Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: GBD 2019 Blindness and Vision Impairment Collaborators on behalf of the Vision Loss Expert Group of the Global Burden of Disease Study. Trends in prevalence of blindness and distance and near vision impairment over 30 years: an analysis for the Global Burden of Disease Study. Lancet Glob Health 2020; published online Dec 1. http://dx.doi.org/10.1016/S2214-109X(20)30425-3.
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APPENDIX 1: METHODOLOGY

Text 1. Definitions and analytic framework

We estimate the prevalence of vision loss for the period 1990-2020 by age, sex, and year in 187 countries (Table 1), for the following extended vision loss categories:

• Blind: < 3/60 and/or a visual field of no greater than 10° in radius around central fixation

• Severe vision loss: < 6/60 and ≥ 3/60
• Moderate vision loss: < 6/18 and ≥ 6/60
• Mild vision loss: < 6/12 and ≥ 6/18

• Vision impairment from uncorrected presbyopia: VA of <6/12 distance equivalent in those with presenting distance vision ≥6/12

Our study was carried out in seven steps:

• Data identification and access

• Separation of raw data into datasets called “vision loss envelopes” for all-cause mild, moderate, and severe vision loss, and blindness.
• Studies only specifying “both” sex information split into male- and female-specific data points using MR-BRT*

• Adjustment of non-reference data to the reference definition of presenting vision data that fit within the WHO severity categories

• Application of an age pattern to data with age groups greater than or equal to 25 years

• Dismod-MR 2.1 modeling

• Modeling and Post-Processing
• Extrapolation, Age-standardisation & forecasting for 2020 and 2050 estimates

*MR-BRT (Meta Regression; Bayesian; Regularized; Trimmed)- a mixed-effects meta-regression tool developed at the Institute for Health Metrics and Evaluation This tool was developed in part to allow for the ability to propagate between-study heterogeneity as part of the uncertainty adjustment, and to allow trimming of outlier input data. A detailed description of MR-BRT has been published elsewhere.12

Text 2. Data identification and access

We used data from epidemiologic studies and surveys which we collected to update a previously published systematic review. Following Bourne and colleagues,3 we identified studies or surveys fulfilling the following inclusion criteria:
• The studies reported prevalence of vision impairment from cross-sectional surveys of representative populations of a country or area of a country.
• The definitions of vision impairment were clearly stated, using thresholds of visual acuity in the better eye that matched the extended definitions of vision impairment.
• Best corrected and/or presenting visual acuity was given.
• The procedures used for measurement of visual acuity were clearly stated.

The authors carried out a systematic review of the literature for distance vision impairment data. They also obtained unpublished data sources. Distance visual acuity data was used from 512 sources; 485 reported or could be used to estimate the prevalence of blindness, 380 reported or could be used to estimate the prevalence of moderate plus severe vision impairment (MSVI), and 59 reported or could be used to estimate the prevalence of mild vision impairment. Data sources used in this analysis are listed in Table 2. 25 studies were used to estimate vision impairment from uncorrected presbyopia, as shown in Table 3. The current systematic review of distance visual acuity data sources used the same search terms of a systematic review published previously, but extended the review to include more recently published studies up to 1 October 2018. The methodology for this systematic review extension is described in Figure 1 as a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart with a PRISMA-P checklist in Table 4.

The Search Strategy for the Systematic Review is described in the following sections:

2.1 Developing the Search Strategy (distance visual acuity data sources)
2.2 Final Search Strategies (distance visual acuity data sources)
2.3 Results & Discussion (distance visual acuity data sources)
2.4 Systematic review of studies of presbyopia prevalence

Text 2.1. Developing the Search Strategy (distance visual acuity data sources)

The search strategy was required to capture epidemiological studies of vision loss and blindness published in the period 1980 to 2018 inclusive. The search excluded animal studies.

This report describes update searches undertaken for the Global Vision Database project in October 2018. These searches update the original search undertaken in 2008 and the subsequent searches run in 2012 and 2013 and 2014.

Several approaches to capturing the search concepts were developed and tested out in Ovid MEDLINE. The objective was to achieve a focused strategy that would identify epidemiological studies of blindness. The strategy needed to balance adequate sensitivity (not missing too many relevant records) against reasonable precision (not producing high proportions of irrelevant records) bearing in mind the resource available to process the records produced by the searches. To achieve this balance required the use, in a master strategy for MEDLINE, of the various indexing options that were available. The strategy also had to take account of variability in the way authors describe their research and indexers index research with Medical Subject Headings (MeSH). Ideally, we would expect all records about the epidemiology of blindness to be indexed with the MeSH and appropriate subheading, for example BLINDNESS/ep. In practice, however, there are many records about that topic that are not indexed in that way. The strategy takes account of such variability in indexing approaches. The strategy also had to cope with the fact that the search would be undertaken in both indexed and unindexed records (e.g. MEDLINE In Process records) so had to search for text words (in the title and abstract) as well as MeSH.
As well as the concept of the epidemiology of blindness, the strategy had to retrieve studies about the epidemiology of selected specific eye diseases which might result in blindness or visual impairment.

After several iterations, checking the impact of changes at each stage, a strategy with three elements was agreed as follows for Ovid MEDLINE (see also Box 1).

**Element 1**

A search on the concepts of blindness and visual impairment linked to epidemiological terms through three approaches:

1. Precoordination of a MeSH blindness/visual impairment term with its epidemiology subheading, e.g.
   
   exp blindness/ep

2. Searching for the occurrence of a MeSH blindness/visual impairment term along with the occurrence of an epidemiological MeSH term in the same record, e.g.
   
   exp blindness/ and (incidence/ or prevalence/ or mortality/ or morbidity/)

3. Searching for the occurrence of a MeSH blindness/visual impairment term and an epidemiological concept expressed as a text word in the title or abstract of a record, e.g.
   
   exp blindness/ and (epidemiology or incidence or prevalence or mortality).ti,ab.

**Element 2**

A search for specific eye diseases linked to epidemiological terms and also to terms indicating blindness using the following approaches:

1. Precoordination of a MeSH eye disease heading with the epidemiology subheading and then looking for the occurrence of that combination in the same record as one where blindness/visual impairment is a term in the title or abstract, e.g.

   • conjunctival diseases/ep
   • exp blindness/ or (blindness or (visual adj3 impair$) or (vision adj3 impair$)).ti,ab. • 1 and 2

2. Searching for the occurrence of a MeSH eye disease heading in the same record as an epidemiological MeSH heading and as blindness/visual impairment as a term in the title or abstract, e.g.

   • conjunctival diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/) • exp blindness/ or (blindness or (visual adj3 impair$) or (vision adj3 impair$)).ti,ab.
   • 1 and 2

3. Searching for the occurrence of eye disease text words in close proximity to epidemiology text words in the title and abstract of records, in the same records as blindness MeSH or blindness/visual impairment text words, e.g.

   • (retinitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab.
   • exp blindness/ or (blindness or (visual adj3 impair$) or (vision adj3 impair$)).ti,ab. • 1 and 2
Element 3

Searching for records that specifically mention population-based eye surveys using a range of synonyms for that concept in the title and abstract, e.g.

(population adj3 eye adj3 survey$).ti,ab.

To improve the precision of the search a range of limits were explored and agreed

- Removing studies about animals by using a safe exclusion approach: {Result set} NOT (animals/ NOT humans/)
- Excluding letters coded in the MEDLINE Publication Type field
- Excluding comments coded in the MEDLINE Publication Type field
- Excluding editorials coded in the MEDLINE Publication Type field
- Excluding clinical trials coded in the MEDLINE Publication Type field
- Excluding reviews coded in the MEDLINE Publication Type field or as a text word in the title

The original 2008 search was limited to records with a publication date of 1980 to current. The update searches were date limited using various update codes relevant to the specific databases. These date limits were intended to restrict the results to records added to the databases, indexed or otherwise revised since the search was last run. The results of each update were deduplicated against each other and the results of the previous searches.

The following databases were searched in 2008 and for each of the subsequent updates:

- Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R)
- Ovid EMBASE
- WHOLIS library catalogue (http://dosei.who.int/uhtbin/webcat)

For the 2018 update, the search structure and terms used were identical to those used previously. No further revisions of the strategy were made. The original strategies were translated appropriately for the sources newly searched for this update e.g. SciELO, Open Grey, and the new interface of WHOLIS. Full search strategies for all resources are provided below in Text 2.2.

The original 2008 search downloaded records from MEDLINE and Embase by country. This was not repeated in the 2012, 2013 or 2014 update searches. We followed the approach used in previous update searches and downloaded the results as one batch, without an additional search concept to allow records to be exported geographically.

The previous update searches (2012, 2013, 2014) were date limited using various update codes relevant to the specific databases. These date limits were intended to restrict the results to records added to the databases, indexed or otherwise revised since the search was last run. Whilst this approach of date limiting updates is pragmatic, and reduces the resource burden of loading and deduplicating the large number of records a search unrestricted by date would require, there is currently no agreed best method to achieve this. Due to uncertainty about the way date fields are implemented in database interfaces, many older records are inevitably retrieved and must be removed at deduplication stage. As a result the 2018 update searches were not limited by date. We re-ran all the searches from 1980 to 1 October 2018 and removed records already identified by previous searches.
Text 2.2. Final Search Strategies (distance visual acuity data sources)

The databases searched mirrored those used in the original search with the addition of SciELO and sources to identify grey literature. Table 5 presents the sources searched. The choice of grey literature sources was discussed and agreed with Rupert Bourne and colleagues from The Vision Loss Expert Group before the searches were run.

The following web pages of highly relevant organisations were also searched/browsed for relevant evidence:

- World Health Organization;
- International Agency for the Prevention of Blindness;
- International Council of Ophthalmology;
- International Eye Foundation;
- Commonwealth Eye Health Consortium;
- International Centre for Eye Health (ICEH) at LSHTM;
- Brien Holden Vision Institute;
- Sightsavers.

The final search strategies are shown below.

Key to Ovid MEDLINE search syntax

| Exp       | Explodes a MeSH to capture more specific MeSH |
|-----------|-----------------------------------------------|
| .ti,ab.   | Searches for a word in the title and abstract of a record |
| /         | Indicates that the search term is a Medical Subject Heading (MeSH) |
| /ep       | Searches for a subheading linked to a MeSH, in this case epidemiology |
| And       | Achieves a Boolean AND combination |
| Or        | Achieves a Boolean OR combination |
| Adj3      | Adjacency operator, searches for words up to 3 words apart |
| $         | Truncation operator, searches for words beginning with the stem, e.g. impair$ retrieves impair, impairment, impairments, impaired, impairing and impairs |

2.2.1 Medline search

Source: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to October 01, 2018>

Interface / URL: Ovid
Database coverage dates: 1946 to October 01, 2018
Search date: 02/10/18
Retrieved records: 14219
Search strategy:

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to October 01, 2018>
Search Strategy:

1 exp blindness/ep or exp blindness/mo (2367)
2 exp blindness/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (1464)
3 exp blindness/ and (age distribution/ or sex distribution/) (389)
4 exp blindness/ and exp eye diseases/ep (2775)
5 exp blindness/ and (epidemiology or incidence or prevalence or mortality).ti,ab. (2056)
(blindness and (epidemiology or incidence or prevalence or mortality)).ti,ab. (4060)
vision/ep or vision/ab. (0)
vision/ and (age distribution/ or sex distribution/) (13)
(vision and (epidemiology or incidence or prevalence or mortality)).ti,ab. (6951)
vision/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (101)
exp visual acuity/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (3113)
exp visual acuity/ and (age distribution/ or sex distribution/) (753)
(visual acuity and (epidemiology or incidence or prevalence or mortality)).ti,ab. (5640)
vision, binocular/ and (incidence/ or prevalence/ or morbidity/ or mortality/) (89)
vision, binocular/ and (age distribution/ or sex distribution/) (25)
((vision adj3 binocular) and (epidemiology or incidence or prevalence or mortality)).ti,ab. (151)
Vision, Low/ep or vision, low/mo (613)
vision, low/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (485)
vision, low/ and (age distribution/ or sex distribution/) (195)
(low vision and (epidemiology or incidence or prevalence or mortality)).ti,ab. (463)
Night Blindness/ep or night blindness/mo (102)
night blindness/ and (incidence/ or prevalence/ or morbidity/ or mortality/) (64)
night blindness/ and (age distribution/ or sex distribution/) (7)
Presbyopia/ep or presbyopia/mo (82)
presbyopia/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (48)
presbyopia/ and (age distribution/ or sex distribution/) (24)
(presbyopia$ and (epidemiology or incidence or prevalence or morbidity)).ti,ab. (128)
Visually Impaired Persons/ and (incidence/ or prevalence/ or morbidity/ or mortality/) (480)
visually impaired persons/ and (age distribution/ or sex distribution/) (160)
(visua$ adj3 impair$ adj3 (incidence or prevalence or epidemiolog$ or morbidity)).ti,ab. (542)
(vision adj3 impair$ adj3 (incidence or prevalence or epidemiolog$ or morbidity)).ti,ab. (95)
((amaurosis or deaf-blind) adj3 (incidence or prevalence or epidemiolog$ or morbidity)).ti,ab. (10)
conjunctival diseases/ep or conjunctival diseases/mo (137)
conjunctival diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (118)
conjunctivitis/ep, mo (509)
junctivitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (175)
((conjunctivitis or conjunctival) adj3 (incidence or prevalence or epidemiolog$ or mortality)).ti,ab. (272)
ophthalmia neonatorum/ep, mo (85)
ophthalmia neonatorum/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (21)
(ophthalmia neonatorum adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (11)
trachoma/ep, mo (1085)
trachoma/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (475)
(trachoma adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (418)
pterygium/ep, mo (173)
pterygium/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (124)
(pterygium adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (99)
xerophthalmia/ep, mo (236)
xerophthalmia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (112)
(xerophthalmia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (77)
50 corneal diseases/ep, mo or (corneal diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (540)
51 (corneal adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (21)
52 corneal opacity/ep, mo or (corneal opacity/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (126)
53 (cornea$1 adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (33)
54 keratitis/ep, mo or (keratitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (461)
55 corneal ulcer/ep, mo or (corneal ulcer/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (342)
56 (keratoconus adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (49)
57 (cornea$ adj3 ulcer$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1)
58 keratoconus/ep, mo or (keratoconus/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (65)
59 (keratoconus adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (14)
60 eye diseases, hereditary/ep, mo or (eye diseases, hereditary/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (67)
61 (hereditary adj3 eye adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1)
62 retinitis pigmentosa/ep, mo or (retinitis pigmentosa/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (4443)
63 (retinitis pigmentosa adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (37)
64 exp eye infections/ep, mo or (exp eye infections/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (4443)
65 (infection$ adj3 eye$1 adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (13)
66 lens diseases/ep, mo or (lens diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (72)
67 (lens adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (3)
68 exp aphakia/ep, mo or (exp aphakia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1)
69 aphakia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (14)
70 cataract/ep, mo or (cataract/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (2782)
71 (cataract adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1151)
72 ocular hypertension/ep, mo or (ocular hypertension/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (407)
73 (ocular or intraocular) adj hypertens$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (66)
74 glaucoma/ep, mo or (glaucoma/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1797)
75 glaucoma, angle-closure/ep, mo or (glaucoma, angle-closure/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (324)
76 glaucoma, open-angle/ep, mo or (glaucoma, open-angle/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1024)
77 (glaucoma adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (809)
78 optic nerve diseases/ep, mo or (optic nerve diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (366)
79 (optic nerve adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (60)
80 exp optic atrophy/ep, mo or (exp optic atrophy/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (242)
81 (optic atrophy adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (22)
refractive errors/ep, mo or (refractive errors/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1118)

(refractive error$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (326)

astigmatism/ep, mo or (astigmatism/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (410)

hyperopia/ep, mo or (hyperopia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (256)

exp myopia/ep, mo or (exp myopia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1303)

((myopia or myopic) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (744)

retinal diseases/ep, mo or (retinal diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (847)

diabetic retinopathy/ep, mo or (diabetic retinopathy/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (33)

(diabetic retinopath$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (634)

retinal degeneration/ep, mo or (retinal degeneration/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (149)

(retina$1 adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (26)

exp macular degeneration/ep, mo or (exp macular degeneration/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (2013)

retinal detachment/ep, mo or (retinal detachment/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (756)

(retina$1 adj3 detach$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (317)

retinal vein occlusion/ep, mo or (retinal vein occlusion/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (285)

(retina$1 adj3 vein adj3 occlus$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (48)

retinitis/ep, mo or (retinitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (86)

(retinitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (128)

chorioretinitis/ep, mo or (chorioretinitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (94)

(chorioretinitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (12)

cytomegalovirus retinitis/ep, mo or (cytomegalovirus retinitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (194)

retinopathy of prematurity/ep, mo or (retinopathy of prematurity/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (987)

(exp choroid diseases/ep, mo or (exp choroid diseases/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (828)

(exp choroid adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (0)

exp uveitis/ep, mo or (exp uveitis/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (1886)

(uveitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (248)

vision disorders/ep, mo or (vision disorders/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (2636)
amblyopia/ep, mo or (amblyopia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)) (417)

(amblyopia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (220)
(population adj3 eye adj3 survey$).ti,ab. (29)
(population adj3 vision adj3 survey$).ti,ab. (1)
(population adj3 blindness adj3 survey$).ti,ab. (13)
(population adj3 visual adj3 survey$).ti,ab. (2)
animals/ not humans/ (4466715)
(letter or comment or editorial).pt. (1660989)
(clinical trial or controlled clinical trial).pt. (534257)
randomized controlled trial.pt. (468991)
review.pt. (2433961)
exp blindness/ or (blindness or (visual adj3 impair$) or (vision adj3 impair$)).ti,ab. (53846)
or/1-32 (17386)
or/33-115 (27402)
or/116-119 (45)
126 or (127 and 125) or 128 (18412)
129 not (120 or 121 or 122 or 123 or 124) (14219)

2.2.2 Embase search

Source: Embase
Interface / URL: Ovid
Database coverage dates: 1974 to 2018 October 2
Search date: 03/10/18
Retrieved records: 23973
Search strategy:

Database: Embase <1974 to 2018 October 2>
night blindness/ep (71)
night blindness/ and (incidence/ or prevalence/ or morbidity/ or mortality/) (195)
night blindness/ and (age distribution/ or sex ratio/) (17)
presbyopia/ep (56)
presbyopia/ and (incidence/ or prevalence/ or mortality/ or morbidity/) (108)
presbyopia/ and (age distribution/ or sex ratio/) (41)
(presbyopia$ and (epidemiology or incidence or prevalence or morbidity)).ti,ab. (142)
(visual$ adj3 impair$).ti,a and (incidence/ or prevalence/ or morbidity/ or mortality/) (2607)
(visual$ adj3 impair$).ti,ab. and (age distribution/ or sex ratio/) (435)
(visual$ adj3 impair$ adj3 (incidence or prevalence or epidemiology$ or morbidity)).ti,ab. (642)
((amaurosis or deaf-blind) adj3 (incidence or prevalence or epidemiology$ or morbidity)).ti,ab. (120)
(conjunctiva disease/ep (81)
conjunctiva disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (281)
conjunctivitis/ep (473)
conjunctivitis/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (1476)
((conjunctivitis or conjunctival) adj3 (incidence or prevalence or epidemiology$ or mortality)).ti,ab. (306)
newborn ophthalmia/ep (55)
newborn ophthalmia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (72)
(ophthalmia adj3 (neonat$ or newborn) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (14)
trachoma/ep (775)
trachoma/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (865)
(trachoma adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (438)
(pterygium/ep (155)
(pterygium/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (279)
(pterygium adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (116)
xerophthalmia/ep (164)
xerophthalmia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (276)
(xerophthalmia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (81)
cornea disease/ep (179)
cornea disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (532)
cornea disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (21)
cornea opacity/ep (59)
cornea opacity/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (370)
cornea$ adj3 (opaque$ or opac$) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (34)
keratitis/ep (373)
keratitis/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (739)
(keratitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (241)
cornea ulcer/ep (137)
cornea ulcer/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (313)
cornea$ adj3 ulcer$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (66)
keroconus/ep (113)
keratoconus/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (346)
(keratoconus adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (76)
(hereditary adj3 eye).ti,ab. and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/) (9)
(retinitis pigmentosa/ep (135)
(retinitis pigmentosa/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)) (329)
(hereditary adj3 eye adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1)
exp eye infection/ep (1601)
exp eye infection/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (2347)
(infection$ adj3 eye$1 adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (19)
lens disease/ep (32)
lens disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (103)
(lens adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (3)
exp aphakia/ep (43)
expp aphakia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (243)
(aphakia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (15)
expp cataract/ep (1804)
expp cataract/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (4874)
(cataract$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1361)
exp glaucoma/ep (1873)
expp glaucoma/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (4768)
(glaucoma adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (1005)
((ocular hypertens$ or intraocular hypertens$) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (87)
optic nerve disease/ep (216)
optic nerve disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (868)
(optic nerve adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (79)
expp optic nerve atrophy/ep (162)
expp optic nerve atrophy/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (599)
(optic adj3 atroph$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (33)
refraction error/ep (667)
refraction error/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (1674)
(refract$ adj3 error$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (390)
astigmatism/ep (289)
astigmatism/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/) (805)
(astigmatism adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (229)
hypermetropia/ep (232)
hypermetropia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)
(723)
((hyperopia or hypermetropia) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (133)
exp myopia/ep (799)
exp myopia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)
(1822)
((myopia or myopic) adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (864)
retina disease/ep (190)
retina disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)
(594)
(retina$1 adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (40)
diabetic retinopathy/ep (1679)
diabetic retinopathy/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/
or mortality/)(4842)
(diabetic retinopathy$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (864)
retina degeneration/ep (67)
retina degeneration/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(193)
(retina$1 adj3 degenerat$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (30)
exp retina maculopathy/ep (430)
exp retina maculopathy/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/
or mortality/)(2492)
(macular adj3 degenerat$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (95)
retina detachment/ep (264)
retina detachment/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(1347)
(retina$1 adj3 detach$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (366)
exp retina vein occlusion/ep (150)
exp retina vein occlusion/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(560)
(retina$1 adj3 vein adj3 occlu$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (58)
exp retinitis/ep (661)
exp retinitis/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(2010)
(retinitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (131)
(chorioretinitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (13)
retrolental fibroplasia/ep (495)
retrolental fibroplasia/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(1348)
(retinopathy adj3 prematurity) or retrolental fibroplasia) adj3 (incidence or prevalence or epidemiology
or mortality)).ti,ab. (322)
exp choroid disease/ep (386)
exp choroid disease/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(1580)
(choroid adj3 disease$ adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (0)
exp uveitis/ep (1234)
exp uveitis/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)(3850)
uveitis adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (375)
visual disorder/ep (862)
visual disorder/ and (incidence/ or prevalence/ or age distribution/ or sex ratio/ or morbidity/ or mortality/)
(2523)
amblyopia/ep (285)
amblyopia/ and (incidence/ or prevalence/ or age distribution/ or sex distribution/ or morbidity/ or mortality/)
(693)
(amblyopia adj3 (incidence or prevalence or epidemiology or mortality)).ti,ab. (255)
(population adj3 eye adj3 survey$).ti,ab. (34)
(population adj3 vision adj3 survey$).ti,ab. (1)
(population adj3 blindness adj3 survey$).ti,ab. (17)
(population adj3 visual adj3 survey$).ti,ab. (3)
or/1-31 (28865)
or/32-138 (39144)
exp blindness/ or (blindness or (visual adj3 impair$) or (vision adj3 impair$)).ti,ab. (70451)
144 and 145 (5523)
143 or 146 or (or/139-142) (29282)
limit 147 to (amphibia or ape or bird or cat or cattle or chicken or dog or "ducks and geese" or fish or "frogs and toads" or goat or guinea pig or "hamsters and gerbils" or horse or monkey or mouse or "pigeons and doves" or "rabbits and hares" or rat or reptile or sheep or swine) (563)
limit 147 to animal studies (459)
limit 147 to animals (519)
limit 147 to human (27190)
(148 or 149 or 150) not 151 (595)
147 not 152 (28687)
(letter or editorial or review).pt. (3965506)
153 not 154 (23973)

