



1           **GLOBAL BURDEN OF DISEASES**  
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# Global Burden of Cardiovascular Diseases 7           and Risks Collaboration, 1990-2021

  
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14           ■■■15           **Q2 FUNDING SUPPORT AND AUTHOR DISCLOSURES**  
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18           Funding was provided by the Bill and Melinda Gates Foundation. The  
19           authors have reported that they have no relationships relevant to the  
20           contents of this paper to disclose. The contents and views expressed  
21           in this report are those of the authors and do not necessarily reflect  
22           the official views of the National Institutes of Health, the Department  
23           of Health and Human Services, the U.S. Government, or the affiliated  
24           institutions.

  
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55           **APPENDIX** ■■■  
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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

# Cardiovascular Disease in Central Asia

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Central Asia had the highest age-standardized CVD mortality rate among GBD regions at 516.9 deaths per 100,000, 6.8-times higher than the GBD region with the lowest mortality rate. Non-rheumatic valvular heart disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (410.8%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 422.2. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 52.7%.

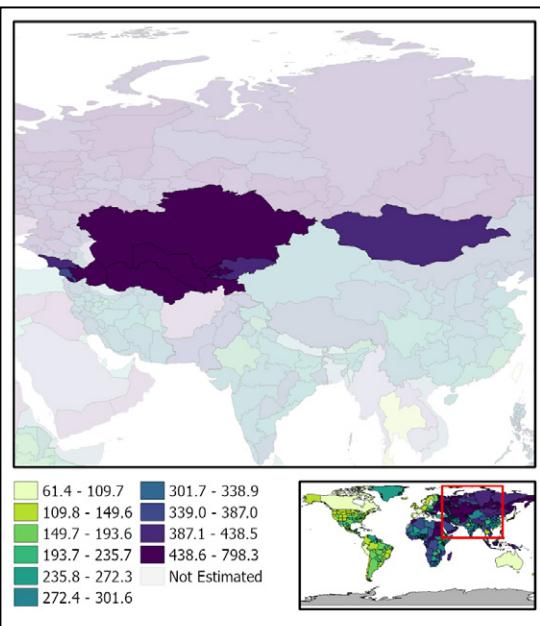


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	871,505	2,832	875.1	3.6	144.2
Ischemic heart disease	3,110,689	175,845	4,316.2	306.6	5,128.4
Ischemic stroke	844,343	46,717	1,018.4	89.8	1,483.2
Intracerebral hemorrhage	168,275	36,502	178.7	56.3	1,129.6
Subarachnoid hemorrhage	78,239	4,226	83.0	6.1	150.3
Hypertensive heart disease	64,841	14,629	98.5	27.1	421.3
Non-rheumatic calcific aortic valve disease	107,364	223	147.6	0.4	8.6
Non-rheumatic degenerative mitral valve disease	322,876	230	482.0	0.4	14.0
Other non-rheumatic valve diseases	222	63	0.3	0.1	2.1
Myocarditis	5,428	775	6.0	1.0	29.4
Alcoholic cardiomyopathy	5,361	1,002	5.7	1.1	37.3
Other cardiomyopathy	53,935	10,679	62.7	14.2	374.0
Pulmonary arterial hypertension	2,161	334	2.3	0.5	13.5
Atrial fibrillation and flutter	367,236	1,494	545.7	3.3	81.0
Aortic aneurysm	Not estimated	1,510	Not estimated	2.3	45.6
Lower extremity peripheral arterial disease	710,900	324	995.1	0.6	13.7
Endocarditis	861	157	1.0	0.2	6.8
Other cardiovascular and circulatory diseases	404,881	2,170	499.4	3.2	98.9

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxx](https://healthdata.org/xxxx))

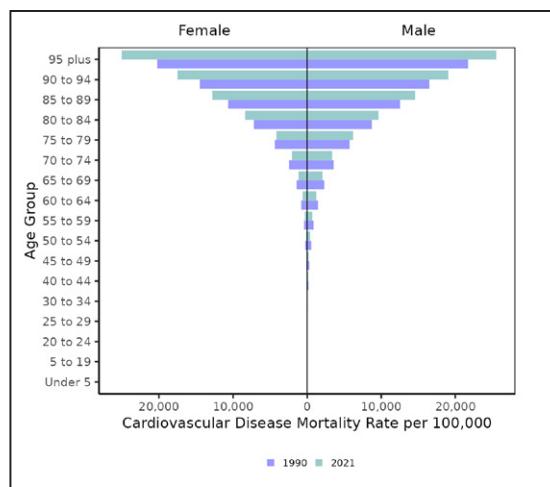


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

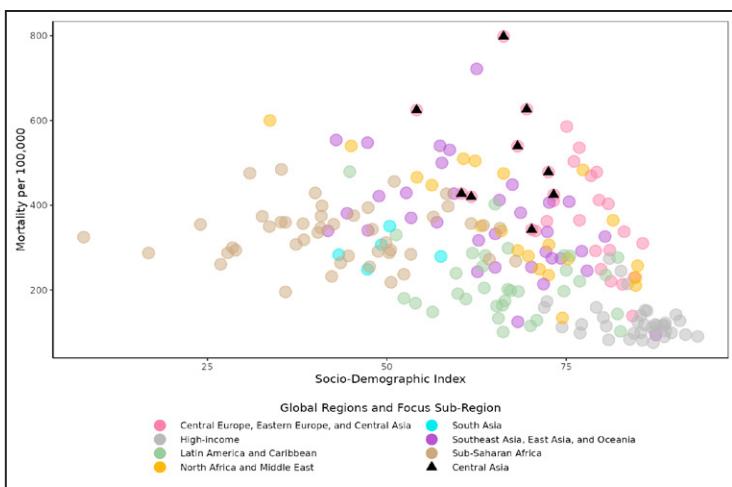


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

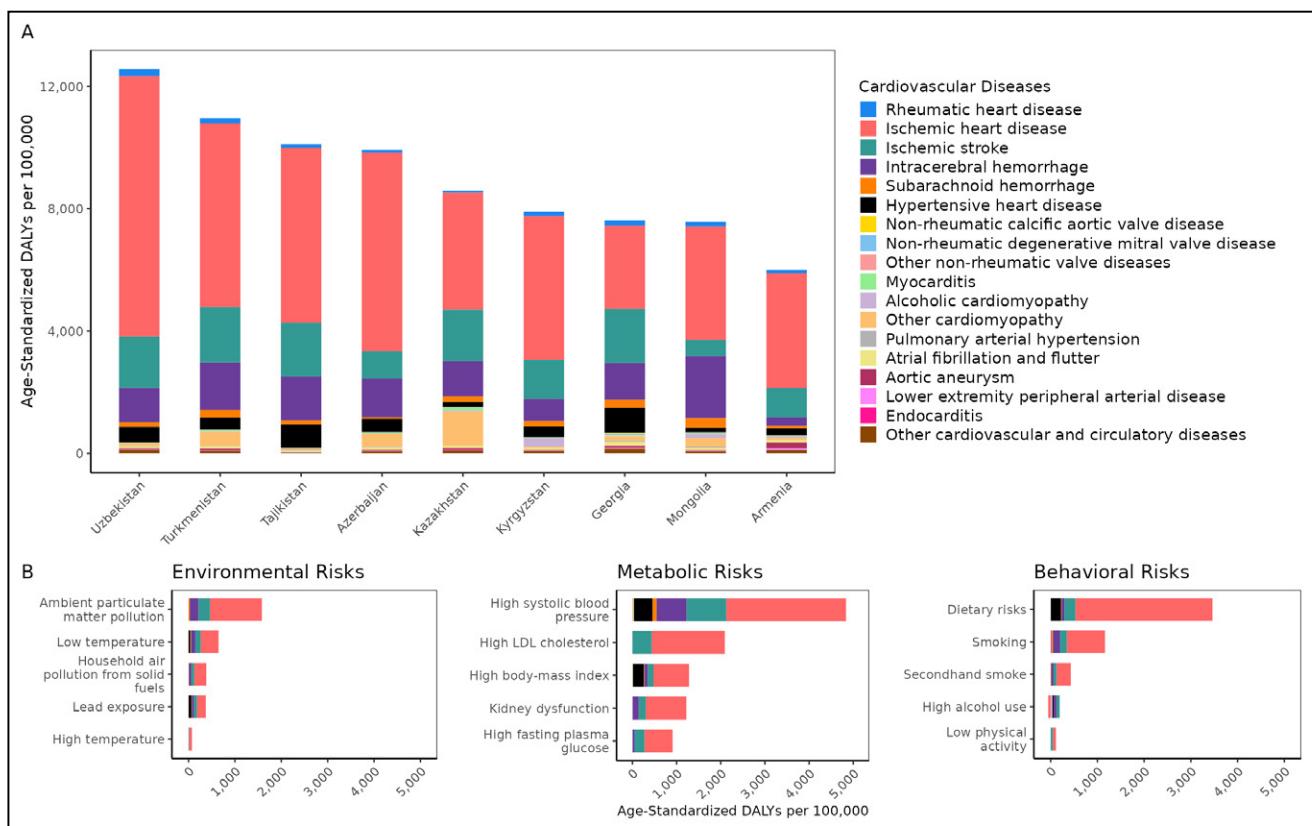


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

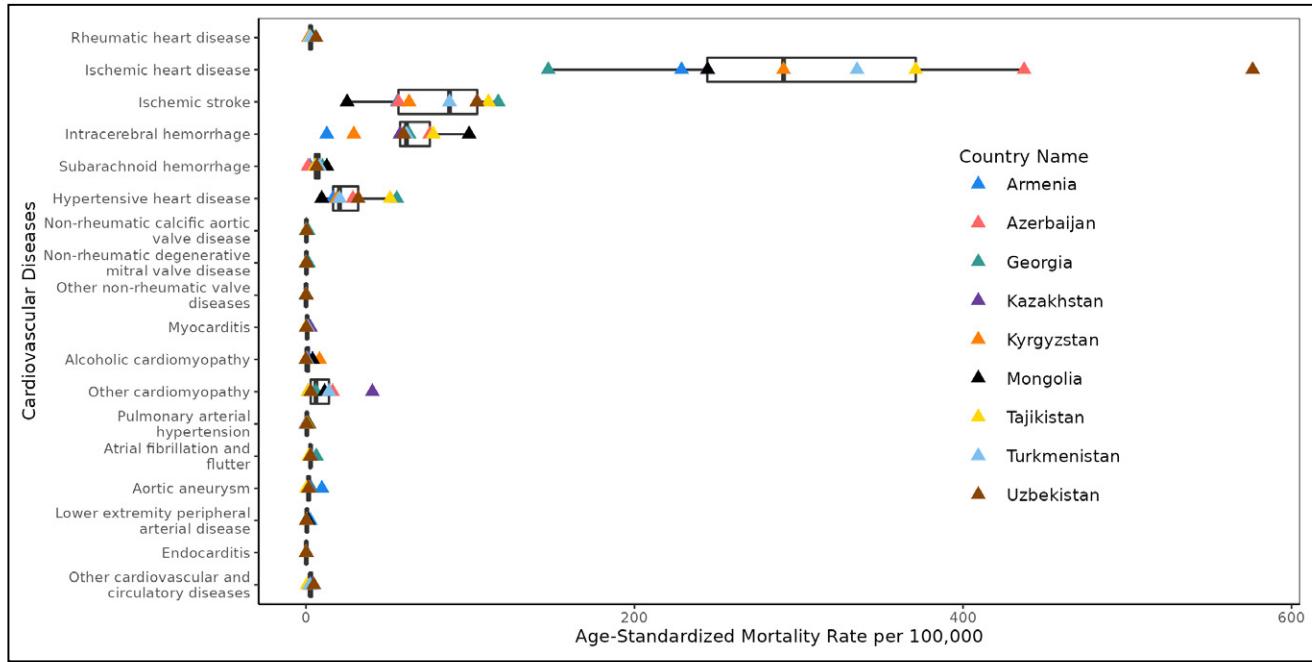


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Central Europe

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Central Europe ranged from 138.7 to 585.8 per 100,000 in 2021- a 4.2-fold difference. Non-rheumatic valvular heart disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (144.4%), while rheumatic heart disease had the largest percent decrease (79.0%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 400.8. High SBP accounted for the largest proportion of DALYs at 54.4%.

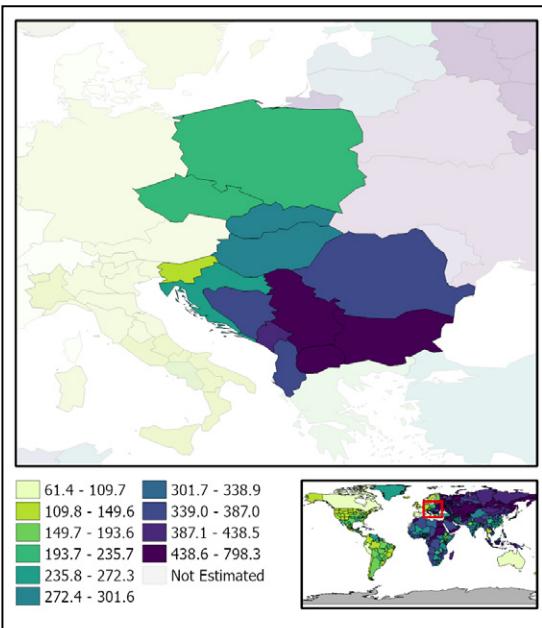


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	153,919	3,131	87.5	1.4	34.3
Ischemic heart disease	7,098,279	340,777	3,209.6	145.6	2,373.4
Ischemic stroke	1,630,757	164,142	779.5	67.9	1,046.3
Intracerebral hemorrhage	134,366	48,398	85.6	21.3	442.9
Subarachnoid hemorrhage	112,768	7,144	71.2	3.5	106.2
Hypertensive heart disease	354,034	62,674	153.5	26.5	399.1
Non-rheumatic calcific aortic valve disease	868,254	6,552	381.9	2.8	48.4
Non-rheumatic degenerative mitral valve disease	668,218	2,472	288.2	1.1	23.7
Other non-rheumatic valve diseases	1,286	281	0.8	0.1	2.5
Myocarditis	11,859	2,604	10.2	1.3	33.9
Alcoholic cardiomyopathy	42,276	5,521	25.2	2.8	83.4
Other cardiomyopathy	159,373	22,337	95.9	9.8	179.5
Pulmonary arterial hypertension	3,497	445	2.3	0.2	6.1
Atrial fibrillation and flutter	1,589,049	11,546	684.8	4.8	108.6
Aortic aneurysm	Not estimated	6,772	Not estimated	3.0	62.1
Lower extremity peripheral arterial disease	2,477,516	6,745	1,103.3	2.9	46.4
Endocarditis	7,091	1,292	6.0	0.6	19.4
Other cardiovascular and circulatory diseases	1,864,135	7,072	955.2	3.2	117.3

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

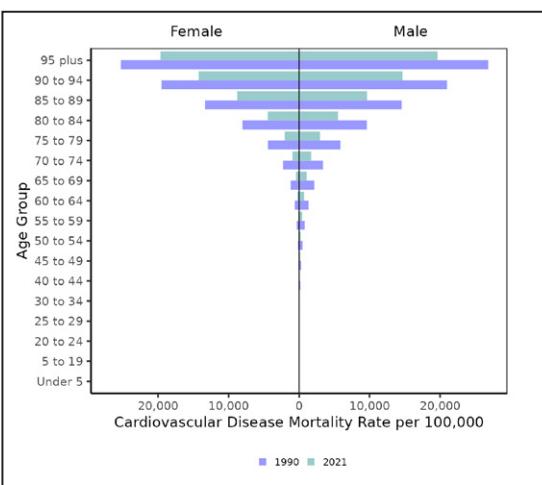


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

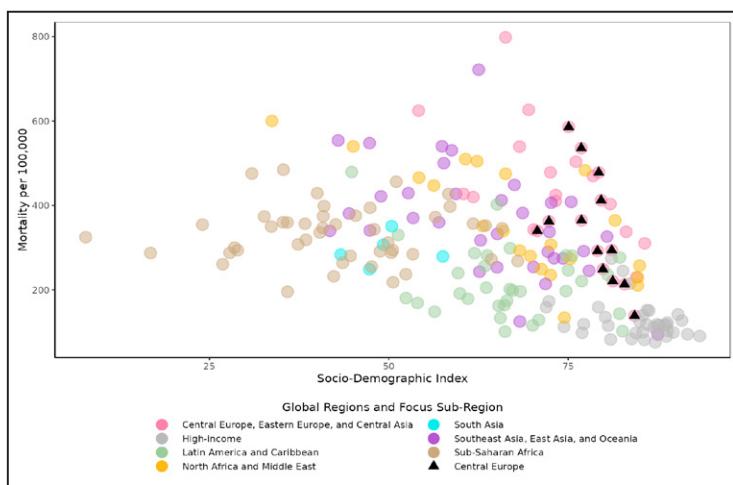


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

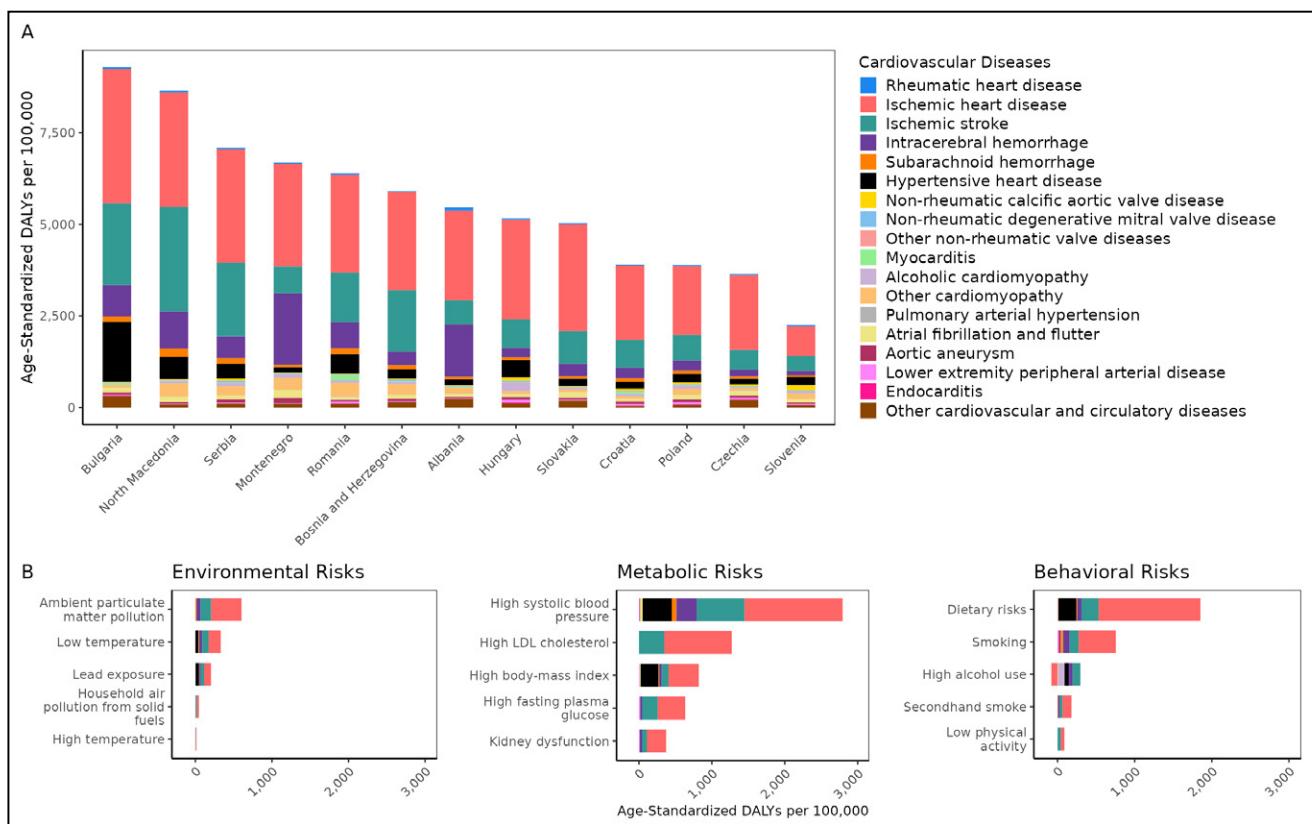


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

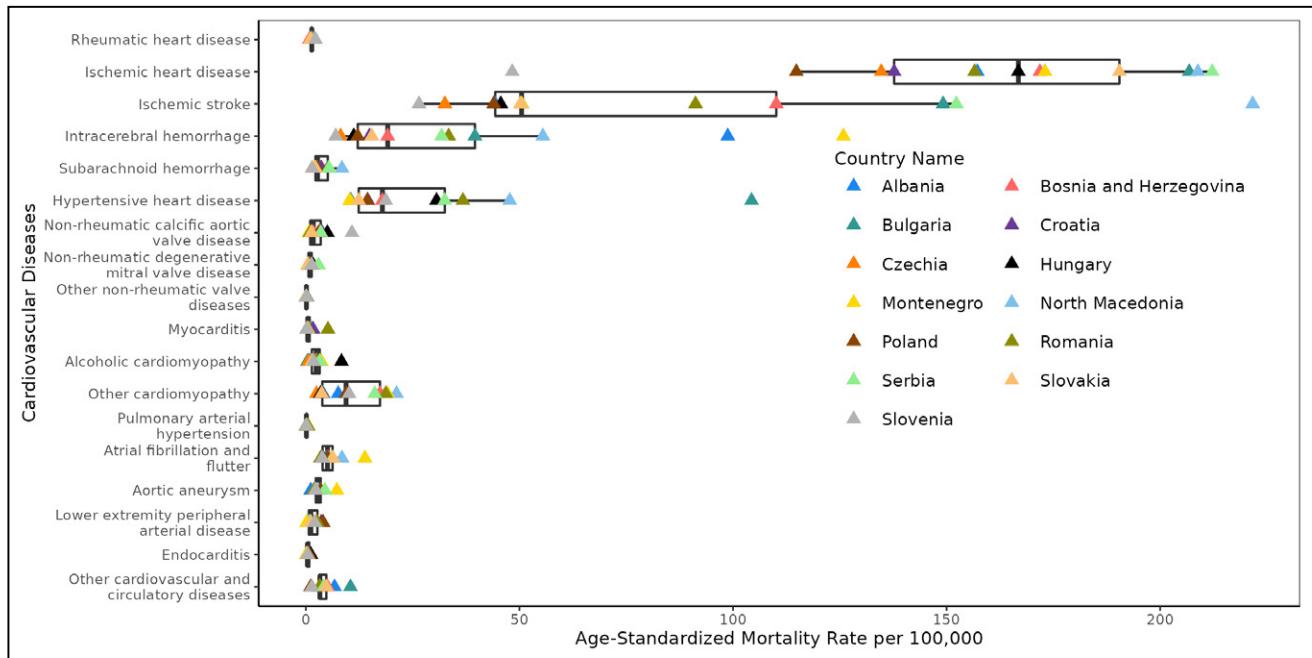


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Eastern Europe

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Eastern Europe ranged from 229.8 to 503.5 per 100,000 in 2021-a 2.2-fold difference. Non-rheumatic valvular heart disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (341.0%), while rheumatic heart disease had the largest percent decrease (79.9%). After ischemic heart disease and stroke, alcoholic cardiomyopathy had the highest age-standardized DALY rate of 497.9. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 49.6%.

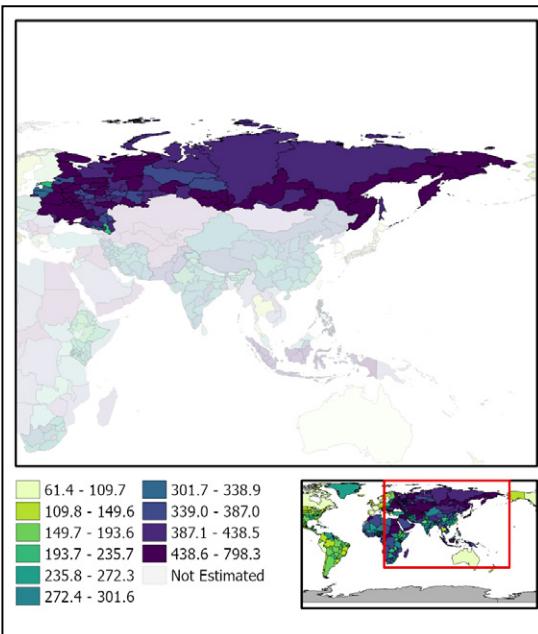


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	489,849	3,629	150.3	1.0	33.3
Ischemic heart disease	17,866,169	927,136	4,978.0	253.5	4,420.5
Ischemic stroke	3,098,259	341,741	922.3	92.2	1,507.8
Intracerebral hemorrhage	332,775	80,467	112.9	23.0	578.6
Subarachnoid hemorrhage	248,110	18,714	85.4	5.5	158.9
Hypertensive heart disease	171,760	27,455	46.8	7.5	133.0
Non-rheumatic calcific aortic valve disease	973,783	2,332	266.8	0.7	17.9
Non-rheumatic degenerative mitral valve disease	939,865	787	255.9	0.2	8.9
Other non-rheumatic valve diseases	393	108	0.2	<0.1	1.1
Myocarditis	14,298	1,437	6.2	0.5	13.0
Alcoholic cardiomyopathy	179,684	40,136	63.9	13.4	511.0
Other cardiomyopathy	162,525	31,906	75.5	10.4	351.4
Pulmonary arterial hypertension	7,817	293	2.8	0.1	3.3
Atrial fibrillation and flutter	2,385,021	16,675	653.5	4.5	102.9
Aortic aneurysm	Not estimated	13,884	Not estimated	3.9	89.1
Lower extremity peripheral arterial disease	4,520,260	10,263	1,243.8	2.8	51.2
Endocarditis	10,145	2,682	5.0	0.9	39.2
Other cardiovascular and circulatory diseases	2,937,229	15,585	865.4	4.5	152.1

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

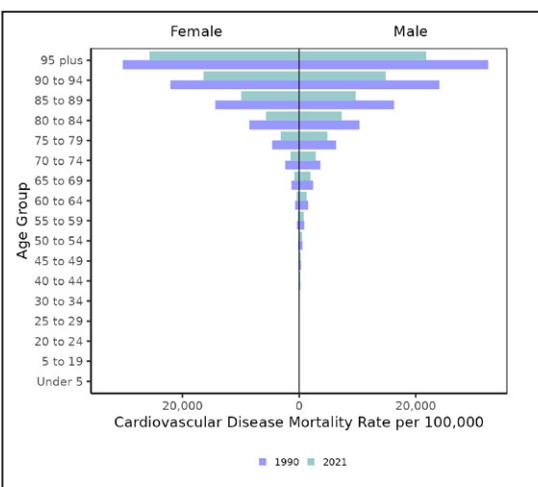


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

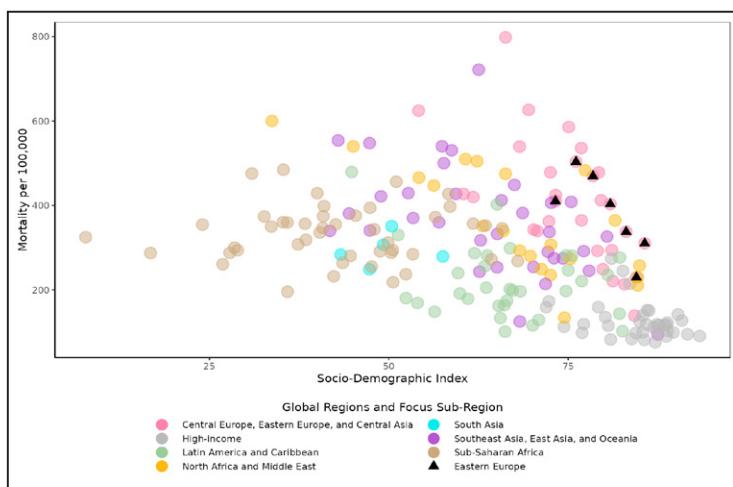


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

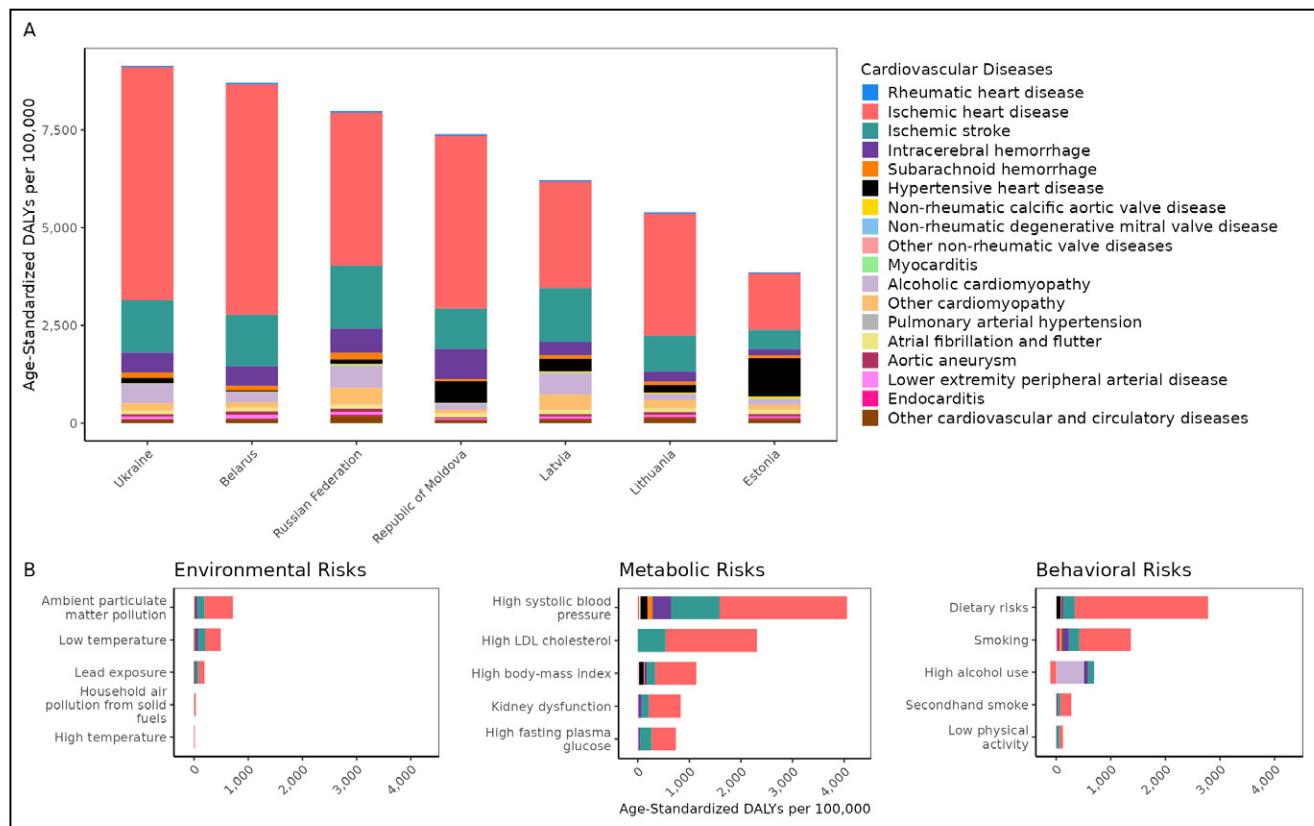


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

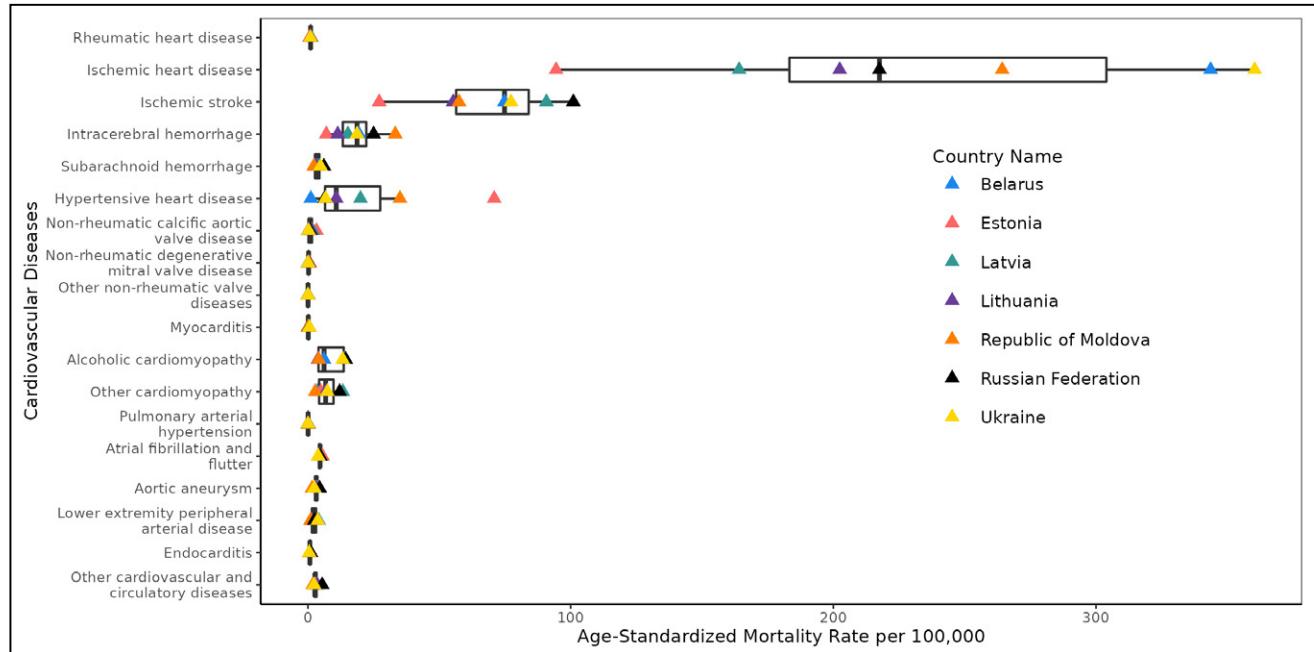


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Australasia

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Australasia had the largest percent reduction in age-standardized CVD mortality rate since 1990 (64.2%), decreasing from 285 to 102.2 deaths per 100,000. Endocarditis had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (133.3%), while ischemic heart disease had the largest percent decrease (71.8%). After ischemic heart disease and stroke, the residual group of other CVD had the highest age-standardized DALY rate of 144.6. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of CVD DALYs at 38.4%.

