

## ONLINE SUPPLEMENTARY DOCUMENT

**Title:** Visual impairment and blindness caused by retinal diseases: A nationwide register-based study

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Table S1. Proportional retinal causes of unilateral visual impairment and blindness by age, gender and regions based on the United States criteria

Retinal diseases	Visual impairment (BCVA, <20/40-≥20/200)								Blindness (BCVA, <20/200)							
	Total	Gender		Age (yrs)			Regions		Total	Gender		Age (yrs)			Regions	
	(n=12803)	Male (n=6263)	Female (n=6540)	18-44 (n=1253)	45-64 (n=5866)	≥65 (n=5684)	East (n=6506)	Midwest (n=6297)	(n=7630)	Male (n=3917)	Female (n=3713)	18-44 (n=616)	45-64 (n=3334)	≥65 (n=3680)	East (n=3409)	Midwest (n=4221)
DR	4268(33)	2136(34)	2132(33)	421(34)	2352(40)	1495(26)	2306(35)	1962(31)	2514(33)	1278(33)	1236(33)	253(41)	1470(44)	791(21)	1189(35)	1325(31)
AMD	2719(21)	1442(23)	1277(20)	0(0)	752(13)	1967(35)	1440(22)	1279(20)	1764(23)	983(25)	781(21)	0(0)	313(9.4)	1451(39)	809(24)	955(23)
RVO	3049(24)	1459(23)	1590(24)	278(22)	1603(27)	1168(21)	1525(23)	1524(24)	1368(18)	712(18)	656(18)	81(13)	568(17)	719(20)	623(18)	745(18)
Myopic maculopathy	909(7.1)	372(5.9)	537(8.2)	277(22)	395(6.7)	237(4.2)	370(5.7)	539(8.6)	472(6.2)	185(4.7)	287(7.7)	84(14)	226(6.8)	162(4.4)	204(6.0)	268(6.3)
RRD	328(2.6)	184(2.9)	144(2.2)	81(6.5)	184(3.1)	63(1.1)	158(2.4)	170(2.7)	442(5.8)	254(6.5)	188(5.1)	78(13)	253(7.6)	111(3.0)	154(4.5)	288(6.8)
ERM	349(2.7)	121(1.9)	228(3.5)	6(0.48)	89(1.5)	254(4.5)	163(2.5)	186(3.0)	73(0.96)	26(0.66)	47(1.3)	1(0.16)	18(0.54)	54(1.5)	24(0.70)	49(1.2)
Macular hole	204(1.6)	70(1.1)	134(2.0)	12(0.96)	86(1.5)	106(1.9)	114(1.8)	90(1.4)	118(1.5)	33(0.84)	85(2.3)	5(0.81)	54(1.6)	59(1.6)	55(1.6)	63(1.5)
CSC	70(0.55)	56(0.89)	14(0.21)	25(2.0)	41(0.70)	4(0.070)	35(0.54)	35(0.56)	7(0.092)	5(0.13)	2(0.054)	1(0.16)	5(0.15)	1(0.027)	3(0.088)	4(0.095)
Hypertensive retinopathy	76(0.59)	42(0.67)	34(0.52)	12(0.96)	24(0.41)	40(0.70)	38(0.58)	38(0.60)	26(0.34)	15(0.38)	11(0.30)	5(0.81)	10(0.30)	11(0.30)	18(0.53)	8(0.19)
RP	26(0.20)	15(0.24)	11(0.17)	11(0.88)	9(0.15)	6(0.11)	12(0.18)	14(0.22)	23(0.30)	12(0.31)	11(0.30)	5(0.81)	15(0.45)	3(0.082)	8(0.23)	15(0.36)
RAO	10(0.078)	6(0.096)	4(0.061)	1(0.080)	5(0.085)	4(0.070)	2(0.031)	8(0.13)	60(0.79)	40(1.0)	20(0.54)	2(0.32)	31(0.93)	27(0.73)	30(0.88)	30(0.71)
Idiopathic CNV	13(0.10)	4(0.064)	9(0.14)	9(0.72)	3(0.051)	1(0.018)	3(0.046)	10(0.16)	5(0.066)	2(0.051)	3(0.081)	2(0.32)	2(0.060)	1(0.027)	1(0.029)	4(0.095)
VMT	19(0.15)	9(0.14)	10(0.15)	2(0.16)	3(0.051)	14(0.25)	10(0.15)	9(0.14)	4(0.052)	1(0.026)	3(0.081)	0(0)	1(0.030)	3(0.082)	2(0.059)	2(0.047)
VH of unknown cause	130(1.0)	62(0.99)	68(1.0)	13(1.0)	76(1.3)	41(0.72)	49(0.75)	81(1.3)	335(4.4)	178(4.5)	157(4.2)	27(4.4)	177(5.3)	131(3.6)	148(4.3)	187(4.4)
ME of unknown cause	245(1.9)	121(1.9)	124(1.9)	56(4.5)	84(1.4)	105(1.8)	107(1.6)	138(2.2)	159(2.1)	79(2.0)	80(2.2)	32(5.2)	71(2.1)	56(1.5)	34(1.0)	125(3.0)
Others	388(3.0)	164(2.6)	224(3.4)	49(3.9)	160(2.7)	179(3.1)	174(2.7)	214(3.4)	260(3.4)	114(2.9)	146(3.9)	40(6.5)	120(3.6)	100(2.7)	107(3.1)	153(3.6)

BCVA: best-corrected visual acuity; DR: diabetic retinopathy; AMD: age-related macular degeneration; RVO: retinal vein occlusion; RRD: rhegmatogenous retinal detachment; ERM: epiretinal membrane; CSC: central serous chorioretinopathy; RP: retinal pigmentosa; RAO: retinal artery occlusion; CNV: choroidal neovascularization; VMT: vitreous macular traction; VH: vitreous hemorrhage; ME: macular edema.

