

Heterogeneous Trends in Burden of Heart Disease Mortality by Subtypes in the United States, 1999-2018: Observational Analysis of Vital Statistics

Supplementary Material

Supplementary Table A. Number of deaths from total heart disease and heart disease subtypes in the US in 1999, 2011, and 2018

	1999	2011	2018
Total Heart Disease	725,192	596,577	655,381
Ischemic Heart Disease	529,659	375,295	365,744
Heart Failure	54,913	58,309	83,616
Hypertensive Heart Disease	26,029	37,270	60,041
Valvular Heart Disease	19,612	23,141	24,337
Arrhythmia	18,309	28,033	36,417
Pulmonary Heart Disease	13,244	14,206	18,026
Other Heart Disease	63,426	60,323	67,200

Supplementary Table B. Trends in age-adjusted mortality rates from total and cause-specific heart disease deaths stratified by race-sex subgroups of all ages in the US, 1999-2018

Heart Disease Subtype	Race-Sex Group	AAMR per 100,000 (95% CI)			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
Total Heart Disease	Black women	283.7 (281.0 to 286.5)	176.2 (174.3 to 178.1)	162.2 (160.6 to 163.9)	-3.9 (-4.3 to -3.5)*	-1.2 (-1.6 to -0.8)*
	White women	212.8 (212.0 to 213.5)	136.5 (135.9 to 137.0)	126.6 (126.1 to 127.1)	-3.8 (-4.1 to -3.6)*	-0.9 (-1.3 to -0.4)*
	Black men	407.2 (402.8 to 411.6)	266.1 (263.1 to 269.2)	259.5 (256.9 to 262.1)	-3.4 (-3.6 to -3.2)*	-0.5 (-1.0 to 0.0)
	White men	327.1 (325.9 to 328.3)	216.9 (216.0 to 217.7)	206.3 (205.6 to 207.1)	-3.4 (-3.9 to -2.9)*	-0.6 (-1.0 to -0.3)*
Ischemic Heart Disease	Black women	188.0 (185.7 to 190.2)	99.7 (98.3 to 101.2)	77.9 (76.8 to 79.1)	-5.3 (-5.6 to -4.9)*	-3.3 (-3.7 to -3.0)*
	White women	150.5 (149.9 to 151.1)	80.1 (79.6 to 80.5)	63.7 (63.4 to 64.1)	-5.1 (-5.6 to -4.6)*	-3.3 (-3.7 to -2.9)*
	Black men	278.7 (275.1 to 282.4)	161.5 (159.1 to 163.8)	138.1 (136.2 to 139.9)	-4.4 (-4.7 to -4.1)*	-2.3 (-2.9 to -1.7)*
	White men	251.2 (250.2 to 252.2)	146.5 (145.8 to 147.2)	125.6 (125.0 to 126.2)	-4.4 (-4.8 to -3.9)*	-2.2 (-2.6 to -1.9)*
Heart Failure	Black women	20.9 (20.1 to 21.6)	17.0 (16.4 to 17.6)	21.5 (20.9 to 22.1)	-1.6 (-2.5 to -0.7)*	3.5 (2.8 to 4.2)*
	White women	19.3 (19.1 to 19.5)	15.8 (15.6 to 15.9)	18.7 (18.5 to 18.9)	-1.7 (-2.5 to -0.9)*	2.6 (2.1 to 3.2)*
	Black men	25.3 (24.1 to 26.4)	20.7 (19.8 to 21.6)	28.9 (28.0 to 29.8)	-1.3 (-2.2 to -0.4)*	4.9 (4.0 to 5.8)*
	White men	21.4 (21.1 to 21.7)	18.8 (18.5 to 19.0)	23.8 (23.6 to 24.1)	-1.3 (-1.7 to -0.9)*	3.8 (2.8 to 4.8)*