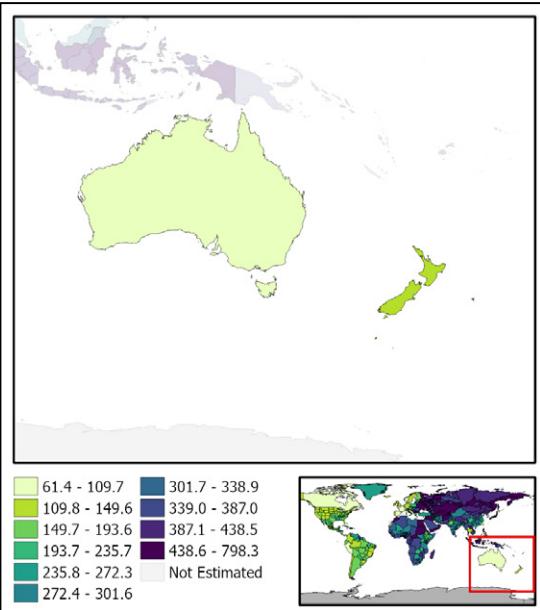


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	21,473	652	48.2	1.2	27.4
Ischemic heart disease	1,037,802	30,199	1,978.8	50.6	806.9
Ischemic stroke	291,255	9,924	584.7	15.4	241.6
Intracerebral hemorrhage	31,738	4,114	72.4	7.1	127.0
Subarachnoid hemorrhage	34,450	1,387	79.9	2.7	74.6
Hypertensive heart disease	31,895	1,591	56.9	2.6	38.2
Non-rheumatic calcific aortic valve disease	188,748	2,115	336.1	3.4	44.1
Non-rheumatic degenerative mitral valve disease	113,412	382	202.3	0.6	11.8
Other non-rheumatic valve diseases	52	5	0.1	<0.1	0.2
Myocarditis	3,627	77	13.4	0.2	10.4
Alcoholic cardiomyopathy	12,238	454	27.8	0.9	29.0
Other cardiomyopathy	37,508	1,289	106.4	2.4	61.8
Pulmonary arterial hypertension	1,144	61	2.8	0.1	3.9
Atrial fibrillation and flutter	498,703	4,580	919.5	7.2	144.3
Aortic aneurysm	Not estimated	1,631	Not estimated	2.8	46.0
Lower extremity peripheral arterial disease	633,825	1,100	1,201.6	1.7	23.5
Endocarditis	4,297	655	9.8	1.2	23.9
Other cardiovascular and circulatory diseases	965,498	1,194	2,017.4	2.2	147.6

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

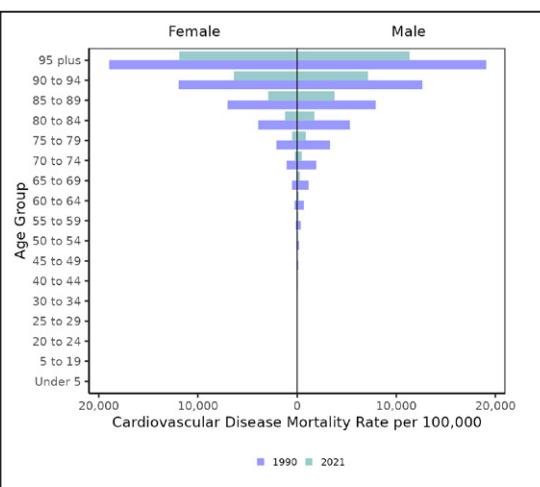


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

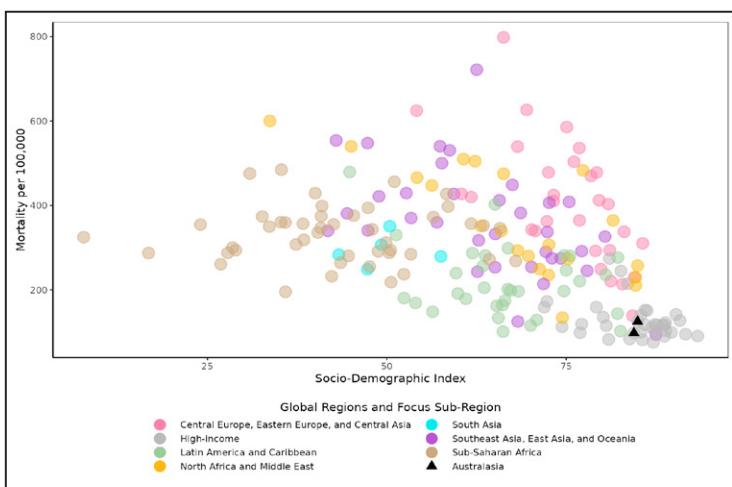


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

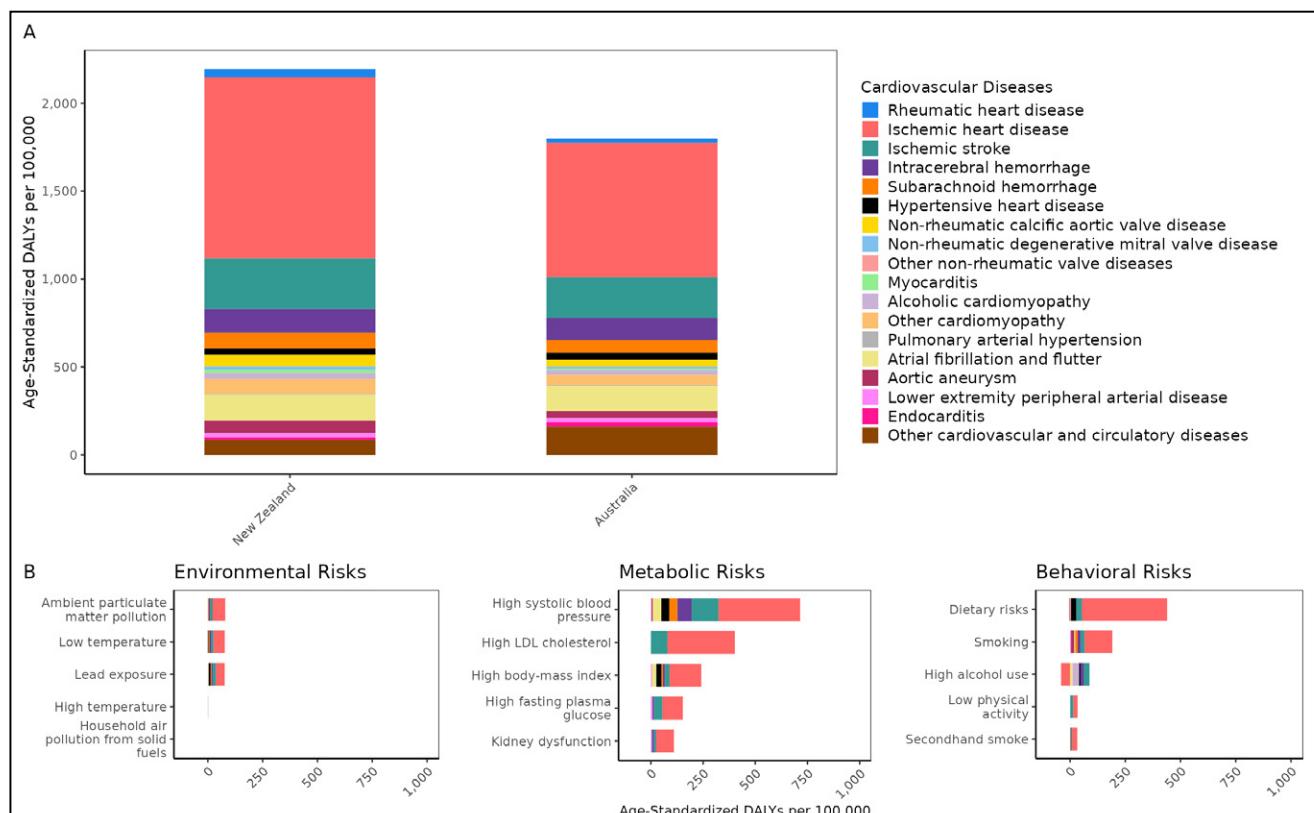


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

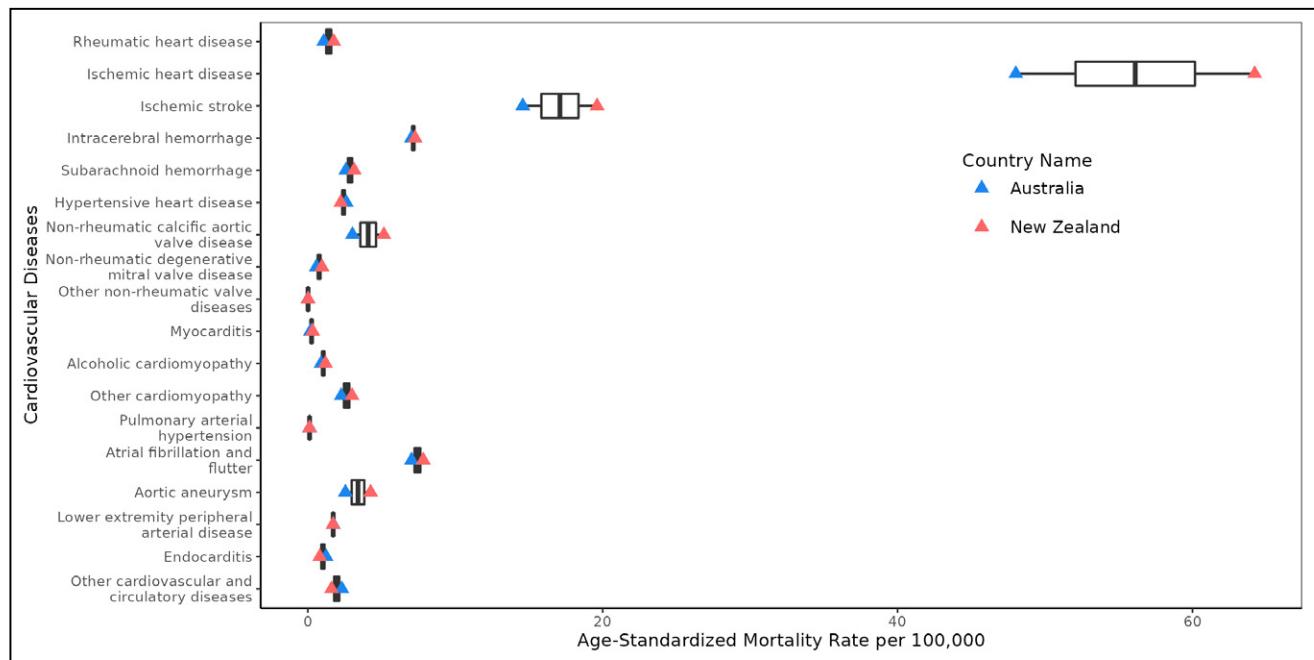


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in High-income Asia Pacific

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** High-income Asia Pacific had the lowest age-standardized CVD mortality rate among all GBD regions at 76.6 deaths per 100,000. Aortic aneurysm had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (58.8%), while hypertensive heart disease had the largest percent decrease (71.2%). After ischemic heart disease and stroke, aortic aneurysm had the highest age-standardized DALY rate of 75.1. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of CVD DALYs at 42.8%.

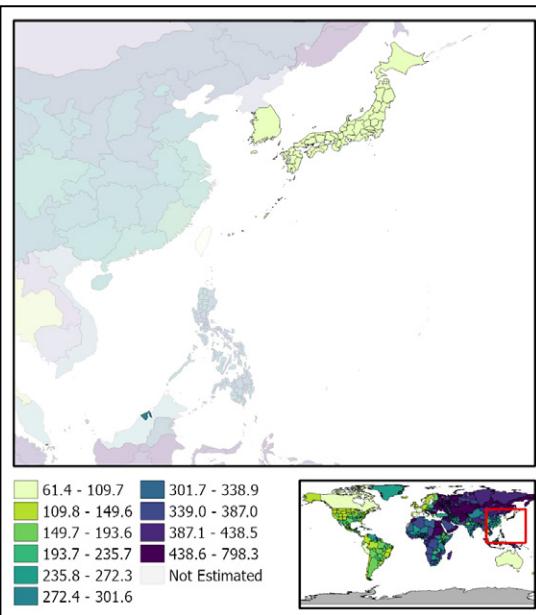


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	129,481	5,443	33.3	0.8	12.4
Ischemic heart disease	3,903,792	159,066	827.8	26.6	475.8
Ischemic stroke	3,362,006	117,791	780.9	16.6	322.9
Intracerebral hemorrhage	810,470	57,384	227.6	10.5	247.6
Subarachnoid hemorrhage	759,406	18,564	193.4	4.0	134.0
Hypertensive heart disease	312,145	22,294	60.5	3.1	44.8
Non-rheumatic calcific aortic valve disease	1,476,923	20,160	286.3	2.6	30.3
Non-rheumatic degenerative mitral valve disease	1,973,049	4,077	392.8	0.6	11.4
Other non-rheumatic valve diseases	342	27	0.1	<0.1	0.2
Myocarditis	24,030	578	14.2	0.2	9.0
Alcoholic cardiomyopathy	13,391	493	5.0	0.1	4.3
Other cardiomyopathy	206,362	9,885	82.6	1.8	44.4
Pulmonary arterial hypertension	9,323	1,091	3.0	0.2	8.4
Atrial fibrillation and flutter	2,215,265	17,920	470.4	2.6	67.4
Aortic aneurysm	Not estimated	26,819	Not estimated	4.5	76.6
Lower extremity peripheral arterial disease	6,155,279	2,631	1,268.2	0.4	9.1
Endocarditis	25,136	5,820	7.0	0.9	14.7
Other cardiovascular and circulatory diseases	3,470,095	5,621	984.5	1.0	71.9

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

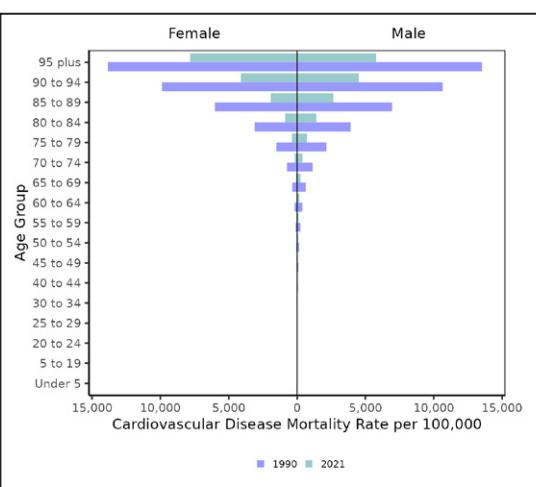


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

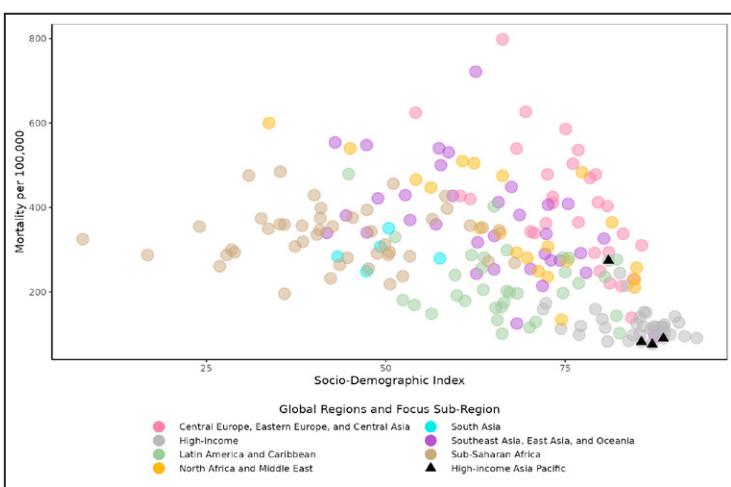


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

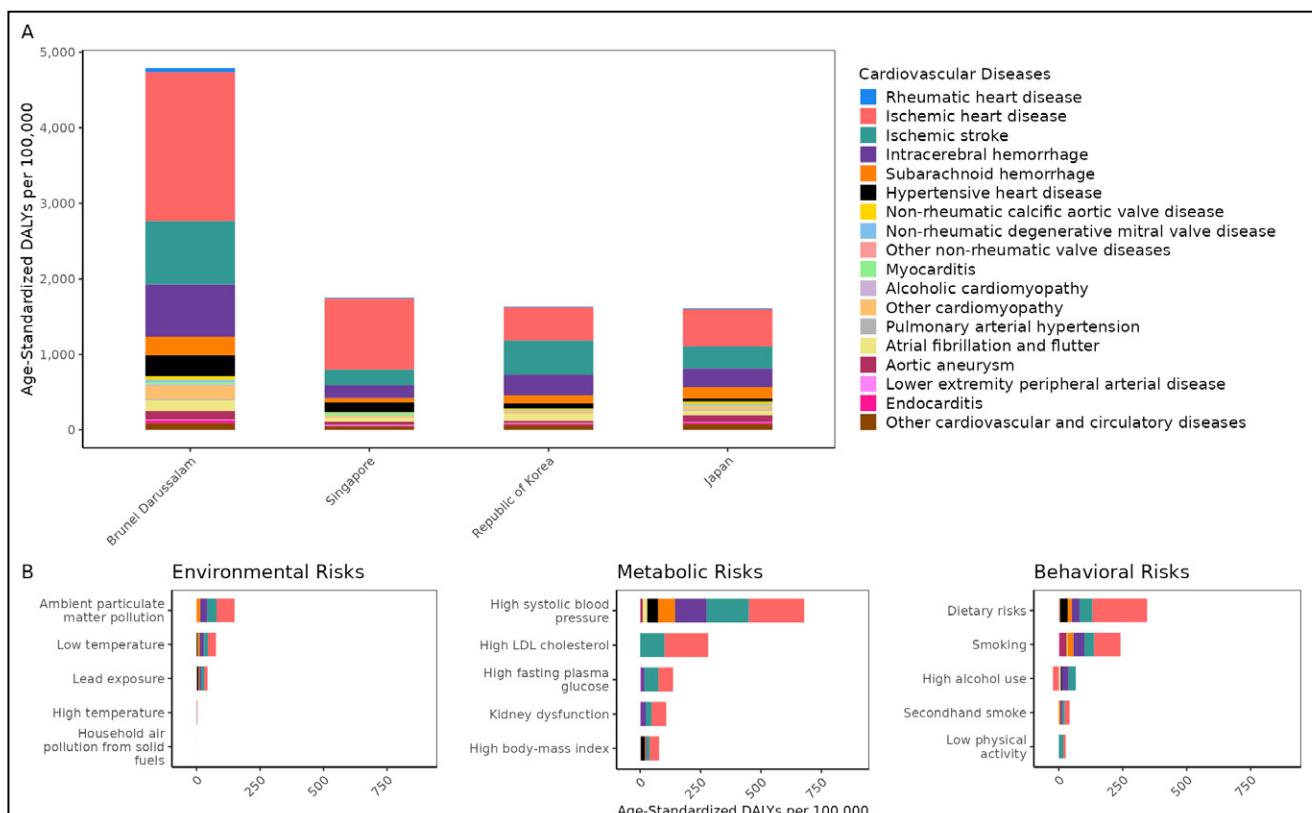


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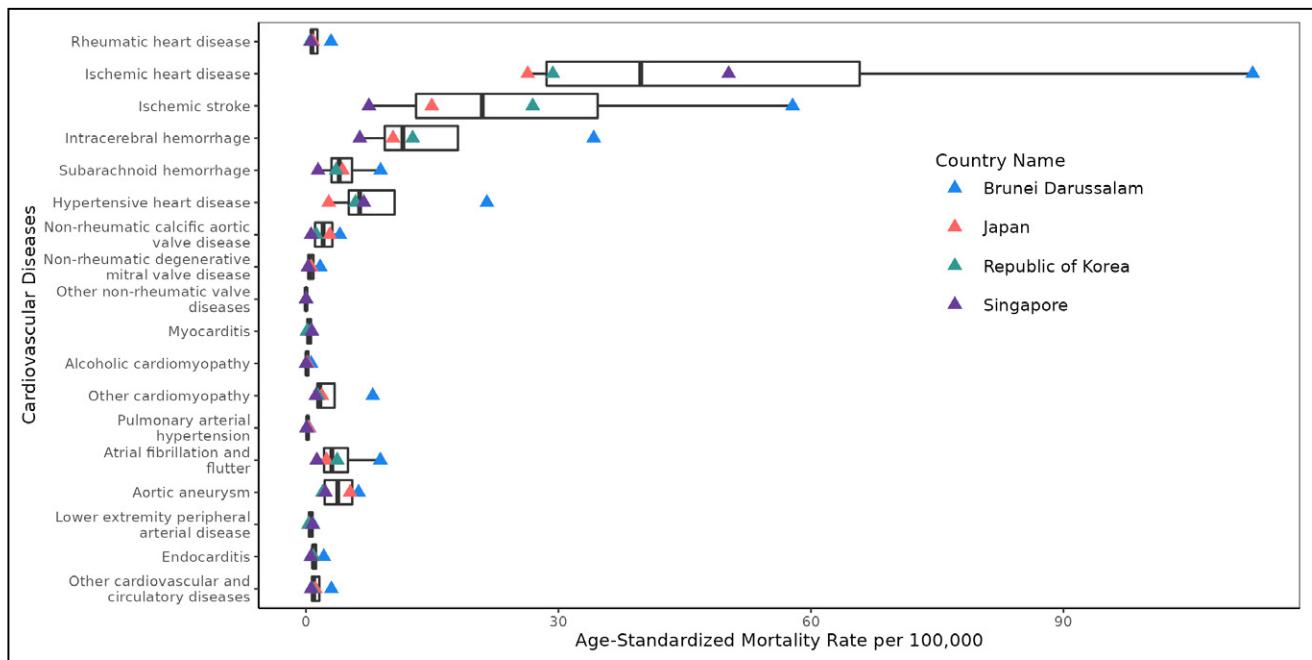


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in High-income North America

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in High-income North America ranged from 102.1 to 224.8 per 100,000 in 2021- a 2.6-fold difference. Hypertensive heart disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (53.3%), while rheumatic heart disease had the largest percent decrease (61.2%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 226.4. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 40.5%.

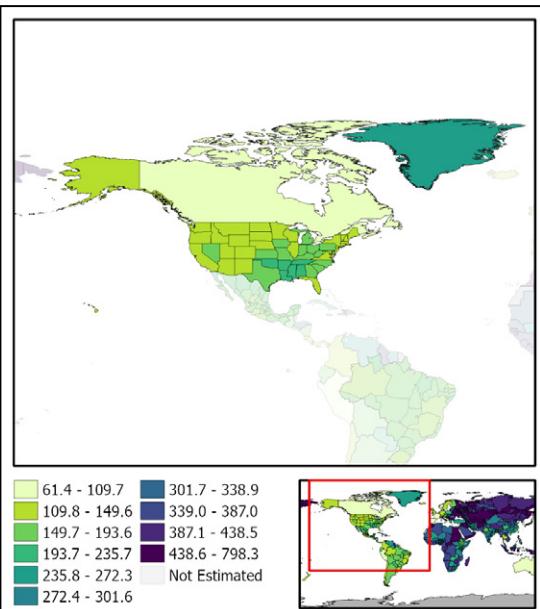


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	793,496	6,093	123.1	0.9	22.3
Ischemic heart disease	9,757,144	553,789	1,503.6	79.0	1,412.6
Ischemic stroke	5,694,020	131,936	954.9	17.6	339.0
Intracerebral hemorrhage	841,893	64,575	154.7	9.6	216.5
Subarachnoid hemorrhage	510,373	20,245	98.3	3.3	96.7
Hypertensive heart disease	1,002,000	73,161	159.6	10.8	229.2
Non-rheumatic calcific aortic valve disease	2,776,358	28,573	406.5	3.8	51.4
Non-rheumatic degenerative mitral valve disease	3,930,776	4,367	566.7	0.6	17.0
Other non-rheumatic valve diseases	690	74	0.2	<0.1	0.3
Myocarditis	50,603	846	16.0	0.2	13.7
Alcoholic cardiomyopathy	92,948	6,087	18.1	1.0	32.1
Other cardiomyopathy	508,985	25,027	121.8	3.9	99.4
Pulmonary arterial hypertension	8,576	1,943	1.7	0.3	7.9
Atrial fibrillation and flutter	7,116,172	40,871	1,039.9	5.4	139.9
Aortic aneurysm	Not estimated	14,446	Not estimated	2.2	44.5
Lower extremity peripheral arterial disease	16,398,908	12,758	2,500.5	1.8	34.5
Endocarditis	50,337	10,947	10.2	1.7	37.7
Other cardiovascular and circulatory diseases	10,267,046	21,218	1,882.7	3.4	182.4

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

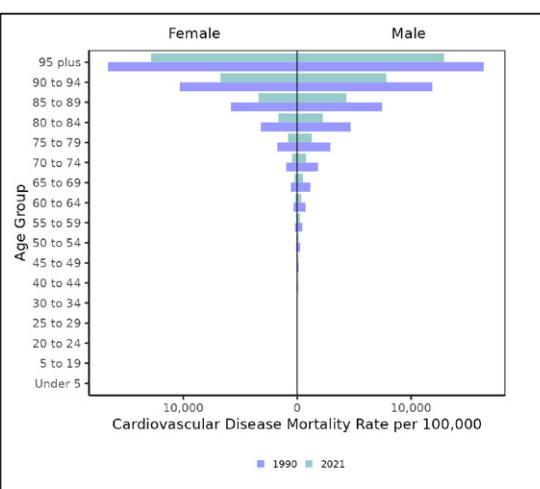


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

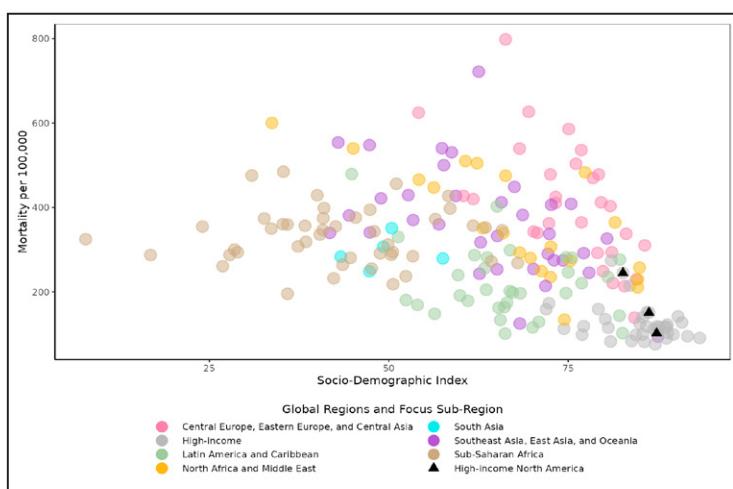


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

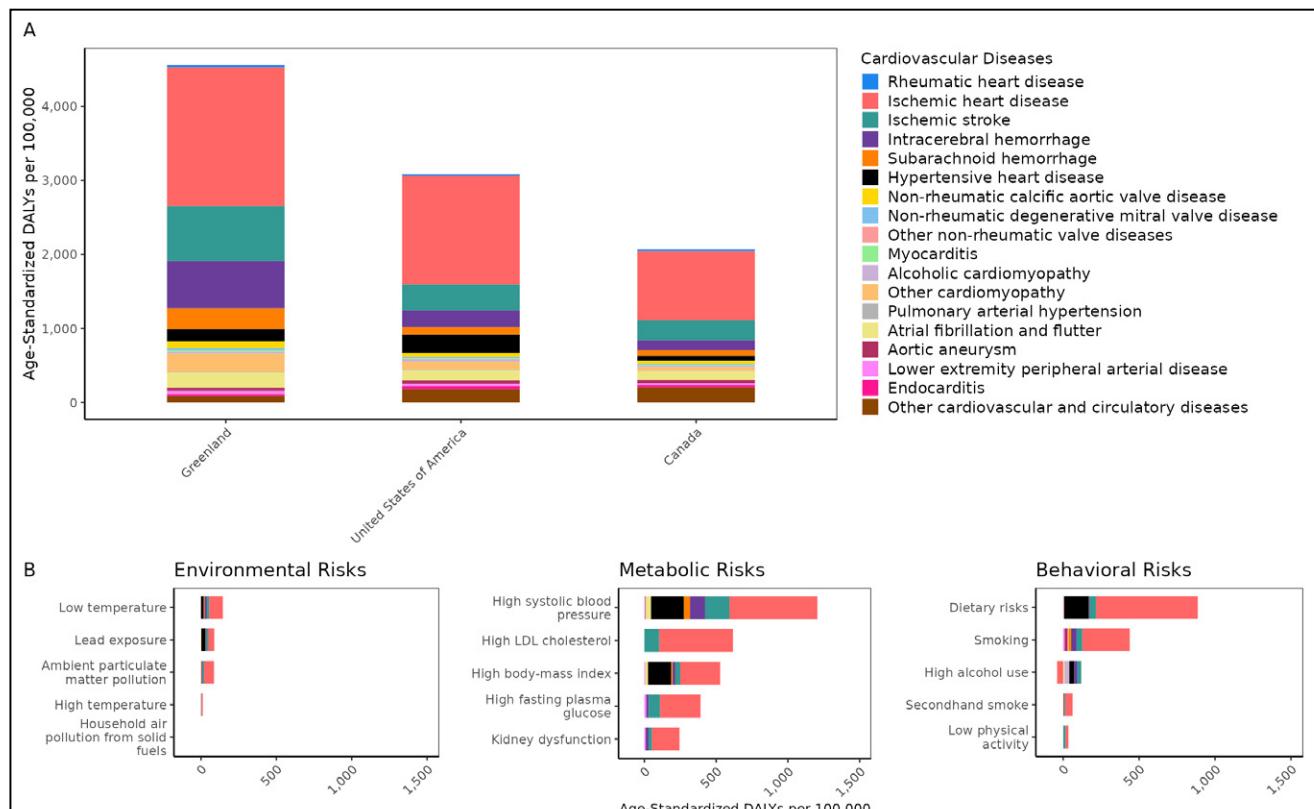


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

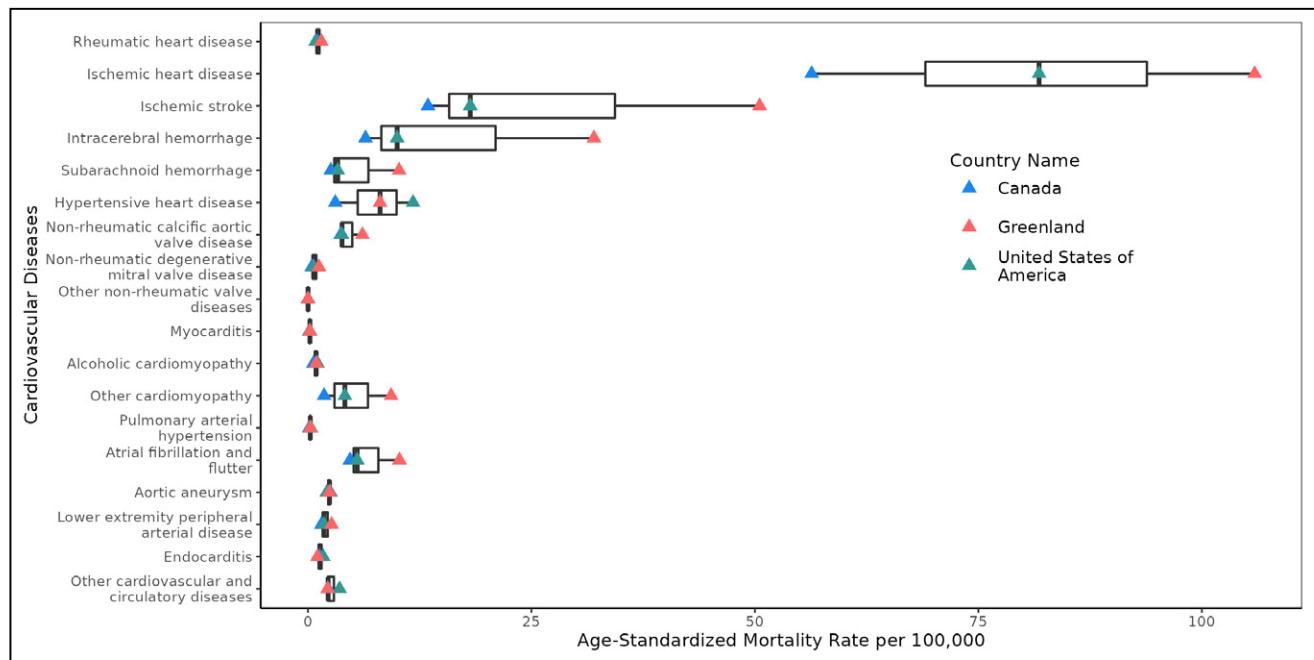


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Southern Latin America

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Southern Latin America ranged from 118.8 to 172.8 per 100,000 in 2021—a 1.5-fold difference. The residual other CVD group had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (77.7%), while rheumatic heart disease had the largest percent decrease (70.7%). After ischemic heart disease and stroke, the residual group of other CVD had the highest age-standardized DALY rate of 257.6. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 42.0%.

