Database: Ovid MEDLINE(R) without Revisions
1 Mass Screening/
2 exp Vision Tests/
3 exp Refractive Errors/
4 exp Macular Degeneration/
5 exp Vision Disorders/
6 exp Vision, Ocular/
7 exp Eye Diseases/
8 Cataract/
9 (presbyop$ or myop$ or astigmati$ or hyperop$ or cataract$ or "macular degeneration" or armd).mp.
10 or/2-9
11 1 and 10
12 11 not (adolescen$ or child$ or pediatric$ or toddler or infant$ or newborn or neonat$ or prematur$).mp.
13 limit 12 to humans
14 limit 13 to english language
15 limit 13 to abstracts
16 14 or 15

Database: EBM Reviews - Cochrane Central Register of Controlled Trials
1 Mass Screening/
2 exp Vision Tests/
3 exp Refractive Errors/
4 exp Macular Degeneration/
5 exp Vision Disorders/
6 exp Vision, Ocular/
7 exp Eye Diseases/
8 Cataract/
9 (presbyop$ or myop$ or astigmati$ or hyperop$ or cataract$ or "macular degeneration" or armd).mp.
10 or/2-9
11 1 and 10
12 11 not (adolescen$ or child$ or pediatric$ or toddler or infant$ or newborn or neonat$ or prematur$).mp.

Database: EBM Reviews - Cochrane Database of Systematic Reviews
1 ((vision or visual) adj5 screen$).mp.
2 (presbyop$ or myop$ or astigmati$ or hyperop$).mp.
3 (macula$ adj3 degenerat$).mp.
4 cataract$.mp.
5 1 and (or/2-4)
6 5 not (child$ or pediatr$ or neonat$ or prematur$).mp.

Diagnostic Accuracy Key Question

Database: Ovid MEDLINE(R) without Revisions
1 Vision, Ocular/
2 Vision Disorders/
3 Vision Tests/
4 Refractive Errors/
5 Macular Degeneration/
6 Cataract/

7 Eye Diseases/
8 (presbyop$ or myop$ or astigmati$ or hyperop$ or cataract$ or "macular degeneration" or armd).mp.
9 vision.mp.
10 or/1-9
11 screen$.mp.
12 10 and 11
13 "Sensitivity and Specificity"/
14 (specificity or accurac$ or "predictive value").tw.
15 (sensitiv$ or diagnostic).mp.
16 or/13-15
17 12 and 16
18 17 not (adolescen$ or child$ or pediatric$ or toddler or infant or neonat$ or prematur$).mp.
19 limit 18 to humans
20 limit 19 to english language
21 limit 19 to abstracts
22 20 or 21

Database: EBM Reviews - Cochrane Central Register of Controlled Trials
1 Vision, Ocular/
2 Vision Disorders/
3 Vision Tests/
4 Refractive Errors/
5 Macular Degeneration/
6 Cataract/
7 Eye Diseases/
8 (presbyop$ or myop$ or astigmati$ or hyperop$ or cataract$ or "macular degeneration" or armd).mp.
10 or/1-9
11 screen$.mp.
12 10 and 11
13 "Sensitivity and Specificity"/
14 (specificity or accurac$ or "predictive value").tw.
15 (sensitiv$ or diagnostic).mp.
16 or/13-15
17 12 and 16
18 17 not (adolescen$ or child$ or pediatric$ or toddler or infant or neonat$ or prematur$).mp.

Database: EBM Reviews - Cochrane Database of Systematic Reviews
1 (presbyop$ or myop$ or astigmati$ or hyperop$).mp.
2 (macula$ adj3 degenerat$).mp.
3 cataract$.mp.
4 visual acuity.mp.
6 (diagno$ adj2 accur$).mp.
7 5 and 6

Treatment Key Questions

Database: Ovid MEDLINE(R) without Revisions
1 exp Refractive Errors/dt, pc, rt, th
2 exp Cataract/dh, dt, pc, rt, th
3 Cataract Extraction/
4 exp Macular Degeneration/dh, dt, pc, rt, su, th
5 exp Vision Disorders/dh, dt, pc, rt, su, th
6 or/1-5
7 6 not (adolescen$ or child$ or pediatric$ or toddler or infant$ or newborn or neonat$ or prematur$).mp.
8 limit 7 to humans

9 limit 8 to english language
10 limit 8 to abstracts
11 limit 10 to "all aged (65 and over)"
12 limit 11 to yr="2008 - 2014"

Database: EBM Reviews - Cochrane Central Register of Controlled Trials

1 exp Refractive Errors/dt, pc, rt, th
2 exp Cataract/dh, dt, pc, rt, th
3 Cataract Extraction/
4 exp Macular Degeneration/dh, dt, pc, rt, su, th
5 exp Vision Disorders/dh, dt, pc, rt, su, th
6 or/1-5
7 6 not (adolescen$ or child$ or pediatric$ or toddler or infant$ or newborn or neonat$ or prematur$).mp.