2.2.3 WHOLIS search
Source: WHOLIS
Interface / URL: http://kohahq.searo.who.int/
Database coverage dates:
Search date: 04/10/18
Retrieved records: 79
Search strategy:
The search interface and functionality of WHOLIS has changed since the previous searches – hence the different structure in the update.
Advanced search http://kohahq.searo.who.int/cgi-bin/koha/opac-search.pl
All terms search via Keyword field search
All searches date limited 1980 to current
Email to WHO Library confirmed that truncation is supported with the * character
Nested Boolean does not seem to be supported in this interface
All searches conducted individually and the results added to the “Cart”. Here duplicate records were automatically removed – all results were downloaded as one batch of unique records.
Blindness AND epidemiolog* = 15 results
Blindness AND incidence = 1 result
Blindness AND prevalence = 3 results
Blindness AND morbidity = 1 result
Blindness AND mortality = 0 result
Visual AND epidemiolog = 6 results
Visual AND incidence = 3 results
Visual AND prevalence = 2 results
Visual AND morbidity = 2 results
Visual AND mortality = 4 results
Vision AND epidemiology = 5 results
Vision AND incidence = 1 result
Vision AND prevalence = 1 result
Vision AND morbidity = 0 results
Vision AND mortality = 1 results
Acuity = 0 results
Amaurosis = 0 results
Conjunctiva* = 5 results
Ophthalmia = 1 result
Trachoma AND epidemiology = 3 results
Trachoma AND incidence = 2 results
Trachoma AND prevalence = 3 results
Trachoma AND morbidity = 1 result
Trachoma AND mortality = 0 results
Pterygium = 1 result
Xerophthalmia AND epidemiology = 2 results
Xerophthalmia AND incidence = 0 results
Xerophthalmia AND prevalence = 1 result
Xerophthalmia AND morbidity = 1 result
Xerophthalmia AND mortality = 1 result
Cornea* = 7 results
Keratitis = 2 results
Keratoconus = 0 results
Eye AND epidemiology = 20 results
Eye AND incidence = 2 results
Eye AND prevalence = 7 results
Eye AND morbidity = 1 result
Eye AND mortality = 2 results
Lens AND epidemiology = 1 result
Lens AND incidence = 2 results
Lens AND prevalence = 3 results
Lens AND morbidity = 0 results
Lens AND mortality = 0 results
Aphakia = 0 results
Cataract* = 10 results
Ocular AND epidemiology = 5 results
Ocular AND incidence = 1 result
Ocular AND prevalence = 1 result
Ocular AND morbidity = 0 results
Ocular AND mortality = 0 results
Intraocular = 1 result
Glaucoma = 2 results
Optic* AND epidemiology = 1 result
Optic* AND incidence = 0 results
Optic* AND prevalence = 0 results
Optic* AND morbidity = 0 results
Optic* AND mortality = 1 results
Refractive = 0 results
Astigmatism = 0 results
Hyperopia = 0 results
Hypermetropia = 0 results
Myopia = 3 results
Retinitis = 0 results
Retina* = 1 result
Retinopathy = 5 results
Macular = 3 results
Chorioretinitis = 0 results
Choroid = 0 results
Uveitis = 0 results
Amblyopia = 0 results
2.2.4 SciELO search

Source: SciELO Citation Index (SCIELO)
Interface / URL: Web of Science
Database coverage dates: 1997-2018. Last updated 27/09/18
Search date: 04/10/2018
Retrieved records: 709
Search strategy:

# 53 #52 OR #51 OR #50 709
Indexes=SCIELO Timespan=All years

# 52 #49 OR #48 OR #47 OR #46 0
Indexes=SCIELO Timespan=All years

# 51 #45 OR #44 OR #43 OR #42 OR #41 OR #39 OR #38 OR #37 OR #36 OR #35 OR #34 OR #33 OR #32 OR #31 OR #30 OR #29 OR #28 OR #27 OR #26 OR #25 OR #24 OR #23 OR #22 OR #21 OR #20 OR #19 OR #18 OR #17 OR #16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10 177
Indexes=SCIELO Timespan=All years

# 50 #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1 612
Indexes=SCIELO Timespan=All years

# 49 TS=("population" NEAR/3 "visual" NEAR/3 survey*) 0
Indexes=SCIELO Timespan=All years

# 48 TS=("population" NEAR/3 "blindness" NEAR/3 survey*) 0
Indexes=SCIELO Timespan=All years

# 47 TS=("population" NEAR/3 "vision" NEAR/3 survey*) 0
Indexes=SCIELO Timespan=All years

# 46 TS=("population" NEAR/3 "eye" NEAR/3 survey*) 0
Indexes=SCIELO Timespan=All years

# 45 TS=("amblyopia" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 12
Indexes=SCIELO Timespan=All years

# 44 TS=("uveitis" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 12
Indexes=SCIELO Timespan=All years

# 43 TS=("choroid" NEAR/3 disease* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 42 TS=("retinopathy" NEAR/3 "prematurity" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 19
Indexes=SCIELO Timespan=All years
19

# 27 TS=("glaucoma" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 11
Indexes=SCIELO Timespan=All years

# 26 TS=(("ocular hypertens*" OR "intraocular hypertens") NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 2
Indexes=SCIELO Timespan=All years

# 25 TS=(cataract* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 25
Indexes=SCIELO Timespan=All years

# 24 TS="aphakia" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality") 0
Indexes=SCIELO Timespan=All years

# 23 TS=("lens" NEAR/3 disease* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 22 TS=(infection* NEAR/3 eye* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 21 TS=("retinitis pigmentosa" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 1
Indexes=SCIELO Timespan=All years

# 20 TS="hereditary" NEAR/3 "eye" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality") 0
Indexes=SCIELO Timespan=All years

# 19 TS="(keratoconus" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 18 TS=(cornea* NEAR/3 ulcer* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 17 TS=("keratitis" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 7
Indexes=SCIELO Timespan=All years

# 16 TS=((cornea* NEAR/3 (opaque* OR opac*)) NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 1
Indexes=SCIELO Timespan=All years

# 15 TS="(corneal" NEAR/3 disease* NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0
Indexes=SCIELO Timespan=All years

# 14 TS="(xerophthalmia" NEAR/3 ("incidence" OR "prevalence" OR "epidemiology" OR "mortality")) 0

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2.2.5 OpenGrey search

Source: OpenGrey

Interface / URL: http://www.opengrey.eu/

Database coverage dates: 1997-

Search date: 09/10/18-10/10/18
Retrieved records: 54

Search strategy:

Each search line searched individually. The records were cut and pasted into a MS Word document as the option to export as an XML was not working. Duplicate records (those already found in OpenGrey by a previous search line) were excluded. The total of 54 identified records therefore excludes these duplicates.

blindness NEAR/5 (epidemiology OR incidence OR prevalence OR mortality) 1 result

(vision NEAR/5 (epidemiology OR incidence OR prevalence OR mortality) 2 results

(visual NEAR/5 (epidemiology OR incidence OR prevalence OR mortality) 5 results

(presbyopi* NEAR/5 (epidemiology OR incidence OR prevalence OR morbidity) 0 results

(visual* NEAR/5 impair* NEAR/5 (incidence OR prevalence OR epidemiolog* OR morbidity)) 2 results

(vision* NEAR/5 impair* NEAR/5 (incidence OR prevalence OR epidemiolog* OR morbidity)) 0 results

(amaurosis OR deaf-blind) NEAR/5 (incidence OR prevalence OR epidemiolog* OR morbidity) 0 results

conjunctiv* NEAR/5 (incidence OR prevalence OR epidemiolog* OR mortality) 3 results

ophthalmia neonatorum NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results

trachoma NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result

pterygium NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results

xerophthalmia NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results

cornea* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result

keratitis NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result

keratoconus NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result

eye NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 5 results

retinitis pigmentosa NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 2 results

lens NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 3 results

aphakia NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results

cataract* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 7 results

(intraocular OR ocular) NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 3 results
glaucoma NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result
optic NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 2 results
refractive error* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 11 results
astigmatism NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
hyperopia NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
(myopia OR myopic) NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 5 results
retina* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 1 result
retinitis NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
retinopath* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
macular* degenerat* NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 8 results
chorioretinitis NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
choroid NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
uveitis NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
amblyopia NEAR/5 (incidence OR prevalence OR epidemiology OR mortality) 0 results
"eye survey*" OR "vision survey*" OR "blindness survey*" OR "visual survey*" 4 results

2.2.6 World Health Organization search

Source: World Health Organization webpages
Interface / URL: http://www.who.int/
Database coverage dates: N/A
Search date: 10/10/18
Retrieved records: 9 (6 after duplicates removed)
Search strategy:

Blindness and visual impairment section of the webpage located using the “Health Topics” drop down menu http://www.who.int/blindness/vision-report/en/.

Content scanned by the information specialist for documents that may provide epidemiological data.

2.2.7 International Agency for the Prevention of Blindness search

Source: International Agency for the Prevention of Blindness
Interface / URL: https://www.iapb.org/
Database coverage dates: N/A
Search date: 10/10/18
Retrieved records: 38 (29 after duplicates removed)
Search strategy:
2.2.8 International Council of Ophthalmology search

Source: International Council of Ophthalmology  
Interface / URL: http://www.icoph.org/  
Database coverage dates: N/A  
Search date: 10/10/18  
Retrieved records: 8 (6 after duplicates removed)  
Search strategy:

Web pages browsed by information specialist for potentially relevant publications likely to report epidemiological data.

2.2.9: International Eye Foundation search

Source: International Eye Foundation  
Interface / URL: www.iefusa.org/  
Database coverage dates: N/A  
Search date: 11/10/18  
Retrieved records: 0  
Search strategy:

Web pages browsed by information specialist for potentially relevant publications likely to report epidemiological data.

2.2.10: Commonwealth Eye Health Consortium search

Source: Commonwealth Eye Health Consortium  
Interface / URL: http://cehc.lshtm.ac.uk/  
Database coverage dates: N/A  
Search date: 11/10/18  
Retrieved records: 0  
Search strategy:

Web pages browsed by information specialist for potentially relevant publications likely to report epidemiological data.

2.2.11: International Centre for Eye Health (ICEH) search

Source: International Centre for Eye Health (ICEH)  
Interface / URL: http://iceh.lshtm.ac.uk/  
Database coverage dates: N/A  
Search date: 11/10/18  
Retrieved records: 89 (26 after duplicates removed)  
Search strategy:

Web pages in the “Research” section browsed by information specialist for potentially relevant publications likely to report epidemiological data.
These were all references to ICEH authored journal publications rather than non-journal reports and other grey literature.

2.2.12: Brien Holden Vision Institute search

Source: Brien Holden Vision Institute
Interface / URL: https://www.brienholdenvision.org/
Database coverage dates: N/A
Search date: 11/10/18
Retrieved records: 47 (14 after duplicates removed)
Search strategy:

Web pages in the “Public Health Research” section browsed by information specialist for potentially relevant publications likely to report epidemiological data.

2.12.13: Sightsavers search

Source: Sightsavers
Interface / URL: https://www.sightsavers.org/
Database coverage dates: N/A
Search date: 11/10/18
Retrieved records: 11 (7 after duplicates removed)
Search strategy:

Web pages in the “Research Centre” section browsed by information specialist for potentially relevant publications likely to report epidemiological data.

Text 2.3. Results and Discussion (distance visual acuity data sources)

The combined previous searches for this project had identified 19040 unique records:

- The original search in 2008 yielded 10871 records;
- The 2012 update retrieved an additional 4038 unique records;
- The 2013 update retrieved an additional 2228 unique records;
- The 2014 update retrieved an additional 1903 unique records.

The 2018 update searches identified 39290 records (Table 6). Following deduplication against a) each other and b) the 19040 results of the previous searches, and the removal of records published before 1980 (841 records), 10092 records remained.

All searches are compromises. Strategies trade off sensitivity against precision, and decisions are made by research teams about the numbers of records that they are able to process in the time available. The strategy developed is reasonably sensitive and precise. It could have been made more sensitive, for example by increasing the value of the adj operator (so that words could occur further apart but still be retrieved), by using AND rather than adj or by using ep as a floating subheading that is not linked to specific MeSH. Sensitivity might also have been increased by identifying more synonyms and spelling variants for the eye diseases which may result in blindness. These approaches would have generated many more studies to assess for relevance, but might have retrieved additional relevant studies.
The strategy could also have been made more precise perhaps by omitting some of the combinations of eye diseases and epidemiology terms as text words in the title and abstract. However, increasing search precision usually risks losing relevant studies.

**Text 2.4. Systematic review of studies of presbyopia prevalence**

For the updated systematic review, the search strategy for distance sources included the ‘presbyopia’ term and studies that we identified reporting presbyopia prevalence were added to the database.

Only population-based surveys with one or more measurements of near vision and/or the prevalence of spectacle wear for presbyopia were included. On full text review, papers were additionally excluded if they did not specify the number of eligible participants or participation rate, if data were from a specific population that could not be generalized to the population as a whole or there was an unspecified method for determining whether near vision impairment was the result of ocular disease or from refractive error.

**Text 3. Methods for comparability of vision impairment definition**

MR-BRT $^2$ was used to adjust non-reference data to the reference definition of presenting vision data that fit within the WHO severity categories using data from studies that did not involve RAAB methodology. Data that spanned thresholds (either prevalence data for moderate and severe vision loss combined, or severe vision loss and blindness combined) were split into reference severity groups (moderate vision loss, severe vision loss, blindness) using a log ratio meta-regression with a cubic spline on age with linear tails. The input data for this meta-regression came from studies that provided matched age, year, sex and location data for each severity level (for example, moderate vision loss and severe vision loss separately).

Figure 2 shows, across ages, model fit with grey shading for uncertainty intervals overlaid with the model input data. Input data that were trimmed from the model are shown in red. Figure 2 demonstrates that the ratio of moderate to severe vision loss prevalence got smaller as age increased, whereas the ratio of blindness to severe vision loss got larger as age increased.

Studies that reported best-corrected visual acuity only were adjusted to the reference definition of presenting visual acuity, and studies that were collected using RAAB methodology were adjusted to the reference definition of non-RAAB vision tests using logit difference meta-regressions by severity level. The beta coefficients from the rapid and best-corrected meta-regressions for each severity level are shown in the Table 7. A negative coefficient indicates that the data were adjusted upward.

The best-corrected adjustment impacted a proportion of the data for each model: 11 of 60 sources for mild vision loss, 51 of 367 sources for moderate vision loss, 61 of 353 sources for severe vision loss, and 70 of 437 sources for blindness. The rapid methodology adjustment impacted a larger proportion of the data for each model: 29 of 60 sources for mild vision loss, 212 of 367 sources for moderate vision loss, 210 of 353 sources for severe vision loss, and 236 of 437 sources for blindness.

**Text 4. Methods for comparability of data aggregated by age**

If input data were collected for age ranges of greater than or equal to 25 years, these data were split into 5-year age bins using the super-regional age pattern generated in preliminary models that only included input data with age ranges of less than or equal to 25 years for a given severity and cause of vision loss. An inherent flaw in the method of age splitting is that some wide age data points after age splitting can reach implausibly high values at oldest ages. We decided in those cases not to age split the data.

**Text 5. Methods for calculating prevalence of vision impairment by country, year, age, and sex**
Studies that only reported “both” sex information were split into male- and female-specific data points by identifying within-study data points matched on age, year, and location that did report male and female data separately, and then using the log ratio of female to male prevalence from these studies as input data into a mixed-effects meta-regression tool developed at the IHME called MR-BRT (Meta Regression; Bayesian; Regularized; Trimmed). This tool was developed in part to allow for the ability to propagate between-study heterogeneity as part of the uncertainty adjustment, and to allow trimming of outlier input data. A detailed description of MR-BRT has been published elsewhere. Results of this model and demographics data on population by location were used to determine male prevalence:

\[ \text{prev}_\text{male} = \text{prev}_\text{both} \times \frac{\text{pop}_\text{both}}{\text{pop}_\text{male} + \text{ratio} \times \text{pop}_\text{female}} \]

And then female prevalence:

\[ \text{prev}_\text{female} = \text{ratio} \times \text{prev}_\text{male} \]

For Dismod modeling, all input data from all locations were used in a mixed effects nonlinear model for a global estimate of disease burden. Model outputs (global fit plus fixed effects plus random effects) were used in a cascade as a prior for estimates in seven super-regions, which in turn were used as priors for 21 regional estimates, and then country estimates, and finally subnational estimates for a subset of countries. Final estimates for each geographical level were calculated by aggregation, where the country final was the sum of subnational estimates, regional final was the sum of country final estimates, etc. For Dismod modelling, predictive covariates included sociodemographic index and/or healthcare access quality index, and sex, and remaining unexplained variance went into random effects for locations with input data. Table 8 presents the fixed effects for sex (study-level covariate), healthcare access quality index (country-level covariate), and/or sociodemographic index that were included in Dismod models.

Age-standardization was computed using a standard population age structure that is updated in each GBD round. Currently, the standard population is taken as the average of age-specific distributions (non-weighted) from GBD 2019 population estimates for countries with at least 5 million people in the year 2019.

**Text 6. Calculation of Years Lived with Disability (YLDs)**

Final estimates for vision loss were used to calculate Years Lived with Disability (YLDs) based on disability weights assigned to each severity of vision loss, and, finally, adjusted for comorbidity with any other causes of non-fatal health loss. The health states and corresponding disability weights for vision are listed in the Table 9.

**Text 7. GATHER compliance and access to code used in the analytical model**

Estimates were produced in compliance with the Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER). Access to the GBD 2019 code (including Dismod engine and wrapper) can be obtained via this link:

http://ghdx.healthdata.org/gbd-2019/code

**References:**

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[4] Bourne RRA, Flaxman SR, Braithwaite T, et al. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. Lancet Glob Health 2017; 5(9): e888-e97.
[5] Holden Brien A, Fricke Timothy R, Ho S May, Wong Reg, Schlienter Gerhard, Cronje Sonja, Burnett Anthea, Papas Eric, Naidoo Kovin S, Frick Kevin D. Global vision impairment due to uncorrected presbyopia. Archives of ophthalmology, 126(12):1731–1739, 2008.

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| Central Europe, eastern Europe, and central Asia | Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan |
|---|---|
| Central Asia | Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Montenegro, North Macedonia, Poland (subnational), Romania, Serbia, Slovakia, Slovenia |
| Central Europe | Belarus, Estonia, Latvia, Lithuania, Moldova, Russia (subnational), Ukraine |
| Eastern Europe | Brunei, Japan (subnational), Singapore, South Korea |
| High-income Asia Pacific | Canada, Greenland, United States (subnational) |
| High-income North America | Australia, New Zealand (subnational Maori + non-Maori) |
| Australasia | Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy (subnational), Luxembourg, Malta, Monaco, Netherlands, Norway (subnational), Portugal, Sweden (subnational Stockholm + not Stockholm), United Kingdom (subnational; two levels of subnats) |
| Western Europe | Argentina, Chile, Uruguay |
| Southern Latin America | Andean Latin America | Bolivia, Ecuador, Peru |
| Caribbean | Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, US Virgin Islands |
| Central Latin America | Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico (subnational), Nicaragua, Panama, Venezuela |
| Tropical Latin America | Brazil (subnational), Paraguay |
| North Africa and Middle East | --- |
| Region                      | Countries                                                                 |
|-----------------------------|-----------------------------------------------------------------------------|
| North Africa and Middle East| Afghanistan, Algeria, Bahrain, Egypt, Iran (subnational), Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen |
| South Asia                  | Bangladesh, Bhutan, India (subnational; by state + rural and urban), Nepal, Pakistan (subnational) |
| Southeast Asia, east Asia, Oceania | Cambodia, Indonesia (subnational), Laos, Malaysia, Maldives, Mauritius, Myanmar, Philippines (subnational), Seychelles, Sri Lanka, Thailand, Timor-Leste, Vietnam |
| East Asia                   | China, North Korea, Taiwan (province of China)                               |
| Oceania                     | American Samoa, Cook Islands, Federated States of Micronesia, Fiji, Guam, Kiribati, Marshall Islands, Nauru, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu |
| Southeast Asia              | Cambodia, Indonesia (subnational), Laos, Malaysia, Maldives, Mauritius, Myanmar, Philippines (subnational), Seychelles, Sri Lanka, Thailand, Timor-Leste, Vietnam |
| Sub-Saharan Africa          | Angola, Central African Republic, Congo (Brazzaville), Democratic Republic of the Congo, Equatorial Guinea, Gabon |
| Central sub-Saharan Africa  | Burundi, Comoros, Djibouti, Eritrea, Ethiopia (subnational), Kenya (subnational), Madagascar, Malawi, Mozambique, Rwanda, Somalia, South Sudan, Tanzania, Uganda, Zambia |
| Eastern sub-Saharan Africa  | Botswana, eSwatini, Lesotho, Namibia, South Africa (subnational) |
| Southern sub-Saharan Africa | Benin, Burkina Faso, Cape Verde, Cameroon, Chat, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria (subnational), São Tomé and Príncipe, Senegal, Sierra Leone, Togo |
| Country | Coverage | Rapid | Presenting | Core visual acuity level(s) | Year study started | Year study ended | Reference |
|---------|----------|-------|------------|----------------------------|-------------------|-----------------|-----------|
| Afghanistan | Subnational | Yes | Presenting | MSVI, blind, moderate, severe | 2010 | 2010 | Comprehensive Health and Education Forum International (CHEF) (Pakistan), International Centre for Eye Health (ICEH). Afghanistan Rapid Assessment of Avoidable Blindness 2010. |
| Argentina | National | Yes | Presenting | blind, moderate, severe | 2013 | 2013 | Barrenechea R, de la Fuente I, Plaza RG, Flores N, Segovia L, Villagómez Z, Camarero EE, Zepeda-Romero LC, Lansingh VC, Limburg H, Silva JC. National survey of blindness and avoidable visual impairment in Argentina, 2013. Rev Panam Salud Publica. 2015; 37(1): 7-12. |
| Argentina | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2003 | 2003 | International Centre for Eye Health (ICEH). Argentina - Buenos Aires Rapid Assessment of Avoidable Blindness 2003. Grootebroek, Netherlands: RAAB Repository. |
| Argentina | National | Yes | Both | MSVI, blind, moderate, severe | 2013 | 2013 | International Centre for Eye Health (ICEH). Argentina Rapid Assessment of Avoidable Blindness Survey 2013. Grootebroek, Netherlands: RAAB Repository, 2013. |
| Australia | Subnational | No | Best-corrected | blind, moderate, severe | 1992 | 1992 | Casson R, Giles L, Newland HS. Prevalence of blindness and visual impairment in an elderly urban population. Aust N Z J Ophthalmol. 1996; 24(3): 239-43. |
| Australia | Subnational | No | Presenting | blind, moderate, severe | 1997 | 1999 | Chia E-M, Mitchell P, Rochtchina E, Foran S, Golding M, Wang JJ. Association between vision and hearing impairments and their combined effects on quality of life. Arch |