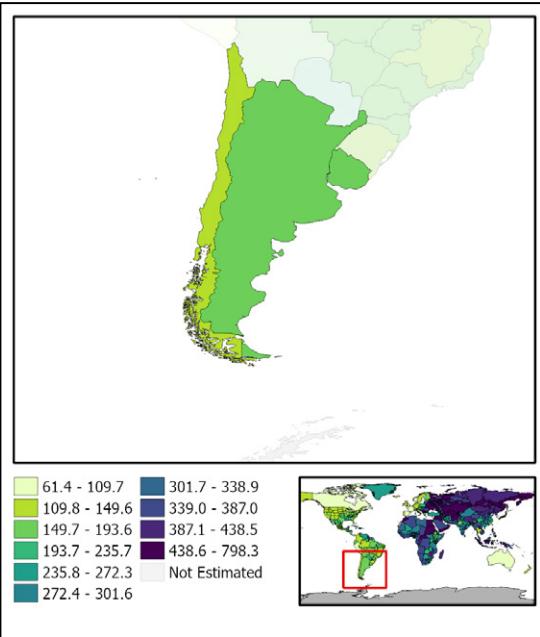


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	497,842	1,197	709.3	1.4	57.3
Ischemic heart disease	1,344,009	54,771	1,546.9	61.6	1,123.1
Ischemic stroke	547,008	21,961	643.5	24.2	401.0
Intracerebral hemorrhage	159,377	14,653	199.6	16.7	392.8
Subarachnoid hemorrhage	98,253	3,888	122.5	4.6	141.9
Hypertensive heart disease	96,330	14,319	108.7	15.9	220.2
Non-rheumatic calcific aortic valve disease	234,687	3,075	264.0	3.4	53.9
Non-rheumatic degenerative mitral valve disease	123,690	364	139.0	0.4	10.0
Other non-rheumatic valve diseases	23	4	<0.1	<0.1	0.1
Myocarditis	3,473	96	4.7	0.1	4.1
Alcoholic cardiomyopathy	2,083	185	2.6	0.2	6.3
Other cardiomyopathy	71,449	8,146	97.0	9.3	192.2
Pulmonary arterial hypertension	2,229	167	2.8	0.2	7.1
Atrial fibrillation and flutter	348,666	3,732	394.1	4.1	75.7
Aortic aneurysm	Not estimated	2,601	Not estimated	2.9	59.6
Lower extremity peripheral arterial disease	1,315,488	518	1,502.0	0.6	14.0
Endocarditis	4,509	1,574	6.0	1.8	40.8
Other cardiovascular and circulatory diseases	1,671,296	7,765	1,981.7	8.7	257.9

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

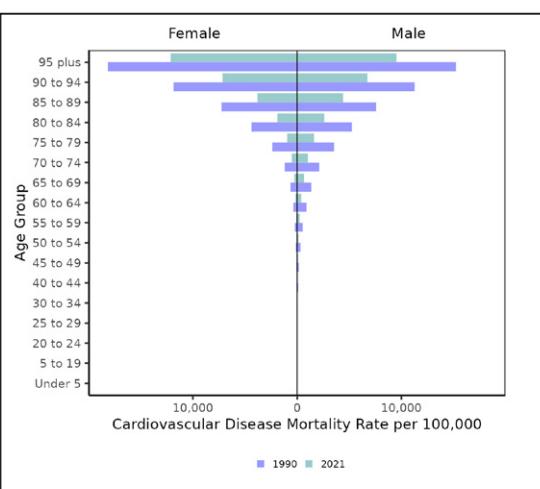


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

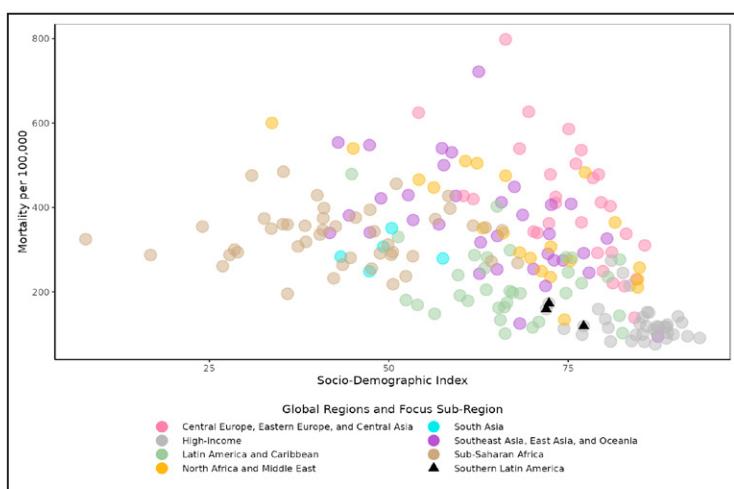


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

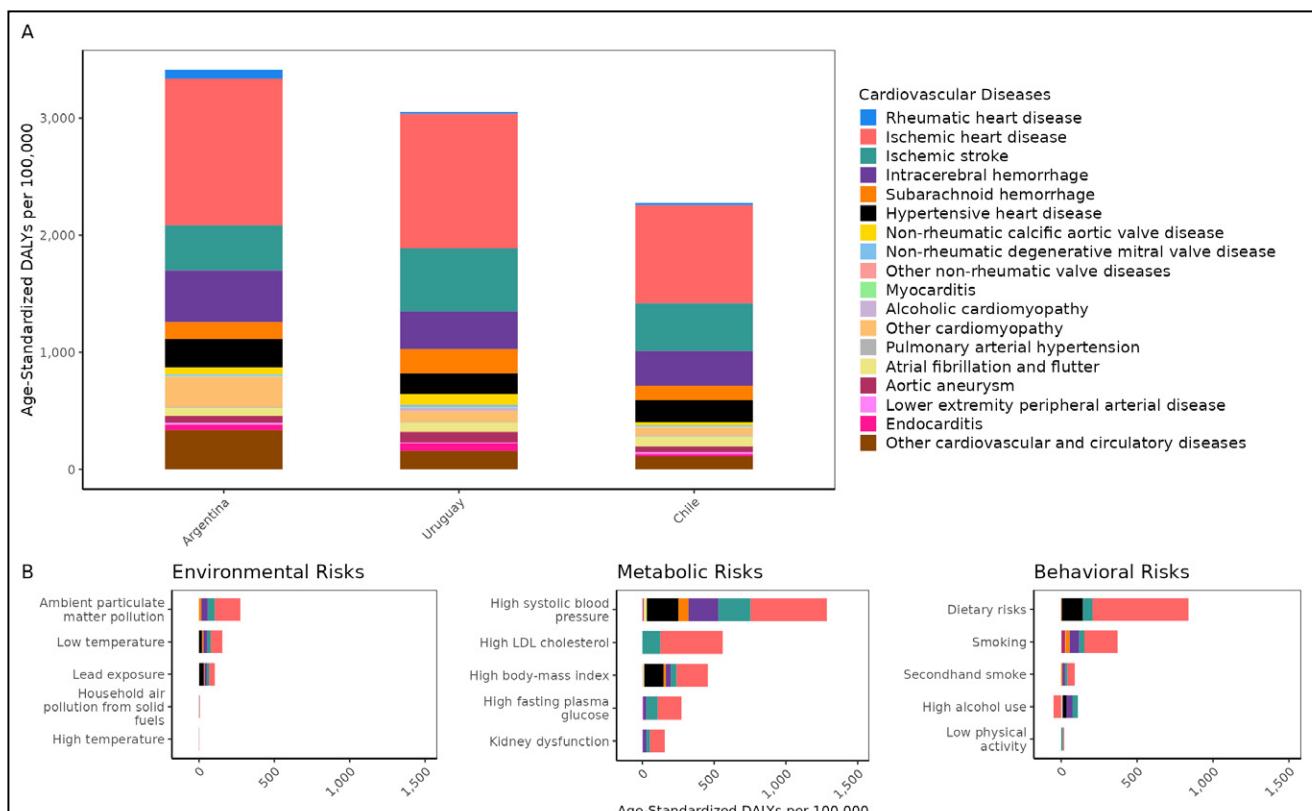


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

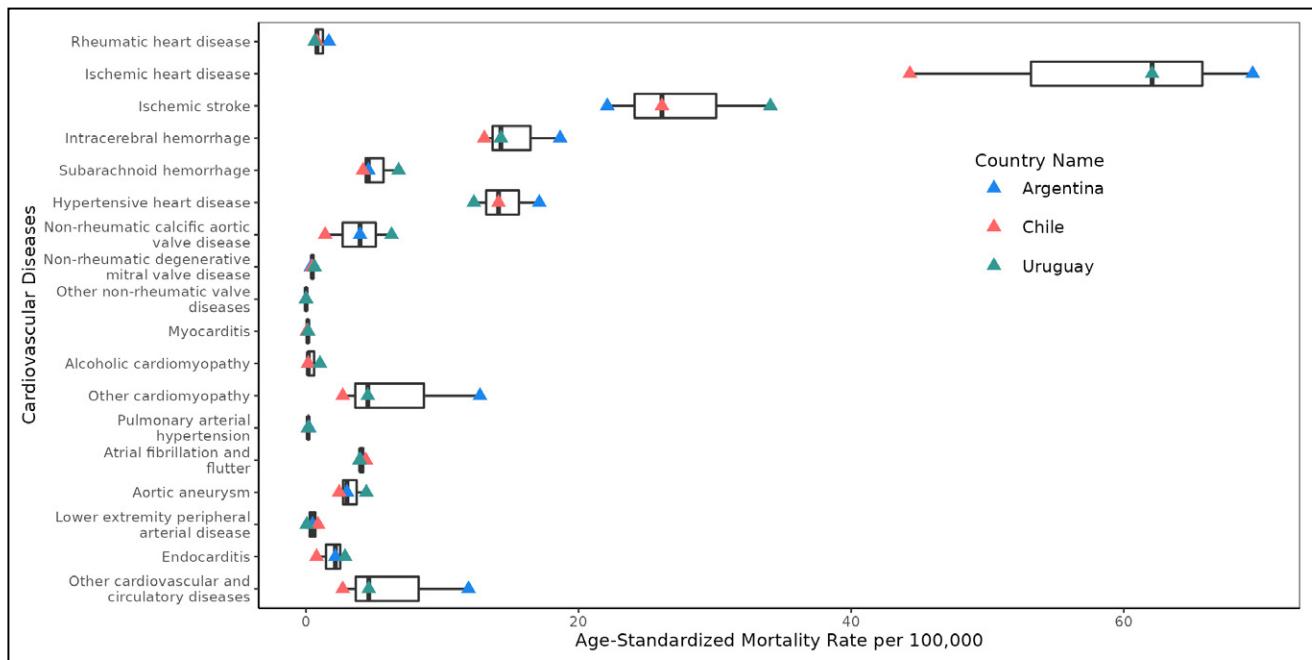


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Western Europe

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Western Europe ranged from 82.4 to 214.6 per 100,000 in 2021- a 2.6-fold difference. Endocarditis had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (86.0%), while stroke had the largest percent decrease (-66.6%). After ischemic heart disease and stroke, the residual group of other cardiovascular disease had the highest age-standardized DALY rate of 163. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 43.0%.

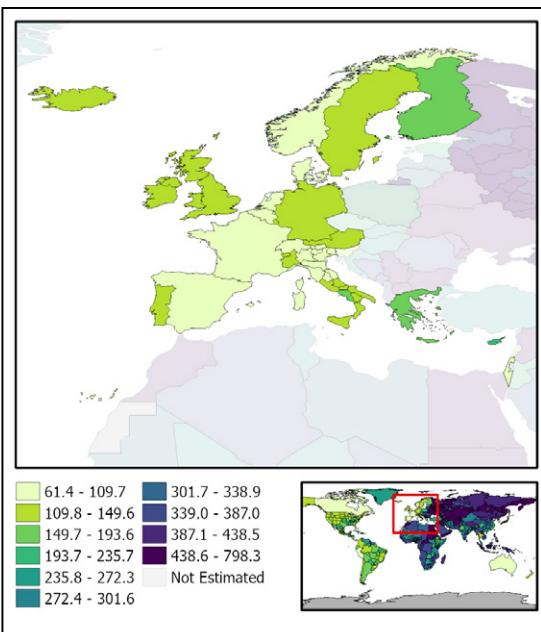


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	390,640	18,636	44.0	1.6	28.0
Ischemic heart disease	13,390,457	581,161	1,488.1	50.6	833.3
Ischemic stroke	5,589,186	232,019	629.6	18.0	288.8
Intracerebral hemorrhage	758,060	94,554	103.4	8.6	160.3
Subarachnoid hemorrhage	612,729	23,454	86.5	2.4	68.9
Hypertensive heart disease	1,204,189	115,286	110.2	8.9	106.4
Non-rheumatic calcific aortic valve disease	4,345,373	57,599	428.9	4.6	60.6
Non-rheumatic degenerative mitral valve disease	3,178,139	9,929	313.9	0.8	15.8
Other non-rheumatic valve diseases	1,690	287	0.3	<0.1	0.5
Myocarditis	41,069	2,255	8.3	0.2	6.3
Alcoholic cardiomyopathy	96,673	5,207	14.6	0.6	18.1
Other cardiomyopathy	532,195	33,396	85.8	3.0	60.7
Pulmonary arterial hypertension	23,784	1,916	3.6	0.2	5.2
Atrial fibrillation and flutter	8,491,081	77,641	852.0	6.0	127.7
Aortic aneurysm	Not estimated	29,272	Not estimated	2.7	48.5
Lower extremity peripheral arterial disease	17,693,423	18,755	1,884.1	1.5	27.2
Endocarditis	95,993	19,624	12.9	1.7	30.6
Other cardiovascular and circulatory diseases	17,769,132	32,942	2,152.7	3.0	165.3

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

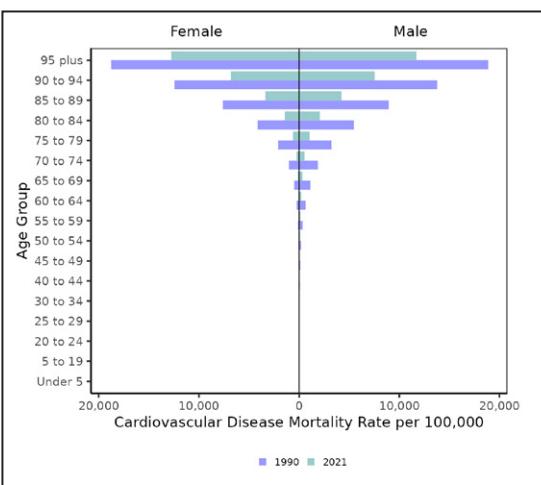


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

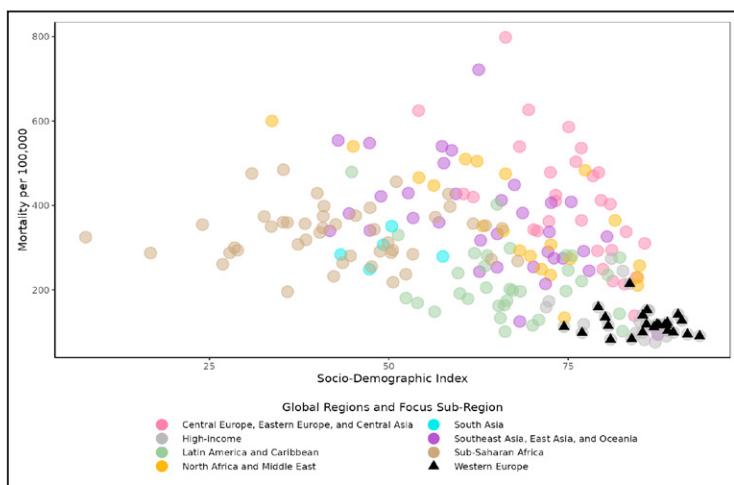


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

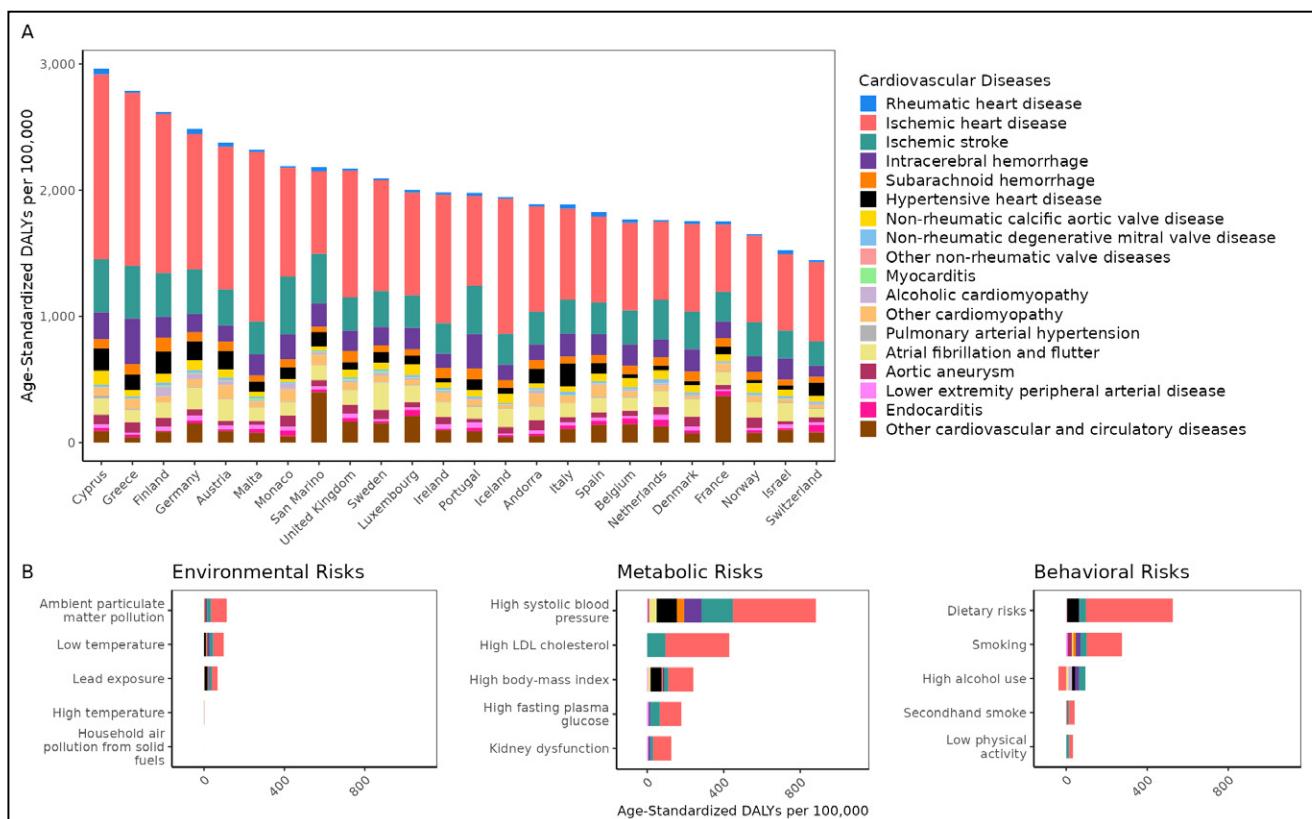


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

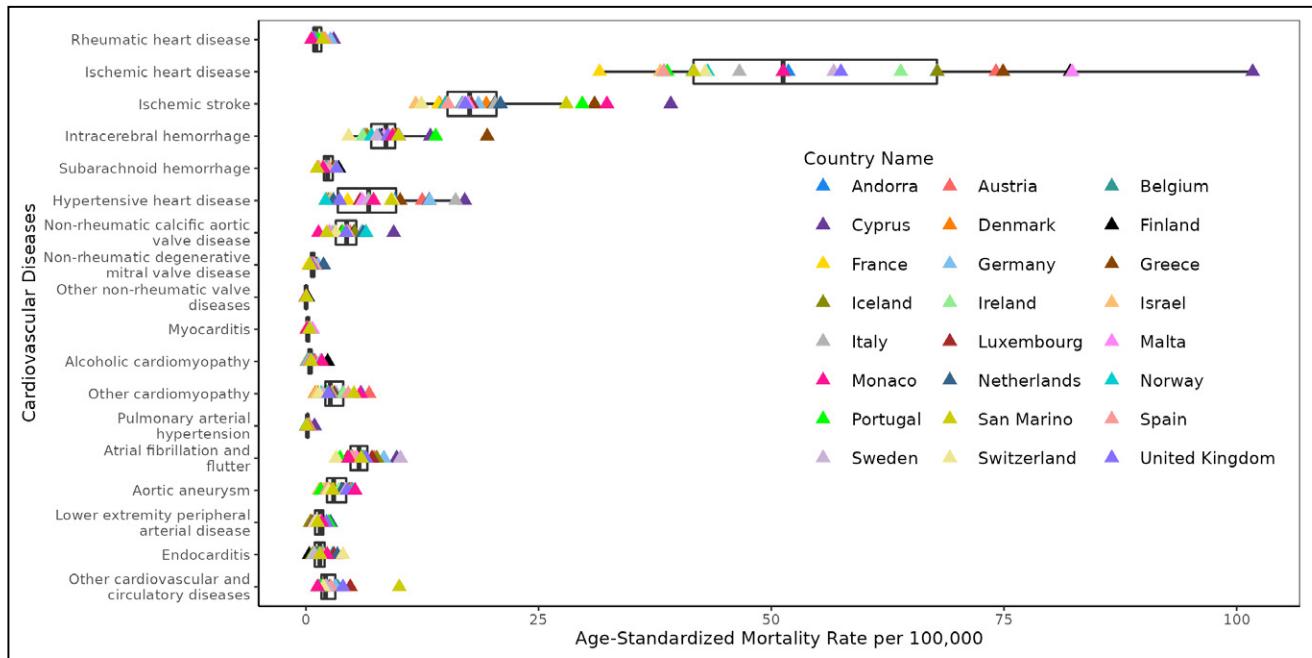


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Andean Latin America

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Andean Latin America ranged from 101.1 to 191.3 per 100,000 in 2021—a 1.9-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (111.9%), while rheumatic heart disease had the largest percent decrease (67.5%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 154.4. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 39.0%.

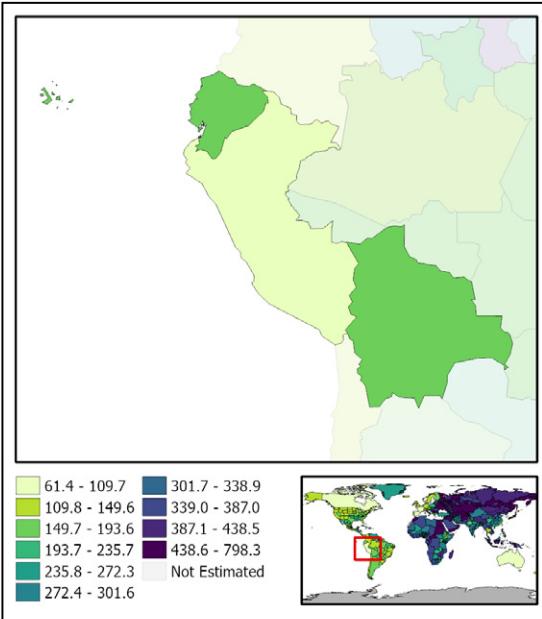


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	758,586	501	1,122.7	0.8	76.0
Ischemic heart disease	1,339,154	37,015	2,246.0	64.2	1,172.5
Ischemic stroke	315,223	11,090	516.9	19.6	323.3
Intracerebral hemorrhage	77,503	9,353	121.1	15.8	385.2
Subarachnoid hemorrhage	108,433	3,923	172.2	6.4	208.2
Hypertensive heart disease	84,875	5,270	144.5	9.3	151.2
Non-rheumatic calcific aortic valve disease	78,943	390	133.9	0.7	16.9
Non-rheumatic degenerative mitral valve disease	16,490	130	27.9	0.2	6.1
Other non-rheumatic valve diseases	24	4	<0.1	<0.1	0.1
Myocarditis	2,602	41	4.1	0.1	2.3
Alcoholic cardiomyopathy	27	3	<0.1	<0.1	0.1
Other cardiomyopathy	23,036	711	35.8	1.2	40.9
Pulmonary arterial hypertension	1,770	103	2.8	0.2	6.2
Atrial fibrillation and flutter	380,914	2,515	654.2	4.5	102.1
Aortic aneurysm	Not estimated	591	Not estimated	1.0	20.5
Lower extremity peripheral arterial disease	428,551	93	728.9	0.2	5.7
Endocarditis	3,055	272	4.7	0.4	17.0
Other cardiovascular and circulatory diseases	772,152	1,312	1,253.8	2.2	118.4

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

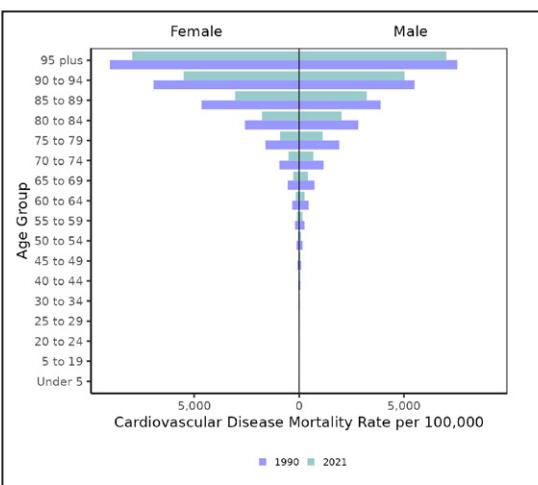


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

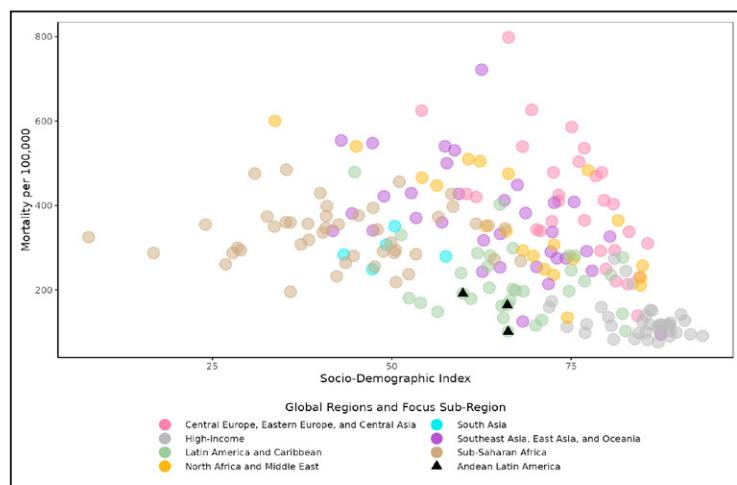


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

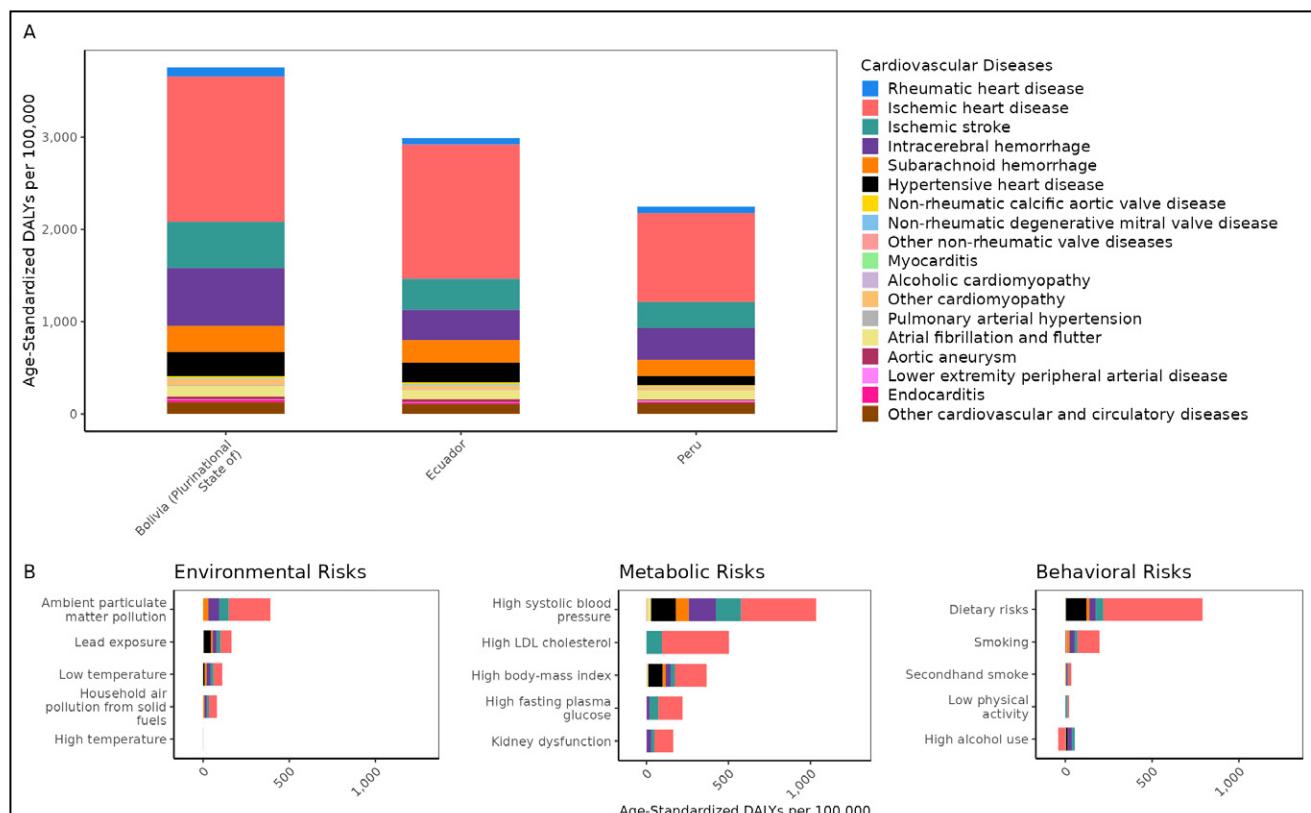


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

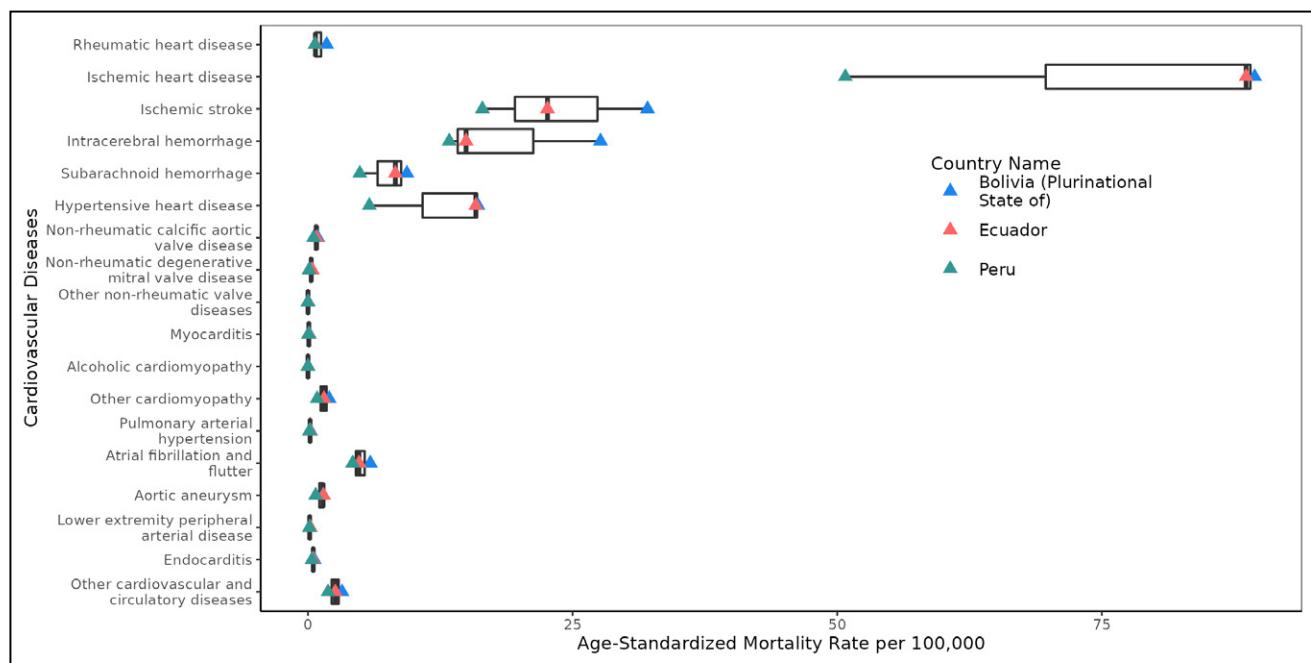


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in the Caribbean

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in the Caribbean ranged from 102.2 to 479.2 per 100,000 in 2021- a 4.7-fold difference. Endocarditis had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (34.7%), while rheumatic heart disease had the largest percent decrease (43.9%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 404.3. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 46.8%.

