Supplementary Table 1: Definitions for Visual Impairment, Ocular Diseases and Conditions in SCES-2.

Condition	Method of Assessment	Disease Definition
Low vision and Blindness	All visual acuity was recorded in LogMAR (logarithm of the minimum angle or resolution) notation. Distance PVA was measured monocularly and binocularly. Near PVA was measured binocularly. BCVA after subjective refractive was monocularly and binocularly assessed for distance and near.	Definition based on BCVA of better seeing eye USA definition: Low vision is defined as VA<6/12 to ≥6/60 (LogMar>0.30 to ≤1.00) Blindness defined as VA<6/60 (LogMar >1.00) WHO definition: Low vision is defined as VA <6/18 ≥ 6/120 (LogMAR >0.48 to ≤1.30) Blindess defined as VA <6/120 (LogMAR>1.30) Both U.S and revised WHO definitions of low vision and blindness[1] will be used. Using the WHO definition, **incident best-corrected VI** will be defined as BCVA≥ 6/18 in both eyes at baseline, which decreases to <6/18 in the better-seeing eye at follow-up; **incident best-corrected blindness** will be defined as BCVA ≥6/120 in both eyes at baseline, which decrease to <6/120 in the better-seeing eye at follow-up. **Incident VI and blindness** will be defined according to the US standard in the same fashion, except that the cut off for VI will be <6/12 and for blindness will be ≤ 6/60.
Presbyopia	Presbyopia was determined by near refractive error status measured from subjective refraction	**Functional presbyopia** - the need for significant optical correction added to the presenting distance refractive correction to achieve a near VA criterion of N8 print (near logMAR=0.4).
Cataract	Cataract severity and progression of lens opacities were graded during slit lamp examination	The presence, progression and severity of cataracts or pseudophakia status of the lens was graded using the

		Lens Opacities Classification System III (LOCS III)[2] **Incidence** is defined as eyes free of any cataract at baseline with the development of any cataract at follow-up. **Progression** is defined as an increase in at least one level on the LOCS III grading system given that baseline grading was equal to or greater than 3.
Glaucoma suspect	IOP via Goldmann applanation tonometry Gonioscopy exam Visual field test (24-2 SITA-FAST, Humphrey Visual Field Analyzer II) Dilated optic disc assessment	Glaucoma suspect eyes were defined as 1) IOP greater than 21mm Hg, 2) VCDR of greater than 0.6 or VCDR asymmetry of greater than 0.2, 3) abnormal anterior segment deposit consistent with pseudoexfoliation or pigment dispersion syndrome 4) narrow anterior chamber angle, 5) peripheral anterior synechiae 6) other findings consistent with secondary glaucoma, 7) a known history of glaucoma[3].
Glaucoma	IOP via Goldmann applanation tonometry, Gonioscopy exam Visual field test (24-2 SITA-FAST, Humphrey Visual Field Analyzer II) Dilated optic disc assessment	Glaucoma eyes were defined using the International Society for Geographical and Epidemiologic Ophthalmology criteria[4] **Incident** glaucoma will be defined as glaucoma cases diagnosed at follow-up but were free of glaucoma at baseline. **Progression** of glaucomatous damage will be assessed by both structural changes (evaluated via RNFL progression analysis of Cirrus OCT) and functional changes (evaluated by the Guided Progression Analysis software based on the Humphrey field analyser

		(HFA) II instrument).
Age-Related Macular Degeneration	Specific AMD lesions and the progression of AMD were graded from fundus photographs	AMD eyes were graded using modification of the Wisconsin AMD classification described in more detail in SiMES-1 and elsewhere[5-7]. **Incident** early AMD - the appearance of either soft indistinct or reticular drusen or the co-presence of both soft, distinct drusen plus retinal pigmentary abnormalities at follow up but neither these lesions were present at baseline. **Incident** late AMD – the appearance of neovascular AMD or geographic atrophy at follow up but neither these lesions were present at baseline. **Progression** of early to late AMD – participants with early AMD at baseline and progression to any form of late AMD at follow up. **Progression of AMD-related lesions** (e.g. drusens) - for those with AMD lesions at baseline, the progression will be based on an increase in area or type of lesions at follow up.
Diabetic Retinopathy	Masked grading of digital retinal photographs obtained from two 45° retinal images corresponding to the Early Treatment for Diabetic Retinopathy Study (ETDRS) standard field 1 (centered on the optic disc) and field 2 (centered on the fovea)	Incidence, progression and regression of DR eyes will be graded using a modified Airlie House classification system and a modified ETDRS system for DR [8] The definitions used for incidence and progression of DR are similar to BMES protocol[9]. **Incident DR** will be defined as the absence of DR at baseline and with a DR severity level >15 at follow-

		up. **Progression** will be defined as an increase in severity of retinopathy by two or more steps from baseline level. Grading will include the presence/severity of diabetic macular oedema and the presence of laser treatment.