Hypertensive Heart Disease	Black women	24.4 (23.6 to 25.2)	20.2 (19.6 to 20.9)	22.3 (21.7 to 22.9)	-1.4 (-1.8 to -1.0)*	0.7 (-1.0 to 2.3)
	White women	7.4 (7.3 to 7.6)	8.1 (8.0 to 8.2)	11.8 (11.6 to 11.9)	0.9 (0.5 to 1.3)*	5.6 (4.3 to 7.0)*
	Black men	30.2 (29.1 to 31.4)	29.7 (28.7 to 30.6)	35.3 (34.4 to 36.3)	0.3 (-0.5 to 1.1)	1.8 (0.9 to 2.6)*
	White men	7.8 (7.6 to 8.0)	10.4 (10.2 to 10.5)	15.7 (15.5 to 15.9)	2.5 (2.0 to 3.0)*	6.3 (4.9 to 9.4)*
Valvular Heart Disease	Black women	5.1 (4.8 to 5.5)	4.0 (3.7 to 4.3)	3.8 (3.5 to 4.1)	-1.8 (-2.1 to -1.5)*	-1.8 (-2.1 to -1.5)*
	White women	7.1 (7.0 to 7.2)	6.7 (6.6 to 6.8)	6.1 (6.0 to 6.2)	-0.4 (-0.6 to -0.2)*	-1.5 (-2.5 to -0.4)*
	Black men	5.4 (4.9 to 5.9)	4.2 (3.8 to 4.6)	4.2 (3.8 to 4.5)	-1.5 (-2.0 to -0.9)*	-1.5 (-2.0 to -0.9)*
	White men	7.8 (7.6 to 8.0)	7.6 (7.5 to 7.8)	6.9 (6.7 to 7.0)	0.1 (-0.2 to 0.4)	-1.6 (-3.1 to 0.0)
Arrhythmia	Black women	6.5 (6.1 to 6.9)	6.5 (6.2 to 6.9)	7.0 (6.7 to 7.4)	0.4 (-1.4 to 2.3)	0.9 (-0.1 to 1.9)
	White women	6.2 (6.1 to 6.3)	8.1 (8.0 to 8.3)	8.8 (8.7 to 9.0)	2.0 (1.7 to 2.3)*	2.0 (1.7 to 2.3)*
	Black men	8.9 (8.2 to 9.6)	8.2 (7.7 to 8.8)	9.3 (8.8 to 9.8)	0.1 (-0.3 to 0.5)	0.1 (-0.3 to 0.5)
	White men	7.4 (7.2 to 7.5)	8.5 (8.3 to 8.7)	10.1 (9.9 to 10.2)	1.0 (0.5 to 1.6)*	2.7 (2.3 to 3.2)*
Pulmonary Heart Disease	Black women	8.9 (8.4 to 9.4)	7.0 (6.6 to 7.4)	8.3 (7.9 to 8.7)	-1.5 (-2.2 to -0.8)*	1.1 (0.4 to 1.8)*
	White women	4.6 (4.5 to 4.7)	4.3 (4.2 to 4.4)	4.6 (4.5 to 4.7)	-0.7 (-1.5 to -0.2)*	1.4 (1.1 to 1.8)*
	Black men	8.4 (7.8 to 9.0)	6.4 (6.0 to 6.9)	7.3 (6.9 to 7.7)	-2.1 (-3.0 to -1.2)*	1.3 (0.2 to 2.4)*
	White men	4.5 (4.3 to 4.6)	3.7 (3.6 to 3.8)	4.1 (4.0 to 4.2)	-1.8 (-2.5 to -1.0)*	2.1 (1.1 to 3.0)*
Other Heart Disease	Black women	29.9 (29.1 to 30.8)	21.7 (21.0 to 22.3)	21.3 (20.7 to 21.9)	-2.4 (-2.7 to -2.1)*	-0.7 (-1.5 to 0.1)
	White women	17.6 (17.4 to 17.9)	13.4 (13.2 to 13.6)	12.8 (12.6 to 13.0)	-2.2 (-2.7 to -1.7)*	-0.6 (-2.6 to 1.6)
	Black men	50.2 (48.8 to 51.7)	35.4 (34.3 to 36.5)	36.4 (35.5 to 37.4)	-2.5 (-2.9 to -2.2)*	0.1 (-0.8 to 0.9)
	White men	27.1 (26.8 to 27.4)	21.4 (21.1 to 21.7)	20.2 (20.0 to 20.4)	-1.8 (-2.2 to -1.4)*	-0.7 (-1.0 to -0.4)*

CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. Mean annual percentage change shown for AAMR for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, p<0.05.