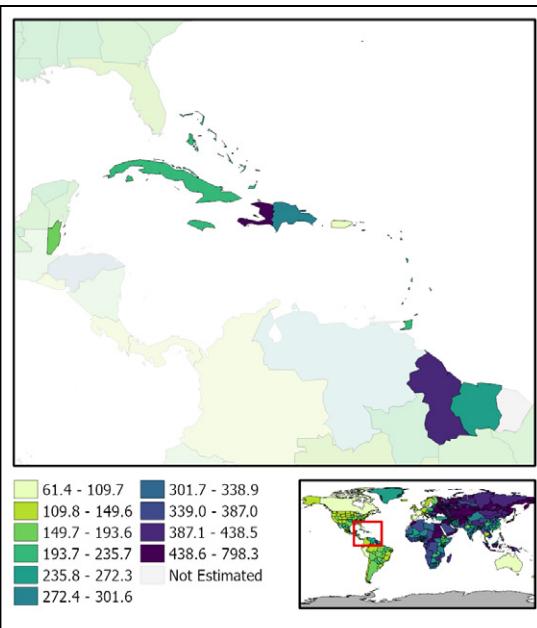


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	547,408	1,037	1,114.8	2.0	146.5
Ischemic heart disease	1,737,776	65,150	3,198.3	119.6	2,391.1
Ischemic stroke	330,179	20,951	617.3	38.5	641.4
Intracerebral hemorrhage	87,866	17,242	167.3	31.9	821.7
Subarachnoid hemorrhage	71,997	2,507	136.9	4.8	173.1
Hypertensive heart disease	101,859	11,504	188.6	21.1	405.9
Non-rheumatic calcific aortic valve disease	73,747	576	135.6	1.1	25.0
Non-rheumatic degenerative mitral valve disease	20,121	257	37.1	0.5	14.7
Other non-rheumatic valve diseases	34	8	0.1	<0.1	0.4
Myocarditis	2,675	144	5.5	0.3	17.9
Alcoholic cardiomyopathy	9,304	1,030	17.6	1.9	56.9
Other cardiomyopathy	26,177	2,072	53.7	4.0	129.7
Pulmonary arterial hypertension	1,244	102	2.4	0.2	12.6
Atrial fibrillation and flutter	371,683	2,874	684.0	5.2	112.3
Aortic aneurysm	Not estimated	1,469	Not estimated	2.7	49.2
Lower extremity peripheral arterial disease	509,699	1,119	935.8	2.0	33.7
Endocarditis	2,265	526	4.7	1.0	40.6
Other cardiovascular and circulatory diseases	590,451	2,096	1,115.4	4.0	171.5

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

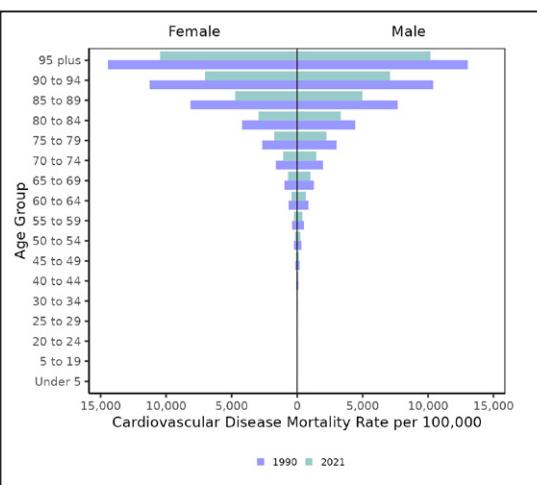


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

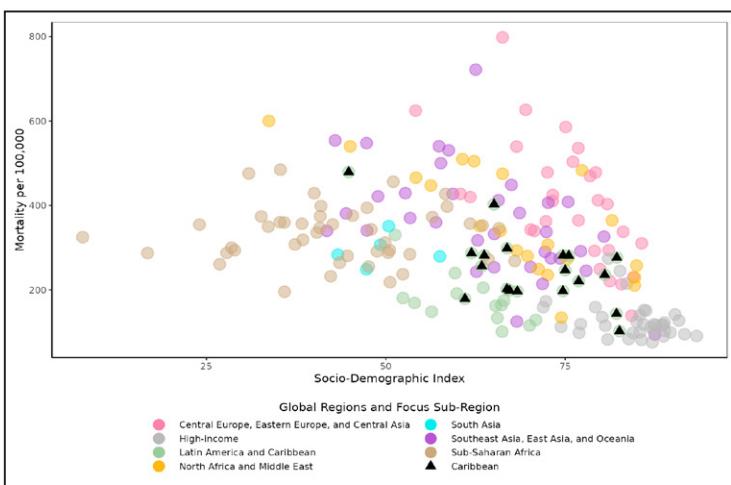


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

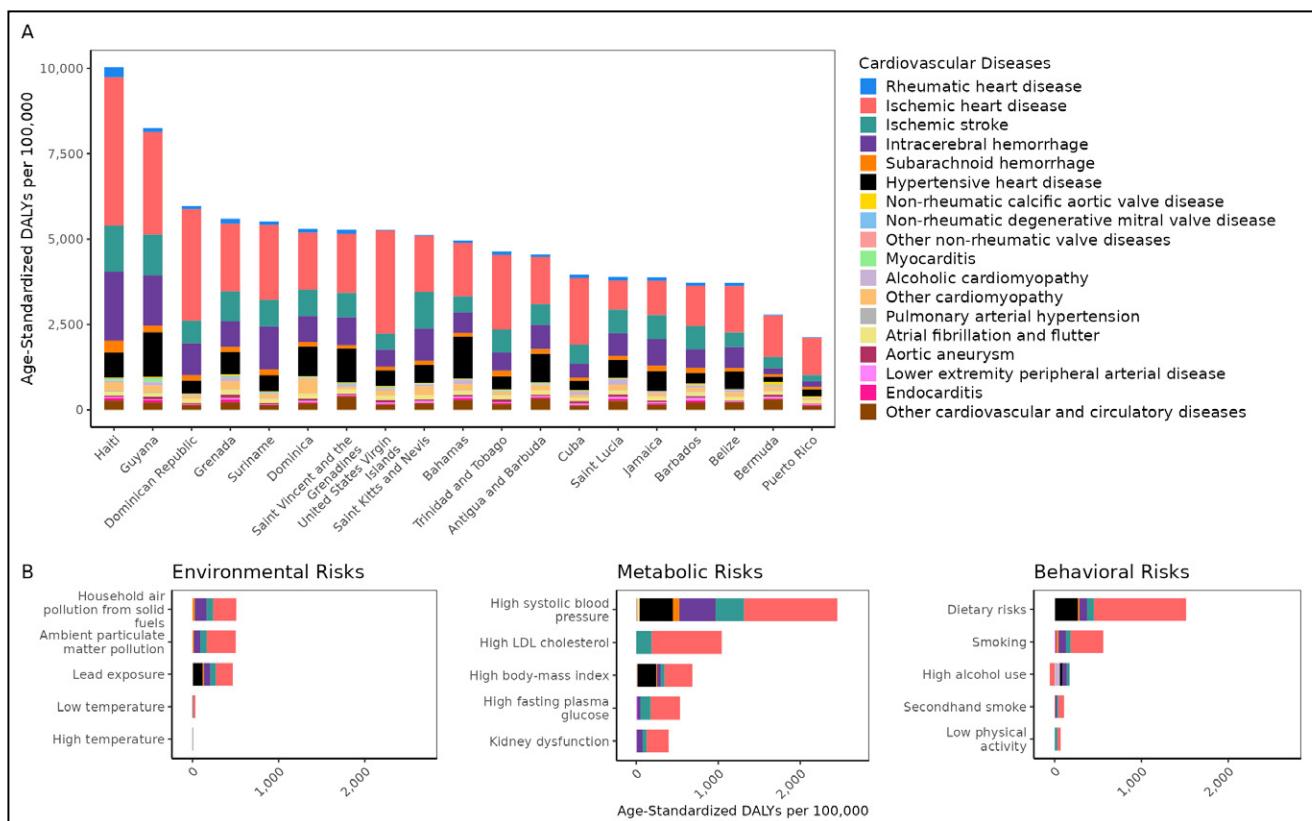


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

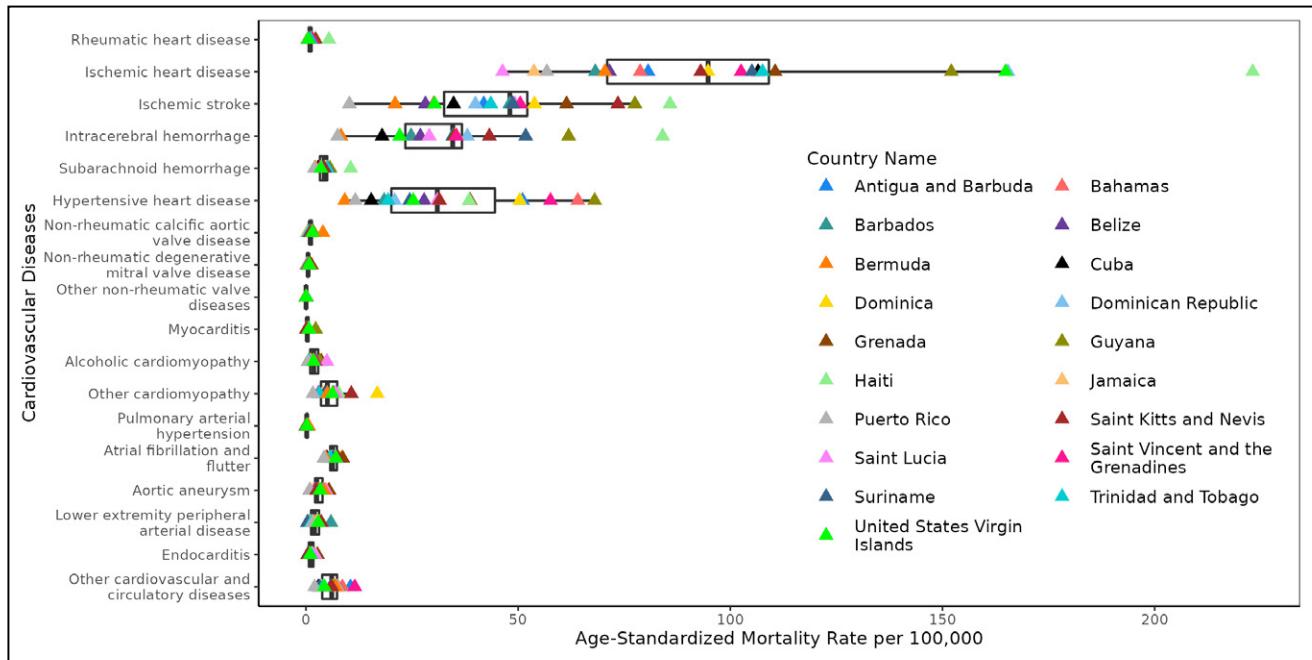


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Central Latin America

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Central Latin America ranged from 115.6 to 330.1 per 100,000 in 2021—a 2.9-fold difference. Endocarditis had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (47.9%), while rheumatic heart disease had the largest percent decrease (83.7%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 159.2. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 48.1%.

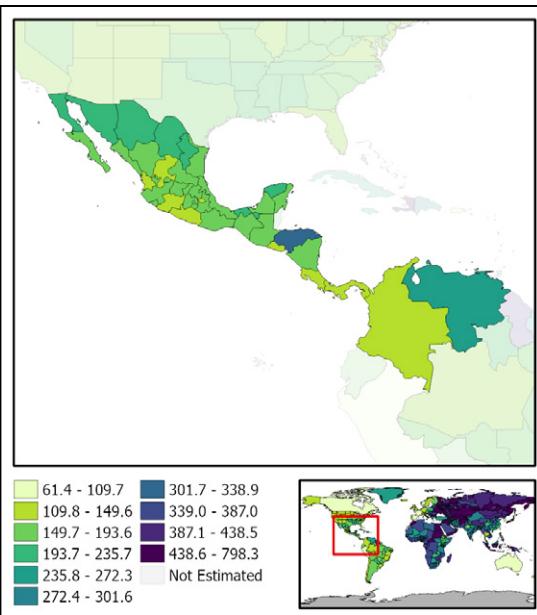


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	1,295,695	1,213	489.0	0.5	36.2
Ischemic heart disease	6,612,088	261,890	2,634.8	107.9	1,941.0
Ischemic stroke	1,401,231	46,348	554.1	19.6	324.6
Intracerebral hemorrhage	341,799	34,692	131.3	14.0	328.5
Subarachnoid hemorrhage	386,464	12,159	149.0	4.8	148.0
Hypertensive heart disease	291,965	24,149	120.3	10.1	158.8
Non-rheumatic calcific aortic valve disease	400,587	2,297	161.3	0.9	22.4
Non-rheumatic degenerative mitral valve disease	93,230	1,068	37.6	0.4	10.1
Other non-rheumatic valve diseases	415	50	0.2	<0.1	0.5
Myocarditis	13,016	307	5.2	0.1	5.0
Alcoholic cardiomyopathy	7,544	490	2.8	0.2	6.5
Other cardiomyopathy	99,705	3,962	40.1	1.6	50.7
Pulmonary arterial hypertension	8,450	210	3.2	0.1	3.0
Atrial fibrillation and flutter	1,745,119	11,331	712.0	4.8	109.6
Aortic aneurysm	Not estimated	3,423	Not estimated	1.4	27.7
Lower extremity peripheral arterial disease	2,329,844	1,061	940.5	0.4	10.7
Endocarditis	12,171	1,375	4.8	0.6	18.6
Other cardiovascular and circulatory diseases	3,391,976	6,496	1,330.9	2.7	131.0

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

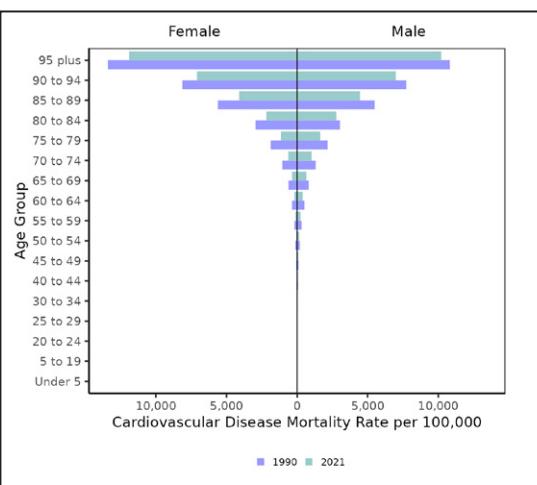


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

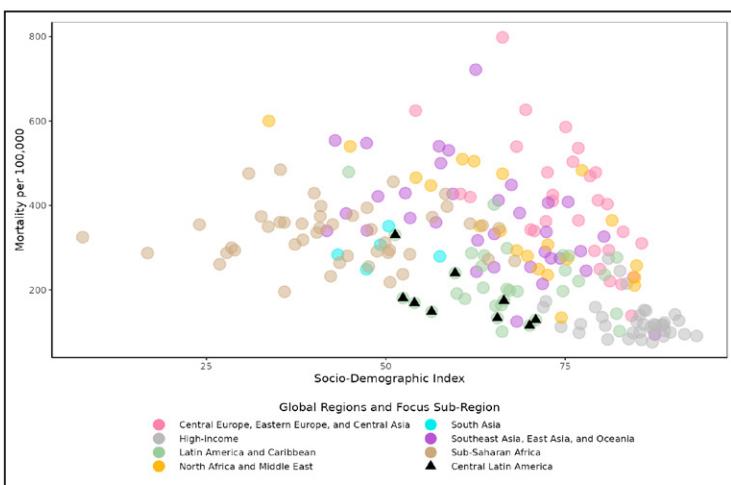


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

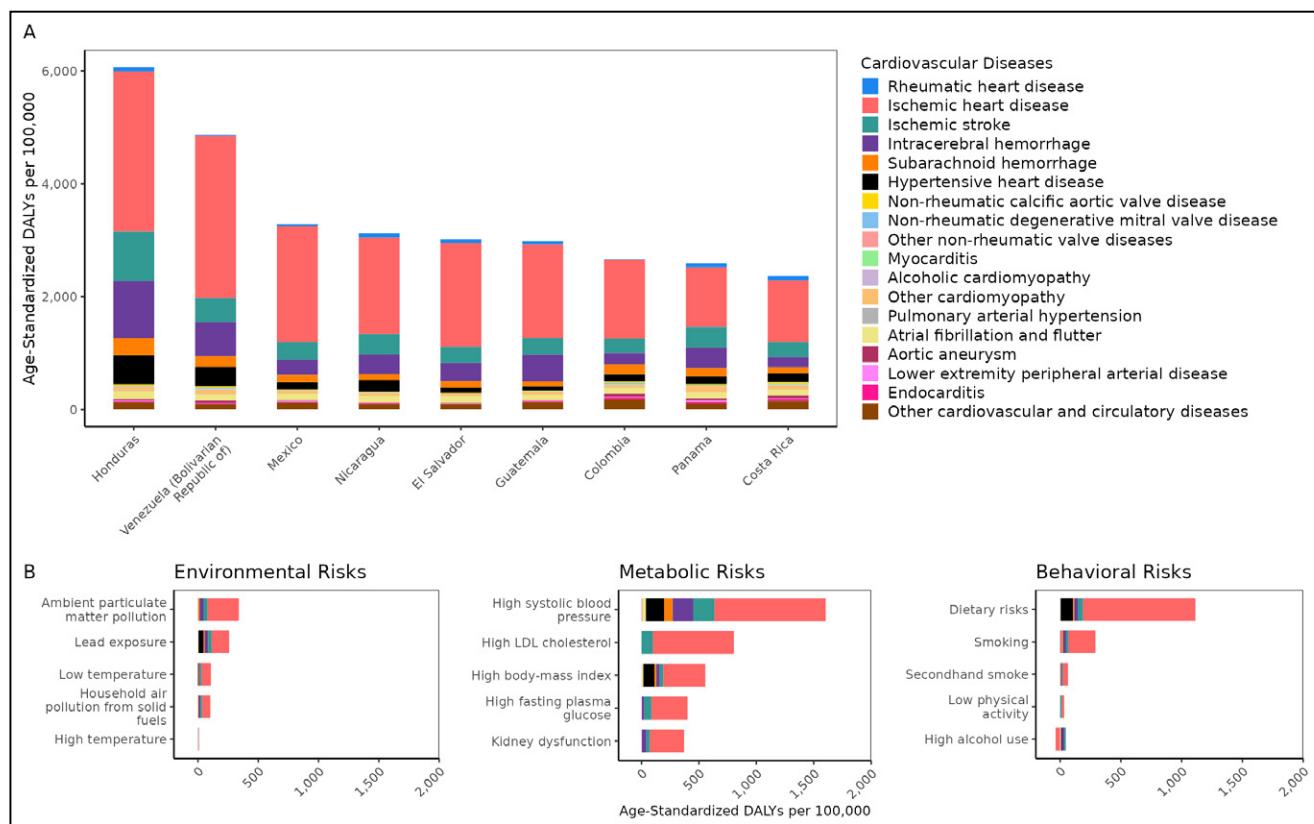


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

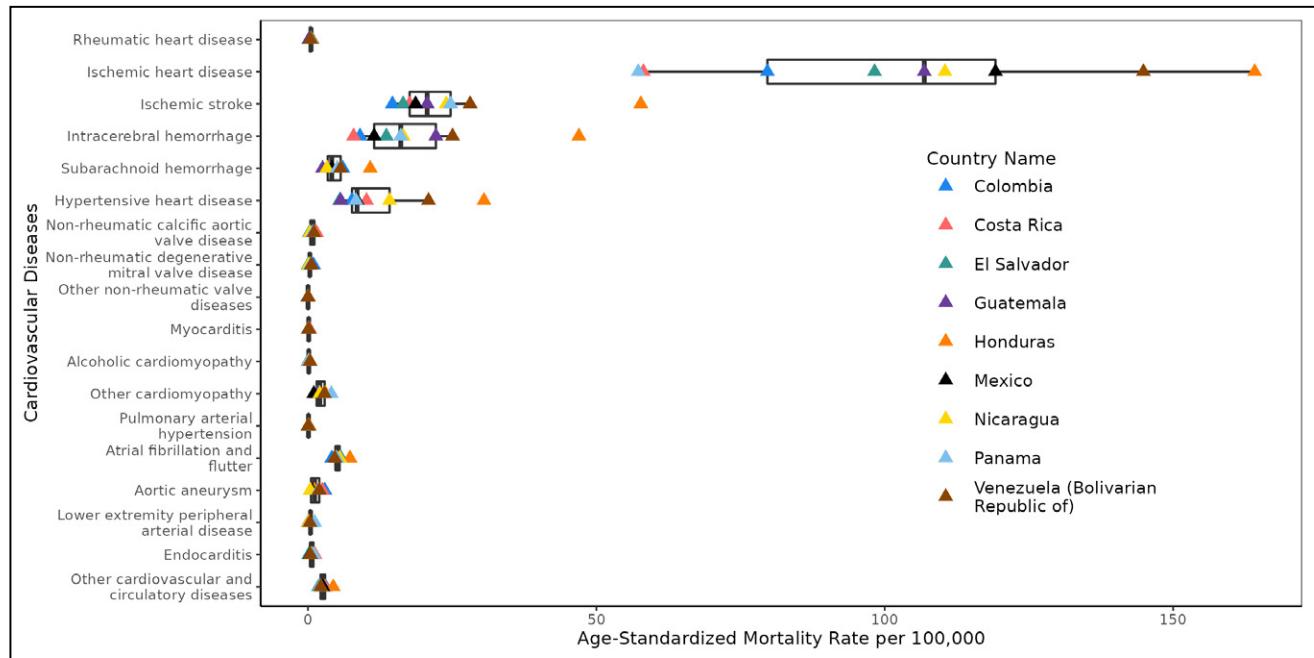


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Tropical Latin America

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Tropical Latin America ranged from 162.2 to 204.9 per 100,000 in 2021; a 1.3-fold difference. Endocarditis had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (35.4%), while stroke had the largest percent decrease (61.1%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 222.5. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 45.3%.

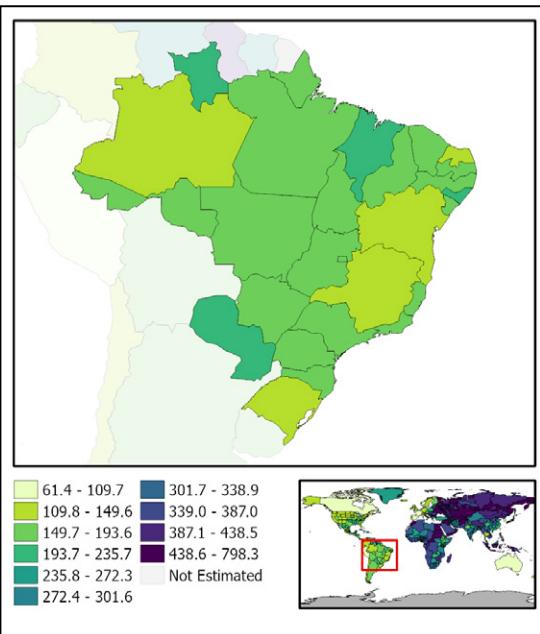


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	3,047,102	2,823	1,266.6	1.1	93.5
Ischemic heart disease	5,142,923	170,517	1,989.5	67.7	1,439.6
Ischemic stroke	1,561,007	77,114	609.0	31.9	513.4
Intracerebral hemorrhage	294,752	45,473	113.7	17.7	438.0
Subarachnoid hemorrhage	281,481	14,283	108.7	5.5	171.6
Hypertensive heart disease	414,112	32,547	167.0	13.3	229.2
Non-rheumatic calcific aortic valve disease	359,861	4,059	140.6	1.6	32.2
Non-rheumatic degenerative mitral valve disease	112,951	1,761	44.0	0.7	17.2
Other non-rheumatic valve diseases	474	75	0.2	<0.1	0.8
Myocarditis	13,539	448	5.9	0.2	8.5
Alcoholic cardiomyopathy	19,527	1,185	7.5	0.4	16.0
Other cardiomyopathy	272,671	16,962	117.2	6.9	181.9
Pulmonary arterial hypertension	6,293	814	2.5	0.3	10.8
Atrial fibrillation and flutter	2,028,351	12,644	800.9	5.3	120.7
Aortic aneurysm	Not estimated	10,617	Not estimated	4.2	88.6
Lower extremity peripheral arterial disease	2,344,621	3,411	918.7	1.4	26.2
Endocarditis	15,053	2,775	6.7	1.1	34.6
Other cardiovascular and circulatory diseases	3,547,974	9,057	1,404.2	3.7	156.8

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

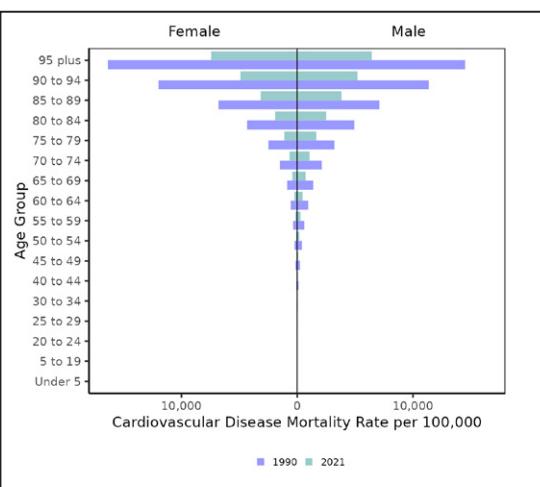


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

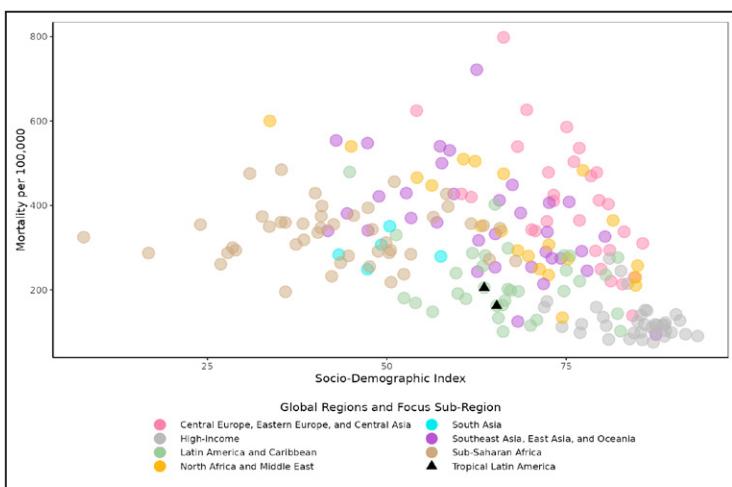


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

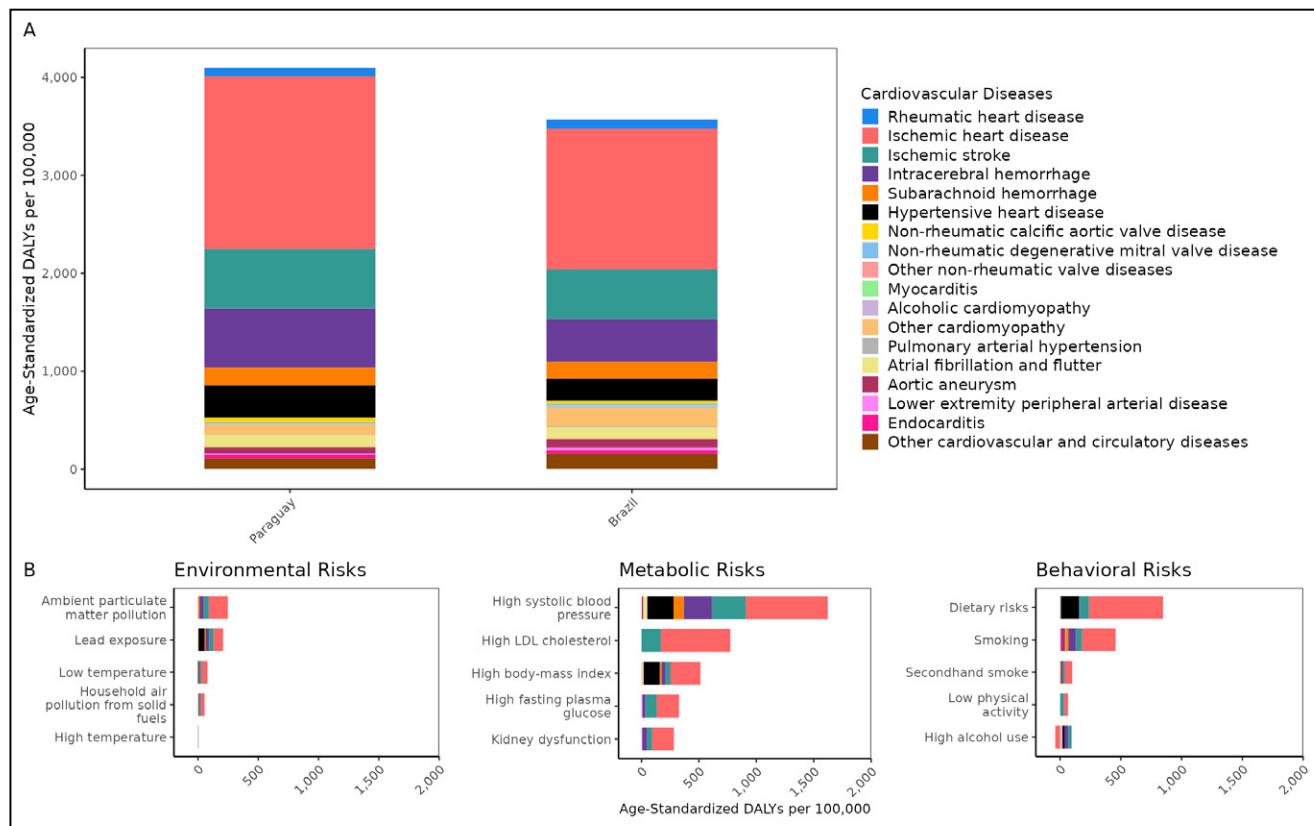


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

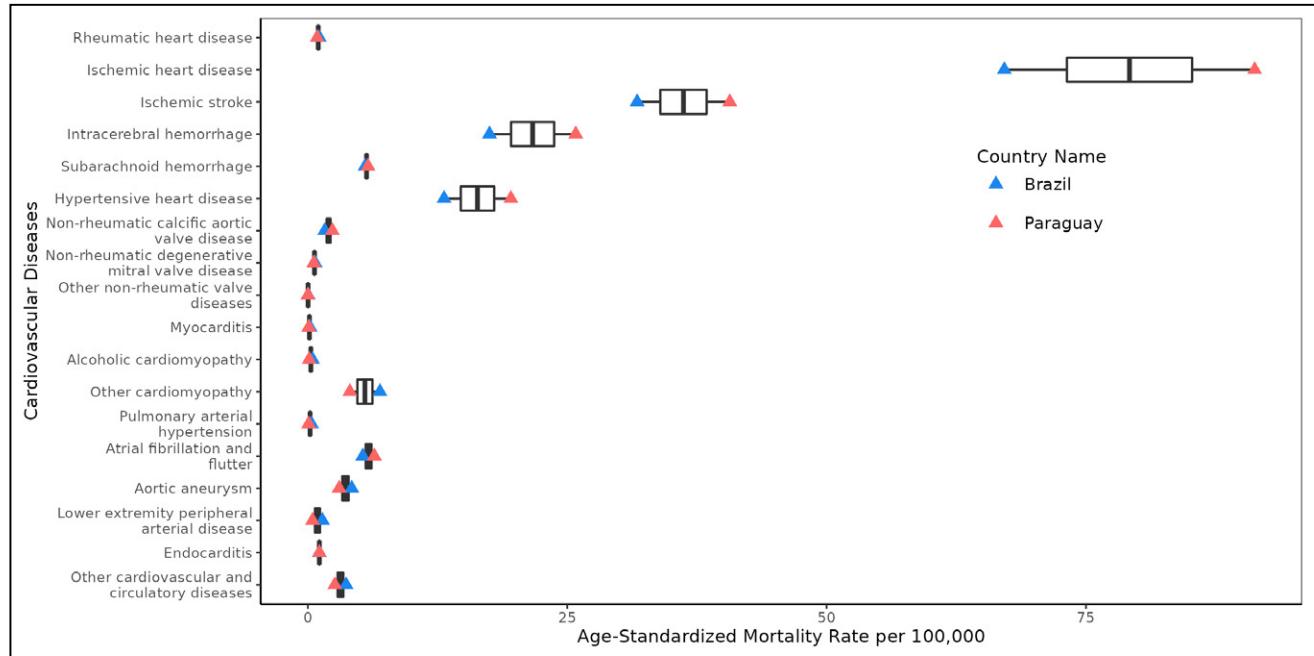


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in North Africa and Middle East

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in North Africa and Middle East ranged from 134.2 to 600.2 per 100,000 in 2021- a 4.5-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (52.8%), while rheumatic heart disease had the largest percent decrease (60.8%). Out of all GBD regions, it had the highest prevalence rate for age-standardized CVD at 9,978.7. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 52.2%.