| Country   | Type         | Presenting | 1st Year | 2nd Year | Reference                                                                 |
|-----------|--------------|------------|----------|----------|---------------------------------------------------------------------------|
| Australia | Subnational  | No         | 1992     | 1999     | Dimitrov PN, Mukesh BN, McCarty CA, Taylor HR. Five-year incidence of bilateral cause-specific visual impairment in the Melbourne Visual Impairment Project. Invest Ophthalmol Vis Sci. 2003; 44(12): 5075-81. |
| Australia | Subnational  | No         | 1992     | 1994     | Foran S, Wang JJ, Mitchell P. Causes of visual impairment in two older population cross-sections: the Blue Mountains Eye Study. Ophthalmic Epidemiol. 2003; 10(4): 215-25. |
| Australia | Subnational  | No         | 2007     | 2009     | Pai AS-I, Wang JJ, Samarawickrama C, Burlutsky G, Rose KA, Varma R, Wong TY, Mitchell P. Prevalence and risk factors for visual impairment in preschool children the Sydney Paediatric Eye Disease Study. Ophthalmoology. 2011; 118(8): 1495-500. |
| Australia | Subnational  | No         | 1992, 1994 | 1995, 1996 | Taylor HR, Livingston PM, Stanislavsky YL, McCarty CA. Visual impairment in Australia: distance visual acuity, near vision, and visual field findings of the Melbourne Visual Impairment Project. Am J Ophthalmol. 1997; 123(3): 328-37. |
| Australia | Subnational  | No         | 1992, 1996 | 1995, 1996 | VanNewkirk MR, Weh L, McCarty CA, Taylor HR. Cause-specific prevalence of bilateral visual impairment in Victoria, Australia: the Visual Impairment Project. Ophthalmoology. 2001; 108(5): 960-7. |
| Australia | Subnational  | No         | 1992     | 1994     | Wang JJ, Foran S, Mitchell P. Age-specific prevalence and causes of bilateral and unilateral visual impairment in older Australians: the Blue Mountains Eye Study. Clin Experiment |
| Country          | Level          | National | Presenting | Stage                              | Organisation                                                                 |
|------------------|----------------|----------|------------|------------------------------------|------------------------------------------------------------------------------|
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | Ophthalmol. 2000; 28(4): 268-73.                                              |
| Bangladesh       | Subnational    | Yes      | Presenting | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Barisal Rapid Assessment of Avoidable Blindness 2013. |
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Brahmanbaria and Satkhira Districts Rapid Assessment of Avoidable Blindness 2012. |
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Gazipur, Kishoreganj, and Cox's Bazar Districts Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository. |
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Narail and Jamalpur Districts Rapid Assessment of Avoidable Blindness 2010. |
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Satkhira District Rapid Assessment of Avoidable Blindness 2005. Grootebroek, Netherlands: RAAB Repository. |
| Bangladesh       | Subnational    | Yes      | Both       | MSVI, blind, moderate, severe      | CSF Global (Bangladesh), International Centre for Eye Health (ICEH), Bangladesh - Tangail Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository. |
| Country          | Level       | Presenting | MSVI, blindness | Year 1 | Year 2 | Source                                                                 |
|------------------|-------------|------------|-----------------|--------|--------|------------------------------------------------------------------------|
| Bangladesh       | National    | No         | Both            | 1999   | 2000   | International Centre for Eye Health (ICEH), National Institute of Ophthalmology (Bangladesh), Bangladesh National Blindness and Low Vision Prevalence Survey 1999-2000. |
| Bangladesh       | Subnational | Yes        | Both            | 2011   | 2011   | Grootebroek, Netherlands: RAAB Repository, 2011. Wadud Z, Kuper H, Polack S, Lindfield R, Akm MR, Choudhury KA, Lindfield T, Limburg H, Foster A. Rapid assessment of avoidable blindness and needs assessment of cataract surgical services in Satkhira District, Bangladesh. Br J Ophthalmol. 2006; 90(10): 1225-9. |
| Bangladesh       | Subnational | Yes        | Presenting      | 2005   | 2005   | Bourne R, Global Burden of Disease Vision Loss Expert Group. Vision Loss Database - Survey Data on Vision Loss by Severity and Etiology. [Unpublished]. |
| Bangladesh, Thailand | National    | No         | Presenting      | 1994, 1999 | 1995, 2000 | Bourne R, Global Burden of Disease Vision Loss Expert Group. Vision Loss Database - Survey Data on Vision Loss by Severity and Etiology. [Unpublished]. |
| Barbados         | National    | No         | Best-corrected  | 1988   | 1992   | Hyman L, Wu SY, Connell AM, Schachat A, Nemesure B, Hennis A, Leske MC. Prevalence and causes of visual impairment in The Barbados Eye Study. Ophthalmology. 2001; 108(10): 1751-6. |
| Bhutan           | National    | Yes        | Both            | 2009   | 2009   | International Centre for Eye Health (ICEH), Bhutan Rapid Assessment of Avoidable Blindness Survey 2009. Grootebroek, Netherlands: RAAB Repository, 2009. |
| Bhutan           | National    | Yes        | Presenting      | 2010   | 2012   | Lepcha NT, Chettiri CK, Getshen K, Rai BB, Ramsawamy SB, Saibaba S, Nirmalan PK, Demarchis EH, Tabin G, |
| Country  | Subnational | Presenting | Blind, moderate, severe | Start Year | End Year | Source |
|---------|-------------|------------|-------------------------|------------|----------|--------|
| Botswana | National    | Yes        | MSVI, blind, moderate, severe | 2013       | 2014     | Morley M, Morley K. Rapid assessment of avoidable blindness in Bhutan. Ophthalmic Epidemiol. 2013; 20(4): 212-9. |
| Brazil  | Subnational | No         | MSVI, blind, moderate, severe | 2002       | 2002     | Araújo Filho A, Salomão SR, Berezovsky A, Cinoto RW, Morales PHA, Santos FRG, Belfort R Jr. Prevalence of visual impairment, blindness, ocular disorders and cataract surgery outcomes in low-income elderly from a metropolitan region of São Paulo-Brazil. Arq Bras Oftalmol. 2008; 71(2): 246-53. |
| Brazil  | Subnational | No         | MSVI, blind, moderate, severe | 2014       | 2015     | Furtado JM, Berezovsky A, Ferraz NN, Muñoz S, Fernandes AG, Watanabe SS, Cunha CC, Vasconcelos GC, Sacai PY, Cypel M, Mitsuhiro MH, Morales PH, Cohen MJ, Campos M, Cohen JM, Belfort R Jr, Salomão SR. Prevalence and Causes of Visual Impairment and Blindness in Adults Aged 45 Years and Older from Parintins: The Brazilian Amazon Region Eye Survey. Ophthalmic Epidemiol. 2019; 1-10. |
| Brazil  | Subnational | Yes        | MSVI, blind, moderate, severe | 2003       | 2004     | International Centre for Eye Health (ICEH). Brazil - Campinas Rapid Assessment of Avoidable Blindness 2004. Grootebroek, Netherlands: RAAB Repository. |
| Brazil  | Subnational | No         | MSVI, blind, moderate, severe | 2004       | 2004     | Salomao SR, Cinoto RW, Berezovsky A, Araujo-Filho A, Mitsuhiro MRKH, Mendieta L, Morales PHA, Pokharel GP, Belfort R Jr, Ellwein |
| Country      | Level        | Presenting | MSVI, blind, moderate, severe | Year 1 | Year 2 |
|--------------|-------------|------------|-------------------------------|--------|--------|
| Brazil       | Subnational | No         | Presenting                    | 2006   | 2007   |
| Bulgaria     | Subnational | No         | Presenting                    | 1993   | 1993   |
| Burkina Faso | Subnational | Yes        | Both                          | 2011   | 2011   |
| Burundi      | Subnational | Yes        | Both                          | 2010   | 2010   |
| Burundi      | Subnational | Yes        | Presenting                    | 2009, 2010 | 2010 |
| Cabo Verde   | National    | No         | Presenting                    | 1998   | 1998   |

Schellini SA, Durkin SR, Hoyama E, Hira F, Cordeiro R, Casson RJ, Selva D, Padovani CR. Prevalence and causes of visual impairment in a Brazilian population: the Botucatu Eye Study. BMC Ophthalmol. 2009; 9: 8.

Vassileva P, Gieser SC, Vitale S, Cholakova T, Katz J, West S. Blindness and visual impairment in western Bulgaria. Ophthalmic Epidemiol. 1996; 3(3): 143-9.

International Centre for Eye Health (ICEH). Burkina Faso - West Central Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Burundi - Ngozi and Kayanza Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository.

Kandeke L, Mathenge W, Giramahoro C, Undendere F-PA, Ruhagaze P, Habiyakare C, Courtright P, Lewallen S. Rapid assessment of avoidable blindness in two northern provinces of Burundi without eye services. Ophthalmic Epidemiol. 2012; 19(4): 211-5.

Schémann JF, Inocencio F, de Lourdes Monteiro M, Andrade J, Auzemery A, Guelfi Y. Blindness and low vision in Cape Verde Islands: results of...
| Country   | Subnational | Presenting | MSVI, blind, moderate, severe | Year 1 | Year 2 | Description                                                                                                                                 |
|-----------|-------------|------------|-------------------------------|--------|--------|------------------------------------------------------------------------------------------------------------------------------------------|
| Cambodia  | Subnational | Yes        | MSVI, blind, moderate, severe  | 2002   | 2002   | International Centre for Eye Health (ICEH), Subcommittee for the Prevention of Blindness (Cambodia). Cambodia - Battambang Rapid Assessment of Cataract Surgical Services 2002. |
| Cambodia  | Subnational | Yes        | MSVI, blind, moderate, severe  | 2002   | 2002   | International Centre for Eye Health (ICEH), Subcommittee for the Prevention of Blindness (Cambodia). Cambodia - Kampot Rapid Assessment of Cataract Surgical Services 2002. |
| Cambodia  | Subnational | Yes        | MSVI, blind, moderate, severe  | 2002   | 2002   | International Centre for Eye Health (ICEH), Subcommittee for the Prevention of Blindness (Cambodia). Cambodia - Takeo Rapid Assessment for Avoidable Blindness 2011-2012. Grootebroek, Netherlands: RAAB Repository. |
| Cambodia  | National    | Yes        | MSVI, blind, moderate, severe  | 2007   | 2007   | International Centre for Eye Health (ICEH). Cambodia Rapid Assessment for Avoidable Blindness 2007.                                                                                                                  |
| Cambodia  | Subnational | No         | MSVI, blind, moderate, severe  | 1996   | 1996   | Rutzen AR, Ellish NJ, Schwab L, Graham PJ, Pizzarello LD, Hemady RK, Maldonado MJ. Blindness and eye disease in Cambodia. Ophthalmic Epidemiol. 2007; 14(6): 360-6.                                      |
| Cameroon  | Subnational | No         | blind, moderate, severe        | 2013   | 2013   | Oye J, Mactaggart I, Polack S, Schmidt E, Tamo V, Okwen M, Kuper H. Prevalence and Causes of Visual Impairment in Fundong District, North West Cameroon: Results of a Population-Based Survey. Ophthalmic Epidemiol. 2010; 55(5): 411-7. |
| Country         | Subnational | Presenting | Visual Impairment | Start Year | End Year | Study Title                                                                                                                                                                                                 |
|-----------------|-------------|------------|-------------------|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cameroon        | Yes         | Presenting | MSVI, blind, moderate, severe | 2005       | 2005     | Oye JE, Kuper H, Dineen B, Befidi-Mengue R, Foster A. Prevalence and causes of blindness and visual impairment in Muyuka: a rural health district in South West Province, Cameroon. Br J Ophthalmol. 2006; 90(5): 538-42. |
| Cameroon        | Yes         | Presenting | MSVI, blind, moderate, severe | 2005       | 2005     | Wilson MR, Mansour M, Ross-Degnan D, Moukouri E, Fobi G, Alemayehu W, Martone JF, Casey R, Bazargan M. Prevalence and causes of low vision and blindness in the Extreme North Province of Cameroon, West Africa. Ophthalmic Epidemiol. 1996; 3(1): 23-33. |
| Cameroon        | No          | Presenting | blind, moderate, severe | 1992       | 1992     | International Centre for Eye Health (ICEH). Chile - Biobio Rapid Assessment of Avoidable Blindness 2006. Grootebroek, Netherlands: RAAB Repository.                                                                         |
| Chile           | Yes         | Both       | MSVI, blind, moderate, severe | 2006       | 2006     | Gilbert CE, Ellwein LB. Prevalence and causes of functional low vision in school-age children: results from standardized population surveys in Asia, Africa, and Latin America. Invest Ophthalmol Vis Sci. 2008; 49(3): 877-81. |
| Chile, China,   | No          | Both       | MSVI, blind, moderate, severe | 1997, 1998, 2000, 2001, 2002, 2003 | 1997, 1998, 2000, 2001, 2002, 2003 | Chen H, Wu X, Wei M, Eichner JE, Fan Y, Zhang Z, Lei C, Stone DU, Yang J. Changes in the prevalence of visual impairment due to blinding trachoma in Sichuan province, China: a comparative study between 1987 and 2006. |
| India, Japan,   |             |            |                   |            |          |                                                                                                                                                                                                             |
| Malaysia, Nepal |             |            |                   |            |          |                                                                                                                                                                                                             |
| South Africa    |             |            |                   |            |          |                                                                                                                                                                                                             |
| Country | Region | Study Design | ref. | Prevalence and Causes | ref. |
|--------|--------|--------------|------|-----------------------|------|
| China  | Subnational | No | Both | MSVI, blind, moderate , severe | 2016-2017 | Chen X, Zhou D, Shen J, Wu Y, Sun Q, Dong J, Yu J. Prevalence and Causes of Visual Impairment in Adults in Binhu District, Wuxi, China. Med Sci Monit. 2018; 24: 317-323. |
| China  | Subnational | No | Both | MSVI, blind, moderate , near vision loss, severe | 2009-2009 | Cheng F, Shan L, Song W, Fan P, Yuan H. Distance- and near-visual impairment in rural Chinese adults in Kailu, Inner Mongolia. Acta Ophthalmol. 2016; 94(4): 407-13. |
| China  | Subnational | No | Presenting | blind, moderate, severe | 2007-2007 | Congdon N, Wang Y, Song Y, Choi K, Zhang M, Zhou Z, Xie Z, Li L, Liu X, Sharma A, Wu B, Lam DSC. Visual disability, visual function, and myopia among rural Chinese secondary school children: the Xichang Pediatric Refractive Error Study (X-PRES)–Report 1. Invest Ophthalmol Vis Sci. 2008; 49(7): 2888-94. |
| China  | Subnational | No | Presenting | blind, moderate, severe | 2015-2015 | Gan S, Zhou X, Yan J, Liu X, Yi J, Zhou X, Liu D, Xie Q, Geng J, Lu Y. The prevalence and risk factors of visual impairment among rural residents aged 50 years and above in Yugan county, China. Ophthalmic Epidemiol. 2018; 25(5-6): 331-337. |
| China  | Subnational | No | Both | blind, moderate, severe | 2005-2005 | He M, Huang W, Zheng Y, Huang L, Ellwein LB. Refractive error and visual impairment in school children in rural southern China. Ophthalmology. 2007; 114(2): 374-82. |
| China  | Subnational | No | Both | blind, moderate, severe | 2002-2003 | He M, Zeng J, Liu Y, Xu J, Pokharel GP, Ellwein LB. Refractive error and visual impairment in urban children in southern China. Invest Ophthalmol Vis Sci. 2004; 45(3): 793-9. |
| Country | Level | Status | Presenting | Year1 | Year2 | Source |
|---------|-------|--------|------------|-------|-------|--------|
| China   | Subnational | No | Presenting | 2003  | 2004  | Huang S, Zheng Y, Foster PJ, Huang W, He M. Prevalence and causes of visual impairment in Chinese adults in urban southern China. Arch Ophthalmol. 2009; 127(10): 1362-7. |
| China   | Subnational | Yes | Both | 2007  | 2007  | International Centre for Eye Health (ICEH). China - Gao'an Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| China   | Subnational | Yes | Both | 2010  | 2010  | International Centre for Eye Health (ICEH). China - Inner Mongolia Shangdu Rapid Assessment of Avoidable Blindness 2010. |
| China   | Subnational | Yes | Both | 2010  | 2010  | International Centre for Eye Health (ICEH). China - Inner Mongolia Tuoketuo Rapid Assessment of Avoidable Blindness 2010. |
| China   | Subnational | Yes | Presenting | 2012  | 2012  | International Centre for Eye Health (ICEH). China - Jianchuan Rapid Assessment of Avoidable Blindness 2012. Grootebroek, Netherlands: RAAB Repository. |
| China   | Subnational | Yes | Both | 2006  | 2006  | International Centre for Eye Health (ICEH). China - Kunming Rapid Assessment of Avoidable Blindness 2006. Grootebroek, Netherlands: RAAB Repository. |
| China   | Subnational | Yes | Both | 2012  | 2012  | International Centre for Eye Health (ICEH). China - Lancang Rapid Assessment of Avoidable Blindness 2012. Grootebroek, Netherlands: RAAB Repository. |
| China   | Subnational | Yes | Both | 2011  | 2011  | International Centre for Eye Health (ICEH). China - Sichuan Dechang Rapid Assessment of Avoidable Blindness 2011. |
| China   | Subnational | Yes | Both | 2017  | 2018  | International Centre for Eye Health (ICEH). |
| Country     | Subnational | Eye Status | Eye Status | Year1 | Year2 | Source                                                                 |
|-------------|-------------|------------|------------|-------|-------|----------------------------------------------------------------------|
| China       | Subnational | Yes        | Both       | 2011  | 2011  | International Centre for Eye Health (ICEH). China - Sichuan Garzé Rapid Assessment of Avoidable Blindness Survey 2017. Grootebroek, Netherlands: RAAB Repository. [Unpublished]. |
| China       | Subnational | Yes        | Both       | 2007  | 2007  | International Centre for Eye Health (ICEH). China - Sichuan Xingan Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| China       | Subnational | Yes        | Both       | 2007  | 2007  | International Centre for Eye Health (ICEH). China - Sichuan Xinjiang Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| China       | Subnational | Yes        | Both       | 2015  | 2015  | International Centre for Eye Health (ICEH). China - Yunnan Luliang County Rapid Assessment for Avoidable Blindness 2008. Grootebroek, Netherlands: RAAB Repository, 2008. |
| China       | Subnational | No         | Presenting | 2008  | 2008  | International Centre for Eye Health (ICEH). China - Yunnan Luliang Rapid Assessment of Avoidable Blindness 2008. Grootebroek, Netherlands: RAAB Repository, 2008. |
| China       | Subnational | Yes        | Both       | 2008  | 2008  | Li EY, Liu Y, Zhan X, Liang YB, Zhang X, Zheng C, Jhanji V, Xu P, Chang DF, Lam DS. Prevalence of blindness. |
| China       | Subnational | Yes        | Presenting | 2009, 2010 | 2010, 2010 | Li EY, Liu Y, Zhan X, Liang YB, Zhang X, Zheng C, Jhanji V, Xu P, Chang DF, Lam DS. Prevalence of blindness. |
| Country | Subnational | Presenting | Features | Start Year | End Year | Authors | Description |
|---------|-------------|------------|----------|------------|----------|---------|-------------|
| China   | Subnational | Presenting | MSVI, blind, moderate, severe | 2009, 2010 | 2010, 2011 | Li J, Zhong H, Cai N, Luo T, Li J, Su X, Li X, Qiu X, Yang Y, Yuan Y, Yu M. | The prevalence and causes of visual impairment in an elderly Chinese Bai ethnic rural population: the Yunnan minority eye study. Invest Ophthalmol Vis Sci. 2012; 53(8): 4498-504. |
| China   | Subnational | Both       | MSVI, blind, moderate, severe | 1998, 2003 | 1998, 2003 | Li L, Guan H, Xun P, Zhou J, Gu H. | Prevalence and causes of visual impairment among the elderly in Nantong, China. Eye (Lond). 2008; 22(8): 1069-75. |
| China   | Subnational | Presenting | MSVI, blind, moderate, severe | 1997 | 1997 | Li S, Xu J, He M, Wu K, Munoz SR, Ellwein LB. | A survey of blindness and cataract surgery in Doumen County, China. Ophthalmology. 1999; 106(8): 1602-8. |
| China   | Subnational | Both       | MSVI, blind, moderate, severe | 2006 | 2006 | Li T, Du L, Du L. | Prevalence and Causes of Visual Impairment and Blindness in Shanxi Province, China. Ophthalmic Epidemiol. 2015; 22(4): 239-45. |
| China   | Subnational | Presenting | MSVI, blind, moderate, severe | 2010 | 2010 | Li X, Zhou Q, Sun L, Wang Z, Han S, Wu S, Wang N. | Prevalence of blindness and low vision in a rural population in northern China: preliminary results from a population-based survey. Ophthalmic Epidemiol. 2012; 19(5): 272-7. |
| China   | Subnational | Both       | MSVI, blind, moderate, severe | 2008, 2010 | 2008, 2012 | Li Y, Bi HS, Wang LH, Wang T, Yang SY, Liu LP, Zhou CC. | Causes of moderate to severe visual impairment and blindness in population aged 50 years or more in rural Shandong province. Chin J Ophthalmol. 2013; 49(2): 144-50. |
| Country | Subnational | Presenting | MSVI, blind, moderate, severe | Year1 | Year2 |
|---------|-------------|------------|-------------------------------|--------|--------|
| China   | Subnational | No         | Presenting                    | 2006   | 2007   |
|         |             |            |                               |        |        |
|         |             |            |                               |        |        |
| China   | Subnational | Yes        | Both                          | 1986   | 1986   |
|         |             |            |                               |        |        |
| China   | Subnational | No         | Both                          | 2006   | 2006   |
|         |             |            |                               |        |        |
| China   | Subnational | No         | Both                          | 2004   | 2004   |
|         |             |            |                               |        |        |
| China   | Subnational | No         | Both                          | 2012   | 2013   |
|         |             |            |                               |        |        |

Li Z, Cui H, Liu P, Zhang L, Yang H, Zhang L. Prevalence and causes of blindness and visual impairment among the elderly in rural southern Harbin, China. Ophthalmic Epidemiol. 2008; 15(5): 334-8.

Liang YB, Friedman DS, Wong TY, Zhan SY, Sun LP, Wang JJ, Duan XR, Yang XH, Wang FH, Zhou Q, Wang NL. Prevalence and causes of low vision and blindness in a rural chinese adult population: the Handan Eye Study. Ophthalmology. 2008; 115(11): 1965-72.

Lo WB, Fang QX, Zhou JH, Han JJ, Kuang JB, Zhou YF, Yao XL, Tang ZW, Chang Y, Lo B. The epidemiological survey of blindness and low vision in Sichuan Province, China. Eye Sci. 1987; 3(4): 223-6.

Lu H, Guan HJ, Dai Z, Li M, Wang Y, Hu JY, Shi J, Zhao JL, Ellwein LB, Wang Y, Gao XC. Prevalence of blindness and moderate and severe visual impairment among adults aged 50 years or above in Qidong City of Jiangsu Province: the China Nine-Province Survey. Chin J Ophthalmol. 2012; 48(3): 205-10.

Lu Q, Zheng Y, Sun B, Cui T, Congdon N, Hu A, Chen J, Shi J. A population-based study of visual impairment among pre-school children in Beijing: the Beijing study of visual impairment in children. Am J Ophthalmol. 2009; 147(6): 1075-81.

Tang Y, Wang X, Wang J, Huang W, Gao Y, Luo Y, Lu Y. Prevalence and Causes of Visual Impairment in a Chinese

