

Appendix 1: Definitions of outcome measures

| Measure | Category | Definition |
|---|---|--|
| Distance Vision Impairment Category ³⁴ | No Vision Impairment | PVA \geq 6/12 in the better seeing eye |
| | Mild Vision Impairment | PVA $<$ 6/12 and \geq 6/18 in the better seeing eye |
| | Moderate Vision Impairment | PVA $<$ 6/18 and \geq 6/60 in the better seeing eye |
| | Severe Vision Impairment | PVA $<$ 6/60 and \geq 3/60 in the better seeing eye |
| | Blind | PVA $<$ 3/60 in the better seeing eye |
| Sub-categories of blindness ³⁴ | Not blind | PVA \geq 3/60 in the better seeing eye |
| | $<$ 3/60 – 1/60 | PVA $<$ 3/60 and \geq 1/60 in the better seeing eye |
| | $<$ 1/60 – Perception of Light (PL) | PVA \geq 1/60 and light perception in the better seeing eye |
| | No Perception of Light (NPL) | No light perception in the better seeing eye |
| Additional Categories used in text | Any Vision Impairment | Presenting distance visual acuity (PVA, with available correction if worn) $<$ 6/12 in the better seeing eye |
| | Moderate to Severe Vision Impairment (MSVI) | PVA $<$ 6/18 and \geq 3/60 in the better seeing eye; defined as “Low Vision” in 1996 paper |

| | | |
|--|--|--|
| Anterior Segment Eye Disease | Any Refractive Error | Uncorrected visual acuity (UCVA) $<$ 6/12 improving to \geq 6/12 with available correction, pinhole or refraction |
| | Vision Impairing Refractive Error | PVA $<$ 6/12 improving to \geq 6/12 with pinhole or refraction |
| | Cataract ¹⁷ | Any grade 1 - 3 of nuclear, cortical or posterior capsular cataract or, if ungradable, any cataract marked mature or hypermature using WHO Cataract Grading Tool |
| | Cataract Surgical Complications | Aphakia, posterior capsular opacification, aphakic bullous or pseudophakic bullous keratopathy identified on ophthalmic examination |
| | Trachoma corneal opacity ^{18,19} | Current trichiasis (defined using WHO 2019 definition), or evidence of prior trichiasis surgery alongside corneal scarring (C2a – C4 only) in the same eye |
| | Other corneal opacity ¹⁹ | Corneal scarring but no prior trichiasis or prior trichiasis surgery in the same eye (C2a – C4 only) |
| | Other anterior segment eye disease | Presence of at least one of the below pre-coded diseases, identified on slit lamp examination: pterygium (cornea involved), band keratopathy, corneal ulcer, uveitis, or other anterior segment ocular disease <i>or</i> other anterior segment disease described in open text |
| Posterior Segment Eye Disease | Age-related maculopathy and degeneration (ARMD) | Any ARMD including: drusen or hypo/hyper pigmentation without degeneration, dry or geographic, or wet/neovascular or disciform |
| | Glaucoma ²⁰ | 99.5% percentile of cup-disc ratio or asymmetry (Category 2), based on field grading. If optic disc not visible: PVA $<$ 3/60 and IOP in the 99.5% percentile |
| | Any diabetic retinopathy ²¹ | Any diabetic retinopathy at least R1 or M1 using the Scottish Grading System, based on dilated ocular photograph grading |
| | Sight-threatening diabetic retinopathy (STDR) ²² | Proliferative Retinopathy (R4) or Referable Maculopathy (M2) using the Scottish Grading System, based on dilated ocular photograph grading |
| | Optic disc atrophy | Optic disc atrophy marked as present but does not meet glaucoma definition |
| | Other posterior segment (per eye) | Presence of pseudoexfoliation, identified on slit lamp examination <i>or</i> other posterior segment disease described in open text |
| Main cause of distance vision impairment | In all eyes with PVA $<$ 6/12, disease presence as above. If more than one of the above definitions are met in one eye using the definitions above, the main cause will be listed as the highest ranking in order of: 1. Refractive Error 2. Cataract | |

3. Aphakia
4. Trichomatous corneal opacity
5. Other corneal opacity
6. Other Anterior Segment
7. Posterior segment
8. Globe
9. Unknown

If more than one of the above definitions is met in one person, the main cause at the person level will be listed as the highest ranking in this order. Participants with PVA < 6/12 with no reported anterior or posterior segment disease as defined above were categorised as unknown.

A known limitation of this hierarchical approach to determining the “main cause” is that it will lead to underestimation of posterior segment causes. The proportion of people with co-morbidities will be reported, and manuscripts detailing prevalence and associations of specific eye diseases will provide further detailed breakdown on anterior and posterior causes of VI.