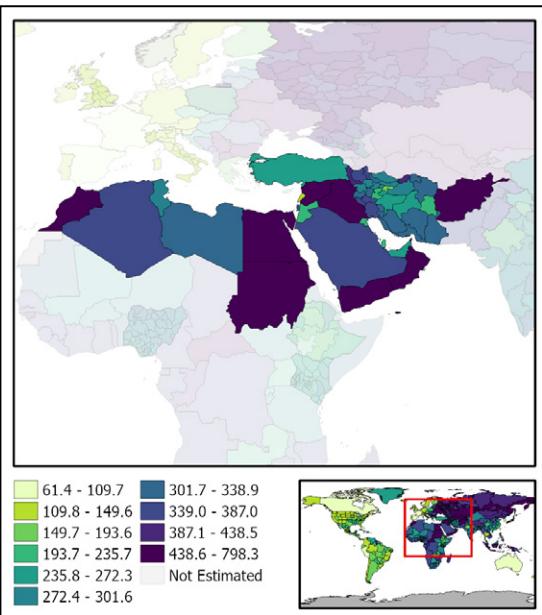


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	3,604,934	9,191	541.0	1.9	86.8
Ischemic heart disease	28,967,468	797,163	6,456.9	203.6	3,848.9
Ischemic stroke	4,456,817	242,462	870.1	68.2	1,173.4
Intracerebral hemorrhage	825,351	119,801	140.0	27.6	674.1
Subarachnoid hemorrhage	430,906	11,701	73.4	2.6	76.6
Hypertensive heart disease	1,041,082	145,082	242.3	40.0	661.2
Non-rheumatic calcific aortic valve disease	250,665	3,330	55.3	0.8	17.9
Non-rheumatic degenerative mitral valve disease	274,955	3,362	65.8	0.8	19.0
Other non-rheumatic valve diseases	3,542	629	0.6	0.1	3.6
Myocarditis	29,471	1,237	51	0.3	8.5
Alcoholic cardiomyopathy	3,050	186	0.5	<0.1	1.0
Other cardiomyopathy	305,684	8,852	51.6	2.0	65.3
Pulmonary arterial hypertension	11,792	1,975	2.0	0.5	15.3
Atrial fibrillation and flutter	1,461,398	11,919	370.8	3.9	71.4
Aortic aneurysm	Not estimated	3,753	Not estimated	0.9	19.1
Lower extremity peripheral arterial disease	4,527,335	1,000	1,039.3	0.3	9.1
Endocarditis	16,683	2,681	2.9	0.6	17.8
Other cardiovascular and circulatory diseases	8,507,217	29,930	1,644.1	7.2	271.1

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

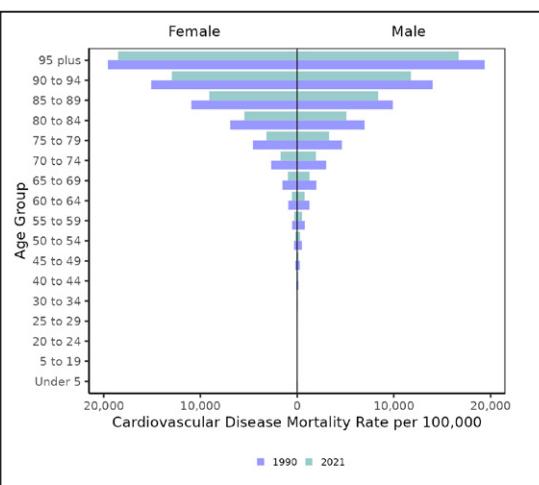


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

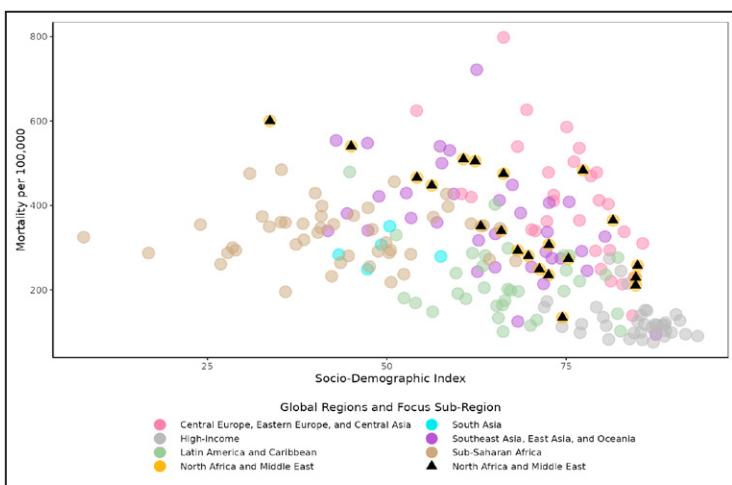


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

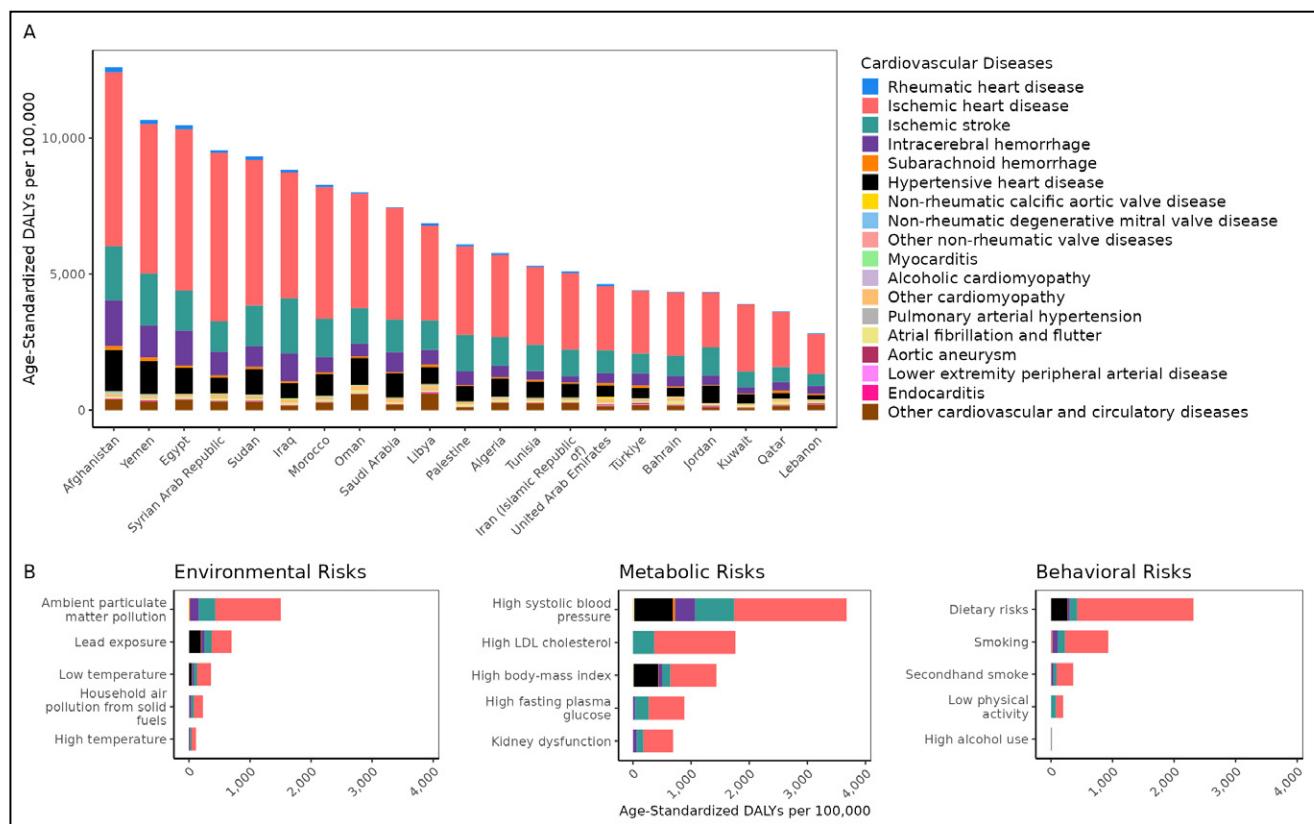


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

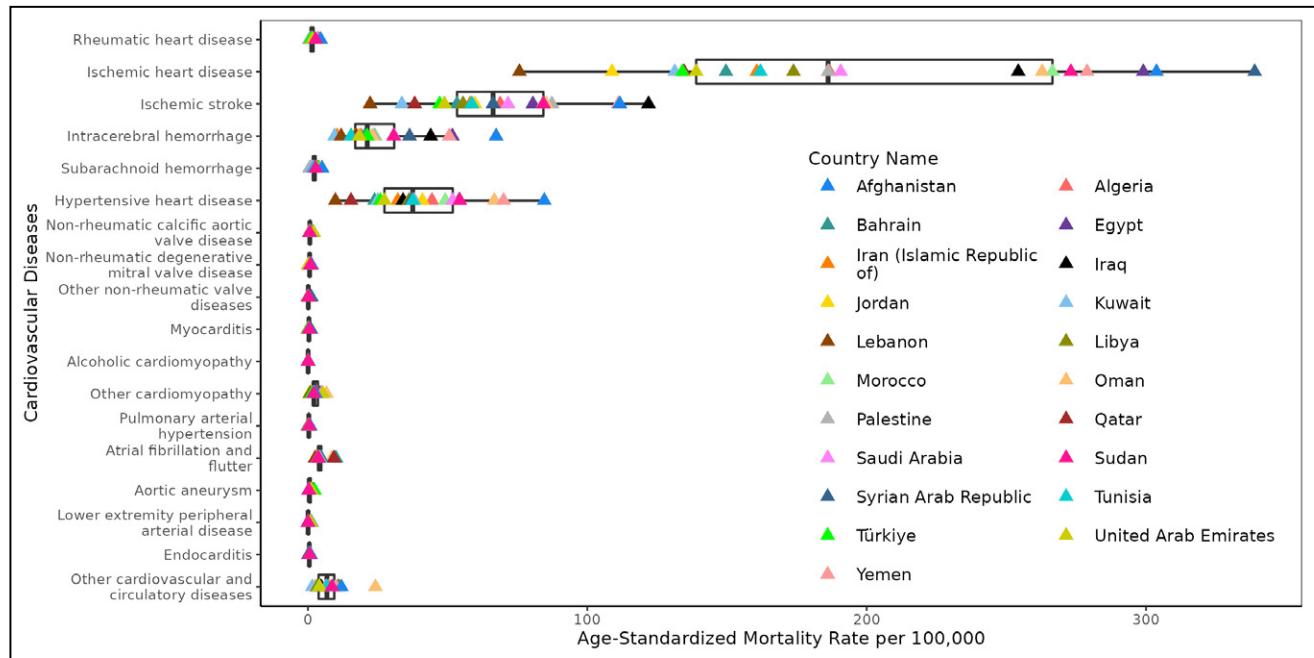


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in South Asia

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in South Asia ranged from 248.6 to 350.9 per 100,000 in 2021- a 1.4-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (61.9%), while rheumatic heart disease had the largest percent decrease (51.2%). After ischemic heart disease and stroke, rheumatic heart disease had the highest age-standardized DALY rate of 448. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 45.6%.

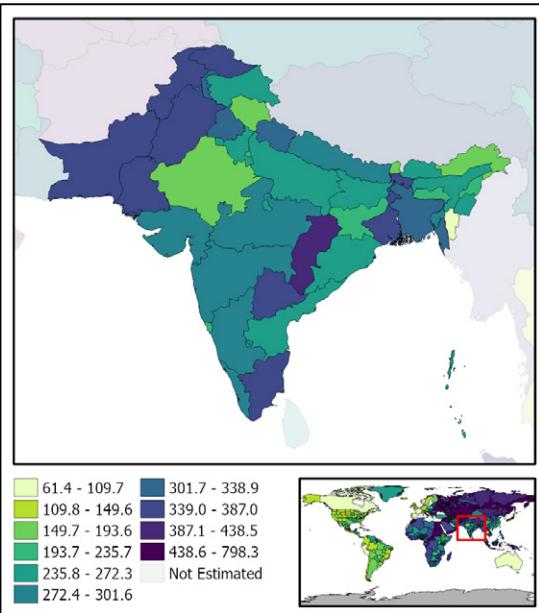


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	14,375,577	222,952	730.9	15.3	448.5
Ischemic heart disease	65,413,448	2,058,570	4,476.1	152.8	3,237.4
Ischemic stroke	7,920,463	500,150	499.9	42.2	710.6
Intracerebral hemorrhage	3,500,889	569,294	211.2	39.7	938.1
Subarachnoid hemorrhage	1,361,675	63,189	79.2	4.2	128.0
Hypertensive heart disease	1,463,741	206,441	112.0	17.1	288.9
Non-rheumatic calcific aortic valve disease	356,875	11,748	25.0	0.9	17.1
Non-rheumatic degenerative mitral valve disease	502,116	5,040	35.9	0.4	8.7
Other non-rheumatic valve diseases	711	172	<0.1	<0.1	0.3
Myocarditis	91,229	4,252	5.3	0.3	11.3
Alcoholic cardiomyopathy	12,281	1,459	0.7	0.1	2.8
Other cardiomyopathy	793,418	68,665	48.6	5.1	126.1
Pulmonary arterial hypertension	29,758	3,682	1.7	0.3	8.5
Atrial fibrillation and flutter	7,072,088	38,132	536.0	3.8	84.3
Aortic aneurysm	Not estimated	16,549	Not estimated	1.2	24.1
Lower extremity peripheral arterial disease	12,438,892	3,057	877.2	0.3	8.3
Endocarditis	45,999	12,237	2.7	0.8	24.1
Other cardiovascular and circulatory diseases	10,557,932	40,178	710.1	3.0	104.9

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

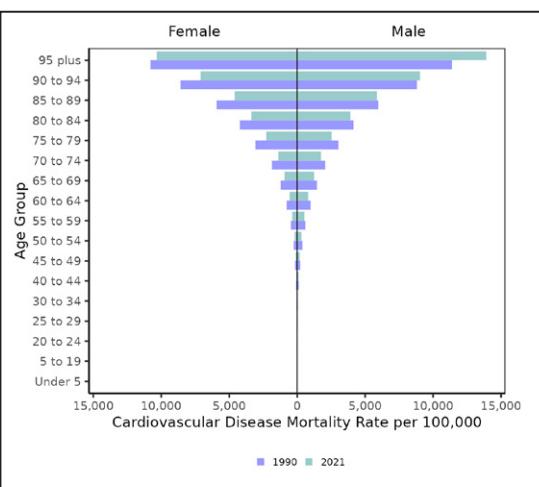


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

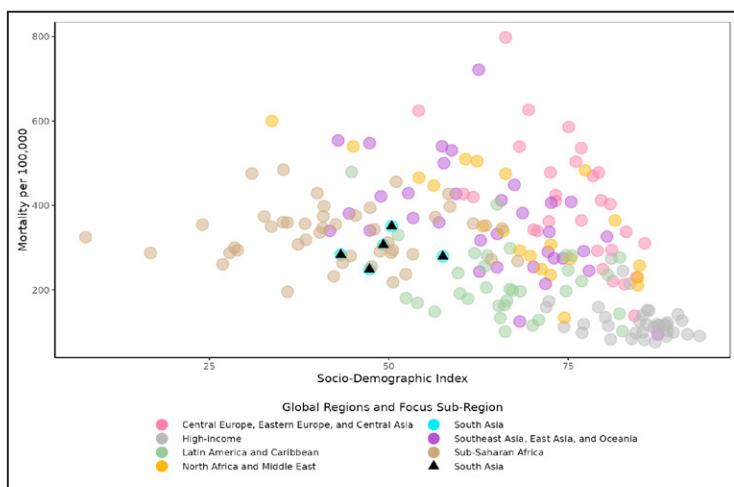


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

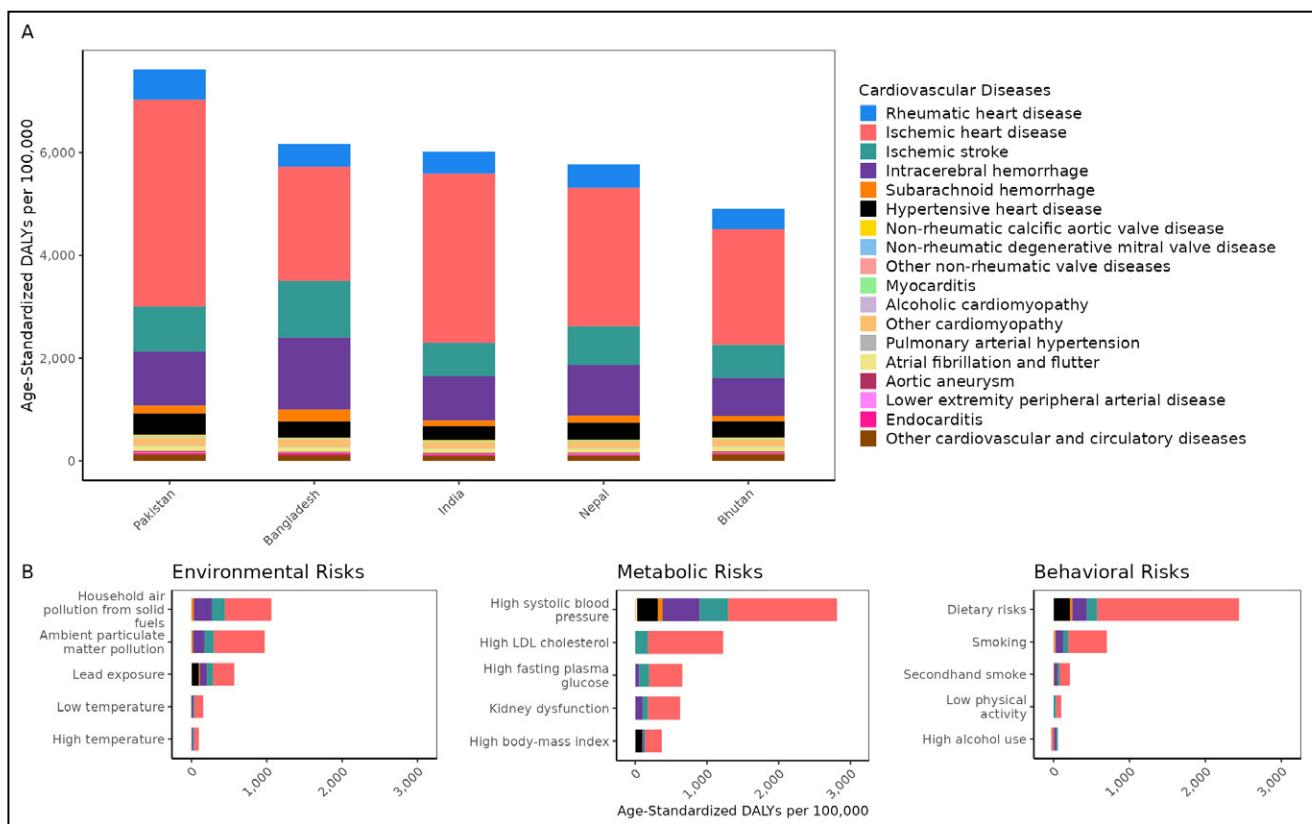


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

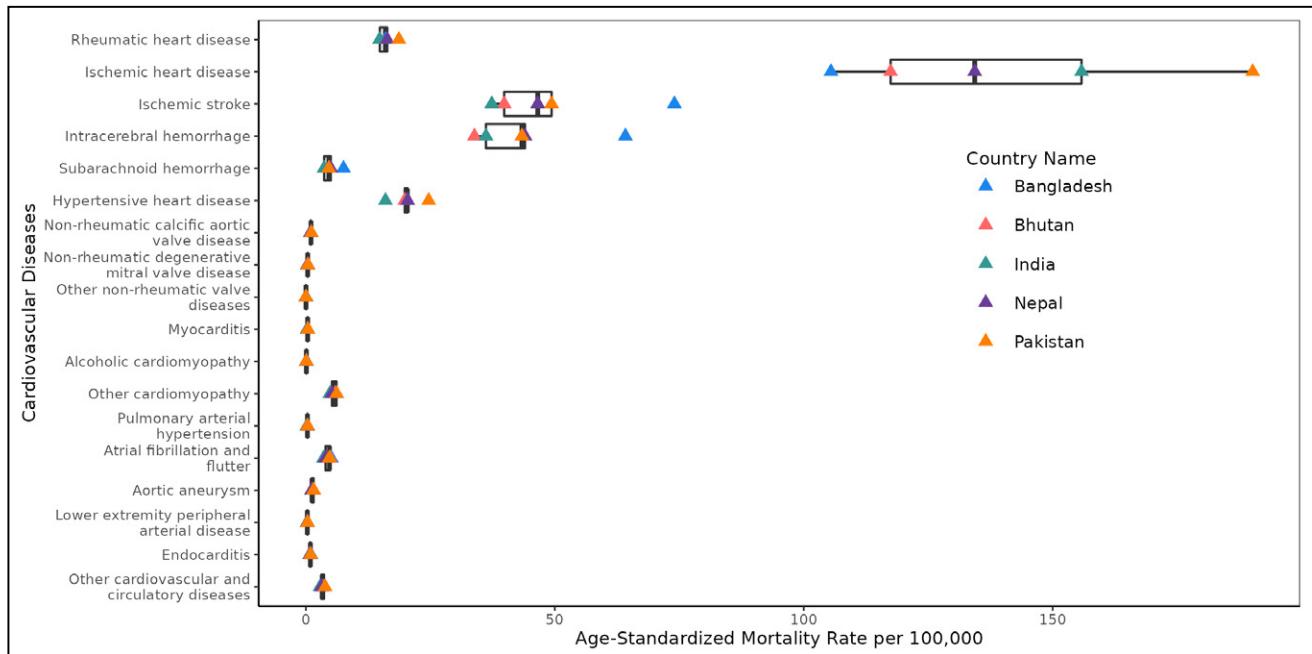


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in East Asia

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in East Asia ranged from 94.2 to 359.9 per 100,000 in 2021; a 3.8-fold difference. Aortic aneurysm had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (45.3%), while rheumatic heart disease had the largest percent decrease (72.5%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 307.7. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 52.0%.

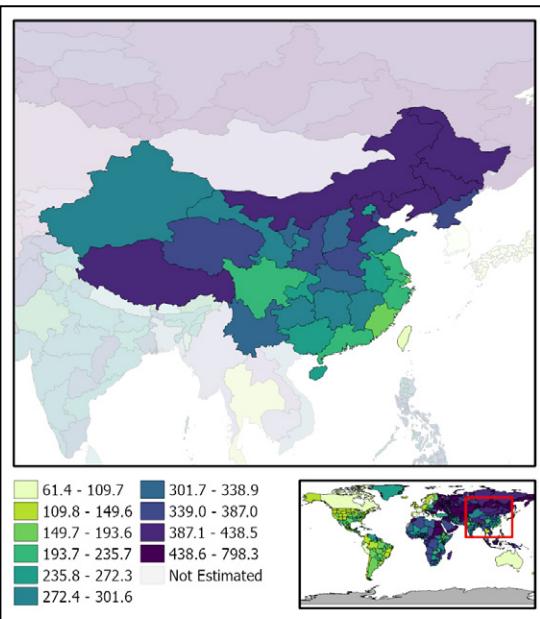


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	9,329,976	87,336	614.0	4.3	108.9
Ischemic heart disease	66,932,396	2,200,468	3,052.6	112.7	1,776.1
Ischemic stroke	21,907,014	1,315,602	1,022.2	65.4	1,134.5
Intracerebral hemorrhage	4,581,286	1,473,631	223.4	70.8	1,326.4
Subarachnoid hemorrhage	1,398,068	107,336	70.1	5.1	120.6
Hypertensive heart disease	4,088,481	374,885	190.2	19.3	279.9
Non-rheumatic calcific aortic valve disease	736,294	1,874	33.4	0.1	2.2
Non-rheumatic degenerative mitral valve disease	2,782,405	1,176	126.1	0.1	2.9
Other non-rheumatic valve diseases	1,376	218	0.1	<0.1	0.2
Myocarditis	131,401	15,762	9.1	1.0	26.7
Alcoholic cardiomyopathy	33,028	2,040	1.8	0.1	3.5
Other cardiomyopathy	279,106	16,598	19.0	0.9	25.3
Pulmonary arterial hypertension	42,626	8,136	2.2	0.4	8.9
Atrial fibrillation and flutter	11,538,869	77,359	530.1	4.5	86.2
Aortic aneurysm	Not estimated	10,691	Not estimated	0.5	13.0
Lower extremity peripheral arterial disease	30,049,848	2,599	1,337.3	0.1	8.2
Endocarditis	37,294	2,985	2.2	0.2	4.7
Other cardiovascular and circulatory diseases	5,968,344	13,095	292.8	0.7	31.1

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

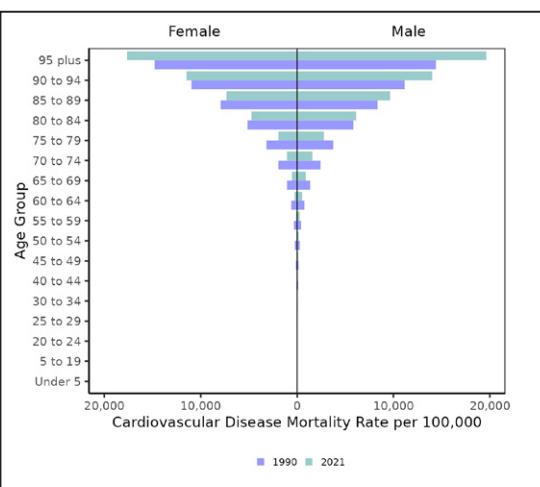


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

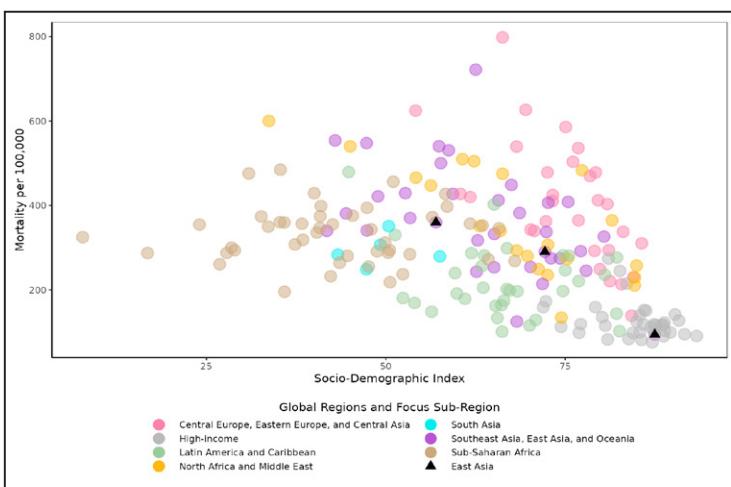


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

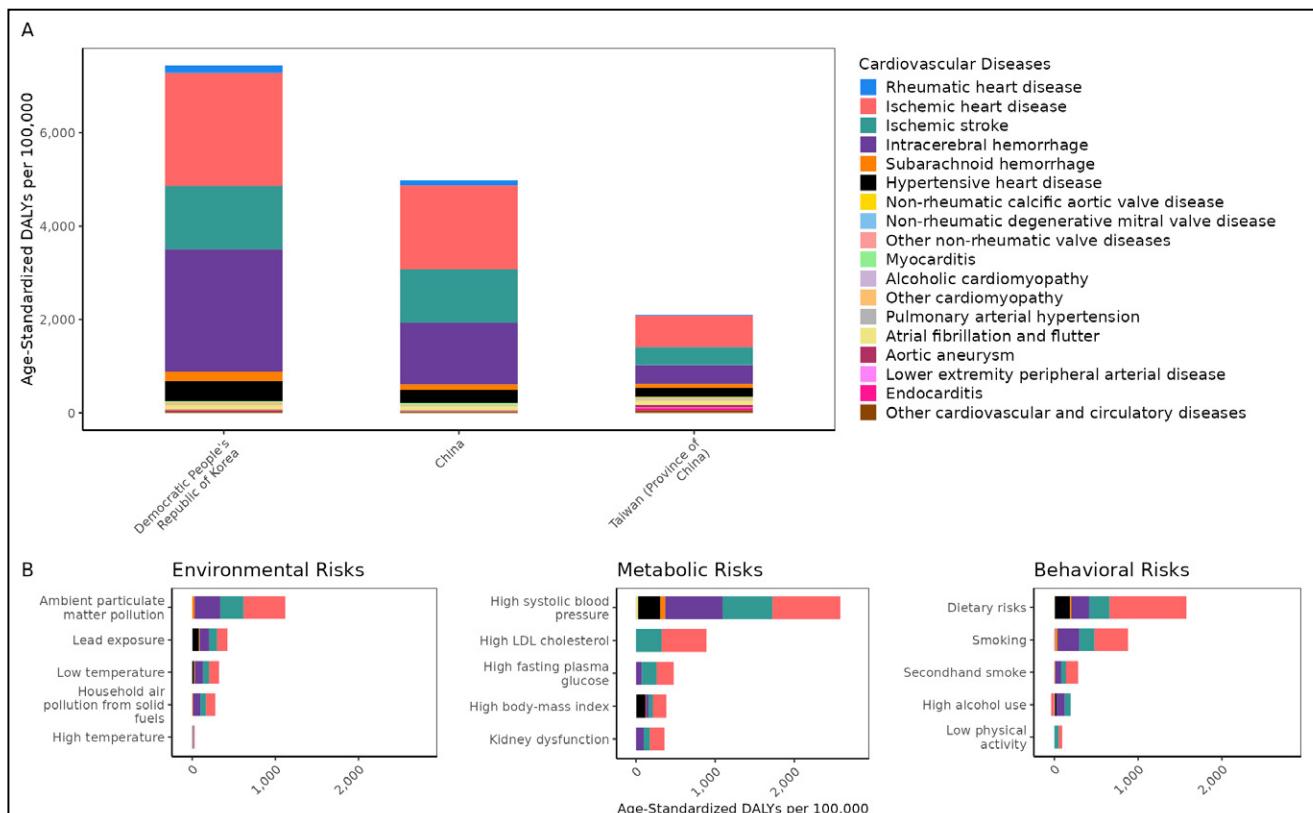


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

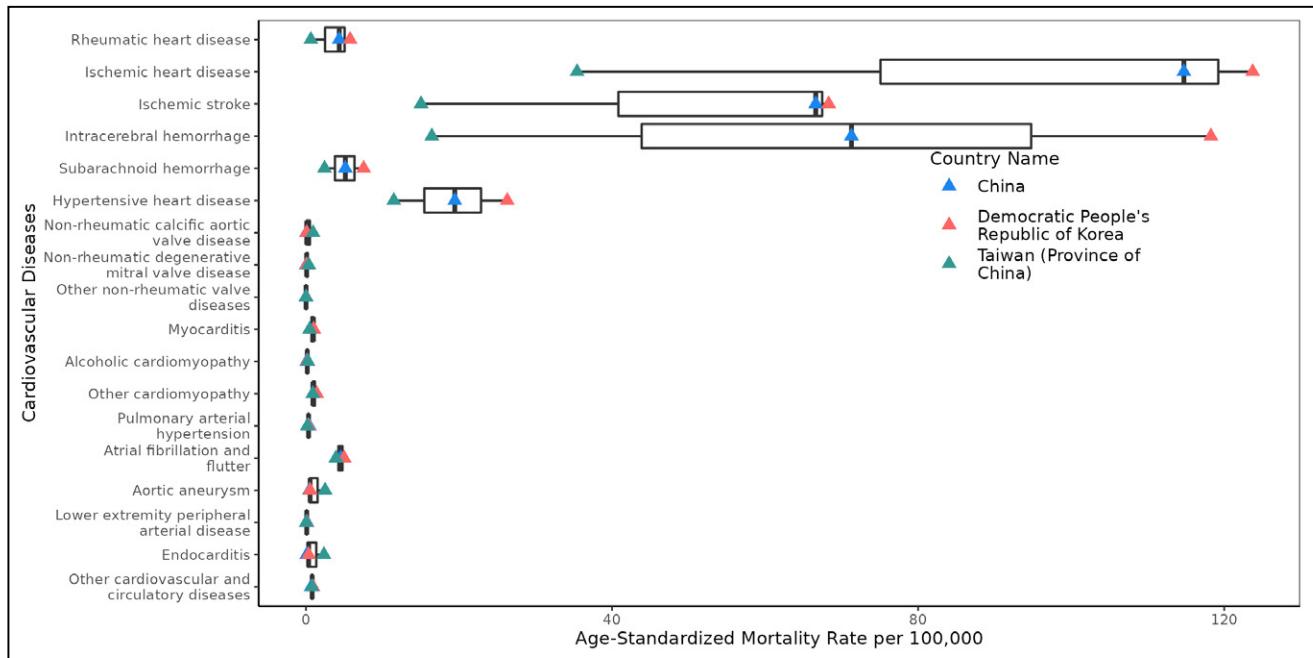


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Oceania

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Oceania ranged from 242.9 to 721.7 per 100,000 in 2021- a 3-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (31.3%), while rheumatic heart disease had the largest percent decrease (45.2%). After ischemic heart disease and stroke, rheumatic heart disease had the highest age-standardized DALY rate of 503.4. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 38.5%.