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| Country | Region/Locality | Methodology | Diagnosis | Year of diagnosis | Year of examination | Authors | Title/Summary |
|---------|----------------|-------------|-----------|-------------------|-------------------|--------|--------------|
| China | Subnational | No | Best-corrected | Blind, moderate, severe | 2010 | 2010 | Wang G-Q, Bai Z-X, Shi J, Luo S, Chang H-F, Sai X-Y. | Prevalence and risk factors for eye diseases, blindness, and low vision in Lhasa, Tibet. Int J Ophthalmol. 2013; 6(2): 237-41. |
| China | Subnational | No | Presenting | MSVI | 2009 | 2009 | Wang H, Zhang Y, Li Z, Wang T, Liu P. | Prevalence and causes of corneal blindness. Clin Experiment Ophthalmol. 2013. |
| China | Subnational | No | Presenting | MSVI, blind | 2009 | 2009 | Wang L, Huang W, He M, Zheng Y, Huang S, Liu B, Jin L, Congdon NG, He M. | Causes and five-year incidence of blindness and visual impairment in urban Southern China: the Liwan Eye Study. Invest Ophthalmol Vis Sci. 2013; 54(6): 4117-21. |
| China | Subnational | No | Best-corrected | MSVI, blind, moderate, severe | 2000, 2006 | 2000, 2006 | Wei M, Chen H, Fan Y-C, Pathai S. | Prevalence and causes of visual impairment and blindness in Sichuan province of China. Int J Ophthalmol. 2010; 3(1): 83-8. |
| China | Subnational | Yes | Presenting | MSVI, blind, moderate, severe | 2006 | 2006 | Wu M, Yip JLY, Kuper H. | Rapid assessment of avoidable blindness in Kunming, China. Ophthalmology. 2008; 115(6): 969-74. |
| China | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 | Xiao B, Kuper H, Guan C, Bailey K, Limburg H. | Rapid assessment of avoidable blindness in three counties, Jiangxi Province, China. Br J Ophthalmol. 2010; 94(11): 1437-42. |
| China | Subnational | No | Both | MSVI, blind, mild, moderate, severe | 2001 | 2001 | Xu J, Xu L, Du KF, Shao L, Chen CX, Zhou JQ, Wang YX, You QS, Jonas JB, Wei WB. | Subfoveal choroidal thickness in diabetes and diabetic retinopathy [Unpublished data]. Ophthalmology. 2013 Oct;120(10):2023-8. |
| Country | Subnational | Both | Presenting | Blind, Moderate, Severe | Year1 | Year2 | Author(s)                                                                 | Journal                                                                 | Page Numbers |
|---------|-------------|------|------------|------------------------|-------|-------|--------------------------------------------------------------------------|------------------------------------------------------------------------|---------------|
| China   | Subnational | No   | Presenting | blind, moderate, severe | 2006, 2011 | 2006, 2011 | Xu J, Xu L, Du KF, Shao L, Chen CX, Zhou JQ, Wang YX, You QS, Jonas JB, Wei WB. | Ophthalmology. 2013 Oct;120(10):2023-8. |               |
| China   | Subnational | No   | Presenting | blind, moderate, severe | 2008, 2009 |       | Xu L, Jonas JB, Cui TT, You QS, Wang YX, Yang H, Li JJ, Wei WB, Liang QF, Wang S, Yang XH, Zhang L, Beijing Institute of Ophthalmology, Beijing Tongren Hospital, Capital Medical University. Beijing Eye Public Health Care Project. | Ophthalmology. 2012; 119(6): 1167-74. |               |
| China   | Subnational | No   | Presenting | blind, moderate, severe | 2010, 2011 |       | Yang M, Zhang JF, Zhu RR, Kang LH, Qin B, Guan HJ. | Epidemiological survey of visual impairment in Funing County, Jiangsu. Chin J Ophthalmol. 2017; 53(7): 502-508. |               |
| China   | Subnational | No   | Presenting | MSVI                  | 2008, 2009 |       | You QS, Xu L, Wang YX, Liang QF, Cui TT, Yang XH, Yang H, Jonas JB. | Clin Experiment Ophthalmol. 2013; 41(6.0): 608-9. |               |
| China   | Subnational | No   | Both       | MSVI, blind           | 2013, 2013 |       | Zhang G, Li Y, Teng X, Wu Q, Gong H, Ren F, Guo Y, Liu L, Zhang H. | Medicine (Baltimore). 2016; 95(37): e4905. |               |
| China   | Subnational | No   | Both       | MSVI, blind, moderate, severe | 1987, 1998, 1998 |       | Zhang SY, Zou LH, Gao YQ, Di Y, Wang XD. | National epidemiological survey of blindness and low vision in China. Chin Med J (Engl). 1992; 105(7): 603-8. |               |
| Country  | Subnational | Presenting | Blind, Moderate, Severe | Year 1 | Year 2 |
|----------|-------------|------------|-------------------------|--------|--------|
| China    | Yes         | Presenting | blind, moderate, severe | 2012   | 2012   |
|          |             |            |                         | Zhang X, Li EY, Leung CK, Musch DC, Tang X, Zheng C, He M, Chang DF, Lam DS. Prevalence of visual impairment and outcomes of cataract surgery in Chaonan, South China. PLoS One. 2017; 12(8): e0180769. |
| China    | No          | Both       | MSVI, blind, moderate, severe | 2008   | 2009   |
|          |             |            |                         | Zhao J, Ellwein LB, Cui H, Ge J, Guan H, Lv J, Ma X, Yin J, Yin ZQ, Yuan Y, Liu H. Prevalence of vision impairment in older adults in rural China: the China Nine-Provence Survey. Ophthalmology. 2010; 117(3): 409-16. |
| China    | No          | Both       | MSVI, blind, mild, moderate, severe | 2006, 2014 | 2007, 2014 |
|          |             |            |                         | Zhao J, Xu X, Ellwein LB, Guan H, He M, Liu P, Lv J, Sheng X, Yang P, Yi J, Cai N, Yang M, Chen M, Deng L, Ding X, Du L, Li F, Liu X, Lu H, Shao C, Wang J, Zhuang W, An L. Causes of Visual Impairment and Blindness in the 2006 and 2014 Nine-Provence Surveys in Rural China. Am J Ophthalmol. 2019; 197: 80-87. |
| China    | No          | Both       | blind, mild, moderate, severe | 2009   | 2009   |
|          |             |            |                         | Zhu M, Tong X, Zhao R, He X, Zhao H, Liu M, Zhu J. Visual impairment and spectacle coverage rate in Baoshan district, China: population-based study. BMC Public Health. 2013; 13(1): 311. |
| China    | No          | Both       | blind, moderate, severe | 2010   | 2011   |
|          |             |            |                         | Zhu RR, Shi J, Yang M, Guan HJ. Prevalences and causes of vision impairment in elderly Chinese: a socioeconomic perspective of a comparative report nested in Jiangsu Eye Study. Int |
| Country                              | Level       | Corrected | Best-corrected | Blind, Moderate, Severe | Year    | Year    | Source                                                                 |
|--------------------------------------|-------------|-----------|----------------|-------------------------|---------|---------|------------------------------------------------------------------------|
| Democratic Republic of the Congo     | Subnational | Yes       | Both           | MSVI, blind, moderate, severe | 2015    | 2015    | International Centre for Eye Health (ICEH). Democratic Republic of Congo - Orientale Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Congo                                | National    | No        | Best-corrected | blind, moderate, severe  | 1988    | 1988    | World Health Organization (WHO). Blindness prevention: prevalence and causes of blindness and visual loss. Wkly Epidemiol Rec. 1990: 65(33): 249-51. |
| Costa Rica                           | National    | Yes       | Both           | MSVI, blind, mild, moderate, severe | 2015    | 2015    | Hernández Silva JR, Río Torres M, Padilla González CM. Resultados del RACSS en Ciudad de La Habana, Cuba, 2005. Rev Cubana Oftalmol. 2006; 19(1): 0-0. |
| Cuba                                 | Subnational | Yes       | Presenting     | MSVI, blind, moderate, severe | 2004, 2005 | 2005    | International Centre for Eye Health (ICEH). Dominican Republic Rapid Assessment for |
| Denmark                              | Subnational | No        | Both           | blind, moderate, severe  | 1991    | 1994    | Buch H, Vinding T, La Cour M, Appleyard M, Jensen GB, Nielsen NV. Prevalence and causes of visual impairment and blindness among 9980 Scandinavian adults: the Copenhagen City Eye Study. Ophthalmology. 2004; 111(1): 53-61. |
| Dominican Republic                   | National    | Yes       | Both           | MSVI, blind, moderate, severe | 2008    | 2008    | International Centre for Eye Health (ICEH). Dominican Republic Rapid Assessment for |
| Country          | Type     | Presenting | Disability Level | Year1 | Year2 | Study Title                                                                                   |
|------------------|----------|------------|------------------|-------|-------|------------------------------------------------------------------------------------------------|
| Ecuador          | National | No         | Presenting        | 2009  | 2009  | Ecuador Rapid Assessment for Avoidable Blindness Survey 2009. Unpublished.                  |
| Ecuador          | National | Yes        | Both              | 2008  | 2009  | International Centre for Eye Health (ICEH). Ecuador Rapid Assessment of Avoidable Blindness 2008-2009. Grootebroek, Netherlands: RAAB Repository. |
| Egypt            | Subnational | No        | Best-corrected    | 1994  | 1994  | El-Bayoumy BM, Saad A, Choudhury AH. Prevalence of refractive error and low vision among schoolchildren in Cairo. East Mediterr Health J. 2007; 13(3): 575-9. |
| Egypt            | Subnational | No        | Presenting        | 2001  | 2002  | Fouad D, Mousa A, Courtright P. Sociodemographic characteristics associated with blindness in a Nile Delta governorate of Egypt. Br J Ophthalmol. 2004; 88(5): 614-8. |
| Egypt            | Subnational | No        | Presenting        | 2007  | 2008  | Mousa A, Courtright P, Kazanjian A, Bassett K. Prevalence of visual impairment and blindness in Upper Egypt: a gender-based perspective. Ophthalmic Epidemiol. 2014; 21(3.0): 190-6. |
| El Salvador      | National | Yes        | Both              | 2011  | 2011  | International Centre for Eye Health (ICEH). El Salvador Rapid Assessment of Avoidable Blindness 2011. |
| Eritrea          | National | Yes        | Both              | 2008  | 2008  | International Centre for Eye Health (ICEH), Ministry of Health (Eritrea). Eritrea Rapid Assessment for Avoidable Blindness Survey 2008. |
| Estonia, France, Greece, Italy, Norway, United Kingdom     | Subnational | No        | Best-corrected    | 2006  | 2007  | Seland JH, Vingerling JR, Augood CA, Bentham G, Chakravarthy U, deJong PTVM, Rahu M, Soubra G, Tomazzoli L, Topouzis F, Fletcher AE. Visual impairment and quality of life in the |
| Country   | Level     | No/Both | Study Design   | Year(s) | Status         | Authors & Details                                                                 |
|-----------|-----------|---------|----------------|---------|----------------|----------------------------------------------------------------------------------|
| Ethiopia  | National  | No      | Presenting     | 2005-2006 | MSVI, blind     | Older European population, the EUREYE study. Acta Ophthalmol. 2011; 89(7): 608-13. |
| Ethiopia  | National  | No      | Presenting     | 2005-2006 | MSVI, blind     | Addis Ababa University, Ethiopian Public Health Association, Johns Hopkins University, Ministry of Health (Ethiopia). Ethiopia National Blindness and Low Vision Survey 2005-2006. |
| Ethiopia  | Subnational | No     | Presenting     | 1981-1982 | blind, moderate, severe | Ethiopia Subnational No Presenting blind, moderate, severe 1981-1982. Cerulli L, Cedrone C, Assefa C, Scuderi GL. Assessment of visual status of the population in seven regions of Ethiopia. Rev Int Trach Pathol Ocul Trop Subtrop Santé Publique. 1984; 2-4: 127-42. |
| Ethiopia  | Subnational | No     | Both           | 2009-2009 | blind, moderate, severe | Ethiopia Subnational No Both blind, moderate, severe 2009-2009. Kedir J, Girma A. Prevalence of refractive error and visual impairment among rural school-age children of Goro District, Gurage Zone, Ethiopia. Ethiop J Health Sci. 2014; 24(4): 353-8. |
| Ethiopia  | Subnational | No     | Presenting     | 2010-2011 | blind, moderate, severe | Ethiopia Subnational No Presenting blind, moderate, severe 2010-2011. Mehari ZA, Yimer AW. Prevalence of refractive errors among schoolchildren in rural central Ethiopia. Clin Exp Optom. 2013; 96(1): 65-9. |
| Ethiopia  | Subnational | No     | Presenting     | 1998-1998 | blind, moderate, severe | Ethiopia Subnational No Presenting blind, moderate, severe 1998-1998. Melese M, Alemayehu W, Bayu S, Girma T, Haile Selassie T, Khandekar R, Worku A, Courtright P. Low vision and blindness in adults in Gurage Zone, central Ethiopia. Br J Ophthalmol. 2003; 87(6): 677-80. |
| Country     | Level     | Presenting | Visual Impairment | Start Year | End Year | Authors                                                                 | Journal                                                                 | Year |
|-------------|-----------|------------|-------------------|------------|----------|------------------------------------------------------------------------|-------------------------------------------------------------------------|------|
| Ethiopia    | Subnational | No        | Presenting        | 1994       | 1995     | Zerihun N, Mabey D. Blindness and low vision in Jimma Zone, Ethiopia: results of a population-based survey. Ophthalmic Epidemiol. 1997; 4(1): 19-26. |                                                                                     |      |
| Fiji        | Subnational | No        | Presenting        | 2009       | 2009     | Brian G, Ramke J, Szetu J, Qoqonokana MQ. Cataract and its surgery in Fiji. Clin Experiment Ophthalmol. 2011; 39(5): 449-55. |                                                                                     |      |
| Fiji        | National   | No        | Best-corrected    | 2006       | 2007     | Cama AT, Sikivou BT, Keeffe JE. Childhood visual impairment in Fiji. Arch Ophthalmol. 2010; 128(5): 608-12. |                                                                                     |      |
| Gambia      | National   | No        | Presenting        | 1986, 1996 | 1986, 1996 | Faal H, Minassian D, Sowa S, Foster A. National survey of blindness and low vision in The Gambia: results. Br J Ophthalmol. 1989; 73(2): 82-7. |                                                                                     |      |
| Gambia      | National   | No        | Presenting        | 1996       | 1996     | Faal H, Minassian DC, Dolin PJ, Mohamed AA, Ajewole J, Johnson GJ. Evaluation of a national eye care programme: re-survey after 10 years. Br J Ophthalmol. 2000; 84(9): 948-51. |                                                                                     |      |
| Ghana       | Subnational | No        | Both              | 2006, 2009 | 2006, 2011 | International Centre for Eye Health (ICEH). Gambia Rapid Assessment of Avoidable Blindness 2007. |                                                                                     |      |
| Guatemala   | Subnational | Yes       | Both              | 2004       | 2004     | Budenz DL, Bandi JR, Barton K, Nolan W, Herndon L, Whiteside-de Vos J, Hay-Smith G, Kim H, Tielsch J. Blindness and Visual Impairment in an Urban West African Population: The Tema Eye Survey. Ophthalmology. 2012; 119(9): 1744-53. |                                                                                     |      |
| Guatemala   | National   | Yes       | Both              | 2015       | 2015     | International Centre for Eye Health (ICEH). Guatemala - Four Departments Rapid Assessment of Avoidable Blindness 2004. Grootebroek, Netherlands: RAAB Repository. |                                                                                     |      |
| Country         | Type            | Presenting | MSVI, blind, moderate | Year   | Avoidable Blindness Reference |
|-----------------|-----------------|------------|-----------------------|--------|-------------------------------|
| Guatemala       | National        | Yes/Both   | moderate, severe       | 2010-2015 | Guatemala Rapid Assessment of Avoidable Blindness 2015, Grootebroek, Netherlands: RAAB Repository. |
| Guinea-Bissau   | National        | Yes/Both   | MSVI, blind, moderate, severe | 2010-2010 | International Centre for Eye Health (ICEH), Guinea-Bissau Rapid Assessment of Avoidable Blindness 2010, Grootebroek, Netherlands: RAAB Repository. |
| Haiti           | Subnational     | No/Presenting | moderate, severe     | 2013-2013 | Toussignant B, Brülé J. Prevalence of eye disease and visual impairment in Île de la Gonave, Haiti. *Med Sante Trop.* 2017; 27(3): 326-328. |
| Honduras        | National        | Yes/Both   | MSVI, blind           | 2013-2013 | Alvarado D, Rivera B, Lagos L, Ochoa M, Starkman I, Castillo M, et al. Encuesta nacional de ceguera y deficiencia visual evitables en Honduras [ Honduras national survey of blindness and avoidable visual impairments]. Rev Panam Salud Publica. 2014; 36(5): 300-5. |
| Hungary         | National        | Yes/Both   | MSVI, blind, mild, moderate, severe | 2014-2015 | International Centre for Eye Health (ICEH), Hungary Rapid Assessment of Avoidable Blindness 2013. |
| Iceland         | Subnational     | No/Presenting | MSVI, blind, moderate, severe | 1996-1996 | Gunnlaugsdottir E, Arnarsson A, Jonasson F. Prevalence and causes of visual impairment and blindness in Icelanders aged 50 years and older: the Reykjavik Eye Study. Acta Ophthalmol. 2008; 86(7): 778-85. |
| India           | Subnational     | Yes/Presenting | MSVI, blind, moderate, severe | 2013-2015 | All India Institute of Medical Sciences, New Delhi (AIIMS). India Multi-centric Collaborative Study on the Impact of Global }
| Country | Subnational | Presenting | Year 1 | Year 2 | Study Title |
|---------|-------------|------------|--------|--------|-------------|
| India   | Subnational | Yes        | 2011   | 2011   | Warming and Ultra Violet Radiation Exposure on Ocular Health in India 2013-2015. |
|         | Subnational | No         | 1996   | 1997   | Dandona L, Dandona R, Naduvilath TJ, McCarty CA, Srinivas M, Mandal P, Nanda A, Rao GN. Burden of moderate visual impairment in an urban population in southern India. Ophthalmology. 1999; 106(3): 497-504. |
| India   | Subnational | Yes        | 2009   | 2009   | Dhake PV, Dole K, Khandekar R, Deshpande M. Prevalence and causes of avoidable blindness and severe visual impairment in a tribal district of Maharashtra, India. Oman J Ophthalmol. 2011; 4(3): 129-34. |
| India   | Subnational | Yes        | 2013   | 2013   | Govekar PK, Sharma KM. Blindness and Visual Impairment in Delhi Region. Natl J Community Med. 5(4): 370-372. |
| India   | Subnational | Yes        | 2008   | 2008   | International Centre for Eye Health (ICEH). India - Chitrakoot Rapid Assessment of Avoidable Blindness 2008. Grootebroek, Netherlands: RAAB Repository. |
| India   | Subnational | Yes        | 2011   | 2011   | International Centre for Eye Health (ICEH). India - Surat Rapid Assessment of Avoidable Blindness 2011. |
| India   | Subnational | Yes        | 2014   | 2016   | Jonas JB, Nangia V, Gupta R, Bhojwani K, Nangia P, Panda-Jonas S. Prevalence of myopic retinopathy in rural Central India. Acta |
| Country | Subnational | Presenting | Blind, Mild, Moderate, Severe | Year Presenting | Year Subnational |
|---------|-------------|------------|-------------------------------|----------------|------------------|
| India   | Subnational | No         | Present | blind, mild, moderate, severe | 1993-1995      | 1993-1995        |
|         |             |            |         |                              | 1996-2000       | 1996-2000        |
|         |             | Yes        | Both    | MSVI, blind                   | 1995-1995       | 1995-1995        |
|         |             | Yes        | Both    | blind, mild, moderate, severe | 2014-2014       | 2014-2014        |
|         |             | No         | Both    | MSVI, blind                   | 1999-2001       | 1999-2001        |

Kalikivayi V, Naduvilath TJ, Bansal AK, Dandona L. Visual impairment in school children in southern India. Indian J Ophthalmol. 1997; 45(2): 129-34.

Krishnaiah S, Das T, Nirmalan PK, Nutheti R, Shamanna BR, Rao GN, Thomas R. Risk factors for age-related macular degeneration: findings from the Andhra Pradesh eye disease study in South India. Invest Ophthalmol Vis Sci. 2005; 46(12): 4442-9.

Limburg H, Kumar R. Follow-up study of blindness attributed to cataract in Karnataka State, India. Ophthalmic Epidemiol. 1998; 5(4): 211-23.

Malhotra S, Vashist P, Gupta N, Kalaivani M, Rath R, Gupta SK. Prevalence and causes of visual impairment among adults aged 15-49 years in a rural area of north India - A population-based study. Indian J Ophthalmol. 2018; 66(7): 951-956.

Malhotra S, Vashist P, Kalaivani M, Gupta N, Senjam SS, Rath R, Gupta SK. Prevalence and causes of visual impairment amongst older adults in a rural area of North India: a cross-sectional study. BMJ Open. 2018; 8(3): e018894.

Murthy GVS, Gupta SK, Bachani D, Jose R, John N, National Programme for Control of Blindness (India). Current estimates of blindness in India [Unpublished data]. Br J Ophthalmol. 2005; 89(3): 257-60.
| India | Subnational/ National | Presenting | Best-corrected | Blind, moderate, severe | Year 1 | Year 2 | Authors & Title | Journal & Year |
|-------|-----------------------|------------|----------------|-------------------------|--------|--------|----------------|----------------|
| India | Subnational           | No         | Best-corrected | blind, moderate, severe | 1999   | 2001   | Murthy GVS, Gupta SK, Bachani D, Jose R, John N. Current estimates of blindness in India. Br J Ophthalmol. 2005; 89(3): 257-60. | |
| India | Subnational           | No         | Presenting     | MSVI, blind              | 2006   | 2008   | Nangia V, Jonas JB, Kulkarni M, Matin A. Prevalence of age-related macular degeneration in rural central India: the Central India Eye and Medical Study. Retina. 2011; 31(6): 1179-85. | |
| India | Subnational           | No         | Presenting     | blind, moderate, severe  | 2006   | 2008   | Nangia V, Jonas JB, Sinha A, Bhojwani K, Matin A. Visual impairment among school children in urban Central India: The Central India Children Eye Study. Acta Ophthalmol (Copenh). 2012; 90(4): e329-e331. | |
| India | Subnational           | No         | Presenting     | MSVI, blind, moderate, severe | 2007   | 2007   | Neena J, Rachel J, Praveen V, Murthy GVS. Rapid Assessment of Avoidable Blindness in India [Unpublished data]. PLoS One. 2008; 3(8): e2867. | |
| India | Subnational           | Yes        | Presenting     | MSVI, blind, moderate, severe | 2007   | 2007   | Neena J, Rachel J, Praveen V, Murthy GVS. Rapid Assessment of Avoidable Blindness in India. PLoS One. 2008; 3(8): e2867. | |
| India | National              | Yes        | Presenting     | MSVI, blind              | 2007   | 2007   | Patil S, Gogate P, Vora S, Ainapure S, Hingane RN, Kulkarni AN, Shammann BR. Prevalence, causes of blindness, visual impairment and cataract surgical services in Sindhudurg district on the western coastal strip | |
| India | Subnational           | No         | Both           | blind, moderate, severe  | 2010, 2012 | 2010, 2012 | # | # |

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| Country | Subnational | Presenting | Blind, Moderate, Severe | MSVI, Blind | Year1, Year2 |
|---------|-------------|------------|-------------------------|-------------|-------------|
| India   | No          | Presenting | 1995, 1997              | MSVI, Blind | 1995-2011   |
|         |             | Best-corrected | 2009, 2011          | Blind, Moderate Severe | 2009-2011 |
|         | Yes         | Presenting | 2011, 2013             | Blind, Moderate Severe | 2011-2013 |
| India   | No          | Both       | 1995, 1997              | Blind, Moderate Severe | 1995-1997 |
| Indonesia | Yes       | Presenting | 2006, 2006              | MSVI, Blind, Moderate Severe | 2006-2006 |

Indian J Ophthalmol. 2014; 62(2): 240-245.

Ramakrishnan R, Nirmalan PK, Krishnadas R, Thulasiraj RD, Tielsch JM, Katz J, Friedman DS, Robin AL. Glaucoma in a rural population of southern India: the Aravind comprehensive eye survey. Ophthalmology. 2003; 110(8): 1484-90.

Rustagi N, Uppal Y, Taneja DK. Screening for visual impairment: outcome among schoolchildren in a rural area of Delhi. Indian J Ophthalmol. 2012; 60(3): 203-6.

Singh N, Eeda SS, Gudapati BK, Reddy S, Kanade P, Shantha GPS, Rani PK, Chakrabarti S, Khanna RC. Prevalence and causes of blindness and visual impairment and their associated risk factors, in three tribal areas of Andhra Pradesh, India. PLoS One. 2014; 9(7): e100644.

Thulasiraj RD, Nirmalan PK, Ramakrishnan R, Krishnadas R, Manimekalai TK, Baburaj NP, Katz J, Tielsch JM, Robin AL. Blindness and vision impairment in a rural south Indian population: the Aravind Comprehensive Eye Survey. Ophthalmology. 2003; 110(8): 1491-8.

Vijaya L, George R, Asokan R, Velumuri L, Ramesh SV. Prevalence and causes of low vision and blindness in an urban population: The Chennai Glaucoma Study. Indian J Ophthalmol. 2014.