Appendix 2: Crude and weighted prevalence of vision impairment and blindness among the population aged 35 years and older in The Gambia and its historic regions – age and sex standardised to WHO Reference Population, and the Gambia 2013 Census

| | National | | | | Western Region | | | Central Region | | | Eastern Region | | |
|---|----------|------------------|--------------------------------|--|----------------|------------------|--|----------------|------------------|--|----------------|------------------|--|
| | Crude | | Age and sex standardised (WHO) | Age and sex standardised (2013 Census) | Crude | | Age and sex standardised (2013 Census) | Crude | | Age and sex standardised (2013 Census) | Crude | | Age and sex standardised (2013 Census) |
| | n | % (95% CI) | % (95% CI) | % (95% CI) | n | % (95% CI) | % (95% CI) | n | % (95% CI) | % (95% CI) | n | % (95% CI) | % (95% CI) |
| Vision impairment category¹ | | | | | | | | | | | | | |
| No Vision Impairment ($\geq 6/12$) | 7861 | 85.6 (84.8-86.3) | 84.1 (82.9-85.2) | 86.6 (85.6-87.6) | 4804 | 85.4 (84.5-86.3) | 86.1 (84.8-97.2) | 1210 | 82.0 (79.9-83.9) | 83.8 (80.2-86.9) | 1847 | 88.5 (87.1-89.8) | 89.7 (88.0-91.2) |
| Mild ($<6/12$ and $\geq 6/18$) | 326 | 3.5 (3.2-3.9) | 3.9 (3.5-4.4) | 3.3 (3.0-3.8) | 215 | 3.8 (3.4-4.4) | 3.7 (3.2-4.3) | 63 | 4.3 (3.3-5.4) | 4.1 (3.0-5.6) | 48 | 2.3 (1.7-3.1) | 2.0 (1.5-2.8) |
| Moderate ($<6/18$ and $\geq 6/60$) | 726 | 7.9 (7.4-8.5) | 8.6 (7.8-9.5) | 7.1 (6.4-7.9) | 463 | 8.2 (7.5-9.0) | 7.5 (6.6-8.5) | 137 | 9.3 (7.9-10.9) | 8.3 (6.2-11.1) | 126 | 6.0 (5.1-7.1) | 5.4 (4.3-6.9) |
| Severe ($<6/60$ and $\geq 3/60$) | 171 | 1.9 (1.6-2.2) | 2.1 (1.8-2.5) | 1.8 (1.6-2.1) | 87 | 1.5 (1.3-1.9) | 1.6 (1.2-2.0) | 42 | 2.8 (2.1-3.8) | 2.3 (1.6-3.3) | 42 | 2.0 (1.5-2.7) | 1.9 (1.3-2.5) |
| Blind ($<3/60$) | 104 | 1.1 (0.9-1.4) | 1.3 (1.1-1.6) | 1.2 (0.9-1.4) | 56 | 1.0 (0.8-1.3) | 1.2 (0.9-1.6) | 24 | 1.6 (1.1-2.4) | 1.4 (0.9-2.3) | 24 | 1.1 (0.8-1.7) | 1.0 (0.6-1.5) |
| Sub-category of blindness | | | | | | | | | | | | | |
| $<3/60$ to $\geq 1/60$ | 52 | 0.6 (0.4-0.7) | 0.6 (0.5-0.8) | 0.6 (0.4-0.8) | 29 | 0.5 (0.4-0.7) | 0.6 (0.4-0.9) | 14 | 0.9 (0.6-0.2) | 0.8 (0.4-0.2) | 9 | 0.4 (0.2-0.8) | 0.4 (0.2-0.8) |
| $<1/60$ to light perception | 36 | 0.4 (0.3-0.5) | 0.5 (0.3-0.6) | 0.4 (0.3-0.6) | 17 | 0.3 (0.2-0.5) | 0.3 (0.2-0.6) | 8 | 0.5 (0.3-1.1) | 0.5 (0.2-1.1) | 11 | 0.5 (0.3-0.9) | 0.4 (0.2-0.8) |
| No light perception | 16 | 0.2 (0.1-0.3) | 0.2 (0.1-0.4) | 0.2 (0.1-0.3) | 10 | 0.2 (0.1-0.3) | 0.2 (0.1-0.4) | 2 | 0.1 (0.0-0.5) | 0.1 (0.0-0.3) | 4 | 0.2 (0.1-0.5) | 0.2 (0.1-0.5) |
| Additional categories | | | | | | | | | | | | | |
| Any VI ($<6/12$) | 1327 | 14.4 (13.7-15.2) | 15.9 (14.8-17.1) | 13.4 (12.4-14.4) | 821 | 14.6 (13.7-15.5) | 13.9 (12.8-15.2) | 266 | 18.0 (16.1-20.1) | 16.2 (13.1-19.8) | 240 | 11.5 (10.2-12.9) | 10.3 (8.8-12.0) |
| Moderate to severe VI ($<6/18$ and $\geq 3/60$) | 897 | 9.8 (9.2-10.4) | 10.7 (9.8-11.7) | 8.9 (8.1-9.7) | 550 | 9.8 (9.0-10.6) | 9.1 (8.1-10.1) | 179 | 12.1 (10.6-13.9) | 10.6 (8.2-13.8) | 168 | 8.1 (7.0-9.3) | 8.9 (8.1-9.7) |

¹World Health Organisation ICD-11 Categorisation, based on presenting distance visual acuity in better eye