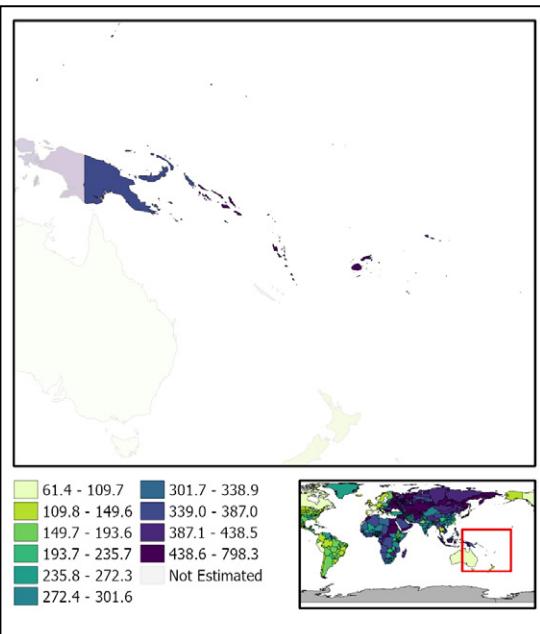


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	141,067	1,107	999.1	11.0	480.7
Ischemic heart disease	193,005	10,809	2,926.9	171.9	3,684.0
Ischemic stroke	59,445	1,734	742.2	39.6	715.1
Intracerebral hemorrhage	24,823	6,829	246.2	105.9	2,340.4
Subarachnoid hemorrhage	15,500	649	146.8	8.3	264.0
Hypertensive heart disease	6,517	1,150	104.8	18.6	393.7
Non-rheumatic calcific aortic valve disease	1,669	53	27.2	0.9	19.3
Non-rheumatic degenerative mitral valve disease	4,241	5	71.1	<0.1	3.1
Other non-rheumatic valve diseases	5	2	0.1	<0.1	0.7
Myocarditis	523	29	4.5	0.2	12.8
Alcoholic cardiomyopathy	20	5	0.2	0.1	1.7
Other cardiomyopathy	2,826	355	24.5	4.1	141.0
Pulmonary arterial hypertension	197	24	1.8	0.2	9.9
Atrial fibrillation and flutter	35,005	186	583.0	4.5	105.5
Aortic aneurysm	Not estimated	114	Not estimated	2.0	38.4
Lower extremity peripheral arterial disease	83,920	8	1,217.4	0.1	9.5
Endocarditis	395	181	3.7	2.0	67.4
Other cardiovascular and circulatory diseases	29,293	199	394.5	2.5	104.0

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

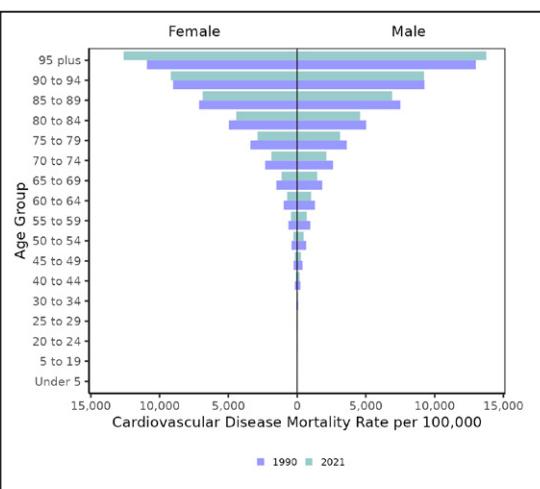


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

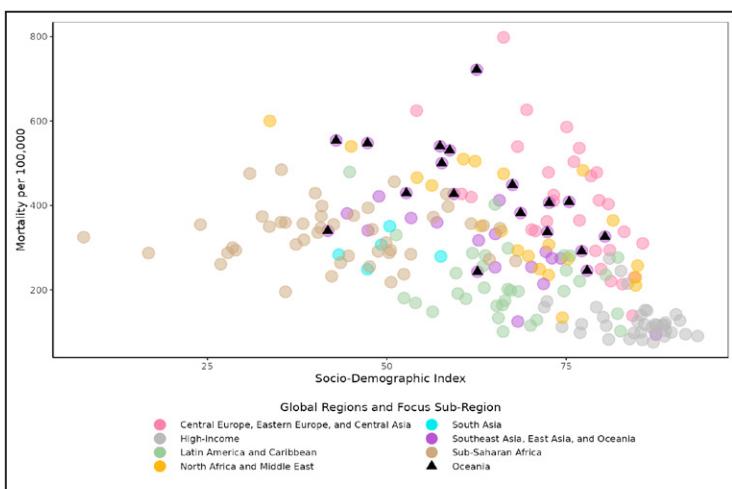


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

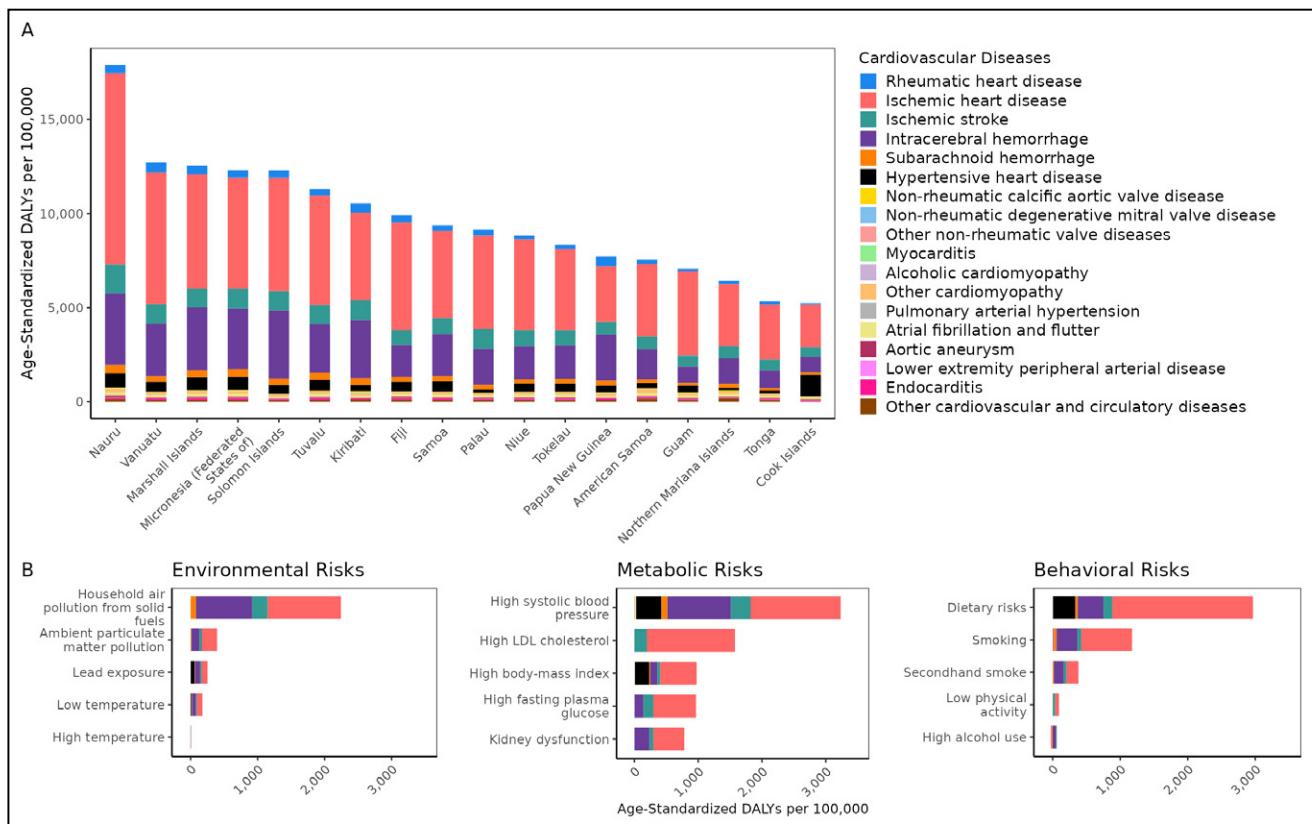


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

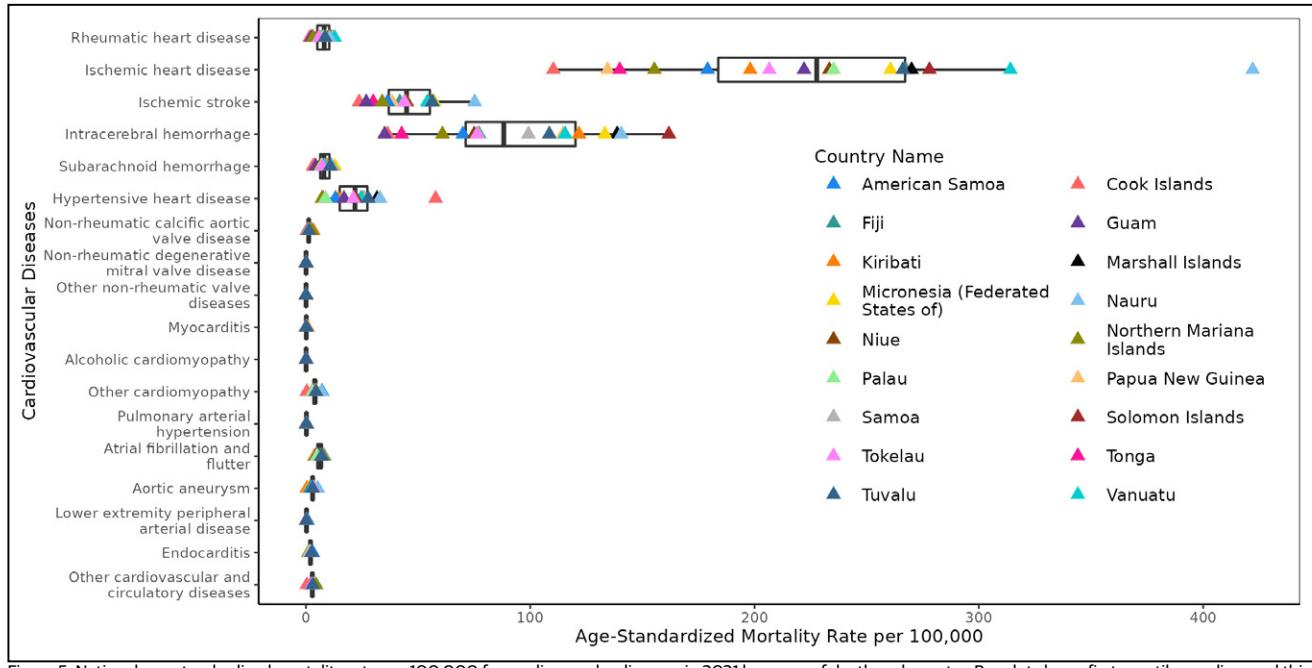


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Southeast Asia

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Southeast Asia ranged from 124.9 to 421.6 per 100,000 in 2021; a 3.4-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (56.6%), while rheumatic heart disease had the largest percent decrease (66.1%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 435.5. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 56.9%.

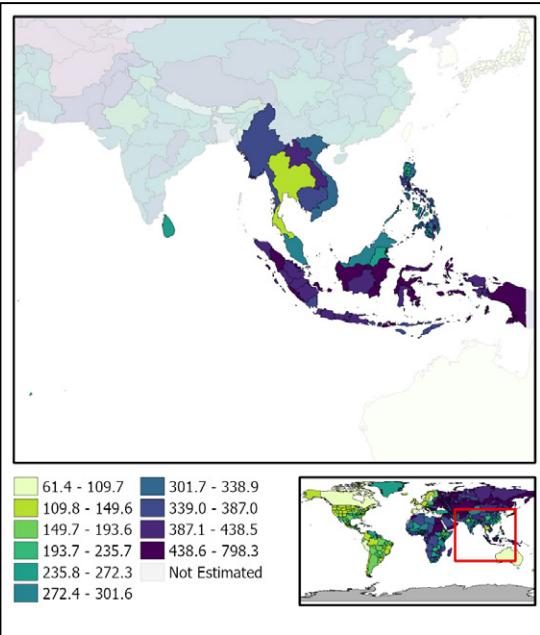


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	2,991,663	7,352	414.5	1.1	65.4
Ischemic heart disease	12,767,227	639,981	2,097.0	113.1	2,303.8
Ischemic stroke	5,994,725	353,499	917.5	71.0	1,226.1
Intracerebral hemorrhage	1,982,812	488,978	269.8	80.3	1,871.4
Subarachnoid hemorrhage	795,589	37,514	110.7	6.1	176.8
Hypertensive heart disease	973,332	129,021	169.4	23.4	443.5
Non-rheumatic calcific aortic valve disease	149,539	1,247	25.5	0.2	4.4
Non-rheumatic degenerative mitral valve disease	485,041	576	84.3	0.1	3.5
Other non-rheumatic valve diseases	264	58	<0.1	<0.1	0.2
Myocarditis	36,421	1,460	5.6	0.3	8.2
Alcoholic cardiomyopathy	3,569	360	0.5	0.1	1.8
Other cardiomyopathy	159,276	16,990	26.5	3.2	69.0
Pulmonary arterial hypertension	13,486	741	1.9	0.1	4.7
Atrial fibrillation and flutter	3,870,205	23,204	667.2	5.4	109.0
Aortic aneurysm	Not estimated	7,377	Not estimated	1.4	24.4
Lower extremity peripheral arterial disease	8,772,510	713	1,397.5	0.1	9.7
Endocarditis	38,876	7,430	6.3	1.2	36.0
Other cardiovascular and circulatory diseases	2,672,179	7,770	413.6	1.3	60.8

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

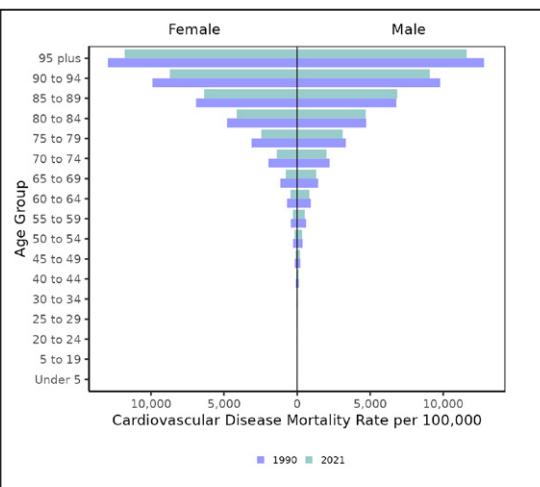


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

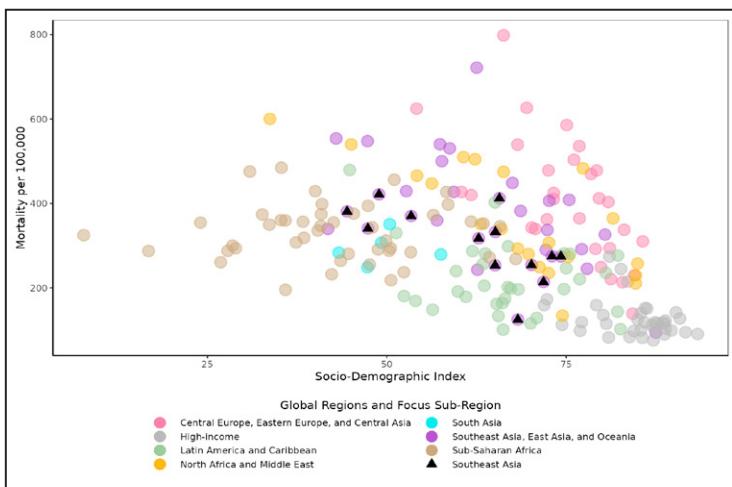


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

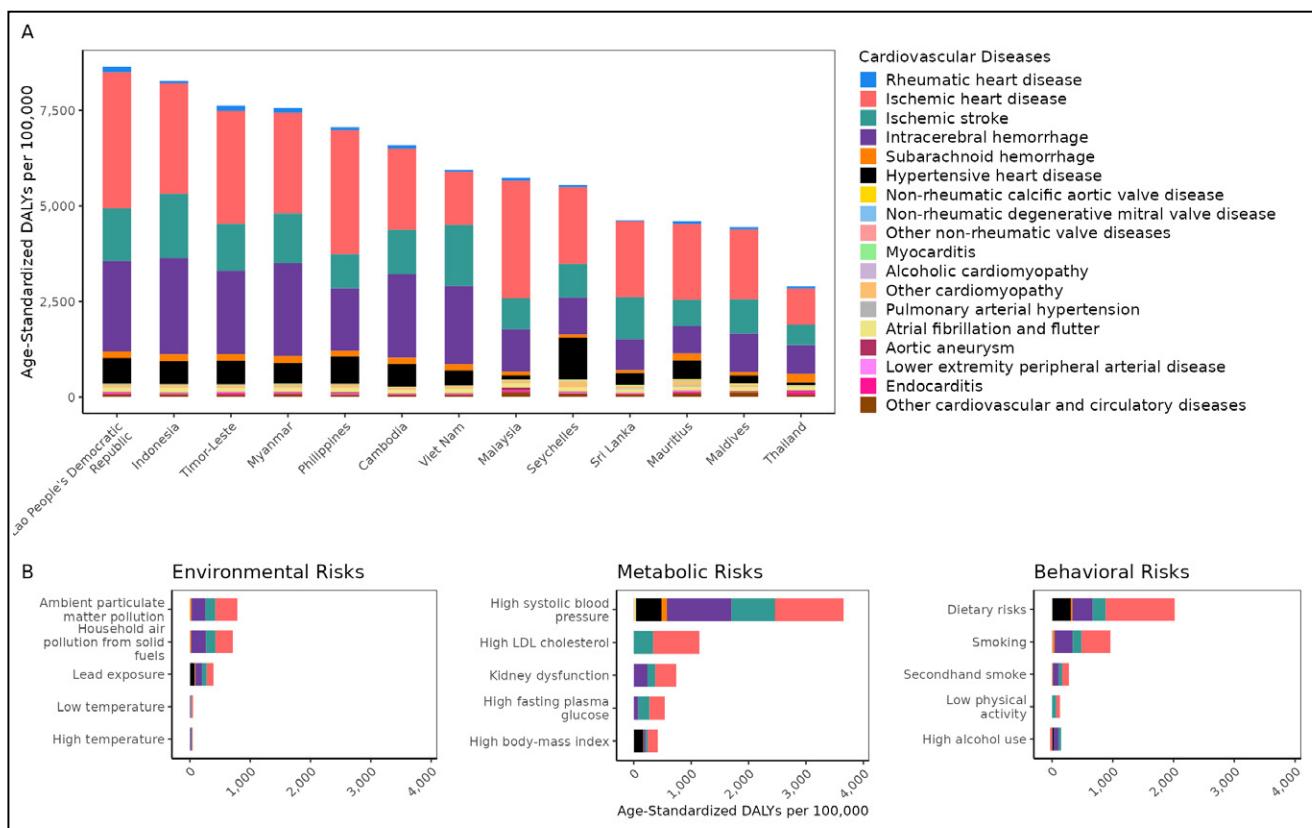


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

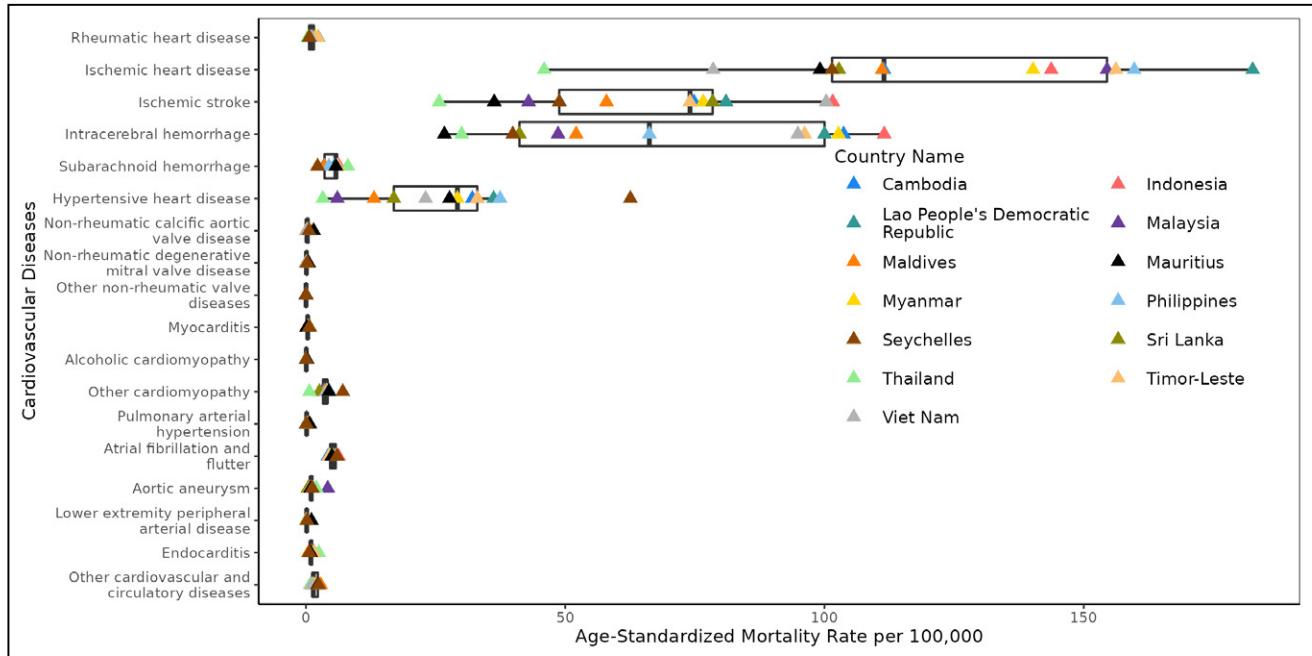


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Central Sub-Saharan Africa

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Central Sub-Saharan Africa ranged from 345.8 to 475.7 per 100,000 in 2021- a 1.4-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (43.0%), while rheumatic heart disease had the largest percent decrease (50.5%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 1193.1. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 55.7%.

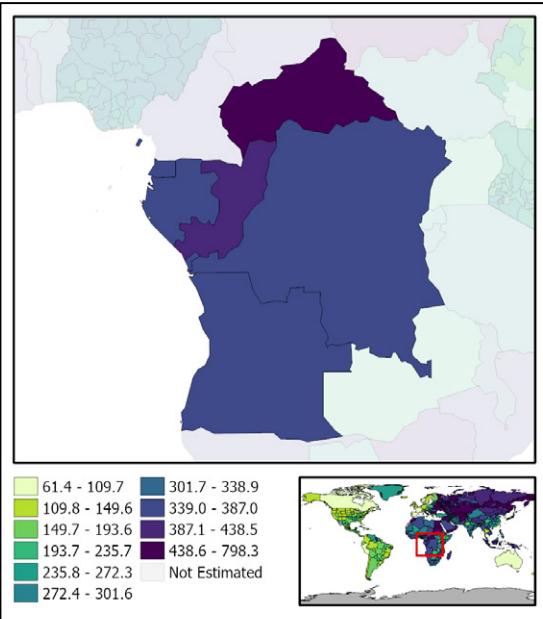


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	2,283,857	2,434	1,666.3	4.0	184.9
Ischemic heart disease	1,162,217	52,289	2,160.4	117.9	2,284.8
Ischemic stroke	616,140	22,333	999.3	64.4	1,082.9
Intracerebral hemorrhage	179,119	40,897	214.8	82.1	1,807.2
Subarachnoid hemorrhage	72,145	1,988	93.6	3.4	99.4
Hypertensive heart disease	116,240	25,609	257.3	64.8	1,117.7
Non-rheumatic calcific aortic valve disease	7,969	601	14.7	1.4	26.0
Non-rheumatic degenerative mitral valve disease	7,559	366	13.8	0.7	16.1
Other non-rheumatic valve diseases	46	7	<0.1	<0.1	0.3
Myocarditis	4,543	222	4.1	0.3	10.0
Alcoholic cardiomyopathy	1,790	2	2.1	<0.1	0.3
Other cardiomyopathy	115,982	7,758	112.6	14.0	347.5
Pulmonary arterial hypertension	1,730	136	1.9	0.2	6.0
Atrial fibrillation and flutter	193,183	1,480	427.6	4.7	92.5
Aortic aneurysm	Not estimated	1,100	Not estimated	2.4	47.6
Lower extremity peripheral arterial disease	383,265	665	777.7	1.8	32.7
Endocarditis	6,134	1,051	4.4	1.7	46.3
Other cardiovascular and circulatory diseases	1,124,820	2,278	1,896.0	4.2	192.5

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

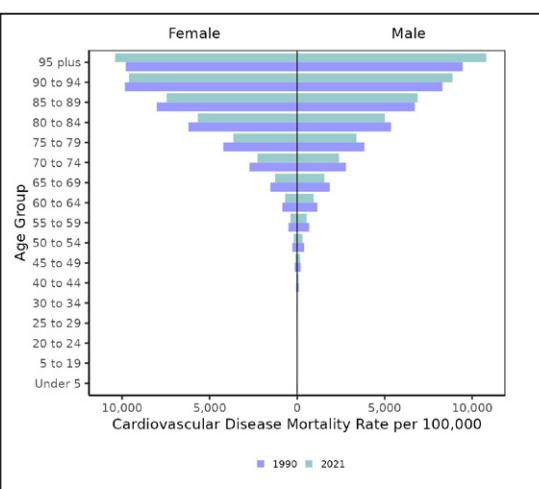


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

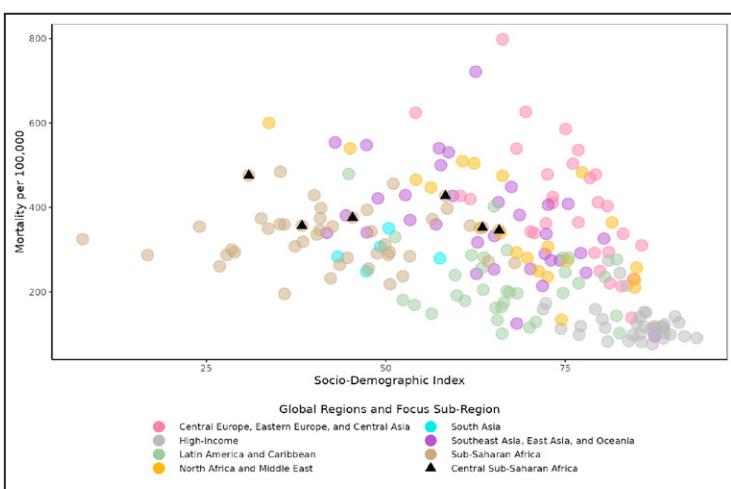


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

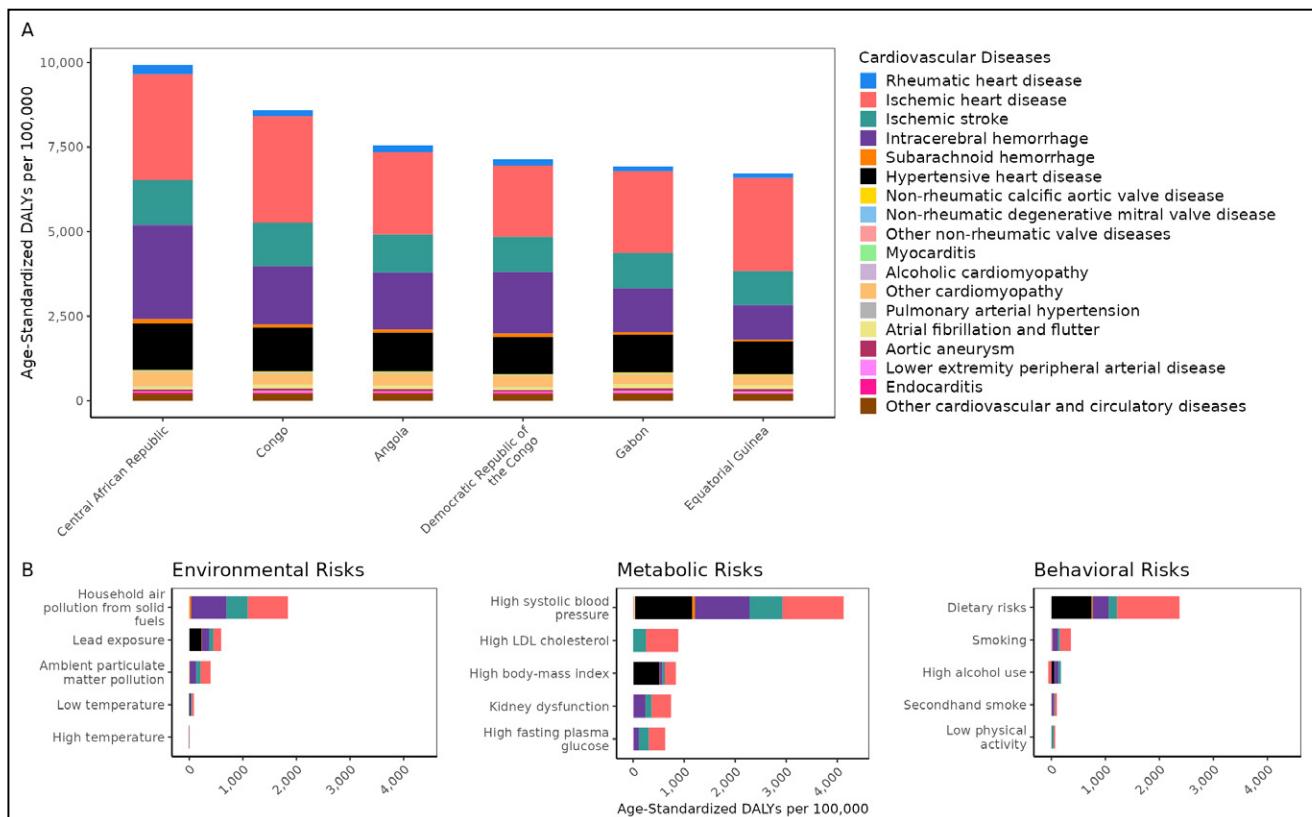


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

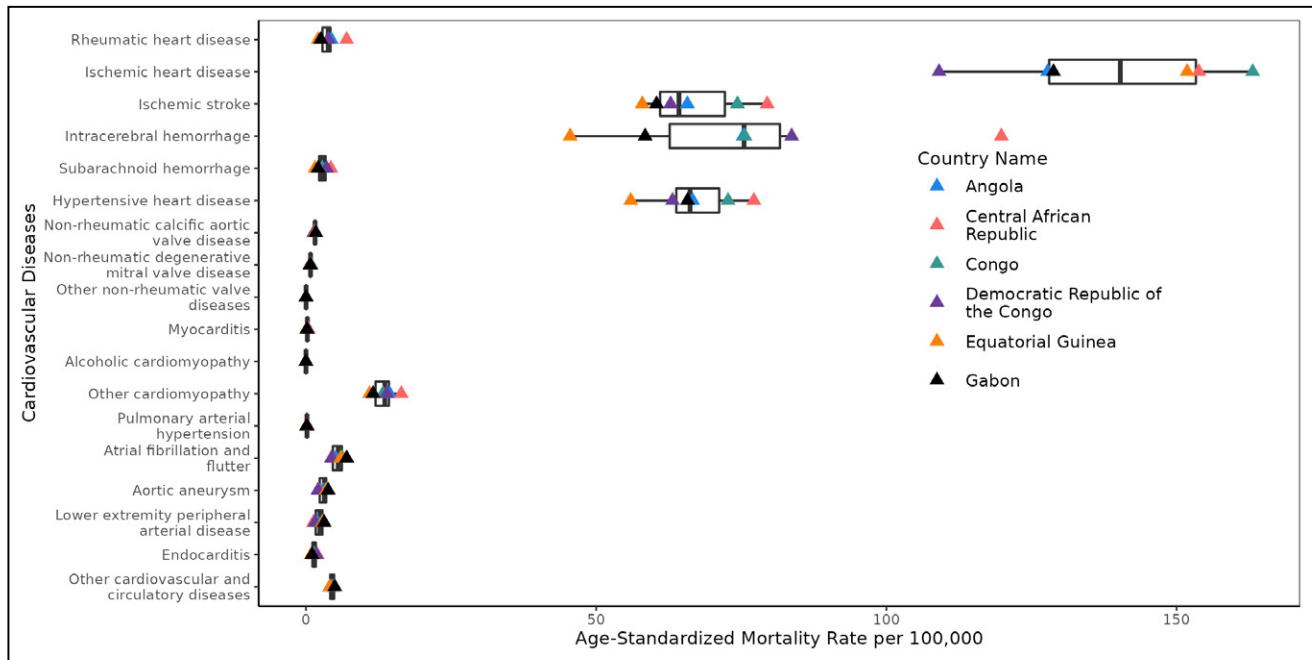


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Eastern Sub-Saharan Africa

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Eastern Sub-Saharan Africa ranged from 195.4 to 429 per 100,000 in 2021—a 2.2-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (45.3%), while rheumatic heart disease had the largest percent decrease (51.3%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 787.9. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 53.9%.