Database: EBM Reviews - Cochrane Database of Systematic Reviews

1 ("age-related macular degeneration" or "age related macular degeneration" or "AMD" or "ARMD").ti,ab.
2 ("impaired visual acuity" or "impaired vision" or "visual acuity").ti,ab.
3 cataract$.ti,ab.
4 (presbyop$ or myop$ or astigmati$ or hyperop$).ti,ab.
5 treatment.ti,ab.
6 (or/1-4) and 5
7 6 not (child$ or pediatr$ or neonat$ or prematur$).mp.
8 limit 7 to new reviews
9 limit 8 to full systematic reviews
10 9 not diabet$.mp.

eAppendix 2. United States Preventive Services Task Force Quality Rating Criteria

Criteria for Assessing Internal Validity of Individual Studies

The Methods Work Group for the US Preventive Services Task Force (USPSTF) developed a set of criteria by which the internal validity of individual studies could be evaluated. The USPSTF accepted the criteria, and the associated definitions of quality categories, that relate to internal validity at its September 1999 meeting.

This appendix describes the criteria relating to internal validity and the procedures that topic teams follow for all updates and new assessments in making these judgments.

All topic teams use initial "filters" to select studies for review that deal most directly with the question at issue and that are applicable to the population at issue. Thus, studies of any design that use outdated technology or that use technology that is not feasible for primary care practice may be filtered out before the abstraction stage, depending on the topic and the decisions of the topic team. The teams justify such exclusion decisions if there could be reasonable disagreement about this step. The criteria below are meant for those studies that pass this initial filter.
Presented below are a set of minimal criteria for each study design and then a general definition of three categories: "good," "fair," and "poor," based on those criteria. These specifications are not meant to be rigid rules but rather are intended to be general guidelines, and individual exceptions, when explicitly explained and justified, can be made. In general, a "good" study is one that meets all criteria well. A "fair" study is one that does not meet (or it is not clear that it meets) at least one criterion but has no known "fatal flaw." "Poor" studies have at least one fatal flaw.

Systematic Reviews

Criteria:
Comprehensiveness of sources considered/search strategy used.
Standard appraisal of included studies.
Validity of conclusions.
Recency and relevance are especially important for systematic reviews.

Definition of ratings from above criteria:

Good: Recent, relevant review with comprehensive sources and search strategies; explicit and relevant selection criteria; standard appraisal of included studies; and valid conclusions.

Fair: Recent, relevant review that is not clearly biased but lacks comprehensive sources and search strategies.

Poor: Outdated, irrelevant, or biased review without systematic search for studies, explicit selection criteria, or standard appraisal of studies.

Randomized Controlled Trials and Cohort Studies

Criteria:

- Initial assembly of comparable groups:
    - For RCTs: adequate randomization, including first concealment and whether potential confounders were distributed equally among groups.
    - For cohort studies: consideration of potential confounders with either restriction or measurement for adjustment in the analysis; consideration of inception cohorts.
- Maintenance of comparable groups (includes attrition, cross-overs, adherence, contamination).
- Important differential loss to follow-up or overall high loss to follow-up.
- Measurements: equal, reliable, and valid (includes masking of outcome assessment).
- Clear definition of interventions.
- All important outcomes considered.
- Analysis: adjustment for potential confounders for cohort studies, or intention to treat analysis for RCTs.

Definition of ratings based on above criteria:
Good: Meets all criteria: Comparable groups are assembled initially and maintained throughout the study (follow-up at least 80 percent); reliable and valid measurement instruments are used and applied equally to the groups; interventions are spelled out clearly; all important outcomes are considered; and appropriate attention to confounders in analysis. In addition, for RCTs, intention to treat analysis is used.
Fair: Studies will be graded "fair" if any or all of the following problems occur, without the fatal flaws noted in the "poor" category below: Generally comparable groups are assembled initially but some question remains whether some (although not major) differences occurred with follow-up; measurement instruments are acceptable (although not the best) and generally applied equally; some but not all important outcomes are considered; and some but not all potential confounders are accounted for. Intention to treat analysis is done for RCTs.
Poor: Studies will be graded "poor" if any of the following fatal flaws exists: Groups assembled initially are not close to being comparable or maintained throughout the study; unreliable or invalid measurement instruments are used or not applied at all equally among groups (including not masking outcome assessment); and key confounders are given little or no attention. For RCTs, intention to treat analysis is lacking.

Case-Control Studies

Criteria:
- Accurate ascertainment of cases
- Nonbiased selection of cases/controls with exclusion criteria applied equally to both.
- Response rate.
- Diagnostic testing procedures applied equally to each group.
- Measurement of exposure accurate and applied equally to each group.
- Appropriate attention to potential confounding variables.

Definition of ratings based on criteria above:
Good: Appropriate ascertainment of cases and nonbiased selection of case and control participants; exclusion criteria applied equally to cases and controls; response rate equal to or greater than 80 percent; diagnostic procedures and measurements accurate and applied equally to cases and controls; and appropriate attention to confounding variables.
Fair: Recent, relevant, without major apparent selection or diagnostic work-up bias but with response rate less than 80 percent or attention to some but not all important confounding variables.
Poor: Major selection or diagnostic work-up biases, response rates less than 50 percent, or inattention to confounding variables.