International Centre for Eye Health (ICEH). Indonesia - East Kalimantan Rapid
| Country                                      | Region       | Sample Type | Presenting Modality | MSVI, Blind, Moderate, Severe | Year 1 | Year 2 | Authors                                                                 | Journal                                                                 | Publication year |
|----------------------------------------------|--------------|-------------|---------------------|--------------------------------|--------|--------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------|
| Indonesia                                   | Subnational  | No          | Presenting          | MSVI, blind, moderate, severe  | 2001   | 2002   | Saw S-M, Husain R, Gazzard GM, Koh D, Widjaja D, Tan DTH.               | Br J Ophthalmol. 2003; 87(9): 1075-8.                                  |                  |
| Iran (Islamic Republic of)                   | Subnational  | No          | Presenting          | blind, moderate, severe         | 2008   | 2009   | Emamian MH, Zeraati H, Majdzadeh R, Shariati M, Hashemi H, Fotouhi A. | Am J Epidemiol. 2011; 173(12): 1463-7.                                 |                  |
| Iran (Islamic Republic of)                   | Subnational  | No          | Best-corrected      | blind, moderate, severe         | 2006   | 2006   | Feghhi M, Khataminia G, Ziaei H, Latifi M.                              | J Ophthalmic Vis Res. 2009; 4(1): 29-34.                               |                  |
| Iran (Islamic Republic of)                   | Subnational  | No          | Presenting          | blind, moderate, severe         | 2002   | 2002   | Fotouhi A, Hashemi H, Mohammad K, Jalali KH.                            | Br J Ophthalmol. 2004; 88(6): 740-5.                                   |                  |
| Iran (Islamic Republic of)                   | Subnational  | No          | Presenting          | blind, moderate, severe         | 2009   | 2010   | Hashemi H, Khabazkhoob M, Emamian MH, Shariati M, Fotouhi A. Visual     | Eye (Lond). 2012; 26(8): 1071-7.                                       |                  |
| Iran (Islamic Republic of)                   | Subnational  | No          | Both                | blind, moderate, severe         | 2008   | 2008   | Hashemi H, Khabazkhoob M, Saatci M, Ostadimoghaddam H, Yekta A. Visual  | Iran J Curr Ophthalmol. 2018; 30(2): 161-8.                             |                  |
| Iran (Islamic Republic of)                   | Subnational  | Yes         | Both                | MSVI, blind, moderate, severe   | 2014   | 2014   | International Centre for Eye Health (ICEH). Iran - Kordestan Rapid Assessment of Avoidable Blindness 2014. | Grootebroek,  |                  |
| Country                   | Level       | Representative Value | Disease Severity | Year_1 | Year_2 | Presenting Best-Corrected Vision Impairment | Presenting Low Vision Impairment | Presenting Blindness | Presenting Moderate Vision Impairment | Presenting Severe Vision Impairment |
|---------------------------|-------------|-----------------------|------------------|--------|--------|--------------------------------------------|---------------------------------|---------------------|-------------------------------------|----------------------------------|
| Iran (Islamic Republic of)| Subnational | Yes                   | MSVI, blind, moderate, severe | 2009   | 2009   | Katabeh M, Behboudi H, Moradian S, Alizadeh Y, Beiranvand R, Sabbaghi H, Ahmadieh H. Rapid Assessment of Avoidable Blindness and Diabetic Retinopathy in Gilan Province, Iran. Ophthalmic Epidemiol. 2017; 24(6): 381-387. |
| Iran (Islamic Republic of)| Subnational | Yes                   | blind, moderate, severe | 2009   | 2009   | Shahriari H-A, Izadi S, Rouhani M-R, Ghasemzadeh F, Maleki A-R. Prevalence and causes of visual impairment and blindness in Sistan-va-Baluchestan Province, Iran: Zahedan Eye Study. Br J Ophthalmol. 2007; 91(5): 579-84. |
| Iran (Islamic Republic of)| Subnational | No                    | Best-corrected blind, moderate, severe | 2004   | 2005   | Thomson IM, Chumbley LC. Eye disease in the West Bank and Gaza Strip. Br J Ophthalmol. 1984; 68(8): 598-602. |
| Israel                   | Subnational | No                    |blind, moderate, severe | 1982   | 1983   | Cedrone C, Nucci C, Scuderi G, Ricci F, Cerulli A, Culasso F. Prevalence of blindness and low vision in an Italian population: a comparison with other European studies. Eye (Lond). 2006; 20(6): 661-7. |
| Italy                    | Subnational | No                    | MSVI, blind, mild, moderate, severe | 2000   | 2000   | Cedrone C, Ricci F, Nucci C, Cesareo M, MacrÃ¬ G, Culasso F. Age-specific changes in the prevalence of best-corrected visual impairment in an Italian population. Ophthalmic Epidemiol. 2007; 14(5): 320-6. |
| Italy                    | Subnational | No                    | Best-corrected MSVI, blind, moderate, severe | 1988   | 2000   | 1988, 2000 |
| Jordan                   | National    | Yes                   | Both MSVI, blind, severe | 2012   | 2012   | Rabiu MM, Al Bdour MD, Abu Ameerh MA, Jadoon MZ. Prevalence |
| Country | Subnational | Presenting | MSVI, blind, moderate, severe | Year  | Year  | Citation |
|---------|-------------|------------|--------------------------------|-------|-------|----------|
| Kenya   | Subnational | Yes        | Presenting                     | 2007  | 2007  | International Centre for Eye Health (ICEH). Kenya - Embu Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Kenya   | Subnational | Yes        | Both                            | 2007  | 2007  | International Centre for Eye Health (ICEH). Kenya - Kericho Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Kenya   | Subnational | Yes        | Both                            | 2011  | 2011  | International Centre for Eye Health (ICEH). Kenya - Kwale Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository. |
| Kenya   | Subnational | Yes        | Both                            | 2005  | 2005  | International Centre for Eye Health (ICEH). Kenya - Nakuru Rapid Assessment of Avoidable Blindness 2005. Grootebroek, Netherlands: RAAB Repository. |
| Kenya   | Subnational | No         | Presenting                      | 2002  | 2003  | Ndegwa LK, Karimurio J, Okelo RO, Adala HS. Prevalence of visual impairment and blindness in a Nairobi urban population. East Afr Med J. 2006; 83(4): 69-72. |
| Kenya   | National    | No         | Presenting                      | 1976  | 1981  | Schwab L, Steinkuller PG. Visual disability and blindness secondary to refractive errors in Africa. Soc Sci Med. 1983; 17(22): 1751-4. |
| Kenya   | National    | No         | Presenting                      | 1987  | 1988  | Whitfield R, Schwab L, Ross-Degnan D, Steinkuller P, Swartwood J. Blindness and eye disease in Kenya: ocular status survey results from the Kenya Rural Blindness Prevention Project. Br J Ophthalmol. 1990; 74(6): 333-40. |
| Country                        | Level      | Presenting | Vision Impairment | Survey Years | Survey Details                                                                                                                                 |
|-------------------------------|------------|------------|-------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Kyrgyzstan                    | Subnational| Yes        | Both              | 2017         | International Centre for Eye Health (ICEH), Kyrgyzstan - Batken, Jalal Abad, and Osh Rapid Assessment of Avoidable Blindness Survey 2017. Grootebroek, Netherlands: RAAB Repository, 2017. |
| Lao People's Democratic Republic | Subnational| No         | Presenting        | 2009         | Casson RJ, Kahawita S, Kong A, Muecke J, Sisaleumsak S, Visonnavong V. Exceptionally low prevalence of refractive error and visual impairment in schoolchildren from Lao People's Democratic Republic. Ophthalmology. 2012; 119(10): 2011-7. |
| Lao People's Democratic Republic | National   | Yes        | Both              | 2007         | International Centre for Eye Health (ICEH), Laos Rapid Assessment of Avoidable Blindness Survey 2007. Grootebroek, Netherlands: RAAB Repository, 2017. |
| Lebanon                       | National   | No         | Presenting        | 1995         | Mansour AM, Kassak K, Chaya M, Hourani T, Sibai A, Alameddine MN. National survey of blindness and low vision in Lebanon. Br J Ophthalmol. 1997; 81(10): 905-6. |
| Libya                         | National   | No         | Presenting        | 2010         | Rabiu MM, Jenf M, Fituri S, Choudhury A, Agbabiaka I, Mousa A. Prevalence and causes of visual impairment and blindness, cataract surgical coverage and outcomes of cataract surgery in Libya. Ophthalmic Epidemiol. 2013; 20(1): 26-32. |
| Madagascar                    | Subnational| Yes        | Both              | 2011         | International Centre for Eye Health (ICEH), Madagascar - Atsinanana Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository. |
| Madagascar                    | Subnational| No         | Presenting        | 2010         | Randrianaivo JB, Anholt RM, Tendrisoa DL, |
| Country   | Subnational | Presenting | Blind, Moderate, Severe | Year | Year |
|-----------|-------------|------------|-------------------------|------|------|
| Malawi    | Subnational | No         | blind, moderate, severe  | 1983 | 1983 |
| Malawi    | Subnational | Yes        | blind, moderate, severe  | 2009 | 2010 |
| Malawi    | Subnational | Yes        | blind, moderate, severe  | 2009 | 2010 |
| Malaysia  | Subnational | No         | blind, mild, moderate, severe | 2003 | 2003 |
| Malaysia  | Subnational | Yes        | blind, mild, moderate, severe | 2014 | 2014 |
| Malaysia  | Subnational | Yes        | blind, mild, moderate, severe | 2014 | 2014 |

Margiano NJ, Courtright P3, Lewallen S. Blindness and cataract surgical services in Atsinanana region, Madagascar. Middle East Afr J Ophthalmol. 2014; 21(2): 153-7.

Chirambo MC, Tielsch JM, West KP Jr, Katz J, Tizazu T, Schwab L, Johnson G, Swartwood J, Taylor HR, Sommer A. Blindness and visual impairment in southern Malawi. Bull World Health Organ. 1986; 64(4): 567-72.

Kalua K, Lindfield R, Mtupanyama M, Mtumodzi D, Msiska V. Findings from a rapid assessment of avoidable blindness (RAAB) in Southern Malawi. PLoS One. 2011; 6(4): e19226.

Goh P-P, Abqariyah Y, Pokharel GP, Ellwein LB. Refractive error and visual impairment in school-age children in Gombak District, Malaysia. Ophthalmology. 2005; 112(4): 678-85.

International Centre for Eye Health (ICEH). Malawi - Southern Region Rapid Assessment of Avoidable Blindness 2009-2010. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Malaysia - Kelantan, Terengganu, and Pahang Rapid Assessment of Avoidable Blindness Survey 2014. Grootebroek, Netherlands: RAAB Repository, 2014.

International Centre for Eye Health (ICEH). Malaysia - Sabah Rapid Assessment of Avoidable Blindness Survey 2014. Grootebroek.
| Country   | Level     | Presenting | Both | MSVI, mild, moderate, severe | Date 1 | Date 2 |
|-----------|-----------|------------|------|-------------------------------|--------|--------|
| Malaysia  | Subnational | Yes        | Both | MSVI, blind, moderate, severe | 2014   | 2014   |
|           |           |            |      |                               |        |        |
| Malaysia  | Subnational | No         | Presenting | MSVI, blind, moderate, severe | 2000   | 2000   |
| Malaysia  | National   | No         | Both | MSVI, blind, moderate, severe | 1996   | 1997   |
| Maldives  | National   | Yes        | Both | MSVI, blind, moderate, severe | 2016   | 2016   |
| Mali      | Subnational | Yes        | Both | MSVI, blind, moderate, severe | 2008   | 2008   |
| Mali      | Subnational | Yes        | Both | MSVI, blind, moderate, severe | 2011   | 2011   |

International Centre for Eye Health (ICEH). Malaysia - Sarawak Rapid Assessment of Avoidable Blindness Survey 2014. Grootebrook, Netherlands: RAAB Repository, 2014.

Reddy SC, Rampal L, Nurulaini O. Prevalence and causes of visual impairment and blindness in a rural population in Sepang district, Selangor. Med J Malaysia. 2004; 59(2): 212-7.

Zainal M, Ismail SM, Ropilah AR, Elias H, Arumugam G, Alias D, Fathilah J, Lim TO, Ding LM, Goh PP. Prevalence of blindness and low vision in Malaysian population: results from the National Eye Survey 1996. Br J Ophthalmol. 2002; 86(9): 951-6.

Zainal M, Masran L, Ropilah AR. Blindness and visual impairment amongst rural Malays in Kuala Selangor, Selangor. Med J Malaysia. 1998; 53(1): 46-50.

International Centre for Eye Health (ICEH). Maldives Rapid Assessment of Avoidable Blindness 2016. Grootebrook, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Mali - Koulikoro Rapid Assessment of Avoidable Blindness 2008. Grootebrook, Netherlands: RAAB Repository.
| Country | Subnational | Presenting | Both | Condition | Year 1 | Year 2 | Author(s)                                                                 |
|---------|-------------|------------|------|-----------|--------|--------|--------------------------------------------------------------------------|
| Mali    | Subnational | No         | Both | MSVI, blind | 1990   | 1990   | Kortlang C, Koster JC, Coulibaly S, Dubbeldam RP. Prevalence of blindness and visual impairment in the region of Ségou, Mali. A baseline survey for a primary eye care programme. *Trop Med Int Health*. 1996; 1(3): 314-9. |
| Mexico  | Subnational | Yes        | Both | MSVI, blind, moderate, severe | 2009   | 2010   | International Centre for Eye Health (ICEH), Tennent Institute of Ophthalmology, Vision Institute, Carlota Hospital (Nuevo LeÃ³n). Mexico - Chiapas Rapid Assessment of Avoidable Blindness and Diabetic Retinopathy 2010. |
| Mexico  | Subnational | Yes        | Both | MSVI, blind, mild, moderate, severe | 2005   | 2006   | International Centre for Eye Health (ICEH), Mexico - Nuevo Leon Rapid Assessment of Avoidable Blindness Survey 2014. Grootebroek, Netherlands: RAAB Repository, 2014. |
| Mexico  | Subnational | Yes        | Both | MSVI, blind, mild, moderate, severe | 2014   | 2014   | International Centre for Eye Health (ICEH), Mexico - Querétaro de Arteaga Rapid Assessment of Avoidable Blindness 2015-2016. Grootebroek, Netherlands: RAAB Repository. |
| Mexico  | Subnational | No         | Presenting | MSVI, blind, moderate, severe | 2008   | 2008   | Secretariat of Health (Mexico), Secretary of Public Education (Mexico). Mexico National School Health Survey 2008. Cuernavaca, Mexico: National Institute of Public Health (Mexico), 2010. |
| Country       | Type       | Presenting | Both       | 2009 | 2011 | 2009, 2012, 2010, 2012 | Reference                                                                                   |
|--------------|------------|------------|------------|------|------|------------------------|--------------------------------------------------------------------------------------------|
| Mongolia     | National   | Yes        | Both       | 2012 | 2013 |                        | International Centre for Eye Health (ICEH). Mongolia Rapid Assessment of Avoidable Blindness Survey 2013. Grootebroek, Netherlands: RAAB Repository, 2014. |
| Morocco      | National   | No         | Both       | 1992 | 1992 |                        | International Centre for Eye Health (ICEH). Mozambique - Nampula Rapid Assessment of Avoidable Blindness Survey 1992. Grootebroek, Netherlands: RAAB Repository, 1994: 69(18): 129-31. |
| Mozambique   | Subnational| Yes        | Both       | 2011 | 2011 |                        | International Centre for Eye Health (ICEH). Mozambique - Sofala Division Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository, 2014. |
| Mozambique   | Subnational| No         | Both       | 2009 | 2012 | 2010, 2012            | Casson RJ, Newland HS, Muecke J, McGovern S, Durkin S, Sullivan T, Oo TZ, Aung TH, Shein WK, Selva D, Aung T. Prevalence and causes of visual impairment in rural Myanmar: the Meiktila Eye Study. Ophthalmology. 2007; 114(12): 2302-8. |
| Myanmar      | Subnational| No         | Both       | 2005 | 2005 |                        | Dev MK, Shrestha GS, Paudel N, Joshi ND, Thapa M, Shah DN. Visual status and ocular morbidity in older adults living in residential care. Graefes Arch Clin Exp Ophthalmol. 2012; 250(9): 1387-93. |
| Nepal        | Subnational| No         | Presenting | 2009 | 2011 |                        | Dulal S, Sapkota YD. Prevalence of blindness and visual impairment and its causes among people aged 50 years and above in Karnali Zone, |
| Country | Type     | Coverage | Data Quality | Start Year | End Year | Organization and Study Title |
|---------|----------|----------|--------------|------------|----------|------------------------------|
| Nepal   | Subnational | Yes      | Both         | 2008       | 2008     | International Centre for Eye Health (ICEH), Nepal - Bagmati Zone Rapid Assessment for Avoidable Blindness 2008. |
| Nepal   | Subnational | Yes      | Both         | 2008       | 2008     | International Centre for Eye Health (ICEH), Nepal - Bheri Zone Rapid Assessment of Avoidable Blindness 2009. |
| Nepal   | Subnational | Yes      | Both         | 2010       | 2010     | International Centre for Eye Health (ICEH), Nepal - Dhaulagiri Zone Rapid Assessment of Avoidable Blindness 2010. |
| Nepal   | Subnational | Yes      | Both         | 2008       | 2008     | International Centre for Eye Health (ICEH). Nepal - Janakpur Rapid Assessment for Avoidable Blindness 2008. Grootebroek, Netherlands: RAAB Repository. |
| Nepal   | Subnational | Yes      | Both         | 2008       | 2008     | International Centre for Eye Health (ICEH). Nepal - Karnali Zone Rapid Assessment of Avoidable Blindness 2008. |
| Nepal   | Subnational | Yes      | Both         | 2008       | 2009     | International Centre for Eye Health (ICEH). Nepal - Koshi Zone Rapid Assessment of Avoidable Blindness 2008-2009. |
| Nepal   | Subnational | Yes      | Both         | 2009       | 2009     | International Centre for Eye Health (ICEH). Nepal - Mechi Zone Rapid Assessment of Avoidable Blindness 2009. |
| Nepal   | Subnational | Yes      | Both         | 2015       | 2016     | International Centre for Eye Health (ICEH). Nepal - Narayani Rapid Assessment of Avoidable Blindness 2015-2016. Grootebroek, Netherlands: RAAB Repository |
| Nepal   | Subnational | Yes      | Both         | 2010       | 2010     | International Centre for Eye Health (ICEH). Nepal - Rapti Zone Rapid Assessment of Avoidable Blindness 2010. |
| Country | Subnational | Presenting | Best corrected | MSVI, blind, moderate, severe | 2008 | 2009 |
|---------|-------------|------------|----------------|-------------------------------|------|------|
| Nepal   | Subnational | Yes        | Both            | MSVI, blind, moderate, severe | 2008 | 2009 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | Yes        | Both            | MSVI, blind, moderate, severe | 2008 | 2008 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | Yes        | Presenting      | blind, moderate, severe       | 1997 | 1997 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | Yes        | Presenting      | blind, moderate, severe       | 2006 | 2006 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | No         | Best-corrected  | moderate, severe              | 2007 | 2007 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | No         | Both            | MSVI, blind, moderate, severe | 2013 | 2015 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |
| Nepal   | Subnational | No         | Presenting      | MSVI, blind, moderate, severe | 2008 | 2009 |
|         |             |            |                 |                               |      |      |
|         |             |            |                 |                               |      |      |

International Centre for Eye Health (ICEH), Nepal - Sagarmatha Zone Rapid Assessment of Avoidable Blindness 2008-2009.

Pokharel GP, Negrel AD, Munoz SR, Ellwein LB. Refractive Error Study in Children: results from Mechi Zone, Nepal. Am J Ophthalmol. 2000; 129(4): 436-44.

Sapkota YD, Sunuwar M, Naito T, Akura J, Adhikari HK. The prevalence of blindness and cataract surgery in Rautahat District, Nepal. Ophthalmic Epidemiol. 2010; 17(2): 82-9.

Sherchan A, Kandel RP, Sharma MK, Sapkota YD, Aghajanian J, Bassett KL. Blindness prevalence and cataract surgical coverage in Lumbini Zone and Chetwan District of Nepal. Br J Ophthalmol. 2010; 94(2): 161-6.

Sherpa D, Panta CR, Joshi N. Ocular morbidity among primary school children of Dhulikhel, Nepal. Nepal J Ophthalmol. 2011; 3(2): 172-6.

Thapa R, Bajimaya S, Paudyal G, Khanal S, Tan S, Thapa SS, van Rens GHMB. Prevalence and causes of low vision and blindness in an elderly population in Nepal: the Bhaktapur retina study. BMC Ophthalmol. 2018; 18(1): 42.

Thapa SS, Berg RVD, Khanal S, Paudyal I, Pandey P, Maharjan N, Twyana SN, Paudyal G, Gurung R, Ruit S, Rens
| Country    | Subnational | Presenting | Type of Vision Impairment | Year 1 | Year 2 |
|------------|-------------|------------|---------------------------|--------|--------|
| Nepal      | Subnational | No         | MSVI, blind                | 2009   | 2011   |
|            |             |            |                           | Thapa SS, Paudyal I, Khanal S, Twyana SN, Paudyal G, Gurung R, Ruit S, van Rens GHMB. A population-based survey of the prevalence and types of glaucoma in Nepal: the Bhaktapur Glaucoma Study. Ophthalmology. 2012; 119(4): 759-64. |
| Nepal      | Subnational | No         | MSVI, blind                | 2012   | 2012   |
|            |             | Both       |                           | Thapa SS, Poudyal I, Khanal S, van Rens G. Results of the Bhaktapur Glaucoma Study, Nepal. Nepal J Ophthalmol. 2013; 5(1): 81-93. |
| Netherlands| Subnational | No         | blind, moderate, severe    | 1997   | 1999   |
|            |             |            |                           | Gussekloo J, de Craen AJM, Oduber C, van Boxtel MPJ, Westendorp RGJ. Sensory impairment and cognitive functioning in oldest-old subjects: the Leiden 85+ Study. Am J Geriatr Psychiatry. 2005; 13(9): 781-6. |
| Netherlands| Subnational | No         | blind, mild, moderate, severe | 1990 | 1993 |
|            |             | Both       |                           | Klaver CC, Wolfs RC, Vingerling JR, Hofman A, de Jong PT. Age-specific prevalence and causes of blindness and visual impairment in an older population: the Rotterdam Study. Arch Ophthalmol. 1998; 116(5): 653-8. |
| Nigeria    | Subnational | No         | MSVI, blind, moderate, severe | 1995 | 1995 |
|            |             |            |                           | Abdu L. Prevalence and causes of blindness and low vision in Dambatta local government area, Kano State, Nigeria. Niger J Med. 2002; 11(3): 108-12. |
| Nigeria    | Subnational | No         | Best-corrected, blind, moderate, severe | 2010 | 2012 |
|            |             |            |                           | Abegunde KA, Owoaje ET. Health problems and associated risk factors in selected urban and rural elderly population groups of South-West Nigeria. Ann Afr Med. 2013; 12(2): 90-7. |
| Country | Level | Presenting | Presenting | Year   | Year   | Study Title and Authors |
|---------|-------|------------|------------|--------|--------|-------------------------|
| Nigeria | Subnational | No | Presenting | 2002 | 2002 | Ajaiyeoba AI, Isawumi MA, Adeoye AO, Oluleye TS. Pattern of eye diseases and visual impairment among students in southwestern Nigeria. Int J Ophthalmol. 2007; 27(5): 287-92. |
| Nigeria | Subnational | No | Best-corrected | 2007 | 2007 | Ejimadu CS, Adio AO. The burden of low vision in farming communities in South-South Nigeria. Niger J Med. 2012; 21(2): 218-22. |
| Nigeria | Subnational | No | Both | 1992 | 1992 | Ezepue UF. Magnitude and causes of blindness and low vision in Anambra State of Nigeria (results of 1992 point prevalence survey). Public Health. 1997; 111(5): 305-9. |
| Nigeria | Subnational | Yes | Both | 2016 | 2016 | International Centre for Eye Health (ICEH). Nigeria - Sokoto Rapid Assessment of Avoidable Blindness 2016. Grootebroek, Netherlands: RAAB Repository. |
| Nigeria | Subnational | Yes | Presenting | 2005 | 2005 | Kolawole OU, Ashaye AO, Mahmoud AO, Adeoti CO. Cataract blindness in Osun state, Nigeria: results of a survey. Middle East Afr J Ophthalmol. 2012; 19(4): 364-71. |
| Nigeria | Subnational | No | Presenting | 2006 | 2007 | Komolafe OO, Ashaye AO, Ajayi BGK, Bekibele CO. Visual impairment from age-related cataract among an indigenous African population. Eye (Lond). 2010; 24(1): 53-8. |
| Nigeria | Subnational | No | Presenting | 2005, 2006, 2007 | 2007 | Kyari F, Gudlavalleti MVS, Sivsubramaniam S, Gilbert CE, Abdull MM, Entekume G, Foster A. Prevalence of blindness and visual impairment in Nigeria: the National Blindness and Visual Impairment Study. Invest Ophthalmol Vis Sci. 2009; 50(5): 2033-9. |
| Nigeria | Subnational | Presenting | MSVI, blind, moderate, severe | 2005 | 2005 | Muhammad N, Mansur RM, Dantani AM, Elhassan E, Isiyaku S. Prevalence and causes of blindness and visual impairment in Sokoto State, Nigeria: baseline data for vision 2020: the Right to Sight Eye Care Programme. Middle East Afr J Ophthalmol. 2011; 18(2): 123-8. |
|---|---|---|---|---|---|---|
| Nigeria | Subnational | Yes | Presenting | MSVI, blind | 2010 | 2012 | Okoye O, Umeh RE, Ezepue FU. Prevalence of eye diseases among school children in a rural south-eastern Nigerian community. Rural Remote Health. 2013; 13(3): 2357. |
| Nigeria | Subnational | No | Presenting | blind, moderate, severe | 2004 | 2005, 2006 | Onakpoya OH, Adeoye AO, Akinsola FB, Adegbehingbe BO. Prevalence of blindness and visual impairment in Atakummosa West Local Government area of southwestern Nigeria. Tanzan Health Res Bull. 2007; 9(2): 126-31. |
| Nigeria | Subnational | Yes | Presenting | blind, moderate, severe | 1999 | 1999 | Rabiu MM. Cataract blindness and barriers to uptake of cataract surgery in a rural community of northern Nigeria. Br J Ophthalmol. 2001; 85(7): 776-80. |
| Oman | National | No | Presenting | blind, moderate, severe | 2005 | 2005 | Khandekar R, Mohammed AJ, Raisi AA. Prevalence and causes of blindness and low vision: before and five years after "VISION 2020" initiatives in Oman: a review. Ophthalmic Epidemiol. 2007; 14(1): 9-15. |
| Pakistan | Subnational | No | Presenting | MSVI, blind, moderate, severe | 1998 | 1998 | Ahmad K, Khan MD, Qureshi MB, Munami S, Shah RA, Rasheed H, Jamali B, Baluch A, Khan MA. Prevalence and causes of blindness and low vision in a rural setting in Pakistan. Ophthalmic Epidemiol. 2005; 12(1): 19-23. |
| Pakistan | Subnational | Yes | Presenting | blind, moderate, severe | 2000 | 2001 | Haider S, Hussain A, Limburg H. Cataract blindness in Chakwal |
| Country       | Region     | Presenting | MSVI, blind, moderate , severe | Presenting | Year1 | Year2 | Reference                                                                 |
|--------------|------------|------------|--------------------------------|------------|-------|-------|---------------------------------------------------------------------------|
| Pakistan     | Subnational| Yes        | MSVI, blind, moderate , severe | Presenting | 2000  | 2000  | International Centre for Eye Health (ICEH). Pakistan - Chakwal Rapid Assessment of Avoidable Blindness 2000. |
| Pakistan     | Subnational| Yes        | MSVI, blind, moderate , severe | Both       | 2013  | 2013  | Pakistan National Survey on Blindness and Low Vision 2002-2004. [Unpublished]. |
| Pakistan     | National   | No         | MSVI, blind, mild, moderate , severe | Presenting | 2001  | 2003  | Shaikh SP, Aziz TM. Pattern of eye diseases in children of 5-15 years at Bazzertaline Area (South Karachi) Pakistan. J Coll Physicians Surg Pak. 2005; 15(5): 291-4. |
| Pakistan     | Subnational| No         | MSVI, blind, moderate , severe | Presenting | 2003  | 2003  | Chiang F, Kuper H, Lindfield R, Keenan T, Seyam N, Magauran D, Khalilia N, Batta H, Abdeen Z, Sargent N. Rapid assessment of avoidable blindness in the Occupied Palestinian Territories. PLoS One. 2010; 5(7): e11854. |
| Palestine    | National   | Yes        | MSVI, blind, moderate , severe | Presenting | 2008  | 2008  | International Centre for Eye Health (ICEH). Palestine Rapid Assessment of Avoidable Blindness 2008. Grootebroek, Netherlands: RAAB Repository. |
| Palestine    | National   | Yes        | MSVI, blind, moderate , severe | Both       | 2008  | 2008  | International Centre for Eye Health (ICEH), Ophthalmology School, Specialized University of the Americas (Panama). Panama Rapid Assessment of Avoidable Blindness 2012-2014. Grootebroek, Netherlands: RAAB Repository. |
| Panama       | National   | Yes        | MSVI, blind, moderate , severe | Both       | 2012  | 2014  | International Centre for Eye Health (ICEH), Ophthalmology School, Specialized University of the Americas (Panama). Panama Rapid Assessment of Avoidable Blindness 2012-2014. Grootebroek, Netherlands: RAAB Repository. |
| Country         | Level       | Presenting | MSVI, blind, moderate, severe | Year Presenting | Year Comparing | Authors                                                                 | Reference                                                                                      |
|-----------------|-------------|------------|-------------------------------|----------------|----------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Papua New Guinea | Subnational | Yes        | Presenting                    | MSVI, blind, moderate, severe | 2004 | 2005 | Garap JN, Sheeladevi S, Shamanna BR, Nirmalan PK, Brian G, Williams C. Blindness and vision impairment in the elderly of Papua New Guinea. Clin Experiment Ophthalmol. 2006; 34(4): 335-41. | Duerksen R, Limburg H, Carron JE, Foster A. Cataract blindness in Paraguay – results of a national survey. Ophthalmic Epidemiol. 2003; 10(5): 349-57. |
| Paraguay        | National    | Yes        | Presenting                    | MSVI, blind, moderate, severe | 1999 | 1999 | Duerksen R, Limburg H, Lansingh VC, Silva JC. Review of blindness and visual impairment in Paraguay: changes between 1999 and 2011. Ophthalmic Epidemiol. 2013; 20(5.0): 301-7. | International Centre for Eye Health (ICEH). Paraguay Rapid Assessment of Avoidable Blindness 2011. |
| Paraguay        | National    | Yes        | Both                          | MSVI, blind, moderate, severe | 2011 | 2011 | International Centre for Eye Health (ICEH). Peru Rapid Assessment of Avoidable Blindness 2011-2012. Grootebroek, Netherlands: RAAB Repository. | International Centre for Eye Health (ICEH). Peru Rapid Assessment of Avoidable Blindness 2011-2012. Grootebroek, Netherlands: RAAB Repository. |
| Peru            | National    | Yes        | Both                          | MSVI, blind, moderate, severe | 2011 | 2012 | Pongo Aguila L, Carrión R, Luna W, Silva JC, Limburg H. [Cataract blindness in people 50 years old or older in a semirural area of northern Peru]. Rev Panam Salud Publica. 2005; 17(5-6): 387-93. | Pongo Aguila L, Carrión R, Luna W, Silva JC, Limburg H. [Cataract blindness in people 50 years old or older in a semirural area of northern Peru]. Rev Panam Salud Publica. 2005; 17(5-6): 387-93. |
| Peru            | Subnational | Yes        | Both                          | MSVI, blind, moderate, severe | 2002 | 2003 | Eusebio C, Kuper H, Polack S, Enconado J, Tongson N, Dionio D, Dumdum A, Limburg H, Foster A. Rapid assessment of avoidable blindness in Negros Island and Antique District, Philippines. Br J Ophthalmol. 2007; 91(12): 1588-92. | Eusebio C, Kuper H, Polack S, Enconado J, Tongson N, Dionio D, Dumdum A, Limburg H, Foster A. Rapid assessment of avoidable blindness in Negros Island and Antique District, Philippines. Br J Ophthalmol. 2007; 91(12): 1588-92. |
| Philippines     | Subnational | Yes        | Presenting                    | MSVI, blind, moderate, severe | 2005 | 2006 | International Centre for Eye Health (ICEH). Philippines - Antique | International Centre for Eye Health (ICEH). Philippines - Antique |
| Country                  | Level        | Implementing | Avoidable Blindness | Blind,               | Year 1 | Year 2 | Source                                                                 |
|-------------------------|--------------|--------------|---------------------|---------------------|--------|--------|-------------------------------------------------------------------------|
| Philippines             | Subnational  | Yes          | Both                | MSVI, blind,        | 2005   | 2005   | International Centre for Eye Health (ICEH). Philippines - Negros Island Rapid Assessment of Avoidable Blindness 2005. Grootebroek, Netherlands: RAAB Repository. |
| Qatar                   | National     | Yes          | Both                | blind, moderate     | 2009   | 2009   | Al Gamra H, Al Mansouri F, Khandekar R, Elshafei M, Al Qahtani O, Singh R, Hashim SP, Mujahed A, Makled A, Pai A. Prevalence and causes of blindness, low vision and status of cataract in 50 years and older citizen of Qatar – a community based survey. Ophthalmic Epidemiol. 2010; 17(5): 292-300. |
| Republic of Moldova     | National     | Yes          | Both                | MSVI, blind,        | 2012   | 2012   | Zatic T1, Bendelic E2, Paduca A2, Rabiu M3, Corduneanu A2, Garaba A, Novac V, Curca C, Sorbala I, Chiaburu A, Verega F, Andronic V, Guzun I, Căpățină O, Zamă-Mardari I. Rapid assessment of avoidable blindness and diabetic retinopathy in Republic of Moldova. Br J Ophthalmol. 2015; 99(6): 832-6. |
| Russian Federation      | Subnational  | Yes          | Both                | MSVI, blind,        | 2008   | 2009   | International Centre for Eye Health (ICEH). Russia - Samara District Rapid Assessment for Avoidable Blindness Survey 2008. |
| Russian Federation      | Subnational  | No           | Presenting          | blind, moderate,    | 2015   | 2017   | Ufa Eye Research Institute. Russia - Ural Eye and Medical Study 2015-2017. |
| Rwanda                  | National     | Yes          | Both                | MSVI, blind,        | 2015   | 2015   | International Centre for Eye Health (ICEH). Rwanda Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, |
| Country         | Level     | NP   | Category | MSVI, Blind, Moderate, Severe | Start Year | End Year | Author                                                                                           |
|----------------|-----------|------|----------|-----------------------------|------------|----------|-------------------------------------------------------------------------------------------------|
| Netherlands     | Subnational | Yes  | Both     | MSVI, blind, moderate, severe | 2006       | 2006     | Mathenge W NJ, Limburg H, Kuper H. Rapid assessment of avoidable blindness in Western Rwanda: blindness in a postconflict setting. PLoS Med. 2007; 4(7). |
| Rwanda          | Subnational | Yes  | Both     | MSVI, blind, moderate, severe | 2011       | 2011     | Al Ghamdi AH, Rabiu M, Hajar S, Yorston D, Kuper H, Polack S. Rapid assessment of avoidable blindness and diabetic retinopathy in Taif, Saudi Arabia. Br J Ophthalmol. 2012; 96(9): 1168-72. |
| Senegal         | Subnational | Yes  | Both     | MSVI, blind, moderate, severe | 1984, 1989 | 1984, 1990 | Badr IA, Saif AM, Al-Rajhi AA. Changing patterns of visual loss in the Eastern Province, Kingdom of Saudi Arabia. Saudi J Ophthalmol. 2004; 18: S156-S164. |
| Saudi Arabia    | Subnational | Yes  | Presenting | Blind, Moderate, severe | 1984, 1989 | 1984, 1990 | International Centre for Eye Health (ICEH). Senegal - Fatick Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository. |
| Singapore       | Subnational | No   | Presenting | Blind, Moderate, severe | 2007       | 2008     | Dirani M, Zhou B, Hornbeak D, Chang BC, Gazzard G, Chia A, Ling Y, Selvaraj P, Young TL, Varma R, Wong TY, Saw SM. Prevalence and causes of decreased visual acuity in Singaporean Chinese preschoolers. Br J Ophthalmol. 2010; 94(12): 1561-5. |
| Country       | Subnational | Presenting | Vision Function | Year 1 | Year 2 | Reference                                                                 |
|--------------|-------------|------------|-----------------|--------|--------|----------------------------------------------------------------------------|
| Singapore    | Subnational | No         | Both            | 1997   | 1998   | Saw S-M, Foster PJ, Gazzard G, Seah S. Causes of blindness, low vision, and questionnaire-assessed poor visual function in Singaporean Chinese adults: The Tanjong Pagar Survey. Ophthalmology. 2004; 111(6): 1161-8. |
| South Africa | Subnational | Yes        | Both            | 2010   | 2010   | Cockburn N, Steven D, Lecuona K, Joubert F, Rogers G, Cook C, Polack S. Prevalence, Causes and Socio-Economic Determinants of Vision Loss in Cape Town, South Africa. Atashili J, editor. PLoS One. 2012; 7(2): e30718. |
| South Africa | Subnational | No         | Presenting      | 1990   | 1991   | Govender P, Ramson P, Visser L, Naidoo KS. Rapid assessment of avoidable blindness in the northern eThekwini district of KwaZulu-Natal Province, South Africa. Afr Vis Eye Health. 2015; 74(1): 1-7. |
| South Africa | Subnational | Yes        | Presenting      | 2009   | 2009   | International Centre for Eye Health (ICEH). South Africa Rapid Assessment of Avoidable Blindness Survey 2010. Grootenbroek, Netherlands: RAAB Repository, 2014. |
| South Sudan  | Subnational | No         | Presenting      | 2003   | 2005   | Ngondi J, Ole-Sempele F, Onsarigo A, Matende I, Baba S, Reacher M, Matthews F, Brayne C, Emerson PM. Prevalence |
and causes of blindness and low vision in southern Sudan. PLoS Med. 2006; 3(12): e477.