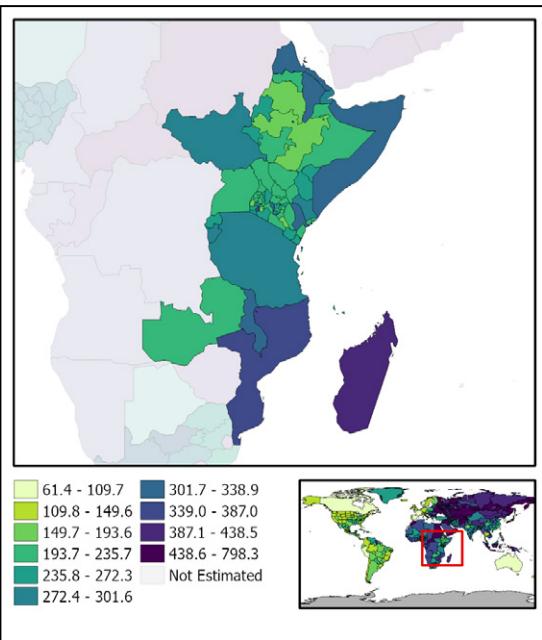


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	6,751,718	6,018	1,583.5	3.5	157.6
Ischemic heart disease	3,771,203	104,976	2,237.6	73.0	1,455.6
Ischemic stroke	1,922,321	56,442	999.4	48.6	845.9
Intracerebral hemorrhage	550,509	119,221	213.0	75.2	1,678.9
Subarachnoid hemorrhage	225,301	5,715	93.9	3.0	93.2
Hypertensive heart disease	519,380	54,977	353.0	43.7	745.9
Non-rheumatic calcific aortic valve disease	23,538	1,439	14.0	1.0	19.1
Non-rheumatic degenerative mitral valve disease	22,469	870	13.1	0.5	12.0
Other non-rheumatic valve diseases	268	18	0.1	<0.1	0.3
Myocarditis	15,811	352	4.5	0.1	5.2
Alcoholic cardiomyopathy	9,477	3	3.2	<0.1	0.3
Other cardiomyopathy	494,856	8,704	161.3	3.8	136.6
Pulmonary arterial hypertension	5,996	472	2.1	0.2	6.6
Atrial fibrillation and flutter	668,542	3,591	451.2	3.6	77.1
Aortic aneurysm	Not estimated	2,648	Not estimated	1.8	35.6
Lower extremity peripheral arterial disease	1,123,319	1,382	726.2	1.2	21.7
Endocarditis	32,947	3,136	7.0	1.4	44.0
Other cardiovascular and circulatory diseases	2,586,325	6,139	1,292.7	3.4	147.6

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

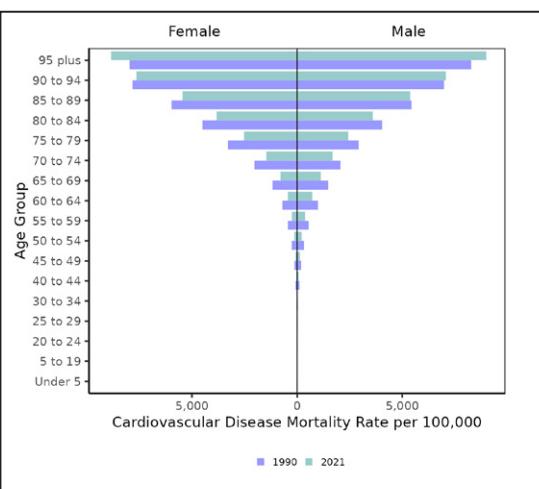
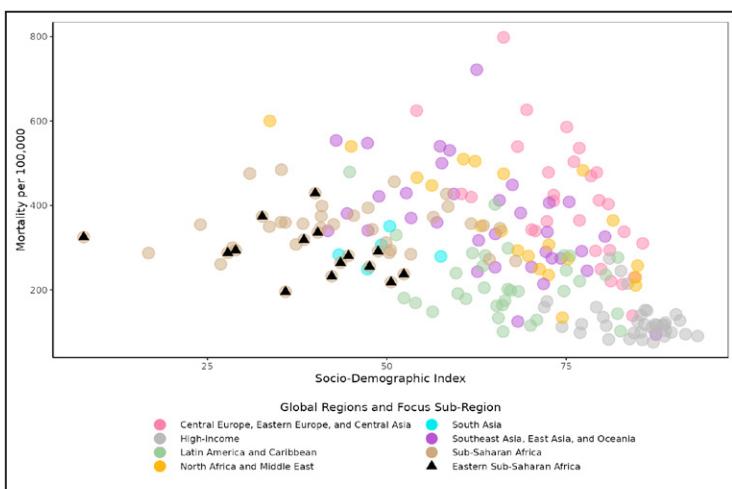


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021



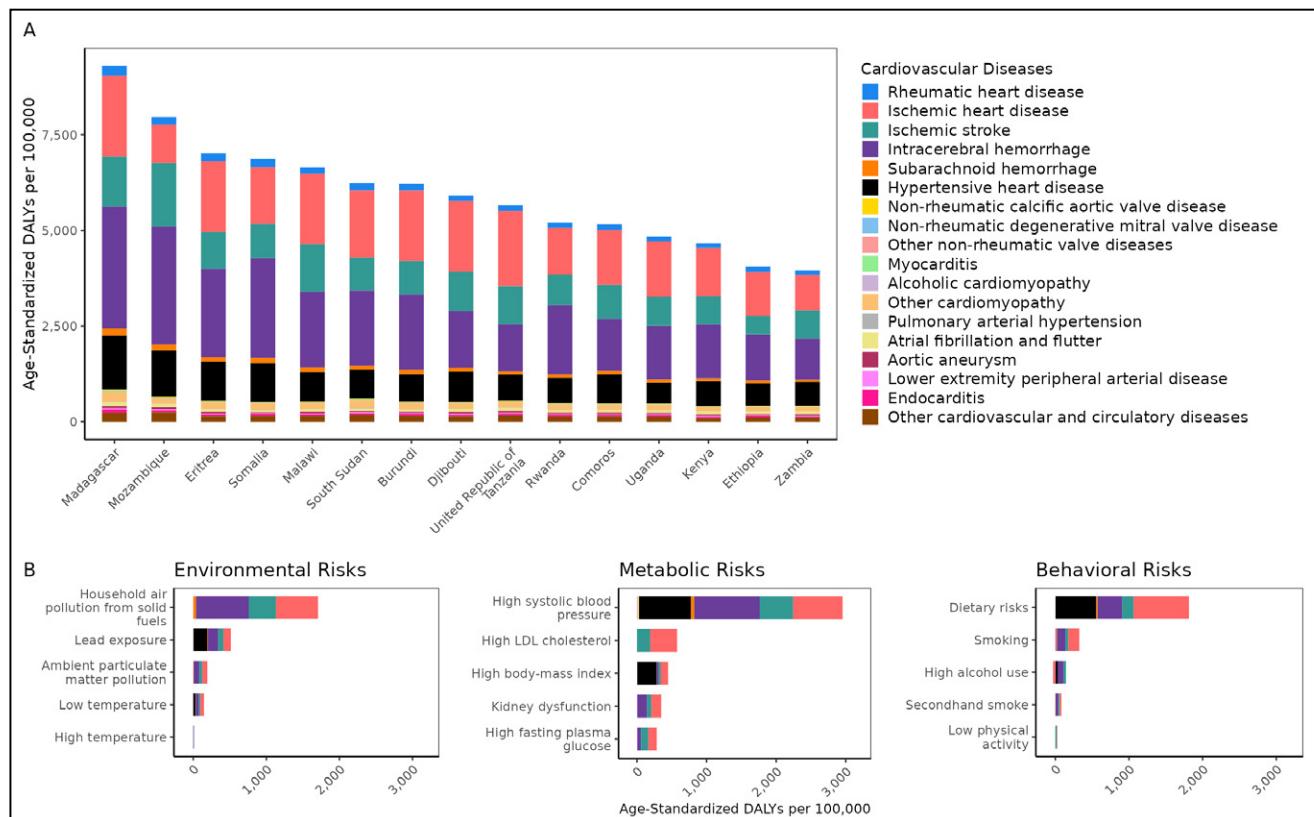


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

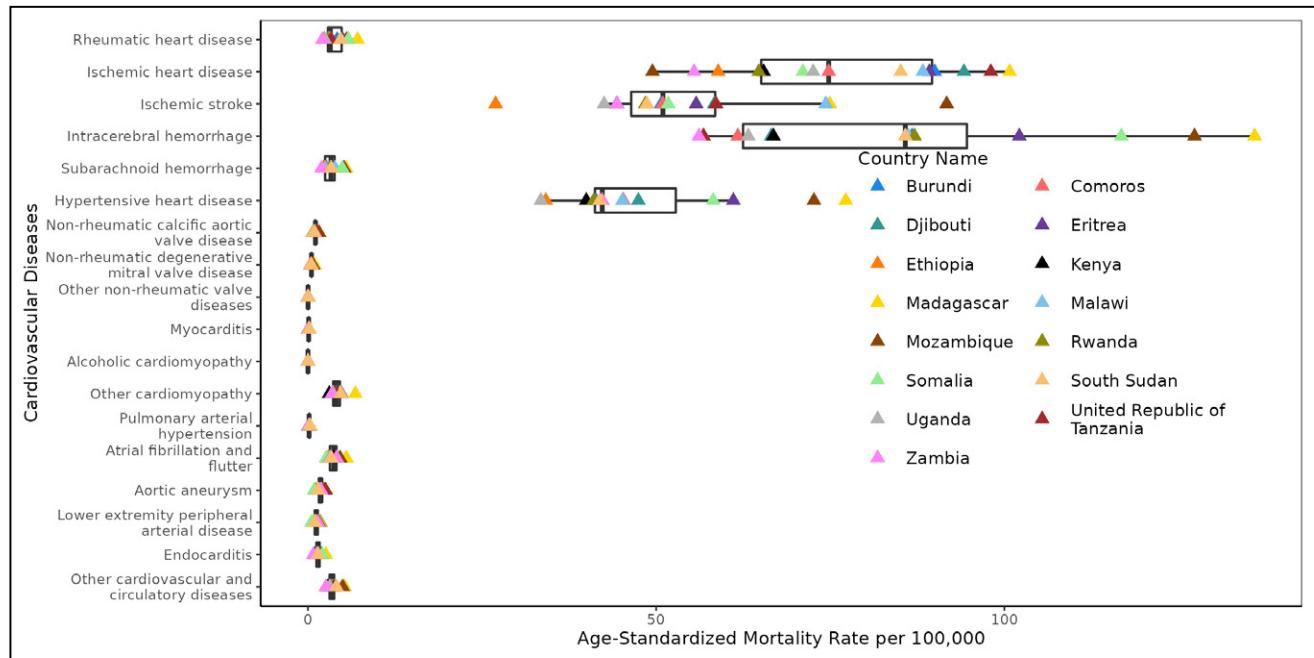


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Southern Sub-Saharan Africa

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Southern Sub-Saharan Africa ranged from 268.2 to 456.2 per 100,000 in 2021- a 1.7-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (55.1%), while rheumatic heart disease had the largest percent decrease (33.9%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 1003.8. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 56.6%.

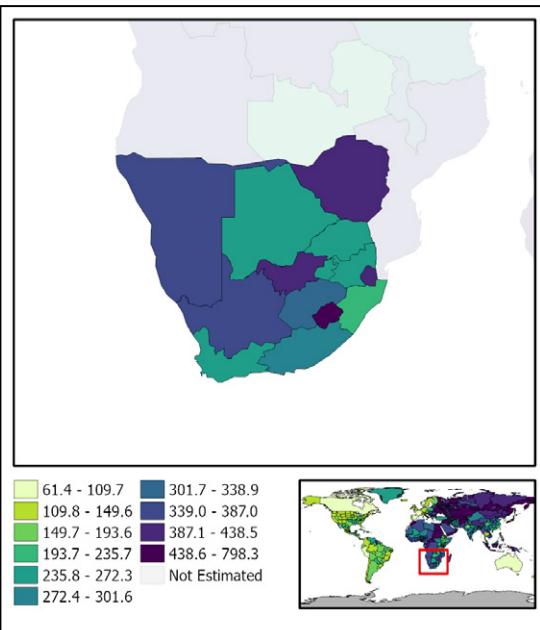


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	1,277,320	1,668	1,505.4	2.5	161.9
Ischemic heart disease	1,608,223	43,259	2,792.7	87.8	1,616.1
Ischemic stroke	660,235	28,311	1,123.5	64.7	1,047.4
Intracerebral hemorrhage	107,163	29,008	156.0	52.6	1,180.9
Subarachnoid hemorrhage	49,797	1,269	73.4	2.1	67.4
Hypertensive heart disease	83,234	23,789	155.9	50.3	850.8
Non-rheumatic calcific aortic valve disease	13,838	579	23.8	1.3	20.6
Non-rheumatic degenerative mitral valve disease	7,803	239	12.6	0.4	11.3
Other non-rheumatic valve diseases	22	7	<0.1	<0.1	0.3
Myocarditis	3,489	105	4.8	0.2	7.3
Alcoholic cardiomyopathy	376	4	0.5	<0.1	0.2
Other cardiomyopathy	67,423	6,956	91.5	13.4	294.3
Pulmonary arterial hypertension	1,613	73	2.3	0.1	4.3
Atrial fibrillation and flutter	270,988	1,701	516.2	4.4	87.8
Aortic aneurysm	Not estimated	1,317	Not estimated	2.5	49.5
Lower extremity peripheral arterial disease	574,464	1,021	1,045.4	2.1	42.5
Endocarditis	3,390	613	4.1	0.9	32.6
Other cardiovascular and circulatory diseases	1,482,111	2,513	2,489.5	4.9	224.1

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

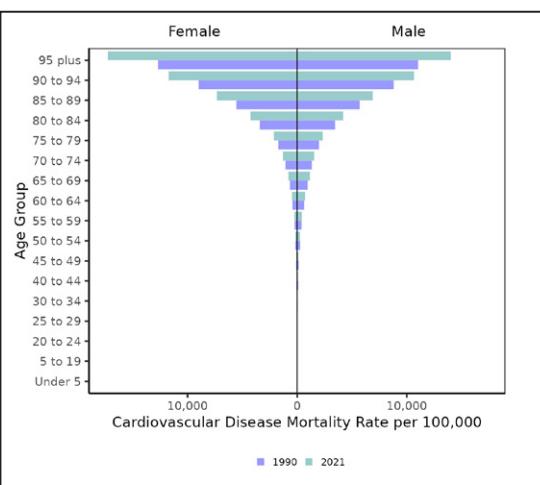


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

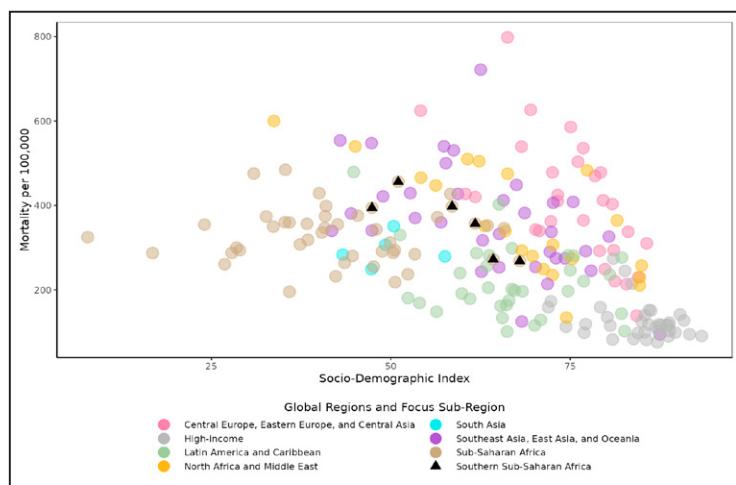


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

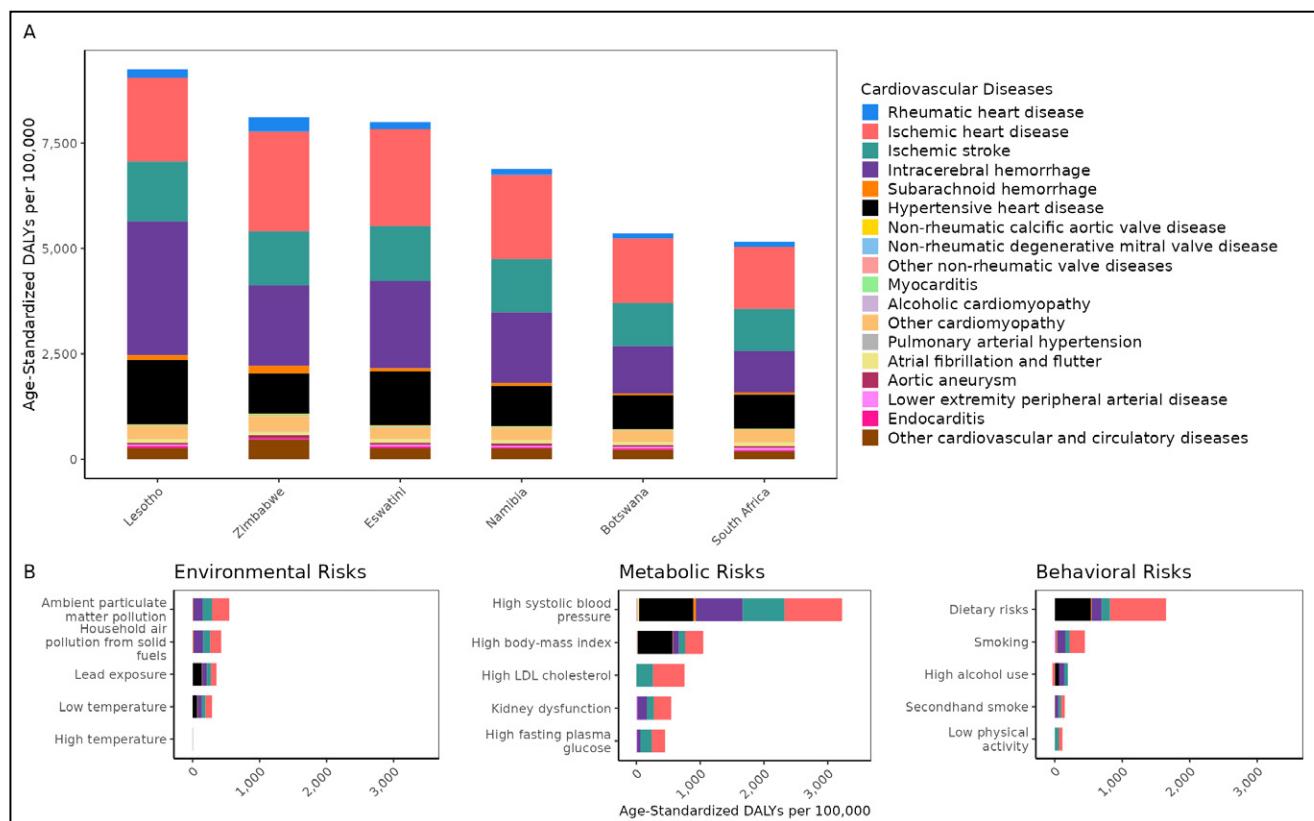


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

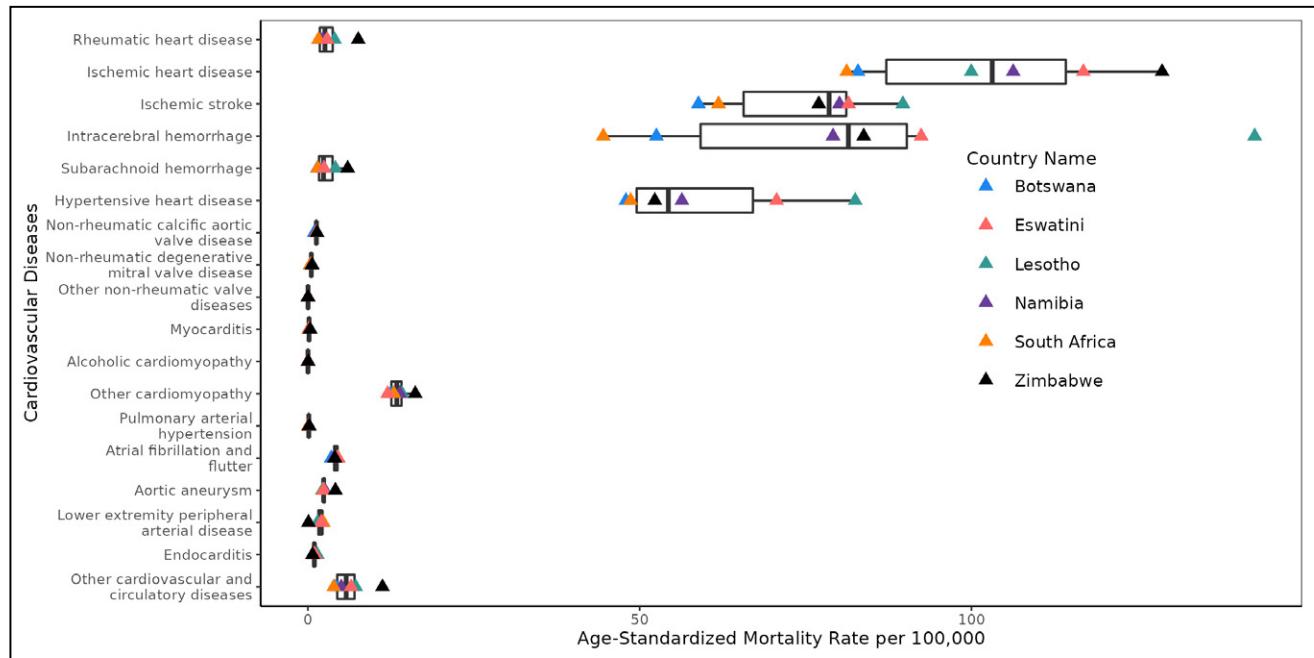


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

# Cardiovascular Disease in Western Sub-Saharan Africa

## FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY

**Summary:** Age-standardized CVD mortality rates in Western Sub-Saharan Africa ranged from 260.7 to 484.6 per 100,000 in 2021- a 1.9-fold difference. Lower extremity peripheral arterial disease had the largest percent increase in CVD cause specific age-standardized mortality rate since 1990 (54.2%), while rheumatic heart disease had the largest percent decrease (69.2%). After ischemic heart disease and stroke, hypertensive heart disease had the highest age-standardized DALY rate of 600.5. Among all CVD risks, high systolic blood pressure accounted for the largest proportion of DALYs at 54.4%.

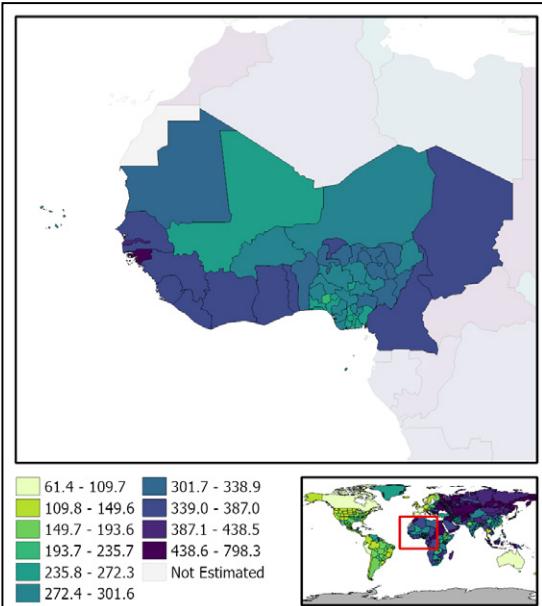


Figure 1. Regional map of 2021 age-standardized cardiovascular disease mortality rate per 100,000

Cardiovascular Disease Type	Prevalent Cases (Count)	Deaths (Count)	Prevalence (Rate)	Deaths (Rate)	Disability-Adjusted Life Years (DALYs, Rate)
Rheumatic heart disease	5,360,391	5,303	1,148.6	2.3	117.8
Ischemic heart disease	5,086,528	175,988	2,637.8	111.3	2,028.4
Ischemic stroke	2,515,078	124,348	1,049.5	86.0	1,504.2
Intracerebral hemorrhage	834,488	103,611	274.9	53.2	1,274.8
Subarachnoid hemorrhage	243,239	5,157	81.7	2.2	74.5
Hypertensive heart disease	498,208	48,974	293.0	29.8	585.6
Non-rheumatic calcific aortic valve disease	24,058	1,681	11.1	1.1	18.9
Non-rheumatic degenerative mitral valve disease	28,728	1,093	13.2	0.6	12.9
Other non-rheumatic valve diseases	215	20	0.1	<0.1	0.2
Myocarditis	21,722	583	5.1	0.2	7.4
Alcoholic cardiomyopathy	10,094	158	3.1	0.1	2.3
Other cardiomyopathy	302,361	18,749	83.5	9.1	227.3
Pulmonary arterial hypertension	9,383	535	3.0	0.2	6.7
Atrial fibrillation and flutter	738,759	5,096	438.2	4.6	82.0
Aortic aneurysm	Not estimated	3,791	Not estimated	2.3	43.3
Lower extremity peripheral arterial disease	1,368,699	1,959	754.2	1.5	25.0
Endocarditis	25,290	3,100	5.3	1.3	38.2
Other cardiovascular and circulatory diseases	5,277,453	17,184	2,509.2	8.3	322.0

Table 1. Regional cardiovascular disease in 2021: counts and age-standardized rates per 100,000. Uncertainty intervals available online ([healthdata.org/xxxxx](http://healthdata.org/xxxxx))

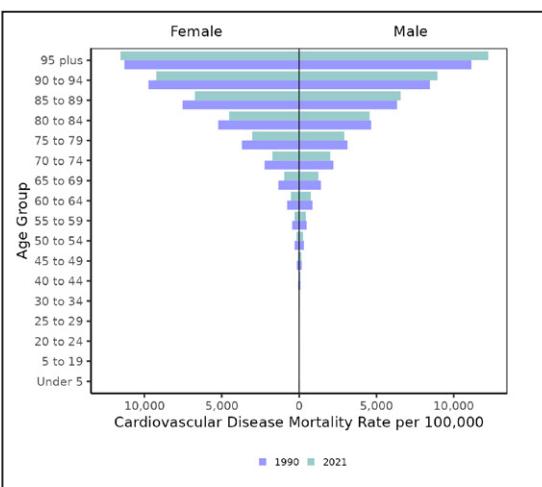


Figure 2. Cardiovascular disease mortality rate per 100,000 in 1990 vs. 2021

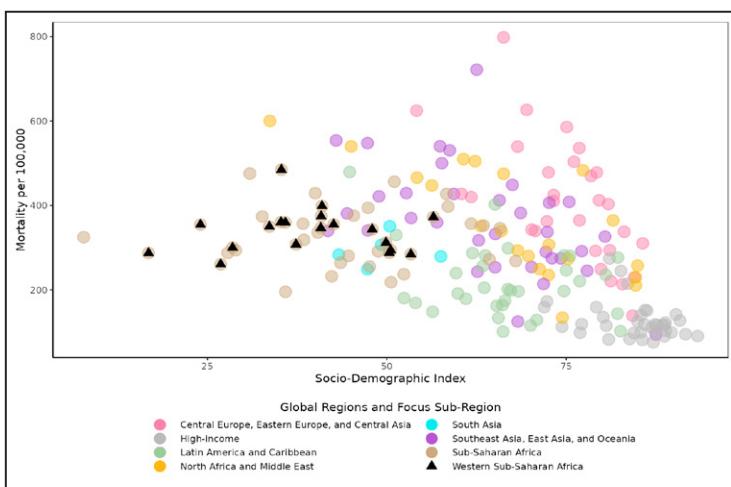


Figure 3. Age-standardized cardiovascular disease mortality rate per 100,000 in 2021 by socio-demographic index, a composite indicator of fertility, income, and education

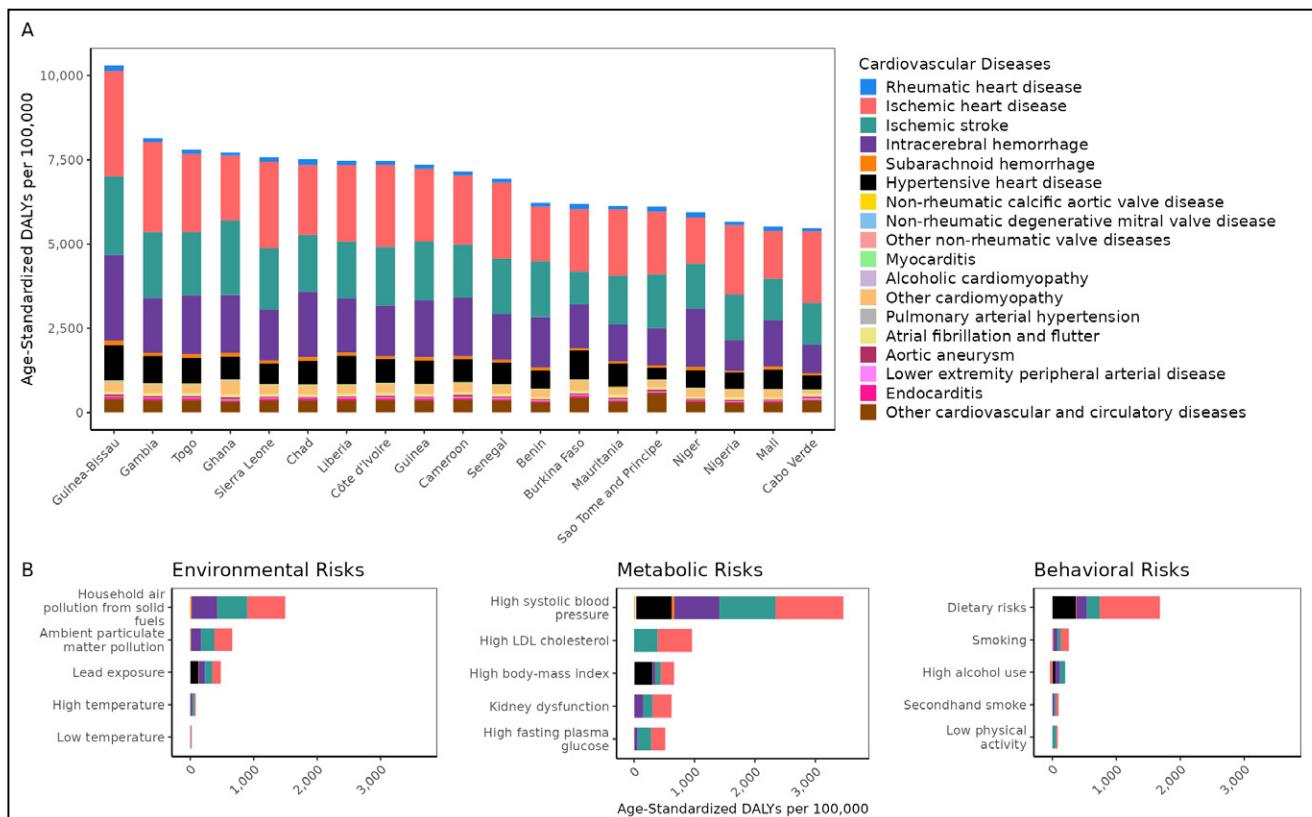


Figure 4. Age-standardized disability-adjusted life years (DALYs) per 100,000 in 2021 for (A) cardiovascular diseases by country and (B) burden attributable to selected risk factors, for the region, compared to the theoretical minimum risk level

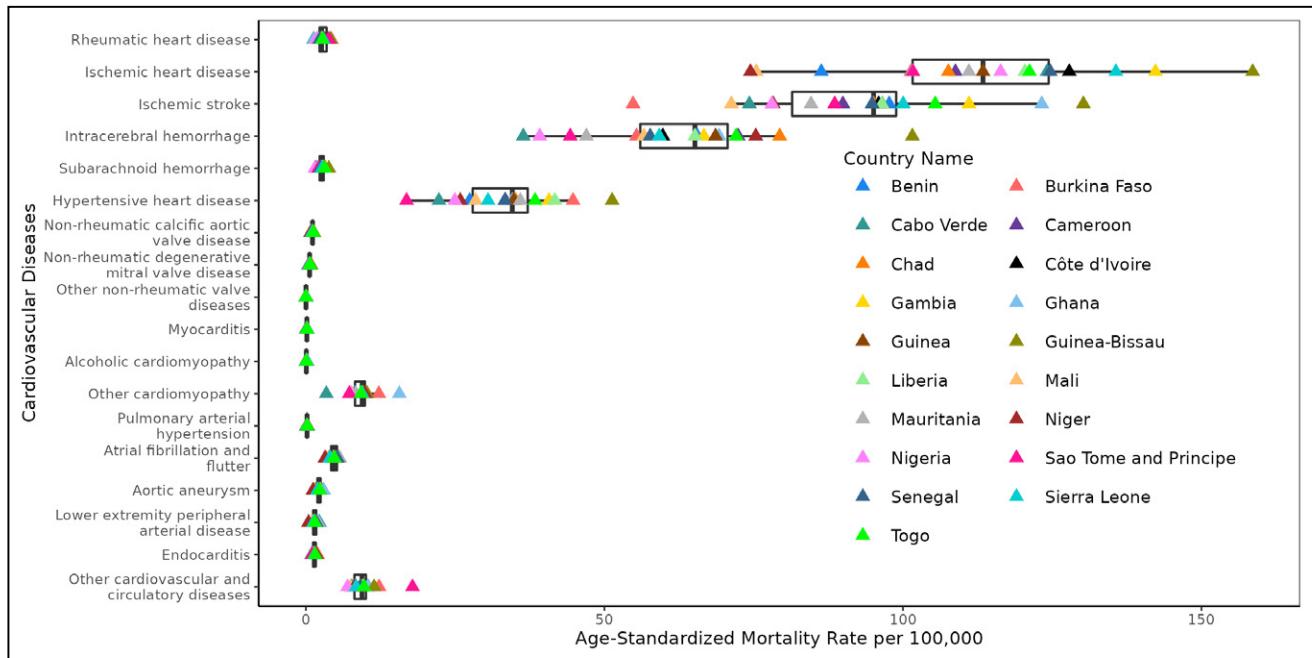


Figure 5. National age-standardized mortality rate per 100,000 for cardiovascular diseases in 2021 by cause of death and country. Boxplot shows first quartile, median, and third quartile of mortality range.