AMD, age-related macular degeneration; BCVA, best corrected visual acuity; BMI, body mass index; DR, diabetic retinopathy; OCT, optical coherence tomography; PVA, presenting visual acuity; RNFL, retinal nerve fiber layer; SCES, Singapore Chinese Eye Study; SiMES, Singapore Malay Eye Study; VA, visual acuity; VCDR, vertical cup to disc ratio; VI, visual impairment.

Supplementary Table 2: Definitions for Systemic Conditions in SCES-2.

Condition	Method of Assessment	Definition
Overweight and Obesity	Height (cm) and Weight (kg) of participant was measured (BMI= kg/m^2)	According to WHO BMI cut off: Underweight (BMI <18.5) Normal (18.5 ≤ BMI < 25) Overweight (25 ≤ BMI <30) Obese (BMI ≥30)
Hypertension	BP was taken with an automatic blood pressure monitor (Dinamap model Pro Series DP110X-RW, 100V2; GE Medical Systems Information Technologies Inc., Milwaukee, USA). Two readings were taken 5 minutes apart and a third reading was taken if the difference between the first 2 readings was greater than 10mmHg (systolic) and or 5mmHg (diastolic).	Systolic BP ≥140mmHg, diastolic BP ≥90mmHg, physician diagnosis[10], use of blood pressure medication or self-reported
Hyperlipidaemia	Non-fasting serum lipid profile via homogeneous assay (Beckman Coulter Unicel DXC 800)	High levels of total cholesterol (≥6.2 mmol/L), low levels of HDL cholesterol (<1 mmol/L in men and <1.3 mmol/L in women), or self-reported
Diabetes Mellitus	HbA1c assay was carried out by immunoassay with the Roche Cobas c501 (Roche Diagnostics)[11] and serum glucose levels were assessed on the Beckman Coulter unicel DxC 800 analyzer using the oxygen rate method[12]	HbA1c >6.5%, random blood glucose ≥11.1 mmol/L, use of diabetic medication[8], or self-reported
Chronic Kidney Disease	Serum creatinine was measured using an enzymatic method calibrated to the National Institute of Standard and Technology (NIST) Liquid Chromatography Isotope Dilution Mass Spectrometry (LC-IDMS) method[13]	Estimated glomerular filtration rate (eGFR) <60mL/min/1.73m2, based on the US National Kidney Foundation Kidney Disease Outcome Quality Initiative (KDOQI) Working Group definition[14]. eGFR was estimated from the serum creatinine concentration (eGFR) [15] using the CKD Epidemiology Collaboration (CKD-EPI) equation.
Cardiovascular disease	Questionnaire	Self-reported myocardial infarction, angina, or stroke
Cardiovascular mortality	From National Registry of Disease Office of	Cardiovascular mortality will include all deaths due to

	Singapore[16]	ischaemic heart disease (International Classification of Diseases (ICD)-941-414) and cerebrovascular accidents (ICD-9430-438). All causes of mortality will include all deaths that occur in the cohort during the follow up period.

BMI, body mass index; BP, blood pressure; CKD, chronic kidney disease; HbA1c, glycated haemoglobin; HDL, high density lipoprotein; SCES, Singapore Chinese Eye Study.

Supplementary Table 3: Comparison of Examination Components between SCES-1 and SCES-2.

Examination Components	SCES-1	SCES-2
Height, weight, BMI, blood pressure	+	+
Blood for HbA1c, serum glucose, creatinine, and lipid levels	+	+
Urine for albumin-to-creatinine ratio (ACR)	+	+
Distance and near presenting visual acuity	+	+
Subjective refraction† and distance best-corrected visual acuity	+	+
Auto-refraction, keratometry and ocular biometry	+	+
Anterior segment OCT	+	+
Slit lamp examination: anterior and posterior segment	+	+
IOP via Goldmann applanation tonometry	+	+
Lens grading – LOCS III	+	+
Lens photography and Wisconsin grading for cataract	+	-
Gonioscopy and visual fields test for glaucoma suspects	+	+
Fundus photography	+	+
Retinal imaging – Cirrus OCT, SD-OCT	+	+
Retinal imaging – OCT-A	-	+
Iris photography	-	+
Questionnaire		
Demographic and socioeconomic: age, sex, education, income, housing, occupation, census area, marital status	+	+
Lifestyle: smoking, alcohol consumption	+	+
Medical history: diabetes, hypertension, CVD, eye surgery, etc.	+	+
Medications: anti-diabetic, antihypertensive, statin, steroid, etc.	+	+
Falls history, women health	+	+
Abbreviated Mental Test (AMT) for those aged ≥60 years	+	+
Self-reported eye health	+	+
Family history of systemic health and eye diseases	+	+
General health status (EQ-5D and SF-8)	+	+
Vision function (VF-14) Questionnaire	+	+
CERA- Impact of Vision Impairment Profile (IVI)	+	+
Patient Health Questionnaire (PHQ-9)	-	+
Knowledge, access, attitude and quality of eye care	-	+
Healthcare services and cost expenditure module	-	+
Modified Life Space Questionnaire[17]	-	+