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Garín N, Olaya B, Lara E, Moneta MV, Miret M, Ayuso-Mateos JL, Haro JM. Visual impairment and multimorbidity in a representative sample of the Spanish population. *BMC Public Health.* 2014; 14: 815.

Edussuriya K, Sennanayake S, Senaratne T, Marshall D, Sullivan T, Selva D, Casson RJ. The prevalence and causes of visual impairment in central Sri Lanka: the Kandy Eye study. *Ophthalmology.* 2009; 116(1): 52-6.

International Centre for Eye Health (ICEH). Sudan - North Kordofan Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Sudan - Northern Rapid Assessment of Avoidable Blindness 2009-2010. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Sudan - Sennar Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Sudan - White Nile Rapid
| Country                        | Level   | Presenting | Group            | Start Year | End Year |
|-------------------------------|---------|------------|------------------|------------|----------|
| Suriname                      | National| Yes        | Presenting       | 2013       | 2014     |
|                               |         |            | blind, moderate, severe |           |          |
|                               |         |            | moderate, severe   |            |          |
|                               |         |            |                  |            |          |
| Sweden                        | Subnational| No        | Presenting       | 1982       | 1993     |
|                               |         |            | blind, moderate, severe |           |          |
|                               |         |            |                  |            |          |
| Taiwan (Province of China)    | Subnational| No        | Both             | 2009       | 2011     |
|                               |         |            | MSVI, blind, moderate, severe |           |          |
|                               |         |            |                  |            |          |
| Taiwan (Province of China)    | Subnational| No        | Both             | 1999       | 2000     |
|                               |         |            | MSVI, blind, mild      |            |          |
|                               |         |            |                  |            |          |
| Taiwan (Province of China)    | Subnational| No        | Best-corrected     | 1993       | 1995     |
|                               |         |            | MSVI, blind, moderate, severe |           |          |
|                               |         |            |                  |            |          |
| Taiwan (Province of China)    | National| No        | Best-corrected     | 2002       | 2002     |
|                               |         |            | blind, moderate, severe |           |          |

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Minderhoud J, Pawiroredjo JC, Themen HCI, Bueno de Mesquita-Voigt A-MT, Siban MR, Forster-Pawiroredjo CM, Limburg H, van Nispen RMA, Mans DRA, Moll AC. Blindness and Visual Impairment in the Republic of Suriname. *Ophthalmology*. 2015; 122(10): 2147–9.

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Hsu WM, Cheng CY, Liu JH, Tsai SY, Chou P. Prevalence and causes of visual impairment in an elderly Chinese population in Taiwan: the Shihpai Eye Study. *Ophthalmology*. 2004; 111(1): 62-9.

Liu JH, Cheng CY, Chen SJ, Lee FL. Visual impairment in a Taiwanese population: prevalence, causes, and socioeconomic factors. *Ophthalmic Epidemiol*. 2001; 8(5): 339-50.

Tsai C-Y, Woung L-C, Chou P, Yang C-S, Sheu M-M, Wu J-R, Chuang T-L, Tung T-H. The current status of visual disability in the elderly population of Taiwan.
| Country       | Level        | Presenting | Type | Year1 | Year2 | Reference                                                                 |
|--------------|--------------|------------|------|-------|-------|---------------------------------------------------------------------------|
| Thailand     | National     | Yes        | Presenting | 2012  | 2013  | Isipradit S, Sirimaharaj M, Charukammaoetkanok P, Thonginmetra O, Wongsawad W, Sathornsumetee B, Somboonthanakij S, Soomsawadi P, Jiawatanarat U, Taweebanjongsin W, Arayangkoon E, Arame P, Kobkoonthon C, Pangputhipong P. The first rapid assessment of avoidable blindness (RAAB) in Thailand. PLoS One. 2014; 9(12): e114245. |
| Thailand     | Subnational  | No         | Both  | 1997  | 1998  | Singalavanija A, Methheetrairut A, Ruangvaravate N, Tuchinda R, Wanumkarng N. Ocular diseases and blindness in elderly Thais. J Med Assoc Thai. 2001; 84(10): 1383-8. |
| Thailand     | National     | No         | Presenting | 1994  | 1995  | Thailand National Survey of Blindness and Low Vision 1994. [Unpublished]. |
| Timor-Leste  | National     | Yes        | Both  | 2016  | 2016  | International Centre for Eye Health (ICEH). Timor Leste Rapid Assessment of Avoidable Blindness 2016. Grootebroek, Netherlands: RAAB Repository. |
| Timor-Leste  | National     | Yes        | Presenting | 2009  | 2010  | Ramke J, Brian G, Naduvilath T, Lee L, Qoqonokana MQ. Prevalence and Causes of Blindness and Low Vision Revisited after 5 years of Eye Care in Timor- Leste. Ophthalmic Epidemiol. 2012; 19(2): 52-7. |
| Tonga        | National     | No         | Both  | 1991  | 1991  | Newland HS, Woodward AJ, Taumoepeau LA, Karunaratne NS, Duguid IG. Epidemiology of blindness and visual impairment in the kingdom of Tonga. Br J Ophthalmol. 1994; 78(5): 344-8. |
| Country         | Type       | Presenting | Blind, Mild, Moderate, Near Vision Loss, Severe | Year Min | Year Max |
|-----------------|------------|------------|-----------------------------------------------|----------|----------|
| Trinidad and Tobago | National   | No         | Presenting                                    | 2013     | 2014     |
| Tunisia         | National   | No         | Presenting                                    | 1993     | 1993     |
| Turkey          | Subnational| No         | Presenting                                    | 1989     | 1989     |
| Turkmenistan    | National   | Yes        | Presenting                                    | 2000     | 2001     |
| Uganda          | Subnational| Yes        | Both                                          | 2013     | 2013     |
| Uganda          | Subnational| Yes        | Both                                          | 2014     | 2015     |

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Negrel AD, Minassian DC, Sayek F. Blindness and low vision in southeast Turkey. Ophthalmic Epidemiol. 1996; 3(3): 127-34.

Amansakhatov S, Volokhovskaya ZP, Afanasyeva AN, Limburg H. Cataract blindness in Turkmenistan: results of a national survey. Br J Ophthalmol. 2002; 86(11): 1207-10.

International Centre for Eye Health (ICEH). Uganda - Hoima Rapid Assessment of Avoidable Blindness 2013. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH). Uganda - Karamoja Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository.[Forthcoming].
| Country     | Subnational | Presenting | Presenting Visual Impairment | Year | Year | Reference                                                                 |
|-------------|-------------|------------|------------------------------|------|------|----------------------------------------------------------------------------|
| Uganda      | Subnational | Yes        | Both                         | MSVI, blind, moderate, severe | 2012 | 2012 | International Centre for Eye Health (ICEH), Uganda - Mubende Rapid Assessment of Avoidable Blindness 2012. Grootebroek, Netherlands: RAAB Repository. |
| Uganda      | Subnational | Yes        | Both                         | MSVI, blind, moderate, severe | 2011 | 2011 | International Centre for Eye Health (ICEH), Uganda - Western Ntungamo Rapid Assessment of Avoidable Blindness Survey 2011. Grootebroek, Netherlands: RAAB Repository. [Forthcoming]. |
| Uganda      | Subnational | No         | Presenting                   | MSVI, blind, moderate, severe | 1999 | 2000, 2001 | Mbulaiteye SM, Reeves BC, Karabalinde A, Ruberantwari A, Mulwanyi F, Whitworth JAG, Johnson GJ. Evaluation of E-optotypes as a screening test and the prevalence and causes of visual loss in a rural population in SW Uganda. Ophthalmic Epidemiol. 2002; 9(4): 251-62. |
| United Kingdom | Subnational | No        | Best-corrected               | blind, moderate, severe | 1982 | 1984 | Gibson JM, Lavery JR, Rosenthal AR. Blindness and partial sight in an elderly population. Br J Ophthalmol. 1986; 70(9): 700-5. |
| United Kingdom | Subnational | No        | Presenting                   | blind, moderate, severe | 2004 | 2011 | Khawaja AP, Chan MPY, Hayat S, Broadway DC, Luben R, Garway-Heath DF, Sherwin JC, Yip JLY, Dalzell N, Wareham NJ, Khaw K-T, Foster PJ. The EPIC-Norfolk Eye Study: rationale, methods and a cross-sectional analysis of visual impairment in a population-based cohort. BMJ Open. 2013; 3(3). |
| United Kingdom | Subnational | No        | Both                         | moderate, severe | 1994 | 1995 | Van der Pols JC, Bates CJ, Mcgraw PV, Thompson JR, Reacher M, Prentice A, Finch S. Visual acuity measurements in a national sample of British elderly people. Br J Ophthalmol. 2000; 84(2): 165-70. |
| Country                        | Subnational | Blind | Severe | Year 1 | Year 2 | Source                                                                                      |
|-------------------------------|-------------|-------|--------|--------|--------|--------------------------------------------------------------------------------------------|
| United Kingdom                | Subnational | No    | Presenting | 1989 | 1990, | Wormald RP, Wright LA, Courtney P., Beaumont B, Haines AP. Visual problems in the elderly population and implications for services. BMJ. 1992; 304(6836): 1226-9. |
| United Republic of Tanzania   | Subnational | Yes   | Both   | MSVI, blind, moderate, severe | 2007 | 2007 | Habiyakire C, Kabona G, Courtright P, Lewallen S. Rapid assessment of avoidable blindness and cataract surgical services in Kilimanjaro region, Tanzania. Ophthalmic Epidemiol. 2010; 17(2): 90-4. |
| United Republic of Tanzania   | Subnational | Yes   | Both   | MSVI, blind, moderate, severe | 2011 | 2011 | International Centre for Eye Health (ICEH). Tanzania - Kilimanjaro Rapid Assessment of Avoidable Blindness Survey 2011. Grootebroek, Netherlands: RAAB Repository, 2010. [Unpublished]. |
| United Republic of Tanzania   | Subnational | Yes   | Both   | MSVI, blind, moderate, severe | 2007 | 2007 | International Centre for Eye Health (ICEH). Tanzania - Kilimanjaro Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| United Republic of Tanzania   | Subnational | Yes   | Both   | MSVI, blind, moderate, severe | 2017 | 2017 | International Centre for Eye Health (ICEH). Tanzania - Singida Rapid Assessment of Avoidable Blindness 2017. Grootebroek, Netherlands: RAAB Repository. |
| United Republic of Tanzania   | Subnational | Yes   | Both   | MSVI, blind, moderate, severe | 2007 | 2007 | International Centre for Eye Health (ICEH). Tanzania - Zanzibar Rapid Assessment of Avoidable Blindness 2007. |
| United Republic of Tanzania   | Subnational | No    | Both   | Blind, moderate, severe | 1986 | 1986 | Rapoza PA, West SK, Katala SJ, Taylor HR. Prevalence and causes of vision loss in central Tanzania. Int J Ophthalmol. 1991; 15(2): 123-9. |
| United States of America      | Subnational | No    | Best-corrected | blind, moderate, severe | 1991 | 1991 | Boyle CA, Yeargin-Allsopp M, Doernberg NS, Holmgreen P, Murphy CC, Schendel DE, Centers for Disease |
| Country                                    | Status          | Presenting | Description                                      | Year 1 | Year 2 |
|-------------------------------------------|-----------------|------------|--------------------------------------------------|--------|--------|
| United States of America                  | Subnational     | No         | Presenting blind, moderate, severe                | 1979   | 1988   |
| Choi TB, Lee DA, Oelrich FO, Amponash D, Bateman JB, Christensen RE. A retrospective study of eye disease among first grade children in Los Angeles. J Am Optom Assoc. 1995; 66(8): 484-8. |
| Uruguay                                   | National        | Yes        | Both MSVI, blind, moderate, severe                | 2011   | 2011   |
| International Centre for Eye Health (ICEH). Uruguay Rapid Assessment of Avoidable Blindness 2011. |
| Vanuatu                                   | National        | No         | Both blind, moderate, severe                      | 1989   | 1989   |
| Newland HS, Harris MF, Walland M, McKnight D, Galbraith JE, Iwasaki W, Momomura K. Epidemiology of blindness and visual impairment in Vanuatu. Bull World Health Organ. 1992; 70(3): 369-72. |
| Venezuela (Bolivarian Republic of)        | National        | Yes        | Both MSVI, blind, moderate, severe                | 2005   | 2005   |
| International Centre for Eye Health (ICEH). Venezuela Rapid Assessment of Avoidable Blindness Survey 2004. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam                                  | Subnational     | Yes        | Both MSVI, blind, moderate, severe                | 2007   | 2007   |
| International Centre for Eye Health (ICEH). Vietnam - Ba Ria-Vung Tau Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam                                  | Subnational     | Yes        | Both MSVI, blind, moderate, severe                | 2007   | 2007   |
| International Centre for Eye Health (ICEH). Vietnam - Bac Ninh Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Country | Region | Subnational | Both | Cause | Year 1 | Year 2 |
|---------|--------|-------------|------|-------|--------|--------|
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2001 | 2001 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2002 | 2002 |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 |

International Centre for Eye Health (ICEH), Vietnam - Bac Ninh Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH), Vietnam - Binh Dinh Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH), Vietnam - Binh Dinh Rapid Assessment of Cataract Surgical Services 2001. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH), Vietnam - Binh Phuoc Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH), Vietnam - Binh Phuoc Rapid Assessment of Cataract Surgical Services 2002. Grootebroek, Netherlands: RAAB Repository.