Regional and National Total Cardiovascular Disease in 2021										
Location Type	Location Name	Age-standardized Total Cardiovascular Disease			All Ages Total Cardiovascular Disease					
		Rate per 100,000			Count			Rate per 100,000		
		DALYs	Deaths	Prevalence	DALYs	Deaths	Prevalence	DALYs	Deaths	Prevalence
Global	Global	4,942.3	245.1	7,241.7	422,000,000	20,500,000	621,000,000	5,347.6	258.8	7,852.0
Region	Central Asia	9,181.9	516.9	8,092.4	6,610,000	300,000	6,380,000	6,880.1	310.2	6,598.8
	Armenia	5,995.0	342.7	8,251.4	252,000	14,300	338,000	8,388.1	469.7	11,145.6
	Azerbaijan	9,929.2	626.5	8,008.2	832,000	38,700	783,000	7,928.9	365.7	7,403.7
	Georgia	7,623.2	424.8	8,794.7	460,000	28,700	493,000	12,763.5	794.3	13,637.8
	Kazakhstan	8,588.6	478.3	7,532.4	1,480,000	69,100	1,350,000	7,810.8	363.5	7,085.0
	Kyrgyzstan	7,907.7	427.4	7,196.3	372,000	17,100	366,000	5,510.4	251.4	5,395.3
	Mongolia	7,570.2	419.9	8,174.5	186,000	7,160	216,000	5,284.5	202.0	6,090.3
	Tajikistan	10,105.0	624.6	7,444.1	437,000	18,900	442,000	4,403.1	189.6	4,439.7
	Turkmenistan	10,953.5	539.4	8,485.7	451,000	18,900	361,000	8,666.0	362.9	6,907.9
	Uzbekistan	12,565.6	798.3	8,766.9	2,150,000	86,900	2,030,000	6,184.0	249.2	5,819.0
Region	Central Europe	5,133.6	298.8	6,786.8	11,300,000	700,000	14,400,000	9,909.2	613.2	12,622.5
	Albania	5,463.6	339.6	7,939.6	238,000	14,900	326,000	8,838.6	551.8	12,054.8
	Bosnia and Herzegovina	5,898.0	362.3	7,189.6	346,000	20,800	418,000	10,791.1	646.4	12,985.4
	Bulgaria	9,290.7	535.8	7,102.1	1,300,000	78,600	975,000	18,977.4	1,147.3	14,230.2
	Croatia	3,896.4	249.0	5,847.4	358,000	24,500	506,000	8,488.6	579.2	11,961.5
	Czechia	3,640.2	213.2	8,231.8	790,000	49,800	1,690,000	7,403.7	463.5	15,720.9
	Hungary	5,154.8	292.2	6,919.3	1,000,000	62,500	1,310,000	10,449.8	647.6	13,603.5
	North Macedonia	8,644.2	585.8	6,714.7	253,000	14,500	216,000	11,696.9	670.5	9,979.4
	Montenegro	6,688.1	412.1	7,047.1	64,900	3,810	69,100	10,500.1	615.5	11,158.2
	Poland	3,882.5	220.7	6,220.1	2,820,000	175,000	4,390,000	7,352.4	452.0	11,367.3
	Romania	6,390.1	364.6	6,647.9	2,410,000	152,000	2,430,000	12,738.6	797.0	12,766.6
	Serbia	7,083.1	478.2	7,126.6	1,090,000	68,300	1,120,000	12,498.0	784.5	12,849.3
	Slovakia	5,036.9	294.0	7,116.9	473,000	27,700	656,000	8,682.6	506.5	12,010.1
	Slovenia	2,253.0	138.7	6,779.0	109,000	7,890	295,000	5,226.5	378.0	14,149.0

<b>Region</b>	<b>Eastern Europe</b>	<b>8,173.2</b>	<b>424.7</b>	<b>8,251.4</b>	<b>28,100,000</b>	<b>1,540,000</b>	<b>28,800,000</b>	<b>13,420.3</b>	<b>726.2</b>	<b>13,633.1</b>
	Belarus	8,708.8	469.5	7,155.0	1,400,000	79,100	1,140,000	14,763.3	829.7	11,918.9
	Estonia	3,852.0	229.8	7,481.5	108,000	7,470	193,000	8,203.7	567.8	14,692.3
	Latvia	6,213.0	337.6	6,582.1	244,000	15,500	255,000	12,992.6	822.5	13,492.0
	Lithuania	5,396.3	310.2	6,838.7	316,000	21,100	378,000	11,564.2	766.4	13,760.8
	Republic of Moldova	7,390.3	410.4	6,397.0	440,000	24,900	376,000	12,065.6	677.0	10,220.3
	Russian Federation	7,979.6	403.3	8,677.3	18,700,000	991,000	20,800,000	12,711.6	667.5	14,014.7
	Ukraine	9,138.6	503.5	7,486.6	6,920,000	396,000	5,670,000	15,931.3	905.2	12,964.3
<b>Region</b>	<b>Australasia</b>	<b>1,862.1</b>	<b>102.2</b>	<b>6,525.7</b>	<b>972,000</b>	<b>61,400</b>	<b>3,250,000</b>	<b>3,209.7</b>	<b>202.5</b>	<b>10,734.5</b>
	Australia	1,798.6	97.9	6,603.5	789,000	49,700	2,750,000	3,126.5	196.8	10,893.5
	New Zealand	2,193.4	125.2	6,135.1	183,000	11,700	501,000	3,626.8	231.5	9,936.3
<b>Region</b>	<b>High-income Asia Pacific</b>	<b>1,585.1</b>	<b>76.6</b>	<b>5,059.7</b>	<b>7,300,000</b>	<b>476,000</b>	<b>21,600,000</b>	<b>3,893.4</b>	<b>252.1</b>	<b>11,424.9</b>
	Brunei Darussalam	4,792.5	274.1	4,985.2	14,600	539	16,900	3,277.4	120.3	3,762.0
	Japan	1,607.3	75.6	5,058.7	5,640,000	387,000	16,400,000	4,437.6	303.0	12,866.7
	Republic of Korea	1,634.0	89.6	5,077.0	1,500,000	81,500	4,710,000	2,764.3	149.1	8,618.5
	Singapore	1,753.1	81.5	4,668.5	147,000	6,670	395,000	2,564.0	114.2	6,747.7
<b>Region</b>	<b>High-income North America</b>	<b>2,977.2</b>	<b>145.4</b>	<b>7,843.3</b>	<b>18,400,000</b>	<b>1,020,000</b>	<b>47,700,000</b>	<b>4,997.1</b>	<b>276.9</b>	<b>12,985.3</b>
	Canada	2,071.0	102.1	8,134.3	1,450,000	83,300	5,310,000	3,899.4	223.9	14,273.8
	United States of America	3,086.9	150.8	7,810.8	16,900,000	933,000	42,400,000	5,120.5	282.9	12,840.8
<b>Region</b>	<b>Southern Latin America</b>	<b>3,058.0</b>	<b>156.2</b>	<b>6,796.6</b>	<b>2,620,000</b>	<b>139,000</b>	<b>5,690,000</b>	<b>3,844.9</b>	<b>204.1</b>	<b>8,347.8</b>
	Argentina	3,412.4	172.8	7,470.2	1,880,000	98,400	4,030,000	4,083.2	213.8	8,757.2
	Chile	2,276.3	118.8	5,414.6	570,000	30,400	1,350,000	3,066.9	163.4	7,249.6
	Uruguay	3,053.0	158.9	5,764.1	168,000	10,200	305,000	4,858.5	294.1	8,814.5
<b>Region</b>	<b>Western Europe</b>	<b>2,052.3</b>	<b>114.6</b>	<b>6,907.5</b>	<b>19,900,000</b>	<b>1,350,000</b>	<b>60,100,000</b>	<b>4,534.8</b>	<b>307.3</b>	<b>13,639.9</b>
	Andorra	1,887.6	111.8	5,262.0	2,900	193	7,800	3,389.0	223.5	9,056.8
	Austria	2,376.7	139.9	6,973.2	463,000	32,100	1,230,000	5,118.0	353.7	13,562.8
	Belgium	1,769.7	99.3	6,215.0	432,000	29,500	1,360,000	3,747.3	255.9	11,776.1

	Cyprus	2,963.1	214.6	5,127.0	55,600	3,590	104,000	4,098.9	263.8	7,654.1
	Denmark	1,754.3	99.1	5,870.5	209,000	13,300	666,000	3,564.7	225.6	11,318.9
	Finland	2,619.5	152.2	6,388.6	339,000	23,600	762,000	6,107.3	422.4	13,662.3
	France	1,752.4	83.5	9,315.7	2,580,000	167,000	11,800,000	3,867.1	249.5	17,702.3
	Germany	2,486.3	141.7	7,206.4	5,030,000	339,000	13,000,000	5,858.7	392.7	15,035.5
	Greece	2,786.9	159.0	5,076.0	689,000	50,300	1,160,000	6,756.7	491.6	11,382.2
	Iceland	1,946.7	116.6	5,393.8	11,800	819	30,600	3,356.4	231.7	8,646.0
	Ireland	1,980.9	118.5	5,634.8	155,000	9,830	431,000	3,133.0	197.5	8,651.3
	Israel	1,525.6	82.4	6,058.7	191,000	11,400	734,000	1,979.4	117.6	7,582.6
	Italy	1,886.0	115.0	6,769.4	3,000,000	230,000	9,140,000	4,987.4	381.1	15,165.4
	Luxembourg	2,002.9	116.7	7,068.3	22,100	1,460	71,800	3,402.4	224.6	11,068.7
	Malta	2,321.8	135.3	5,142.7	22,700	1,490	47,700	5,134.1	334.8	10,717.0
	Netherlands	1,763.5	103.2	6,086.8	632,000	41,200	2,050,000	3,658.2	237.7	11,829.3
	Norway	1,651.1	94.8	6,276.7	171,000	11,200	607,000	3,131.6	205.6	11,112.9
	Portugal	1,978.7	112.5	4,974.2	498,000	34,300	1,160,000	4,691.0	322.9	10,951.6
	Spain	1,826.9	98.4	6,270.5	1,870,000	127,000	5,800,000	4,100.9	276.8	12,641.9
	Sweden	2,092.3	117.1	7,509.1	473,000	31,300	1,510,000	4,545.0	299.7	14,496.9
	Switzerland	1,445.8	90.6	5,320.7	282,000	21,200	920,000	3,150.2	236.3	10,256.6
	United Kingdom	2,171.1	118.1	6,150.0	2,760,000	173,000	7,420,000	4,064.5	254.5	10,891.5
<b>Region</b>	<b>Andean Latin America</b>	<b>2,652.9</b>	<b>126.8</b>	<b>6,508.0</b>	<b>1,600,000</b>	<b>73,300</b>	<b>4,010,000</b>	<b>2,437.2</b>	<b>111.4</b>	<b>6,091.1</b>
	Bolivia	3,755.8	191.3	6,208.6	350,000	15,200	625,000	2,809.6	121.9	5,008.2
	Ecuador	2,989.1	163.7	6,519.0	470,000	22,400	1,090,000	2,571.7	122.6	5,944.3
	Peru	2,247.7	101.1	6,592.0	783,000	35,700	2,300,000	2,234.7	101.8	6,552.6
<b>Region</b>	<b>Caribbean</b>	<b>5,244.2</b>	<b>240.8</b>	<b>7,479.9</b>	<b>2,790,000</b>	<b>131,000</b>	<b>3,980,000</b>	<b>5,825.7</b>	<b>271.9</b>	<b>8,274.2</b>
	Antigua and Barbuda	4,554.3	246.4	8,610.7	4,670	230	8,980	5,254.3	257.4	10,065.4
	Bahamas	4,965.9	235.6	8,158.0	20,500	879	33,400	5,386.6	229.7	8,741.0
	Barbados	3,717.5	197.1	8,453.6	18,500	1,010	39,600	6,147.9	336.4	13,113.8
	Belize	3,715.2	178.9	7,759.8	11,600	485	25,700	2,698.1	112.9	5,977.1

	Cuba	3,952.9	201.7	7,393.6	764,000	42,200	1,320,000	6,752.5	369.9	11,566.3
	Dominica	5,301.4	281.5	7,537.6	4,810	261	6,590	7,031.7	379.8	9,598.8
	Dominican Republic	5,973.6	286.9	7,413.2	590,000	26,200	746,000	5,303.4	235.4	6,697.9
	Grenada	5,595.7	298.5	7,917.1	6,260	300	9,050	6,097.2	291.7	8,797.4
	Guyana	8,255.1	402.5	7,506.0	54,400	2,240	51,100	6,937.3	284.8	6,489.5
	Haiti	10,036.4	479.2	7,351.0	796,000	29,700	635,000	6,153.3	229.8	4,908.9
	Jamaica	3,881.9	196.6	7,749.5	121,000	6,540	239,000	4,292.4	231.2	8,455.8
	Saint Lucia	3,894.5	198.3	8,477.6	8,630	420	18,600	4,914.3	238.2	10,535.6
	Saint Vincent and the Grenadines	5,274.0	281.6	8,373.9	7,140	354	11,400	6,293.3	311.1	9,982.4
	Suriname	5,512.8	256.0	7,590.9	34,900	1,540	47,300	5,998.7	263.6	8,112.2
	Trinidad and Tobago	4,638.1	220.6	8,312.3	87,300	4,120	154,000	6,258.9	294.2	10,978.8
Region	<b>Central Latin America</b>	<b>3,332.9</b>	<b>170.2</b>	<b>6,492.4</b>	<b>8,350,000</b>	<b>413,000</b>	<b>16,400,000</b>	<b>3,281.8</b>	<b>161.8</b>	<b>6,448.7</b>
	Colombia	2,660.8	133.3	6,457.4	1,510,000	80,300	3,620,000	3,097.3	164.6	7,411.5
	Costa Rica	2,368.9	115.6	8,040.8	129,000	6,410	434,000	2,692.6	133.5	9,044.4
	El Salvador	3,013.9	148.2	6,376.6	191,000	9,990	402,000	3,018.7	157.8	6,349.7
	Guatemala	2,985.4	169.0	6,447.6	362,000	16,300	883,000	1,951.7	87.5	4,750.4
	Honduras	6,069.0	330.1	6,589.8	386,000	17,900	482,000	3,762.3	173.9	4,690.5
	Mexico	3,285.5	174.4	6,542.5	4,030,000	198,000	8,210,000	3,163.3	155.5	6,439.3
	Nicaragua	3,124.2	180.6	6,674.5	143,000	6,530	348,000	2,132.9	97.4	5,200.5
	Panama	2,593.2	128.7	7,062.1	116,000	5,930	314,000	2,669.3	136.7	7,232.8
	Venezuela	4,865.4	239.7	5,688.5	1,490,000	70,900	1,750,000	5,414.4	256.2	6,339.1
Region	<b>Tropical Latin America</b>	<b>3,579.6</b>	<b>163.1</b>	<b>6,897.9</b>	<b>9,150,000</b>	<b>407,000</b>	<b>17,500,000</b>	<b>4,016.2</b>	<b>178.1</b>	<b>7,653.5</b>
	Brazil	3,568.9	162.2	6,905.6	8,900,000	395,000	17,100,000	4,035.5	178.7	7,712.9
	Paraguay	4,096.0	204.9	6,634.1	243,000	11,500	414,000	3,416.8	160.7	5,808.7
Region	<b>North Africa and Middle East</b>	<b>7,040.1</b>	<b>361.4</b>	<b>9,978.7</b>	<b>32,700,000</b>	<b>1,390,000</b>	<b>48,600,000</b>	<b>5,199.1</b>	<b>220.9</b>	<b>7,698.1</b>
	Algeria	5,770.5	339.5	10,202.8	1,960,000	92,400	3,800,000	4,537.0	213.4	8,772.8
	Bahrain	4,343.4	273.6	9,864.2	40,900	1,490	129,000	2,788.2	99.0	8,545.6

	Egypt	10,472.1	509.8	10,691.3	7,180,000	275,000	7,630,000	6,998.2	267.7	7,428.5
	Iran	5,108.4	280.2	10,337.8	3,890,000	190,000	8,310,000	4,525.2	219.0	9,579.2
	Iraq	8,829.0	475.0	10,650.7	2,150,000	92,200	2,910,000	4,923.5	210.1	6,627.1
	Jordan	4,332.9	235.0	9,561.5	317,000	12,900	764,000	2,481.9	101.1	5,963.1
	Kuwait	3,899.2	210.5	10,079.1	124,000	5,010	325,000	2,592.3	104.0	6,734.8
	Lebanon	2,826.3	134.2	10,364.8	153,000	7,140	564,000	2,907.9	135.0	10,661.2
	Libya	6,878.2	306.8	10,740.4	381,000	14,900	630,000	5,556.5	216.8	9,146.0
	Morocco	8,288.4	447.3	10,393.1	2,600,000	118,000	3,480,000	7,140.1	322.3	9,527.6
	Palestine	6,088.2	351.1	9,349.0	149,000	6,420	267,000	2,893.8	124.7	5,183.9
	Oman	7,998.0	483.1	10,983.4	136,000	5,020	270,000	2,807.4	102.9	5,536.7
	Qatar	3,634.2	229.5	10,428.0	43,000	1,290	163,000	1,381.9	41.5	5,245.0
	Saudi Arabia	7,454.7	364.6	9,996.5	1,790,000	56,900	2,200,000	4,764.3	150.7	5,831.3
	Syrian Arab Republic	9,555.0	504.7	10,545.0	1,180,000	49,800	1,390,000	8,429.2	350.4	9,782.6
	Tunisia	5,301.0	293.1	9,400.5	681,000	34,600	1,250,000	5,806.0	294.1	10,642.6
	Türkiye	4,407.6	249.0	8,688.0	3,980,000	216,000	8,120,000	4,826.6	260.8	9,809.4
	United Arab Emirates	4,633.2	257.4	11,056.7	206,000	5,440	729,000	2,149.1	56.8	7,615.3
	Yemen	10,670.1	539.9	9,777.1	1,610,000	62,300	1,640,000	4,896.2	188.4	4,972.6
<b>Region</b>	<b>South Asia</b>	<b>6,171.8</b>	<b>287.6</b>	<b>7,467.8</b>	<b>94,300,000</b>	<b>3,830,000</b>	<b>115,000,000</b>	<b>5,082.2</b>	<b>205.8</b>	<b>6,162.1</b>
	Afghanistan	12,610.1	600.2	9,765.7	2,050,000	67,800	1,640,000	5,037.8	165.3	4,005.3
	Bangladesh	6,162.7	306.8	7,417.9	8,740,000	390,000	10,800,000	5,380.3	239.0	6,604.4
	Bhutan	4,904.3	248.6	7,524.3	29,000	1,280	46,000	3,863.0	170.3	6,105.3
	India	6,016.9	279.2	7,372.2	74,200,000	3,030,000	90,900,000	5,204.0	211.9	6,359.7
	Nepal	5,769.9	283.3	6,731.0	1,360,000	56,800	1,630,000	4,383.5	182.8	5,241.5
	Pakistan	7,615.8	350.9	8,534.8	9,900,000	348,000	11,200,000	4,229.7	148.5	4,770.6
<b>Region</b>	<b>East Asia</b>	<b>4,959.4</b>	<b>286.3</b>	<b>6,623.0</b>	<b>104,000,000</b>	<b>5,710,000</b>	<b>141,000,000</b>	<b>7,106.2</b>	<b>388.8</b>	<b>9,581.5</b>
	China	4,980.8	290.1	6,622.9	101,000,000	5,560,000	136,000,000	7,124.2	391.9	9,580.0
	Democratic People's Republic of Korea	7,446.7	360.0	6,493.9	2,460,000	112,000	2,110,000	9,319.2	421.9	7,959.8

	Taiwan	2,100.4	94.2	6,626.6	843,000	40,700	2,740,000	3,560.5	170.6	11,478.3
<b>Region</b>	<b>Oceania</b>	<b>8,391.2</b>	<b>372.1</b>	<b>6,678.9</b>	<b>710,000</b>	<b>23,400</b>	<b>557,000</b>	<b>5,093.3</b>	<b>168.1</b>	<b>3,994.2</b>
	Fiji	9,905.1	448.7	7,527.7	78,000	2,860	58,000	8,493.2	311.3	6,299.3
	Kiribati	10,542.9	429.2	7,884.3	8,680	264	6,190	7,135.9	216.9	5,084.7
	Marshall Islands	12,552.5	540.3	7,135.1	5,160	164	2,810	8,991.7	284.5	4,879.7
	Micronesia	12,301.5	530.7	7,249.5	9,640	321	5,480	9,502.2	315.4	5,388.0
	Papua New Guinea	7,723.1	339.7	6,305.1	460,000	14,500	370,000	4,400.8	138.6	3,533.5
	Samoa	9,371.3	427.4	7,689.3	14,700	583	12,400	6,725.2	266.8	5,657.8
	Solomon Islands	12,296.5	554.0	7,425.2	43,800	1,430	27,600	6,445.9	210.0	4,060.1
	Tonga	5,341.0	242.9	7,801.4	4,380	191	6,600	4,322.0	188.6	6,502.0
	Vanuatu	12,713.7	547.7	7,912.0	25,300	889	16,000	8,278.1	290.3	5,226.8
<b>Region</b>	<b>Southeast Asia</b>	<b>6,418.7</b>	<b>308.6</b>	<b>5,874.6</b>	<b>41,400,000</b>	<b>1,720,000</b>	<b>37,800,000</b>	<b>6,028.4</b>	<b>250.7</b>	<b>5,489.8</b>
	Cambodia	6,592.9	340.6	5,568.8	819,000	35,200	730,000	4,791.2	205.4	4,256.1
	Indonesia	8,273.2	412.2	6,082.1	18,700,000	750,000	13,800,000	7,094.1	283.9	5,209.8
	Lao People's Democratic Republic	8,649.2	421.6	6,004.5	418,000	16,100	304,000	5,688.8	218.7	4,125.9
	Malaysia	5,734.3	274.5	7,418.8	1,640,000	68,400	2,160,000	5,108.7	213.1	6,719.4
	Maldives	4,443.3	253.3	6,517.9	14,600	682	25,800	2,733.3	125.4	4,736.7
	Myanmar	7,562.0	370.2	5,929.6	3,660,000	154,000	2,920,000	6,585.9	277.1	5,244.6
	Philippines	7,056.5	332.4	5,683.4	6,060,000	234,000	4,900,000	5,232.9	202.0	4,224.2
	Sri Lanka	4,624.5	254.2	5,571.3	1,190,000	58,600	1,480,000	5,355.1	264.1	6,671.6
	Thailand	2,895.5	124.9	5,725.4	3,000,000	133,000	5,920,000	4,249.7	188.2	8,356.9
	Timor-Leste	7,626.7	380.9	5,652.1	66,300	2,750	52,100	4,769.6	197.5	3,745.5
	Viet Nam	5,936.3	317.2	5,477.8	5,670,000	265,000	5,350,000	5,793.8	269.6	5,442.3
<b>Region</b>	<b>Central Sub-Saharan Africa</b>	<b>7,394.9</b>	<b>367.9</b>	<b>7,691.9</b>	<b>4,310,000</b>	<b>161,000</b>	<b>5,880,000</b>	<b>3,098.5</b>	<b>115.8</b>	<b>4,222.9</b>
	Angola	7,548.3	375.7	8,097.3	952,000	34,200	1,330,000	2,950.4	105.7	4,124.6
	Central African Republic	9,934.7	475.7	7,436.0	238,000	8,100	225,000	4,296.7	146.4	4,069.7
	Congo	8,589.6	427.2	8,216.4	245,000	9,260	283,000	4,435.4	167.6	5,130.6

	Democratic Republic of the Congo	7,134.5	356.6	7,521.4	2,760,000	105,000	3,870,000	2,988.9	113.7	4,183.2
	Equatorial Guinea	6,726.5	345.8	8,291.8	36,800	1,410	64,000	2,430.9	92.9	4,214.9
	Gabon	6,926.2	352.3	8,152.6	75,300	3,140	103,000	4,164.5	173.3	5,707.8
<b>Region</b>	<b>Eastern Sub-Saharan Africa</b>	<b>5,483.2</b>	<b>264.1</b>	<b>7,318.2</b>	<b>10,400,000</b>	<b>376,000</b>	<b>17,600,000</b>	<b>2,392.0</b>	<b>86.7</b>	<b>4,050.6</b>
	Burundi	6,219.5	293.8	7,141.1	337,000	11,600	487,000	2,643.0	90.9	3,812.9
	Comoros	5,159.3	255.0	7,608.8	26,600	1,150	43,600	3,641.4	156.4	5,951.0
	Djibouti	5,915.1	291.1	7,892.8	39,600	1,400	64,500	3,118.5	110.3	5,058.6
	Eritrea	7,017.5	335.7	7,328.9	218,000	7,290	301,000	3,114.3	104.2	4,304.2
	Ethiopia	4,055.6	195.4	6,741.6	1,970,000	73,000	4,250,000	1,743.5	64.5	3,757.3
	Kenya	4,668.0	237.0	7,094.8	1,130,000	42,800	2,220,000	2,151.7	81.0	4,193.5
	Madagascar	9,303.4	429.0	8,214.7	1,240,000	40,600	1,320,000	4,412.1	144.5	4,687.5
	Malawi	6,644.4	318.6	7,498.9	562,000	20,800	812,000	2,884.9	106.4	4,156.7
	Mauritius	4,599.0	213.9	6,402.1	80,200	3,620	112,000	6,278.3	281.6	8,718.6
	Mozambique	7,963.9	373.8	8,645.0	979,000	35,400	1,370,000	3,137.7	113.5	4,386.5
	Rwanda	5,204.8	264.0	7,018.7	343,000	13,300	584,000	2,587.4	99.8	4,388.0
	Seychelles	5,551.3	274.8	6,382.4	6,340	279	7,240	6,095.3	267.4	6,935.4
	Somalia	6,866.5	324.8	6,915.2	552,000	18,100	756,000	2,519.2	82.3	3,439.1
	United Republic of Tanzania	5,661.5	280.5	7,825.2	1,560,000	60,800	2,680,000	2,616.4	101.6	4,480.7
	Uganda	4,838.0	232.1	6,991.9	827,000	28,900	1,540,000	1,910.3	66.6	3,560.2
	Zambia	3,955.0	218.1	7,407.4	278,000	10,800	767,000	1,433.4	55.8	3,950.1
<b>Region</b>	<b>Southern Sub-Saharan Africa</b>	<b>5,699.4</b>	<b>290.2</b>	<b>8,626.3</b>	<b>3,340,000</b>	<b>142,000</b>	<b>5,530,000</b>	<b>4,151.4</b>	<b>176.7</b>	<b>6,861.8</b>
	Botswana	5,358.9	272.3	8,936.1	75,500	2,920	149,000	3,123.4	120.3	6,148.3
	Lesotho	9,250.3	456.2	7,684.4	119,000	4,680	112,000	5,615.2	220.2	5,294.6
	Namibia	6,888.3	356.9	8,520.6	100,000	4,440	144,000	4,058.2	179.2	5,810.4
	South Africa	5,162.2	268.2	8,516.8	2,380,000	106,000	4,220,000	4,187.6	185.8	7,414.7
	Eswatini	7,996.5	397.5	8,217.6	49,000	1,880	58,900	4,224.0	161.9	5,069.1

	Zimbabwe	8,112.9	394.4	9,587.6	618,000	22,800	848,000	3,988.3	146.9	5,463.2
<b>Region</b>	<b>Western Sub-Saharan Africa</b>	<b>6,371.7</b>	<b>313.8</b>	<b>8,091.0</b>	<b>13,900,000</b>	<b>517,000</b>	<b>20,400,000</b>	<b>2,860.7</b>	<b>106.7</b>	<b>4,211.4</b>
	Benin	6,219.9	307.5	7,858.2	349,000	13,300	524,000	2,584.1	98.6	3,873.3
	Burkina Faso	6,198.8	300.1	8,243.6	648,000	23,900	973,000	2,678.5	98.8	4,018.0
	Cameroon	7,151.7	343.2	8,130.4	996,000	36,000	1,310,000	3,226.2	116.5	4,250.1
	Cabo Verde	5,468.0	284.3	9,502.4	24,800	1,220	45,800	4,314.6	210.9	7,917.3
	Chad	7,516.7	354.6	8,127.2	518,000	18,200	629,000	2,935.7	103.1	3,560.8
	Côte d'Ivoire	7,472.4	355.1	8,588.0	938,000	32,500	1,230,000	3,436.4	118.8	4,484.8
	Gambia	8,144.6	398.6	8,639.1	88,000	3,520	109,000	3,729.6	149.1	4,633.0
	Ghana	7,718.6	372.4	8,070.1	1,390,000	52,600	1,630,000	4,206.1	158.9	4,940.3
	Guinea	7,363.0	349.8	8,008.9	461,000	17,600	547,000	3,455.8	131.9	4,103.9
	Guinea-Bissau	10,304.3	484.6	8,150.8	86,900	3,020	79,800	4,378.2	151.9	4,019.0
	Liberia	7,477.1	360.3	8,190.1	178,000	6,520	224,000	3,575.5	131.0	4,500.3
	Mali	5,522.8	260.7	7,646.3	577,000	20,300	887,000	2,447.9	86.2	3,762.8
	Mauritania	6,129.5	312.1	8,613.2	137,000	5,910	219,000	3,277.2	141.3	5,245.7
	Niger	5,948.7	287.3	7,794.0	557,000	19,400	849,000	2,212.2	77.0	3,373.9
	Nigeria	5,666.3	287.8	7,976.1	5,690,000	216,000	9,530,000	2,488.1	94.4	4,158.6
	Sao Tome and Principe	6,108.7	294.1	9,688.8	7,090	267	12,800	3,339.8	125.5	5,991.1
	Senegal	6,941.4	346.7	8,807.5	565,000	23,100	819,000	3,582.7	146.3	5,191.5
	Sierra Leone	7,579.9	359.7	8,558.7	324,000	11,900	410,000	3,691.2	135.4	4,676.1
	Togo	7,801.3	374.5	8,378.6	324,000	11,800	397,000	3,908.8	141.7	4,778.6
	Monaco	2,191.5	127.4	5,383.0	2,160	155	4,980	5,701.8	407.2	13,068.7
	Nauru	17,903.8	721.7	7,045.3	1,040	28	326	9,763.6	266.4	3,066.8
	Palau	9,155.4	408.4	6,682.3	2,020	73	1,450	11,175.2	398.9	7,976.9
	Saint Kitts and Nevis	5,117.3	280.8	6,797.2	3,400	154	4,740	5,610.4	253.7	7,782.2
	San Marino	2,184.1	122.2	8,478.3	1,540	105	5,120	4,582.5	313.3	15,265.9
	Tuvalu	11,291.5	500.2	6,245.4	1,200	46	646	9,934.7	384.7	5,358.5

	South Sudan	6,240.6	287.5	7,222.9	288,000	9,850	374,000	3,149.2	107.1	4,072.5
	Sudan	9,323.7	465.9	10,255.4	2,010,000	78,400	2,320,000	4,719.8	183.4	5,420.7

# Global Burden of Cardiovascular Diseases and Risks Collaboration, 1990-2021

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**Funding:** Bill and Melinda Gates Foundation

**Disclosures:** The authors have reported that they have no relationships relevant to the contents of this paper to disclose. The contents and views expressed in this report are those of the authors and do not necessarily reflect the official views of the National Institutes of Health, the Department of Health and Human Services, the U.S. Government, or the affiliated institutions.

**Twitter Handles and Hashtags:** #GBDstudy @IHME\_UW @NHLBI\_Translate

**Word Count:** 1,000 for methods summary

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## Summary of Global Burden of Disease Study Methods

The Global Burden of Disease (GBD) Study methods have been published previously.(1–3)

Detailed methods for the GBD study and each cardiovascular disease and risk factor can be found as online supplements to this publication. Following is an overview of those methods.

### Background

The GBD study is a multinational collaborative research study with over 8,000 collaborators around the world. The GBD study estimates disease rates at the subnational, national, regional and global level and produces a time series from 1990 through the most recent estimated year including summary measures of health, such as years of life lost prematurely, years lived with disability, and disability-adjusted life years (DALYs). These estimates are produced for disease entities, referred to as causes of death or disease sequelae according to a mutually exclusive, collectively exhaustive hierarchy of conditions developed by the study. The study also produces estimates of all-cause mortality and population.

The study is led by a principal investigator and governed by a study protocol and a Scientific Advisory Committee. The study is performed in compliance with Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) guidelines for reporting health estimates. The University of Washington Institutional Review Board Committee approved the Global Burden of Diseases, Injuries, and Risk Factors Study (STUDY00009060)

## Methods

### Geographic Locations

The GBD study estimated for 204 countries and territories grouped into 21 regions. Subnational estimates were produced at the first level of administrative organization within selected countries.

### Case Definitions

Standardized case definitions were used to identify each cardiovascular (CVD) cause of death and related health states. Ischemic heart disease included health states for myocardial infarction, stable angina, chronic coronary heart disease, and ischemic cardiomyopathy.

Myocardial infarction was defined according to the Universal Definition of Myocardial Infarction. Stroke was defined according to the World Health Organization definition. Lower extremity peripheral artery disease was defined by ankle brachial index <0.9. Atrial fibrillation or flutter were defined by clinical interpretation of electrocardiogram. Hypertensive heart disease was defined as symptomatic, stage C heart failure due to the direct and long-term effects of hypertension. Cardiomyopathy was defined as symptomatic heart failure due to primary myocardial disease or toxin exposure to the myocardium, such as alcohol. Acute myocarditis was defined as an acute and time-limited condition due to myocardial inflammation.

Endocarditis and rheumatic heart disease (RHD) were defined by their clinical diagnosis. Estimates of RHD include cases identified by clinical history and physical examination, including auscultation or World Heart Federation echocardiographic criteria for definite disease.

## Mortality

Methods to estimate population and all-cause mortality have been previously reported.(4) Vital and sample registration, verbal autopsy, survey and census data were collected and analyzed. International Classification of Disease system codes were mapped to the GBD study list of diseases. When causes were nonspecific or unspecified, deaths were reclassified using statistical methods based on the relationships between multiple causes reported as the chain of events on death certificates. A noise reduction algorithm was applied to mortality data and a Bayesian geospatial ensemble regression model (CODem, the cause of death ensemble model, Institute for Health Metrics and Evaluation (IHME), Seattle, Washington) was used with location-specific covariates to produce smoothed time series for each location, including where data was sparse or missing. Adjustment was made to assure that cause-specific mortality could not exceed all-cause mortality.

## Incidence and Prevalence

Incidence and prevalence were estimated for each disease using epidemiologic state-transition disease modeling software, DisMod-MR (IHME, Seattle, Washington), and the Bayesian meta-regression software Meta-regression with Bayesian priors, Regularization and Trimming, (MR-BRT, IHME, Seattle, Washington). Input data sources were identified via study collaborators and systematic reviews of published literature, population surveys, and administrative health facility data. When necessary, health facility data was adjusted to account for readmission and outpatient visits. For each disease, network meta-analysis was performed to allow adjustment for study-level differences in case definition or measurement method. All input data was made available for public review via the Global Health Data Exchange website. Years lived with disability were estimated using disease prevalence and disability weights constructed based on

surveys of the general population, with a statistical adjustment made to account for comorbidity. Disability weights were specific to each health state and accounted for disease severity. DALYs were calculated as the sum of YLLs and YLDs, using a reference maximum observed life expectancy.

### Risk Factors

Systematic reviews were performed to identify population-representative data on risk exposure levels. Population-level exposure to risk factors for each location was estimated using a geospatial Gaussian process regression model. After estimating the mean and standard deviation of exposure levels, available person-level data was used to define an ensemble distribution shape. Each risk was assigned associated outcomes from the GBD study list of diseases to form risk-outcome pairs. Relative risks were estimated for each risk outcome pair following the Burden of Proof (BoP) method, previously reported.(5) A systematic review was performed of published studies reporting relative risk or hazard ratios, data was extracted using a standardized approach, and the shape of the exposure versus relative risk relationship was estimated, integrating over the exposure ranges and accounting for between-study heterogeneity, within-study correlation, and publication or reporting bias. An example of this approach has been reported in detail for the relationship between systolic blood pressure and ischemic heart disease.(6) Population-attributable fractions were then calculated for each risk-outcome pair using a theoretical minimum risk exposure level, the average exposure level below which there is no longer a measurable association with outcomes in the BoP modeling.

### Additional Methods

Analyses were performed separately by sex and in 5-year age categories. Age standardization used the direct method, applying a global age structure. Uncertainty intervals represent the

2.5<sup>th</sup> and 97.5<sup>th</sup> values of the posterior distribution of model draws. The sociodemographic index, a composite indicator of background social and economic conditions in a location, was estimated as the geometric mean of 0 to 1 indices for total fertility rate before age 25, mean education beyond age 15, and lag-distributed income per capita scaled to a value from 0 to 100.

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