†Subjective refraction performed only when presenting visual acuity was >0.3 Logarithm of the Minimum Angle of Resolution(LogMAR)

CVD, cardiovascular disease; HbA1c, glycated haemoglobin; LOCS III, Lens Opacities Classification System III; OCT, optical coherence tomography; OCT-A, optical coherence tomography angiography; SCES, Singapore Chinese Eye Study.

Supplementary Table 4: Prevalence of Visual Impairment from Baseline SCES-1, by Age Groups.

	Visual Impairment†			
	United States Criteria		World Health Organization Criteria	
	N	No. of Cases (%)	N	No. of Cases (%)
Low vision (VA<6/12 to ≥6/60[18]				
40-49	710	3 (0.4)	710	1 (0.1)
50-59	1,110	6 (0.5)	1110	4 (0.4)
60-69	900	29 (3.2)	900	9 (1.0)
70+	631	112 (17.7)	631	42 (6.7)
Total	3,351	150 (4.5)	3,351	56 (1.7)
Blindness (VA<6/60)[18]				
40-49	710	0 (0.0)	710	0 (0.0)
50-59	1,110	1 (0.1)	1110	0 (0.0)
60-69	900	2 (0.2)	900	1 (0.1)
70 +	631	5 (0.8)	631	3 (0.5)
Total	3,351	8 (0.2)	3,351	4 (0.1)

†All visual impairment definitions are based on the best-corrected VA of the better seeing eye.

N, total number of participants; SCES, Singapore Chinese Eye Study; VA, visual acuity.

Supplementary Table 5: Prevalence of Major Age-related Eye Diseases from Baseline SCES-1, by Age Groups.

	Major Age-related Eye Diseases	
	N	**No. of Cases (%)**
All Glaucoma		
40-49	710	5 (0.7)
50-59	1,111	28 (2.5)
60-69	900	37 (4.1)
70+	632	64 (10.1)
Total	3,353	134 (4.0)
POAG[3]		
40-49	710	3 (0.4)
50-59	1,111	17 (1.5)
60-69	900	18 (2.0)
70+	632	19 (3.0)
Total	3,353	57 (1.7)
PACG[3]		
40-49	710	2 (0.3)
50-59	1,111	7 (0.6)
60-69	900	13 (1.4)
70+	632	27 (4.3)
Total	3,353	49 (1.5)
DR[19]		
40-49	61	18 (29.5)
50-59	156	36 (23.1)
60-69	206	53 (25.7)
70+	158	42 (26.6)
Total	581	149 (25.6)
Any AMD		
40-49	710	21 (3.0)
50-59	1,109	45 (4.1)
60-69	891	89 (10.0)
70+	602	111 (18.4)
Total	3,312	266 (8.0)
Early AMD[20]		
40-49	710	21 (3.0)
50-59	1,109	42 (3.8)
60-69	891	86 (9.7)
70+	602	92 (15.3)
Total	3,312	241 (7.3)

Late AMD[20]		
40-49	710	0 (0.0)
50-59	1,109	3 (0.3)
60-69	891	3 (0.3)
70+	602	19 (3.2)
Total	3,312	25 (0.8)
Any Cataract[†][21]		
40-49	708	55 (7.8)
50-59	1,108	240 (21.7)
60-69	897	508 (56.6)
70+	625	537 (85.9)
Total	3,338	1,340 (40.1)

[†]Presence of any existing cataract or any history of cataract surgery in either eye (Modified Wisconsin Cataract Grading System).

AMD, age-related macular degeneration; DR, diabetic retinopathy; N, total number of participants; PACG, primary angle closure glaucoma; POAG, primary open angle glaucoma; SCES, Singapore Chinese Eye Study

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