International Centre for Eye Health (ICEH), Vietnam - Ca Mau Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository.
| Country | Scope | Yes/No | Both | Start Year | End Year | Author(s) |
|---------|-------|--------|------|------------|----------|-----------|
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 | International Centre for Eye Health (ICEH), Vietnam - Can Tho Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 | International Centre for Eye Health (ICEH), Vietnam - Dien Bien Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 | International Centre for Eye Health (ICEH), Vietnam - Gia Lai Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 | International Centre for Eye Health (ICEH), Vietnam - Gia Lai Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2002 | 2002 | International Centre for Eye Health (ICEH), Vietnam - Ha Tay Rapid Assessment of Cataract Surgical Services 2002. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | 2007 | International Centre for Eye Health (ICEH), Vietnam - Ha Tay Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2000 | 2000 | International Centre for Eye Health (ICEH), Vietnam - Ha Tay Rapid Assessment of Cataract Surgical Services 2000. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, | 2007 | 2007 | International Centre for Eye Health (ICEH), Vietnam - Hai Phong |
| Country   | Subnational | Presenting | Excluded   | Start Year | End Year | Organisation and Study Title                                                                 |
|-----------|-------------|------------|------------|------------|----------|------------------------------------------------------------------------------------------------|
| Vietnam  | Yes         | Both       | Moderate, Severe | 2000       | 2000     | Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository.            |
| Vietnam  | Yes         | Both       | MSVI, Blind, Moderate, Severe | 2007       | 2007     | International Centre for Eye Health (ICEH). Vietnam - Hai Phong Rapid Assessment of Cataract Surgical Services 2000. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam  | Yes         | Presenting | MSVI, Blind, Moderate, Severe | 2007       | 2007     | International Centre for Eye Health (ICEH). Vietnam - Ho Chi Minh Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam  | Yes         | Both       | MSVI, Blind, Mild, Moderate, Severe | 2015       | 2015     | International Centre for Eye Health (ICEH). Vietnam - Lam Dong Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam  | Yes         | Both       | MSVI, Blind, Moderate, Severe | 2007       | 2007     | International Centre for Eye Health (ICEH). Vietnam - Lao Cai Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam  | Yes         | Both       | MSVI, Blind, Mild, Moderate, Severe | 2015       | 2015     | International Centre for Eye Health (ICEH). Vietnam - Nam Dinh Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam  | Yes         | Both       | MSVI, Blind, Moderate, Severe | 2007       | 2007     | International Centre for Eye Health (ICEH). Vietnam - Nghe An Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2012 | International Centre for Eye Health (ICEH). Vietnam - Nghe An Rapid Assessment of Avoidable Blindness 2012. Grootebroek, Netherlands: RAAB Repository. |
|---------|-------------|-----|------|--------------------------------|------|-----------------------------------------------------------------------------------|
| Vietnam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2000 | International Centre for Eye Health (ICEH). Vietnam - Ninh Thuan Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2007 | International Centre for Eye Health (ICEH). Vietnam - Phu Tho Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | International Centre for Eye Health (ICEH). Vietnam - Phu Tho Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2000 | International Centre for Eye Health (ICEH). Vietnam - Phu Tho Rapid Assessment of Cataract Surgical Services 2000. Grootebroek, Netherlands: RAAB Repository. |
| Vietnam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2012 | International Centre for Eye Health (ICEH). Vietnam - Quang Nam Rapid Assessment of Avoidable Blindness 2012. Grootebroek, |
| Country | Region | Subnational | Yes/No | Both | Years | Survey Description |
|---------|--------|-------------|--------|------|-------|--------------------|
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015-2015 | International Centre for Eye Health (ICEH), Vietnam - Quang Ngai Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015-2015 | International Centre for Eye Health (ICEH), Vietnam - Quang Tri Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2010-2010 | International Centre for Eye Health (ICEH), Vietnam - Son La Rapid Assessment of Avoidable Blindness 2010. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2007-2007 | International Centre for Eye Health (ICEH), Vietnam - Thai Nguyen Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2011-2011 | International Centre for Eye Health (ICEH), Vietnam - Thanh Hoa Rapid Assessment of Avoidable Blindness 2011. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2007-2007 | International Centre for Eye Health (ICEH), Vietnam - Tien Giang Rapid Assessment of Avoidable Blindness 2007. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015-2015 | International Centre for Eye Health (ICEH), Vietnam - Tien Giang Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, |
| Country | Subnational | Yes/No | Both/Presenting | Eye Disorders | Year 1 | Year 2 | Study Title |
|---------|-------------|--------|-----------------|--------------|--------|--------|-------------|
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2001 | 2001 | International Centre for Eye Health (ICEH). Vietnam - Tien Giang Rapid Assessment of Cataract Surgical Services 2000. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, mild, moderate, severe | 2015 | 2015 | International Centre for Eye Health (ICEH). Vietnam - Tuyen Quang Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2015 | 2015 | International Centre for Eye Health (ICEH). Vietnam - Vung Tau Rapid Assessment of Avoidable Blindness Survey 2015. Grootebroek, Netherlands: RAAB Repository. |
| Viet Nam | Subnational | No | Both | blind, moderate, severe | 2007, 2011 | 2008, 2011 | Paudel P, Ramson P, Naduvilath T, Wilson D, Phuong HT, Ho SM, Giap NV. Prevalence of vision impairment and refractive error in school children in Ba Ria - Vung Tau province, Vietnam. Clin Experiment Ophthalmol. 2014; 42(3.0): 217-26. |
| Yemen | Subnational | Yes | Both | MSVI, blind, moderate, severe | 2009 | 2009 | Al-Khatib TK, Ahmed AA, Hameed AS. Rapid assessment of avoidable blindness in amran and lahj governorates of Yemen. Sudan J Ophthalmol. 2017; 5(1): 9–16. |
| Yemen | Subnational | Yes | Presenting | MSVI, blind, moderate, severe | 2009 | 2009 | International Centre for Eye Health (ICEH). Yemen - Amran Rapid Assessment of Avoidable Blindness 2009. |
| Zambia | Subnational | Yes | Presenting | MSVI, blind, moderate, severe | 2010 | 2010 | Lindfield R, Griffiths U, Bozzani F, Mumba M, Munsanje J. A Rapid Assessment of Avoidable Blindness in Southern Zambia. PLoS One. 2012; 7(6): e38483. |
| Country     | Coverage | Rapid | Presenting or best-corrected | Core visual acuity level(s) | Year study started | Year study ended | Reference                                                                 |
|-------------|----------|-------|------------------------------|-----------------------------|--------------------|-----------------|---------------------------------------------------------------------------|
| Zimbabwe    | Subnational | Yes   | Both                         | MSVI, blind, moderate, severe | 2014               | 2014            | International Centre for Eye Health (ICEH). Zimbabwe - Manicaland Rapid Assessment of Avoidable Blindness Survey 2016. Grootebroek, Netherlands: RAAB Repository. |

Table 3. Characteristics of data sources used in the analysis that reported vision impairment from uncorrected presbyopia

Australia Subnational No Presenting near vision loss 1999 2000 Taylor HR, Livingston PM, Stanislavsky YL, McCarty CA. Visual impairment in Australia: distance visual acuity, near vision, and visual field findings of the Melbourne Visual Impairment Project. Am J Ophthalmol. 1997; 123(3): 328-37.

Brazil Subnational No Presenting near vision loss 1999 2000 Duarte WR, Barros AJD, Dias-da-Costa JS, Cattan JM. [Prevalence of near vision deficiency and related factors: a population-based study]. Cad Saude Publica. 2003; 19(2): 551-9.

China Subnational No Both MSVI, blind, moderate, near vision loss, severe 2009 2009 Cheng F, Shan L, Song W, Fan P, Yuan H. Distance- and near-visual impairment in rural Chinese adults in Kailu, Inner Mongolia. Acta Ophthalmol.
| Country                  | Type      | Presenting | Near Vision Loss Year | Reference |
|--------------------------|-----------|------------|------------------------|-----------|
| China, India, Nepal, Niger, South Africa, United States of America | Subnational | No         | 2007, 2010             | He M, Abdou A, Naidoo KS, Sapkota YD, Thulasiraj RD, Varma R, Zhao J, Ellwein LB. Prevalence and correction of near vision impairment at seven sites in China, India, Nepal, Niger, South Africa, and the United States. Am J Ophthalmol. 2012; 154(1): 107-116.e1. |
| Eritrea                  | Subnational | Yes        | 2010                   | Fai Chan V, Mebrahtu G, Ramson P, Wepo M, Naidoo KS. Prevalence of refractive error and spectacle coverage in Zoba Ma'ekel Eritrea: a rapid assessment of refractive error. Ophthalmic Epidemiol. 2013; 20(3): 131-7. |
| Ghana                    | National  | No         | 2007                   | Ghana Health Service, Ministry of Health (Ghana), University of Ghana, World Health Organization (WHO). Ghana WHO Study on Global AGEing |
| Country | Level | Presenting | Near Vision Loss | Year1 | Year2 |
|---------|-------|------------|------------------|-------|-------|
| India   | National | No      | Presenting      | 2007  | 2007  |
|         |         |          |                  |       |       |
|         | Subnational | Yes    | Presenting      | 2011  | 2013  |
|         |         |          |                  |       |       |
| Kenya   | Subnational | No     | Presenting      | 2007  | 2008  |
|         |         |          |                  |       |       |
| Kenya   | Subnational | No     | Presenting      | 2011  | 2011  |
|         |         |          |                  |       |       |

International Institute for Population Sciences (India), World Health Organization (WHO). India WHO Study on Global Ageing and Adult Health 2007-2008. Geneva, Switzerland: World Health Organization (WHO), 2007.

Marmamula S, Khanna RC, Narsaiah S, Shekhar K, Rao GN. Prevalence of spectacles use in Andhra Pradesh, India: rapid assessment of visual impairment project. Clin Exp Ophthalmol. 2014; 42(3): 227-34.

Bastawrous A, Mathenge W, Foster A, Kuper H. Prevalence and predictors of refractive error and spectacle coverage in Nakuru, Kenya: a cross-sectional, population-based study. Int Ophthalmol. 2013; 33(5): 541-8.

Kimani K, Lindfield R, Senyonjo L, Mwaniki A, Schmidt E. Prevalence and causes of ocular morbidity in Mbeere District, Kenya. Results of a population-based survey. PLoS One. 2013; 8(8): e70009.
| Country          | Subnational | Presenting | Near Vision Loss | Year 1 | Year 2 | Reference                                                                 |
|------------------|-------------|------------|------------------|--------|--------|---------------------------------------------------------------------------|
| Mexico           | National    | No         | Presenting       | 2009   | 2010   | National Institute of Public Health (Mexico), World Health Organization (WHO). Mexico WHO Study on Global AGEing and Adult Health 2009-2010. Geneva, Switzerland: World Health Organization (WHO), 2011. |
| Nigeria          | Subnational | Yes        | Presenting       | 2012   | 2012   | Senyonjo L, Lindfield R, Mahmoud A, Kimani K, Sanda S, Schmidt E. Ocular morbidity and health seeking behaviour in Kwara state, Nigeria: implications for delivery of eye care services. PLoS One. 2014; 9(8): e104128. |
| Nigeria          | Subnational | No         | Presenting       | 2010   | 2010   | Uche JN, Ezegwui IR, Uche E, Onwasigwe EN, Umeh RE, Onwasigwe CN. Prevalence of presbyopia in a rural African community. Rural Remote Health. 2014; 14(3.0): 2731. |
| Pakistan         | Subnational | Yes        | Presenting       | 2002   | 2004   | Pakistan Rapid Assessment of Refractive Error Survey 2002-2004. |
| Russian Federation | National    | No         | Presenting       | 2007   | 2010   | Russian Academy of Medical Science, World Health Organization (WHO). Russia WHO Study on Global AGEing and Adult Health 2007-2010. |
| Russian Federation | Subnational | No         | Presenting       | 2015   | 2017   | Ufa Eye Research Institute. Russia - |
| Country                                      | Level           | Presenting | Condition                                      | Years       | Reference                                                                 |
|----------------------------------------------|-----------------|------------|-----------------------------------------------|-------------|---------------------------------------------------------------------------|
| South Africa                                 | National        | No         | Presenting near vision loss, severe           | 2007-2008   | Ural Eye and Medical Study 2015-2017.                                      |
| Trinidad and Tobago                          | National        | No         | Presenting blind, mild, moderate, near vision loss, severe | 2013-2014   | Braithwaite T, Bartholomew D, Deomansingh F, Fraser A, Maharaj V, Bridgemohan P, Sharma SC, Singh DP, Ramsewak SS, Bourne RRA. The prevalence and causes of blindness and vision impairment in Trinidad and Tobago. Invest Ophthalmol Vis Sci. 2015; 56(7). |
| United Republic of Tanzania                  | Subnational     | No         | Presenting near vision loss                   | 2004-2004   | Burke AG, Patel I, Munoz B, Kayongoya A, McHiwa W, Schwarzwalder AW, West SK. Population-based study of presbyopia in rural Tanzania. Ophthalmology. 2006; 113(5): 723-7. |
| United States of America                     | National        | No         | Presenting blind, moderate, near vision loss  | 1999-2000   | National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). United States National Health and |
| United States of America | National | No | Presenting | 2001 | 2002 | Nutrition Examination Survey 1999-2000. Hyattsville, United States: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). |
|-------------------------|---------|----|------------|------|------|-------------------------------------------------------------------------------------------------------------------------------------|
| United States of America | National | No | Presenting | 2003 | 2004 | National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). United States National Health and Nutrition Examination Survey 2001-2002. Hyattsville, United States: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). |
| United States of America | National | No | Presenting | 2005 | 2006 | National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). |
| United States of America | National | No | Presenting | blind, moderate, near vision loss | 2007 | 2008 |
|-------------------------|----------|----|------------|----------------------------------|------|------|
| (CDC). United States National Health and Nutrition Examination Survey 2005-2006. Hyattsville, United States: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), 2007. | National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). United States National Health and Nutrition Examination Survey 2007-2008. Hyattsville, United States: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), 2009. |
| Section/topic # Checklist item | Section/topic # Checklist item | Section/topic # Checklist item [and location in original manuscript submission] | Reported on page # [of original manuscript submission] |
|-------------------------------|-------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------|
| TITLE                         |                               |                                                                                  |                                                        |
| Title                         | 1                             | Identify the report as a systematic review, meta-analysis, or both.               | 13, 14                                                 |
|                               |                               | *The report is identified as a systematic review and meta-analysis in Abstract and Methods section.* |                                                        |
| ABSTRACT                      |                               |                                                                                  |                                                        |
| Structured summary            | 2                             | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 13                                                      |
|                               |                               | *This summary is given in the abstract.*                                        |                                                        |
| INTRODUCTION                  |                               |                                                                                  |                                                        |
| Rationale                     | 3                             | Describe the rationale for the review in the context of what is already known.    | 16                                                     |
|                               |                               | *The rationale is clearly stated in the Introduction section.*                    |                                                        |
| Objectives                    | 4                             | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 16                                                     |
|                               |                               | *The statement is clearly stated in the Introduction section.*                    |                                                        |
| METHODS                       |                               |                                                                                  |                                                        |
| Protocol and registration     | 5                             | Indicate if a review protocol exists, if and where it can be accessed            | 16 & Appendix Text 2                                   |
The systematic review strategy was published previously and the reference to this is given [reference 5]. The full search strategy is given in Text 2 of the Appendix.

### Eligibility criteria

6

Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.

The eligibility criteria are given in Text 2 of the Appendix, section 2.1. ‘Developing the Search Strategy’.

### Information sources

7

Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.

The information sources are given in Text 2 of the Appendix, section 2.1. ‘Developing the Search Strategy’ and Section 2.2 ‘Final Search Strategies’.

### Search

8

Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.

This is given in Text 2 of the Appendix Section 2.2 ‘Final Search Strategies’.

### Study selection

9

State the process for selecting studies (i.e., screening, eligibility, ...
The study selection for eligibility and screening is given in the main manuscript under Methods.

Data collection process

Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.

This is stated in the Methods section

Data items

List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.

This is stated in the Methods section

Risk of bias in individual studies

Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.

The principal risk of bias with data sources resided with data sources that were not population-based, the visual acuity measurement methods were unclear or where the visual acuity cut-offs for vision loss were not compatible with those of this study. These were minimised by exclusion of full-text articles as shown in the PRISMA flowchart (Figure 1 Appendix) and the Methods section that
| Topic                                    | Page | Description                                                                                                                                                                                                 |
|-----------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Summary measures                        | 13   | State the principal summary measures (e.g., risk ratio, difference in means). We estimated crude and age-standardised prevalence of blindness and vision impairment for 2020 and trends in age-standardised prevalence of vision impairment, including analysis of uncertainties, by age, sex, and geographical region. This is detailed in the Methods section. |
| Synthesis of results                    | 14   | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I²) for each meta-analysis. These are explained in the final sections of the Methods section. |
| Risk of bias across studies             | 15   | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). These are described under 'limitations of the study' in the Discussion section. |
| Additional analyses                     | 16   | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified. These were not performed. |
| Study selection                         | 17   | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at Appendix Fig 1. |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. |
|-----------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. |

This is given as Appendix Fig 1 using a PRISMA flowchart

The citations are available in Tables 2 and 3 of the Appendix

We were unable to comment on this beyond the decision to exclude studies that carried a significant risk of bias as detailed in Point 12 of the checklist.

In terms of prevalence of vision impairment and blindness, the tables in both the manuscript and also the Appendix contain uncertainty intervals around all of the estimates.

These results are reported with 95% Uncertainty Intervals in the results section and Tables.
| Section             | Page | Description                                                                                                                                                                                                 |
|---------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Risk of bias across studies | 22   | Present results of any assessment of risk of bias across studies (see Item 15). The statistical model investigated the risk of bias across studies and an account of this can be found in the Appendix. |
| Additional analysis | 23   | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). Not applicable.                                                                            |
| DISCUSSION          |      |                                                                                                                                                                                                             |
| Summary of evidence | 24   | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). This is summarised in the discussions section. |
| Limitations         | 25   | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). The limitations are discussed in the discussion section. |
| Conclusions         | 26   | Provide a general interpretation of the results in the context of other evidence, and implications for future research. Please see the discussion and conclusions section and Research in Context panel. |
| FUNDING             |      |                                                                                                                                                                                                             |
| Funding             | 27   | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of role of |
|                     |      | 13                                                                                                                                                                                                 |
|                     |      | 13                                                                                                                                                                                                 |
These are given in the abstract section of the manuscript.
Table 5. Sources searched for the 2018 update

| Database/information source                        | Interface/URL               |
|---------------------------------------------------|-----------------------------|
| From original review                               |                             |
| MEDLINE, MEDLINE In-Process, MEDLINE Daily and Epub Ahead of Print | Ovid SP                     |
| Embase                                            | Ovid SP                     |
| WHOLIS                                            | http://dosei.who.int/whtbin/webcat |
| Additional sources for the 2018 update             |                             |
| SciELO                                            | http://www.scielo.org/php/index.php?lang=en |
| Open Grey                                         | http://www.opengrey.eu/     |

Table 6: Literature search results

| Resource                                                                 | Number of records identified |
|-------------------------------------------------------------------------|------------------------------|
| Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present | 14219                        |
| Embase                                                                  | 23973                        |
| WHOLIS                                                                  | 79                           |
| OpenGrey                                                                | 54                           |
| SciELO Citation Index (SCIELO)                                          | 709                          |
| Website searches                                                        | 256                          |
| **Total number of records retrieved**                                   | **39290**                    |
| **Total number of records after deduplication and the removal of pre-1980 records** | **10092**                    |

Table 7. Adjustment factors for non-reference definition data.

| Data type*                  | Logit-Transformed Beta Coefficient (95% CI) |
|-----------------------------|--------------------------------------------|
|                             | Mild Vision Loss  | Moderate Vision Loss | Severe Vision Loss  | Blindness          |
| Best-corrected visual acuity| -0.83 (-1.51 to -0.12) | -1.11 (-2.27 to 0.06) | -0.94 (-2.30 to 0.42) | -0.15 (-0.19 to -0.15) |
| Uses rapid methodology      | 0.09 (-0.88 to 1.06) | -0.06 (-1.23 to 1.11) | 0.11 (-1.25 to 1.48) | 0.07 (-0.03 to 0.34) |

*Adjusted to reference definition of presenting visual acuity measured in a non-RAAB methodology study.
Table 8. Fixed effects for sex (study-level covariate), healthcare access and quality index (country-level covariate), and/or sociodemographic index that were included in Dismod models.

| Model                          | Covariate                     | Exponentiated Coefficient (95% UI) |
|--------------------------------|-------------------------------|-----------------------------------|
| Mild vision impairment         | Socio-demographic index       | 0.37 (0.19 – 0.73)                |
| Mild vision impairment         | Sex                           | 0.83 (0.74 – 0.93)                |
| Moderate vision impairment     | Socio-demographic index       | 0.78 (0.67 – 0.92)                |
| Moderate vision impairment     | Sex                           | 0.89 (0.86 – 0.92)                |
| Severe vision impairment       | Socio-demographic index       | 0.38 (0.31 – 0.49)                |
| Severe vision impairment       | Sex                           | 0.85 (0.82 – 0.88)                |
| Blindness                      | Socio-demographic index       | 0.38 (0.23 – 0.61)                |
| Blindness                      | Healthcare access & quality index | 0.98 (0.98 – 0.99)              |
| Blindness                      | Sex                           | 0.90 (0.87 – 0.94)                |
| Presbyopia                     | Socio-demographic index       | 0.56 (0.33 – 0.89)                |
| Presbyopia                     | Sex                           | 0.91 (0.44 – 0.98)                |

Table 9. Health state descriptions and accompanying disability weight.

| Health state name               | Health state description                                                                 | Disability weight        |
|---------------------------------|------------------------------------------------------------------------------------------|--------------------------|
| Distance vision, mild loss      | This person has some difficulty with distance vision, for example reading signs, but no other problems with eyesight. | 0.003 (0.001-0.007)     |
| Distance vision, moderate loss  | This person has vision problems that make it difficult to recognize faces or objects across a room. | 0.031 (0.019-0.049)     |
| Distance vision, severe loss    | This person has severe vision loss, which causes difficulty in daily activities, some emotional impact (for example, worry), and some difficulty going outside the home without assistance. | 0.184 (0.125-0.258)     |
| Distance vision blindness       | This person is completely blind, which causes great difficulty in some daily activities, worry and anxiety, and great difficulty going outside the home without assistance. | 0.187 (0.124-0.260)     |
| Near vision loss                | This person has difficulty seeing things that are nearer than 3 feet, but has no difficulty with seeing things at a distance. | 0.011 (0.005-0.02)      |
Figure 1. PRISMA flowchart

1.1 IDENTIFICATION

Records identified through database searching
(n = 39,290)

1.2 ELIGIBILITY

Records after duplicates removed and 19,040 records from previous pre-2014 searches
(n = 10,092)

1.3 INCLUDED

Records screened
(n = 10,092)

Records excluded
(n = 9,771)

1.4 SCREENING

Full-text articles assessed for eligibility
(n = 321)

Full-text articles excluded, with reasons
(n = 254)

Studies included in qualitative synthesis
(n = 67)

Studies included in quantitative synthesis (meta-analysis)
(n = 67)
Figure 2. Meta-regression results to split mixed severity data into single severity data points. (Dots display input data that was either included or trimmed in the model; the model fit is displayed as the black line and uncertainty as grey shading).
APPENDIX 2: SUPPLEMENTARY RESULTS

Contents

Table 1A. Crude prevalence of moderate and severe vision impairment (MSVI) and blindness in 2020, globally, by region and by sex

Table 1B. Crude prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2020, globally, by region and by sex

Table 2. Crude prevalence of blindness, moderate and severe vision impairment, mild vision impairment and vision impairment from uncorrected presbyopia in 2020, globally, by age group

Table 3A. Number of persons affected and age-standardised prevalence of moderate and severe vision impairment (MSVI) and blindness in 2020 and change since 1990 in adults aged 50 years and older.

Table 3B. Number of persons affected and age-standardised prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2020 and change since 1990 in adults aged 50 years and older.

Table 4. Number of persons and crude prevalence of persons blind, with MSVI, with mild VI, and vision impairment from uncorrected presbyopia in 1990

Table 5A. Forecasted number of persons and age-standardized prevalence of moderate and severe vision impairment and blindness in 2050 by region

Table 5B. Forecasted number of persons and age-standardized prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2050 by region

Figure 1: Data Sources used in the analysis from RAAB (Map A) and non-RAAB (Map B) studies.