Diagnostic Accuracy Studies

Criteria:
Screening test relevant, available for primary care, adequately described.
Study uses a credible reference standard, performed regardless of test results.
Reference standard interpreted independently of screening test.
Handles indeterminate results in a reasonable manner.
Spectrum of patients included in study.
Sample size.
Administration of reliable screening test.

Definition of ratings based on above criteria:

Good: Evaluates relevant available screening test; uses a credible reference standard; interprets reference standard independently of screening test; reliability of test assessed; has few or handles indeterminate results in a reasonable manner; includes large number (more than 100) broad-spectrum patients with and without disease.

Fair: Evaluates relevant available screening test; uses reasonable although not best standard; interprets reference standard independent of screening test; moderate sample size (50 to 100 subjects) and a "medium" spectrum of patients.

Poor: Has fatal flaw such as: Uses inappropriate reference standard; screening test improperly administered; biased ascertainment of reference standard; very small sample size or very narrow selected spectrum of patients.

Reference: United States Preventive Services Task Force Procedure Manual.[1]

eTable 1. Quality Ratings of Trials of Screening for Impaired Visual Acuity in Older Adults

Study, Year	Random assignment	Allocation concealed	Groups similar at baseline	Eligibility criteria specified	Blinding: outcome assessors or data analysts	Intention-to-treat analysis	Reporting of attrition, contamination, etc.	Differential loss to follow-up or overall high loss to follow-up	Appropriate analysis including cluster correlation	Funding source	Quality
Eekhof, 2000[2]	Yes	Not applicable (cluster)	Yes	Yes	Unclear	No	Yes	Yes	No	Unclear	Fair
Moore, 1997[3]	Yes	Not applicable (cluster)	Yes	Yes	Unclear	No	Yes	Yes	No	Robert Wood Johnson Clinical Scholars Program; National Institute on Aging Geriatric Academic Program	Fair
Smeeth, 2003[4]	Yes	Not applicable (cluster)	Yes	Yes	Unclear	No	Yes	Yes	Yes	Medical Research Council/ United Kingdom Department of Health	Good

eTable 2. Quality Ratings of Diagnostic Accuracy Studies for Impaired Visual Acuity in Older Adults

Study, Year	Appropriate spectrum of patients	Adequate sample size (>500)	Credible reference standard used	Reference standard applied to all patients	Screening test adequately described	Reference standard interpreted independently	Quality
Studies from Update							
Jessa, 2012[5]	Yes	No	Yes	Yes	Yes	Unclear	Fair
Swanson, 2009[6]	Yes	No	Yes	Yes	Yes	Unclear	Fair
Studies from Prior Review							
Ariyasu, 1996[7]	Unclear	No	Yes	Unclear	Yes	No	Poor-fair
Eekhof, 2000[8]	Unclear	Yes	Yes	Yes	Yes	Unclear	Fair
Hiller, 1983[9]	Yes	Yes	Yes	Unclear	Yes	Unclear	Fair
Ivers, 2001[10]	Unclear	Yes	Yes	Unclear	Yes	Unclear	Poor-fair
McMurdo, 1988[11]	Unclear	No	Yes	Yes	Yes	Yes	Fair
Teh, 2006[12]	Unclear	No	Yes	Unclear	Yes	Unclear	Poor-fair
Wang, 1998[13]	Unclear	No	Yes	No	Yes	Unclear	Poor-fair
Woods, 1998[14]	Unclear	Yes	Yes	No	Yes	Unclear	Poor-fair

Note: Studies from prior review not re-rated.

eTable 3. Quality Ratings of Treatment Studies of Antioxidant Vitamins, Minerals, and Other Supplements for Dry AMD Published Since the Prior Review

Systematic Review: Quality = Good

Author, Year	A priori design provided	Duplicate study selection and data abstraction -Study selection -Data abstraction	Compre-hensive literature search performed	Non-English language studies considered for inclusion	Conducted searches for un-published (gray) literature	List of included studies provided	List of excluded studies provided with reasons	Charact-eristics of the included studies provided	Scientific quality of included studies: Assessed Documented	Sensitivity analyses or stratified analyses conducted according to study quality	Study con-clusions supported by the evidence (Was study quality considered in the synthesis?)	Conflict of interest stated: Systematic Review Individual Studies
Evans, 2012[15]	Yes	- Yes - Yes	Yes	Yes	Yes	Yes	Yes	Yes	-Yes -Yes	No	Yes	-Yes -No

Trials

Author, year	Randomization adequate?	Allocation concealment adequate?	Groups similar at baseline?	Eligibility criteria specified?	Outcome assessors masked?	Care provider masked?	Patient masked?	Attrition and withdrawals reported?	Loss to follow-up: differential/ high?	Analyze people in the groups in which they were randomized?	Quality
Chew, 2013[16] (AREDS)	Yes	Unclear	Yes	Yes	Yes	Unclear	Yes	Yes	No	Yes	Good
Ma, 2012[17]	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Good
Murray, 2013[18]	Yes	Unclear	Yes	Yes	Yes	Unclear	Yes	Yes	No	Yes	Good
Souied, 2013[19]	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Good

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