Table S2. Proportional retinal causes of bilateral visual impairment and blindness by age, gender and regions based on the United States criteria

Retinal diseases	Visual impairment (BCVA, <20/40-≥20/200)								Blindness (BCVA, <20/200)							
	Total	Gender		Age (yrs)			Regions		Total	Gender		Age (yrs)			Regions	
	(n=3570)	Male (n=1707)	Female (n=1863)	18-44 (n=317)	45-64 (n=1590)	≥65 (n=1663)	East (n=1666)	Midwest (n=1904)	(n=610)	Male (n=289)	Female (n=321)	18-44 (n=57)	45-64 (n=262)	≥65 (n=291)	East (n=227)	Midwest (n=383)
DR	2164(61)	1047(61)	1117(60)	223(70)	1220(77)	721(43)	1072(64)	1092(57)	367(60)	166(57)	201(63)	41(72)	208(79)	118(41)	136(60)	231(60)
AMD	752(21)	386(23)	366(20)	0(0)	131(8.2)	621(37)	339(20)	413(22)	133(22)	75(26)	58(18)	0(0)	9(3.4)	124(43)	55(24)	78(20)
RVO	125(3.5)	63(3.7)	62(3.3)	16(5.0)	38(2.4)	71(4.3)	56(3.4)	69(3.6)	14(2.3)	7(2.4)	7(2.2)	1(1.8)	5(1.9)	8(2.7)	9(4.0)	5(1.3)
Myopic maculopathy	204(5.7)	71(4.2)	133(7.1)	33(10)	95(6.0)	76(4.6)	72(4.3)	132(6.9)	35(5.7)	15(5.2)	20(6.2)	5(8.8)	15(5.7)	15(5.2)	13(5.7)	22(5.7)
RRD	22(0.62)	15(0.9)	7(0.38)	4(1.3)	12(0.75)	6(0.36)	12(0.72)	10(0.53)	5(0.82)	2(0.69)	3(0.93)	1(1.8)	2(0.76)	2(0.69)	1(0.44)	4(1.0)
ERM	51(1.4)	17(1.0)	34(1.8)	1(0.32)	5(0.31)	45(2.7)	14(0.84)	37(1.9)	5(0.82)	4(1.4)	1(0.31)	0(0)	0(0)	5(1.7)	1(0.44)	4(1.0)
Macular hole	29(0.81)	11(0.64)	18(1.0)	1(0.32)	11(0.69)	17(1.0)	14(0.84)	15(0.79)	6(1.0)	4(1.4)	2(0.62)	0(0)	1(0.38)	5(1.7)	3(1.3)	3(0.78)
CSC	7(0.20)	5(0.29)	2(0.11)	3(0.95)	4(0.25)	0(0)	1(0.060)	6(0.32)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
Hypertensive retinopathy	22(0.62)	9(0.53)	13(0.70)	5(1.6)	4(0.25)	13(0.78)	8(0.48)	14(0.74)	1(0.16)	0(0)	1(0.31)	0(0)	0(0)	1(0.34)	1(0.44)	0(0)
RP	17(0.48)	10(0.59)	7(0.38)	5(1.6)	8(0.50)	4(0.24)	9(0.54)	8(0.42)	6(1.0)	3(1.0)	3(0.93)	2(3.5)	4(1.5)	0(0)	2(0.88)	4(1.0)
RAO	1(0.028)	0(0)	1(0.054)	0(0)	0(0)	1(0.060)	1(0.060)	0(0)	1(0.16)	1(0.35)	0(0)	0(0)	0(0)	1(0.34)	0(0)	1(0.26)
Idiopathic CNV	2(0.056)	1(0.059)	1(0.054)	0(0)	1(0.06)	1(0.060)	0(0)	2(0.11)	1(0.16)	0(0)	1(0.31)	0(0)	1(0.38)	0(0)	0(0)	1(0.26)
VMT	4(0.11)	1(0.059)	3(0.16)	0(0)	1(0.06)	3(0.18)	2(0.12)	2(0.11)	1(0.16)	0(0)	1(0.31)	0(0)	0(0)	1(0.34)	0(0)	1(0.26)
VH of unknown cause	4(0.11)	1(0.059)	3(0.16)	1(0.32)	2(0.13)	1(0.060)	2(0.12)	2(0.11)	1(0.16)	1(0.35)	0(0)	0(0)	0(0)	1(0.34)	1(0.44)	0(0)
ME of unknown cause	53(1.5)	24(1.4)	29(1.6)	9(2.8)	17(1.1)	27(1.6)	20(1.2)	33(1.7)	7(1.1)	1(0.35)	6(1.9)	2(3.5)	4(1.5)	1(0.34)	0(0)	7(1.8)
Others	113(3.2)	46(2.7)	67(3.6)	16(5.0)	41(2.6)	56(3.4)	44(2.6)	69(3.6)	27(4.4)	10(3.5)	17(5.3)	5(8.8)	13(5.0)	9(3.1)	5(2.2)	22(5.7)

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