Figure 2A-D. Forecast of numbers of people affected by blindness, moderate and severe vision impairment, mild vision impairment and vision impairment from uncorrected presbyopia to 2050- by region.
### Table 1A. Crude prevalence of moderate and severe vision impairment (MSVI) and blindness in 2020, globally, by region and by sex

| Region           | Male prevalence per 1,000 (95% CI) | Male cases | Female prevalence per 1,000 (95% CI) | Female cases | Both sexes prevalence per 1,000 (95% CI) | Both sexes cases | Blindness per 1,000 (95% CI) | Blindness cases |
|------------------|------------------------------------|------------|---------------------------------------|--------------|-----------------------------------------|-----------------|-------------------------------|----------------|
| Asia             | 5.30 (5.25-5.36)                   | 188        | 5.56 (5.51-5.61)                      | 198          | 5.48 (5.43-5.53)                        | 386             | 188                           | 386            |
| Australia        | 2.53 (2.49-2.57)                   | 292        | 2.73 (2.69-2.76)                      | 305          | 2.63 (2.59-2.67)                        | 597             | 292                           | 597            |
| South America    | 6.45 (6.40-6.49)                   | 316        | 6.90 (6.85-6.95)                      | 351          | 6.68 (6.63-6.73)                        | 667             | 316                           | 667            |
| Europe           | 7.64 (7.59-7.69)                   | 377        | 8.02 (7.97-8.07)                      | 418          | 7.81 (7.76-7.86)                        | 795             | 377                           | 795            |
| Middle East      | 5.36 (5.31-5.41)                   | 108        | 5.36 (5.31-5.41)                      | 108          | 5.36 (5.31-5.41)                        | 216             | 108                           | 216            |
| Africa           | 34.7 (34.6-34.8)                   | 135        | 34.7 (34.6-34.8)                      | 135          | 34.7 (34.6-34.8)                        | 270             | 135                           | 270            |
| Americas         | 5.36 (5.31-5.41)                   | 108        | 5.36 (5.31-5.41)                      | 108          | 5.36 (5.31-5.41)                        | 216             | 108                           | 216            |
| Global           | 5.48 (5.43-5.53)                   | 386        | 5.56 (5.51-5.61)                      | 386          | 5.51 (5.46-5.56)                        | 772             | 386                           | 772            |

### Table 1B. Crude prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2020, globally, by region and by sex

| Region           | Male prevalence per 1,000 (95% CI) | Male cases | Female prevalence per 1,000 (95% CI) | Female cases | Both sexes prevalence per 1,000 (95% CI) | Both sexes cases | Blindness per 1,000 (95% CI) | Blindness cases |
|------------------|------------------------------------|------------|---------------------------------------|--------------|-----------------------------------------|-----------------|-------------------------------|----------------|
| Asia             | 5.30 (5.25-5.36)                   | 188        | 5.56 (5.51-5.61)                      | 198          | 5.48 (5.43-5.53)                        | 386             | 188                           | 386            |
| Australia        | 2.53 (2.49-2.57)                   | 292        | 2.73 (2.69-2.76)                      | 305          | 2.63 (2.59-2.67)                        | 597             | 292                           | 597            |
| South America    | 6.45 (6.40-6.49)                   | 316        | 6.90 (6.85-6.95)                      | 351          | 6.68 (6.63-6.73)                        | 667             | 316                           | 667            |
| Europe           | 7.64 (7.59-7.69)                   | 377        | 8.02 (7.97-8.07)                      | 418          | 7.81 (7.76-7.86)                        | 795             | 377                           | 795            |
| Middle East      | 5.36 (5.31-5.41)                   | 108        | 5.36 (5.31-5.41)                      | 108          | 5.36 (5.31-5.41)                        | 216             | 108                           | 216            |
| Africa           | 34.7 (34.6-34.8)                   | 135        | 34.7 (34.6-3.8)                       | 135          | 34.7 (34.6-34.8)                        | 270             | 135                           | 270            |
| Americas         | 5.36 (5.31-5.41)                   | 108        | 5.36 (5.31-5.41)                      | 108          | 5.36 (5.31-5.41)                        | 216             | 108                           | 216            |
| Global           | 5.48 (5.43-5.53)                   | 386        | 5.56 (5.51-5.61)                      | 386          | 5.51 (5.46-5.56)                        | 772             | 386                           | 772            |
| Region          | Male prevalence per 1,000 (95% CI) | Male cases prevalence per 1,000 (95% CI) | Female prevalence per 1,000 (95% CI) | Female cases prevalence per 1,000 (95% CI) | Both sex prevalence per 1,000 (95% CI) | Both sex cases prevalence per 1,000 (95% CI) | Male prevalence per 1,000 (95% CI) | Male cases prevalence per 1,000 (95% CI) | Female prevalence per 1,000 (95% CI) | Female cases prevalence per 1,000 (95% CI) | Both sex prevalence per 1,000 (95% CI) | Both sex cases prevalence per 1,000 (95% CI) |
|-----------------|-----------------------------------|------------------------------------------|--------------------------------------|------------------------------------------|--------------------------------------|------------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| Australia       | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Brazil          | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Canada          | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| China           | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Colombia        | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Costa Rica      | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Mexico          | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Peru            | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| Tanzania        | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |
| United States   | 20.0 (19.0-20.9)                  | 36.5 (35.1-37.9)                         | 20.2 (19.7-20.8)                     | 36.0 (34.4-37.7)                         | 18.5 (17.9-19.2)                     | 34.4 (32.7-36.3)                         | 19.0 (18.1-19.9)                 | 36.0 (34.4-37.7)                  | 20.2 (19.7-20.8)                  | 36.0 (34.4-37.7)                  | 18.5 (17.9-19.2)                  | 34.4 (32.7-36.3)                   |

Table 2. Crude prevalence of blindness, moderate and severe vision impairment, mild vision impairment and vision impairment from uncorrected presbyopia in 2020, globally, by age group
### Table 3A. Number of persons affected and age-standardised prevalence of moderate and severe vision impairment (MSVI) and blindness in 2020 and change since 1990 in adults aged 50 years and older.

| Age group       | Mild vision impairment: prevalence per 1,000 (95% UI) | Moderate and severe vision impairment: prevalence per 1,000 (95% UI) | Blindness: prevalence per 1,000 (95% UI) | Vision impairment due to uncorrected presbyopia: prevalence per 1,000 (95% UI) |
|-----------------|------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------|
| Early Neonatal  | 13.8 (8.55–20.6)                                     | 3.86 (2.44–5.99)                                                  | 0.350 (0.194–0.501)                     |                                                                               |
| Late Neonatal   | 14.0 (8.78–20.8)                                     | 3.95 (2.54–6.05)                                                  | 0.352 (0.197–0.503)                     |                                                                               |
| Post Neonatal   | 16.3 (11.8–22.4)                                     | 5.11 (3.75–7.08)                                                  | 0.384 (0.231–0.534)                     |                                                                               |
| 1 to 4          | 23.3 (18.5–29.1)                                     | 9.17 (7.11–11.5)                                                  | 0.540 (0.387–0.712)                     |                                                                               |
| 5 to 9          | 25.7 (19.8–31.6)                                     | 12.2 (9.31–15.6)                                                  | 0.745 (0.547–0.974)                     |                                                                               |
| 10 to 14        | 22.4 (17.2–28.5)                                     | 12.8 (9.79–16.5)                                                  | 0.910 (0.703–1.15)                      |                                                                               |
| 15 to 19        | 18.5 (14.3–23.6)                                     | 12.9 (9.96–16.3)                                                  | 1.06 (0.836–1.32)                      |                                                                               |
| 20 to 24        | 15.3 (11.9–19.6)                                     | 12.9 (9.78–16.5)                                                  | 1.19 (0.957–1.49)                      |                                                                               |
| 25 to 29        | 13.9 (10.9–17.5)                                     | 12.7 (9.91–15.7)                                                  | 1.37 (1.11–1.68)                       |                                                                               |
| 30 to 34        | 13.4 (10.3–18.2)                                     | 13.1 (10.1–16.2)                                                  | 1.67 (1.36–2.01)                       |                                                                               |
| 35 to 39        | 15.9 (12.1–19.9)                                     | 16.3 (12.7–20.3)                                                  | 2.23 (1.79–2.70)                       |                                                                               |
| 40 to 44        | 19.5 (14.9–25.5)                                     | 21.8 (17.0–27.9)                                                  | 3.19 (2.52–3.99)                       |                                                                               |
| 45 to 49        | 24.8 (19.2–31.3)                                     | 30.9 (24.3–38.7)                                                  | 4.46 (3.58–5.82)                       |                                                                               |
| 50 to 54        | 32.4 (24.2–42.9)                                     | 44.3 (34.6–56.2)                                                  | 6.24 (4.78–7.90)                       |                                                                               |
| 55 to 59        | 45.7 (34.0–58.9)                                     | 67.1 (54.4–83.5)                                                  | 8.38 (6.72–10.4)                       |                                                                               |
| 60 to 64        | 63.4 (48.1–81.7)                                     | 95.7 (76.6–122)                                                  | 12.2 (9.75–15.1)                       |                                                                               |
| 65 to 69        | 75.2 (50.2–112)                                      | 130 (106–157)                                                     | 19.0 (14.9–24.2)                       |                                                                               |
| 70 to 74        | 117 (70.0–174)                                       | 165 (133–201)                                                     | 27.8 (22.2–34.7)                       |                                                                               |
| 75 to 79        | 141 (113–169)                                        | 198 (165–234)                                                     | 37.6 (29.6–46.8)                       |                                                                               |
| 80 to 84        | 158 (122–204)                                        | 226 (183–279)                                                     | 46.5 (37.0–56.9)                       |                                                                               |
| 85 to 89        | 174 (134–203)                                        | 275 (213–297)                                                     | 56.6 (45.3–69.5)                       |                                                                               |
| 90 to 94        | 200 (154–244)                                        | 299 (244–368)                                                     | 69.5 (53.3–83.3)                       |                                                                               |
| All-age         | 262 (205–320)                                        | 37.4 (33.9–41.2)                                                  | 5.40 (4.76–6.13)                       |                                                                               |
| Age 50+         | 224 (183–279)                                        | 109 (93–127)                                                     | 1.03 (1.01–1.05)                       |                                                                               |

Table 3A. Number of persons affected and age-standardised prevalence of moderate and severe vision impairment (MSVI) and blindness in 2020 and change since 1990 in adults aged 50 years and older.
### Table 3B. Number of persons affected and age-standardised prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2020 and change since 1990 in adults aged 50 years and older.

| Region                  | Cases in 2000 (MSV 20) | % Change 2000 to 2019 | Age-standardised per 1,000 | % Change 2000 to 2019 | Cases in 2000 (MSV 20) | % Change 2000 to 2019 | Age-standardised per 1,000 | % Change 2000 to 2019 |
|-------------------------|-------------------------|-----------------------|--------------------------|-----------------------|-------------------------|-----------------------|--------------------------|-----------------------|
| Asia                    |                         |                       |                          |                       |                         |                       |                          |                       |
| Australia               | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            |
| Oceania                 | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            |
| Central Asia            | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            |
| Europe                  | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            |
| Latin America           | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            | 1151.4 (121.0)          | 107.9 (10.0)          | 5.1 (0.5)                | 21.6 (1.6)            |
| South Asia              | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            | 27.7 (2.6)              | 21.7 (1.2)            | 2.8 (0.1)                | 20.4 (1.4)            |
| Total                   | 1179.1 (123.6)          | 109.5 (7.7)           | 6.3 (0.4)                | 22.2 (1.1)            | 1179.1 (123.6)          | 109.5 (7.7)           | 6.3 (0.4)                | 22.2 (1.1)            |

### Table 4. Number of persons and crude prevalence of persons blind, with MSVI, with mild VI, and vision impairment from uncorrected presbyopia in 1990

Table 5A. Forecasted number of persons and age-standardized prevalence of moderate and severe vision impairment and blindness in 2050 by region

| Region                | Countries at risk | Forecasted number of persons | Age-standardized prevalence of moderate vision impairment | Age-standardized prevalence of severe vision impairment |
|-----------------------|-------------------|-------------------------------|---------------------------------------------------------|------------------------------------------------------|
| Asia Pacific          | 15                | 9,260,000                      | 0.2                                                       | 0.02                                                  |
| Australia             | 1                 | 22,500,000                     | 0.9                                                       | 0.03                                                  |
| China                 | 1                 | 42,000,000                     | 1.5                                                       | 0.62                                                  |
| India                 | 1                 | 143,000,000                    | 4.0                                                       | 1.7                                                   |
| Japan                 | 1                 | 13,500,000                     | 0.5                                                       | 0.01                                                  |
| Korea                 | 1                 | 13,500,000                     | 0.5                                                       | 0.01                                                  |
| Pacific Asia          | 15                | 1,988,000,000                  | 3.1                                                       | 1.6                                                   |
| Latin America         | 6                 | 50,000,000                     | 1.2                                                       | 0.47                                                  |
| Central Europe        | 11                | 131,000,000                    | 3.7                                                       | 1.2                                                   |
| Central Sub-Saharan Africa | 48          | 2,100,000,000                  | 6.3                                                       | 2.3                                                   |
| Eastern Europe        | 4                 | 104,000,000                    | 1.3                                                       | 0.62                                                  |
| Southern Europe       | 3                 | 81,000,000                     | 0.5                                                       | 0.02                                                  |
| Southern Asia         | 10                | 5,800,000,000                  | 10.0                                                      | 4.0                                                   |
| Western Europe        | 10                | 1,980,000,000                  | 3.1                                                       | 1.6                                                   |
| Western Sub-Saharan Africa | 11         | 2,100,000,000                  | 6.3                                                       | 2.3                                                   |

Table 5B. Forecasted number of persons and age-standardized prevalence of mild vision impairment and vision impairment from uncorrected presbyopia in 2050 by region

| Region                | Countries at risk | Forecasted number of persons | Age-standardized prevalence of mild vision impairment | Age-standardized prevalence of vision impairment from uncorrected presbyopia |
|-----------------------|-------------------|-------------------------------|------------------------------------------------------|-------------------------------------------------------------------------|
| Asia Pacific          | 15                | 9,260,000                      | 0.2                                                       | 0.02                                                  |
| Australia             | 1                 | 22,500,000                     | 0.9                                                       | 0.03                                                  |
| China                 | 1                 | 42,000,000                     | 1.5                                                       | 0.62                                                  |
| India                 | 1                 | 143,000,000                    | 4.0                                                       | 1.7                                                   |
| Japan                 | 1                 | 13,500,000                     | 0.5                                                       | 0.01                                                  |
| Korea                 | 1                 | 13,500,000                     | 0.5                                                       | 0.01                                                  |
| Pacific Asia          | 15                | 1,988,000,000                  | 3.1                                                       | 1.6                                                   |
| Latin America         | 6                 | 50,000,000                     | 1.2                                                       | 0.47                                                  |
| Central Europe        | 11                | 131,000,000                    | 3.7                                                       | 1.2                                                   |
| Central Sub-Saharan Africa | 48          | 2,100,000,000                  | 6.3                                                       | 2.3                                                   |
| Eastern Europe        | 4                 | 104,000,000                    | 1.3                                                       | 0.62                                                  |
| Southern Europe       | 3                 | 81,000,000                     | 0.5                                                       | 0.02                                                  |
| Southern Asia         | 10                | 5,800,000,000                  | 10.0                                                      | 4.0                                                   |
| Western Europe        | 10                | 1,980,000,000                  | 3.1                                                       | 1.6                                                   |
| Western Sub-Saharan Africa | 11         | 2,100,000,000                  | 6.3                                                       | 2.3                                                   |
| Region                     | Female Age-standardized rate per 100,000 (95% CI) | Male Age-standardized rate per 100,000 (95% CI) | Female Age-standardized rate per 100,000 (95% CI) | Male Age-standardized rate per 100,000 (95% CI) | Female Age-standardized rate per 100,000 (95% CI) | Male Age-standardized rate per 100,000 (95% CI) |
|----------------------------|--------------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------|
| South America              | 1184 (1080-1290)                                 | 451 (408-499)                                   | 1641 (1490-1800)                                | 568 (526-610)                                   | 1288 (1186-1390)                                 | 539 (496-581)                                   |
| Central America            | 1291 (1193-1390)                                 | 423 (376-470)                                   | 1563 (1416-1710)                                | 565 (522-609)                                   | 1372 (1270-1474)                                 | 523 (476-570)                                   |
| Caribbean                  | 1380 (1283-1480)                                 | 514 (462-566)                                   | 1685 (1546-1824)                                | 611 (567-656)                                   | 1480 (1349-1611)                                 | 606 (554-659)                                   |
| Coastal Asia               | 1756 (1653-1859)                                 | 516 (462-566)                                   | 1824 (1675-1973)                                | 618 (565-671)                                   | 1852 (1731-1972)                                 | 630 (576-684)                                   |
| Central Europe             | 1256 (1163-1349)                                 | 516 (462-566)                                   | 1582 (1483-1681)                                | 611 (567-656)                                   | 1358 (1262-1454)                                 | 523 (476-570)                                   |
| Cross-Latin America        | 1345 (1246-1445)                                 | 516 (462-566)                                   | 1615 (1516-1714)                                | 611 (567-656)                                   | 1415 (1316-1514)                                 | 523 (476-570)                                   |
| Cross-Balkan Africa        | 1245 (1145-1345)                                 | 516 (462-566)                                   | 1582 (1483-1681)                                | 611 (567-656)                                   | 1358 (1262-1454)                                 | 523 (476-570)                                   |
| Asia                       | 5632 (5614-5650)                                 | 2199 (2180-2218)                                | 7416 (7397-7435)                                | 2820 (2801-2839)                                | 5547 (5529-5565)                                 | 2406 (2389-2423)                                |
| Eastern Europe             | 1596 (1577-1616)                                 | 516 (462-566)                                   | 2206 (2187-2225)                                | 611 (567-656)                                   | 2280 (2261-2299)                                 | 630 (576-684)                                   |
| Cross-Sub-Saharan Africa   | 1180 (1160-1199)                                 | 516 (462-566)                                   | 1652 (1623-1681)                                | 611 (567-656)                                   | 1789 (1770-1808)                                 | 630 (576-684)                                   |
| North Africa and Middle East| 1250 (1230-1270)                                | 516 (462-566)                                   | 1702 (1675-1729)                                | 611 (567-656)                                   | 1850 (1820-1880)                                 | 523 (476-570)                                   |
| Oceania                    | 1382 (1363-1402)                                 | 516 (462-566)                                   | 1715 (1697-1733)                                | 611 (567-656)                                   | 1857 (1836-1878)                                 | 523 (476-570)                                   |
| South Asia                 | 1296 (1278-1314)                                 | 516 (462-566)                                   | 1582 (1546-1618)                                | 611 (567-656)                                   | 1615 (1583-1647)                                 | 523 (476-570)                                   |
| Southeast Asia             | 1329 (1309-1359)                                 | 516 (462-566)                                   | 1652 (1623-1681)                                | 611 (567-656)                                   | 1702 (1675-1729)                                 | 611 (567-656)                                   |

Figure 1: Data Sources used in the analysis from RAAB (Map A) and non-RAAB (Map B) studies.
Map A.

Blindness and vision loss data coverage by location for raab sources from 1980 to 2019

Map B.

Blindness and vision loss data coverage by location for non-raab sources from 1980 to 2019

All sources can be found in Tables 2 and 3 of Appendix 1.
Figure 2 A-D. Forecast of numbers of people affected by blindness, moderate and severe vision impairment, mild vision impairment and vision impairment from uncorrected presbyopia to 2050- by region.
Forecast to 2050 of regional cases of mild vision impairment, both sexes

Forecast to 2050 of regional cases of vision impairment from uncorrected presbyopia, both sexes
APPENDIX 3: CONTRIBUTORS

GBD 2019 Blindness and Vision Impairment Collaborator Contributions

Managing the estimation process
Rupert Bourne and Theo Vos.

Writing the first draft of the manuscript
Rupert Bourne, Hugh Taylor, Serge Resnikoff, Robert Casson, and Jost Jonas.

Providing data or critical feedback on data sources
Rupert Bourne, Hugh Taylor, Serge Resnikoff, Kenji Shibuya, Amir Abdoli, Yonas Akalu, Jalal Arabloo, Till Bärnighausen, Akshaya Bhagavathula, Mukharram Bikbov, Michele Bottone, Tasanee Braithwaite, Alain Bron, Ching-Yu Cheng, Dinh-Toi Chu, Maria Vittoria Cicinelli, Lalit Dandona, Rakhi Dandona, Jenny Deva, Joshua Ehrlich, Leon Ellwein, Mohammad Hassan Emamian, Arthur Fernandes, João Furtado, Abhay Gaidhane, Shilpa Gaidhane, Gus Gazzard, Ronnie George, Ahmad Ghashghaei, Mahaveer Golechha, Mary Elizabeth Hartnett, Hung Chak Ho, Chi Hoang, Mowafa House, Seyed Sina Irvani, Rim Kahloun, Ayele Semachew Kasa, Maryam Keramati, Moncef Khairallah, Eajz Khan, Rohit Khanna, Mahalaqua Nazli Khatib, Judy Kim, Yun Jin Kim, Adnan Kisa, Sezer Kisa, Van Lansingh, Janet Leasher, Nicolas Leveziel, Hans Limburg, Navid Manafi, Colm McAlinden, Seyed Farzad Mohammadi, Abdullah Mohammad-Manshad-Hafshejani, Reza Mohammadpourhodkhi, Ali Mokdad, Delaram Moosavi, Kvin Naidoo, Vinay Nangia, Cuong Nguyen, Huong Nguyen, Kolawole Ogundimu, Andrew Olagunju, Songhomitra Panda-Jonas, Konrad Pesudovs, Tunde Peto, Zahiruddin Quazi Syed, Mohammad Hizf Ur Rahman, David Rawaf, Salman Rawaf, Sare Safi, Abdullah Samy, Deepak Saxena, Masood Shaikh, Tueng Shen, Jae Il Shin, Juan Carlos Silva, Alexander Silverstein, Jasvinder Singh, Deepika Singhal, Rita Sitorus, Eirini Skiadareisi, Amin Soheili, Eyayou Tadesse, Nina Tahhan, Bach Tran, Ravensara Travillian, Ningli Wang, Tien Wong, Zoubida Zaidi, and Jost Jonas.

Development of methods or computational machinery
Ashkan Afshin, Akshaya Bhagavathula, Michele Bottone, Mowafa House, Maryam Keramati, Mahalaqua Nazli Khatib, Adnan Kisa, Sezer Kisa, Reza Mohammadpourhodkhi, Ali Mokdad, Konrad Pesudovs, Zahiruddin Quazi Syed, Abdullah Samy, and Jost Jonas.

Providing critical feedback on methods or results
Hugh Taylor, Eman Abu-Gharbieh, Ashkan Afshin, Hamid Ahmadi, Yonas Akalu, Alehegn Alamneh, Ahmed Alfaroa, Vahid Alipour, Etas Anbesu, Sofia Androudi, Jalal Arabloo, Eleni Bagli, Atif Baig, Till Bärnighausen, Akshaya Bhagavathula, Pankaj Bhardwaj, Nikha Bhardwaj, Kritikia Bhattacharyya, Ali Bijani, Michele Bottone, Zahid Butt, Dinh-Toi Chu, Joao Coelho, Baye Dagne, Reza Dana, Lalit Dandona, Rakhi Dandona, Daniel Diaz, Shirin Djalalinia, Joshua Ehrlich, Mohammad Hassan Emamian, Florian Fischer, Abhay Gaidhane, Shilpa Gaidhane, Berhe Gebremichael, Ahmad Ghashghaei, Mahaveer Golechha, Risky Hartono, Simon Hay, Golnaz Heidari, Hung Chak Ho, Chi Hoang, Mowafa House, Segun Ibiboje, Milena Ilic, Irena Ilic, Seyed Sina Irvani, Ravi Jha, Himel Kandel, Ayele Semachew Kasa, Maryam Keramati, Eajz Khan, Mahalaqua Nazli Khatib, Yun Jin Kim, Adnan Kisa, Sezer Kisa, Ai Koyanagi, Om Kurni, Nicolas Leveziel, Marek Majdan, Navid Manafi, Colm McAlinden, Seyed Farzad Mohammadi, Abdullah Mohammad-Manshad-Hafshejani, Reza Mohammadpourhodkhi, Ali Mokdad, Delaram Moosavi, Mehdi Naderi, Kvin Naidoo, Cuong Nguyen, Huong Nguyen, Andrew Olagunju, Samuel Oroto, Songhomitra Panda-Jonas, Konrad Pesudovs, Zahiruddin Quazi Syed, Mohammad Hizf Ur Rahman, David Rawaf, Salman Rawaf, Sare Safi, Abdullah Samy, Deepak Saxena, Masood Shaikh, Jae Il Shin, Jasvinder Singh, Deepika Singhal, Rita Sitorus, Eirini Skiadareisi, Vegard Skirbekk, Amin Soheili, Raoul Sousa, Emma Spurlock, Biruk Taddele, Eyayou Tadesse, Md Tareque, Fotis Topouzis, Bach Tran, Ravensara Travillian, Miliadis Tsilimbaris, Zoubida Zaidi, Kaleab Zewdie, and Jost Jonas.

Extracting, cleaning, or cataloging data; designing or coding figures and tables
Rupert Bourne, Jaimie D Steinmetz, Seth Flaxman, Paul Briant, Serge Resnikoff, Mukharram Bikbov, Michele Bottone, Tasanee Braithwaite, Alain Bron, Ching-Yu Cheng, Maria Vittoria Cicinelli, Arthur Fernandes, João Furtado, Ronnie George, Rim Kahloun, Moncef Khairallah, Judy Kim, Van Lansingh, Janet Leasher, Hans Limburg, Vinay Nangia, Kolawole Ogundimu, Konrad Pesudovs, Tunde Peto, Nickolas Reinig, Alexander Silverstein, Nina Tahhan, Ningli Wang, Tien Wong, Jost Jonas, and Theo Vos.

Drafting the manuscript or revising it critically for important intellectual content
Rupert Bourne, Jaimie D Steinmetz, Seth Flaxman, Paul Briant, Hugh Taylor, Serge Resnikoff, Robert Casson, Eman Abu-Gharbieh, Wondu Alemayehu, Ahmed Alfaroa, Sofia Androudi, Jalal Arabloo, Malke Asaad, Eleni Bagli, Atif Baig, Till Bärnighausen, Maurizio Battaglia Parodi, Akshaya Bhagavathula, Kritikia Bhattacharyya, Mukharram Bikbov, Michele Bottone, Tasanee Braithwaite, Alain Bron, Ching-Yu Cheng, Maria Vittoria Cicinelli, João Coelho, Baye Dagne, XiaoChen Dai, Monte Del Monte, Daniel Diaz, Joshua Ehrlich, Mohammad Hassan Emamian, Arthur Fernandes, Florian Fischer, David Friedman, João Furtado, Abhay Gaidhane, Shilpa Gaidhane, Gus Gazzard, Berhe Gebremichael, Ronnie George, Ahmad Ghashghaei, Samer
Hamidi, Billy Hammond, Golnaz Heidari, Hung Chak Ho, Chi Hoang, Mowafa Househ, Segun Ibitoye, Milena Ilic, Irena Ilic, April Ingram, Seyed Sina Irvani, Ravi Jha, Rim Kahloun, Hinal Kandel, John Kempen, Moncef Khairallah, Ejaz Khan, Rohit Khanna, Mahalaqua Nazli Khatib, Adnan Kisa, Ai Koyanagi, Om Kurmi, Van Lansingh, Janet Leasher, Nicolas Leveziel, Hans Limburg, Marek Majdan, Navid Manafi, Kaevh Mansouri, Colm McAlinden, Abdollah Mohammad-Hafshejani, Ali Mokdad, Delaram Moosavi, Mehdi Naderi, Kovin Naidoo, Vinay Nangia, Cuong Nguyen, Huong Nguyen, Kolawole Ogundimu, Andrew Olagunju, Songhomiitra Panda-Jonas, Konrad Pesudovs, Tunde Peto, Zahiruddin Quazi Syed, Mohammad Hifz Ur Rahman, Pradeep Ramulu, Nickolas Reinig, Alan Robin, Amirhossein Sahebkar, Abdallah Samy, Deepak Saxena, Janet Serle, Masood Shaikh, Kenji Shibuya, Jae II Shin, Alexander Silvester, Jasvinder Singh, Deepika Singhal, Rita Sitorus, Eirini Skiadaresi, Raúl Sousa, Dwight Stambolian, Eyayou Tadesse, Nina Tahhan, Fotis Topouzis, Bach Tran, Ravensara Travillian, Rohit Varma, Gianni Virgili, Ningli Wang, Ya Xing Wang, Sheila West, Zoubida Zaidi, Kaleab Zewdie, Jost Jonas, and Theo Vos.

Management of the overall research enterprise
Rupert Bourne, Hugh Taylor, and Theo Vos.