Supplementary Table C. Trends in age-adjusted mortality rates from total and cause-specific heart disease deaths stratified by race-sex subgroups in decedents <45 years in the US, 1999-2018

Heart Disease Subtype		AAMR per 100,000			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
Total Heart Disease	Black women	15.6	12.2	12.1	-2.2 (-2.7 to -1.8)*	0.0 (-1.2 to 1.3)
	White women	5.2	4.9	4.9	-0.7 (-1.2 to -0.3)*	0.5 (-0.3 to 1.3)
	Black men	27.4	22.6	23.4	-1.0 (-1.2 to -0.7)*	-1.0 (-1.2 to -0.7)*
	White men	12.5	11.1	10.2	-1.0 (-1.5 to -0.4)*	-0.9 (-1.6 to -0.1)*
Ischemic Heart Disease	Black women	4.9	3.2	3.0	-2.8 (-3.3 to -2.3)*	-2.8 (-3.3 to -2.3)*
	White women	2.0	1.7	1.5	-0.8 (-2.1 to 0.4)	-2.2 (-4.6 to 0.2)
	Black men	11.3	8.4	7.8	-2.0 (-2.3 to -1.7)*	-2.0 (-2.3 to -1.7)*
	White men	7.2	5.6	4.4	-2.1 (-2.6 to -1.5)*	-3.2 (-3.4 to -3.0)*
Heart Failure	Black women	0.5	0.7	0.8	2.1 (-5.0 to 9.6)	1.7 (-1.9 to 5.5)
	White women	0.1	0.1	0.2	0.2 (-2.8 to 3.2)	0.2 (-2.8 to 3.2)
	Black men	0.7	1.0	1.7	2.8 (0.0 to 5.6)*	8.8 (5.7 to 12.0)*
	White men	0.2	0.2	0.4	2.8 (1.4 to 4.2)*	2.8 (1.4 to 4.2)*
Hypertensive Heart Disease	Black women	2.2	2.6	2.6	0.6 (0.1 to 1.1)*	0.6 (0.1 to 1.1)*
	White women	0.2	0.4	0.6	4.7 (3.6 to 5.8)*	4.7 (3.6 to 5.8)*
	Black men	3.6	4.6	5.1	1.8 (1.3 to 2.3)*	1.8 (1.3 to 2.3)*
	White men	0.7	1.2	1.5	5.2 (3.7 to 6.7)*	2.7 (2.0 to 3.3)*
Valvular Heart Disease	Black women	0.5	0.4	0.3	-4.5 (-6.1 to -2.8)*	-4.5 (-6.1 to -2.8)*
	White women	0.3	0.2	0.2	-0.2 (-1.9 to 1.5)	-0.2 (-1.9 to 1.5)
	Black men	0.6	0.3	0.5	-4.1 (-5.6 to -2.5)*	3.6 (-4.9 to 12.8)
	White men	0.3	0.3	0.3	-0.1 (-0.1 to -0.1)*	0.8 (0.8 to 0.8)*
Arrhythmia	Black women	0.6	0.4	0.4	-1.6 (-2.8 to -0.4)*	-1.6 (-2.8 to -0.4)*
	White women	0.3	0.3	0.3	-0.4 (-1.6 to 0.8)	-0.4 (-1.6 to 0.8)
	Black men	0.8	0.9	0.8	0.2 (-0.6 to 1.1)	0.2 (-0.6 to 1.1)
	White men	0.4	0.4	0.4	-0.5 (-4.6 to 3.9)	0.1 (-1.1 to 1.3)
Pulmonary Heart Disease	Black women	2.2	1.7	1.8	-1.0 (-1.6 to -0.3)*	-1.0 (-1.6 to -0.3)*
	White women	0.8	0.7	0.7	-2.1 (-3.6 to -0.7)*	0.5 (-1.2 to 2.3)
	Black men	1.5	1.3	1.4	-0.8 (-1.8 to 0.2)	-0.8 (-1.8 to 0.2)
	White men	0.7	0.5	0.6	-1.7 (-2.7 to -0.8)*	3.2 (1.3 to 5.1)*
Other Heart Disease	Black women	4.7	3.3	3.2	-3.1 (-3.7 to -2.5)*	-0.7 (-2.2 to 0.9)
	White women	1.5	1.4	1.4	0.1 (-0.5 to 0.3)	0.1 (-0.5 to 0.3)
	Black men	8.8	6.0	6.1	-2.6 (-5.1 to 0.0)*	-0.4 (-0.4 to 1.2)
	White men	3.0	2.9	2.6	-0.8 (-1.0 to -0.5)*	-0.8 (-1.0 to -0.5)*

CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. Mean annual percentage change shown for AAMR for the specified time range. Total includes all decedents of all race/ethnicity groups. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table D. Trends in age-adjusted mortality rates from total and cause-specific heart disease deaths stratified by race-sex subgroups in decedents 45-64 years in the US, 1999-2018

Heart Disease Subtype	AAMR per 100,000			Mean Annual Percent Change (95% CI)		
	1999	2011	2018	1999-2011	2011-2018	
Total Heart Disease	Black women	209.1	137.8	140.9	-3.4 (-4.2 to -2.6)*	0.3 (-0.4 to 1.0)
	White women	83.7	63.1	64.5	-2.2 (-2.5 to -2.0)*	0.5 (0.1 to 0.9)*
	Black men	414.1	278.8	288.1	-3.3 (-3.6 to -3.1)*	0.3 (-0.3 to 0.9)
	White men	222.2	166.2	165.3	-2.4 (-2.7 to -2.1)*	-0.1 (-0.4 to 0.2)
Ischemic Heart Disease	Black women	124.6	70.3	63.9	-4.9 (-5.6 to -4.1)*	-1.2 (-1.8 to -0.6)*
	White women	57.7	37.9	35.6	-3.3 (-3.5 to -3.0)*	-0.8 (-1.2 to -0.3)*
	Black men	273.2	160.4	149.7	-4.2 (-4.6 to -3.8)*	-1.1 (-1.6 to -0.5)*
	White men	176.0	118.3	108.3	-3.2 (-3.4 to -3.0)*	-1.4 (-1.7 to -1.2)*
Heart Failure	Black women	9.0	7.9	12.3	-1.2 (-3.0 to 0.6)	7.0 (5.1 to 8.9)*
	White women	3.2	3.0	4.0	-1.5 (-2.2 to -0.7)*	4.5 (2.7 to 6.4)*
	Black men	14.1	13.4	21.0	0.4 (-1.1 to 2.0)	6.5 (4.9 to 8.2)*
	White men	5.1	4.8	7.3	-0.6 (-1.3 to 0.1)	5.8 (4.2 to 7.5)*
Hypertensive Heart Disease	Black women	24.7	23.5	26.1	0.0 (-1.4 to 0.5)	0.0 (-1.4 to 0.5)
	White women	3.5	5.5	7.2	4.1 (3.7 to 4.5)*	4.1 (3.7 to 4.5)*
	Black men	41.0	45.8	51.4	1.3 (-0.4 to 2.9)	1.0 (0.4 to 1.6)*
	White men	7.3	13.6	17.6	5.6 (4.9 to 6.3)*	3.6 (3.3 to 3.9)*
Valvular Heart Disease	Black women	4.1	2.7	1.7	-2.4 (-3.1 to -1.6)*	-2.4 (-3.1 to -1.6)*
	White women	1.9	1.5	1.6	-1.6 (-2.2 to -1.1)*	0.7 (-0.6 to 1.9)
	Black men	5.2	3.7	4.0	-2.4 (-3.2 to -1.6)*	-2.4 (-3.2 to -1.6)*
	White men	2.7	2.7	2.7	0.1 (-0.3 to 0.6)	0.1 (-0.3 to 0.6)
Arrhythmia	Black women	4.5	4.1	4.6	-0.1 (-0.7 to 0.6)	-0.1 (-0.7 to 0.6)
	White women	2.1	2.5	2.5	1.2 (0.7 to 1.7)*	1.2 (0.7 to 1.7)*
	Black men	7.9	6.7	8.4	-1.8 (-2.9 to -0.7)*	3.2 (1.5 to 5.0)*
	White men	3.9	4.1	5.1	0.5 (-0.3 to 1.3)	3.4 (2.6 to 4.1)*
Pulmonary Heart Disease	Black women	11.3	8.4	8.7	-2.0 (-3.0 to -0.9)*	0.8 (-0.3 to 1.8)
	White women	4.2	3.6	3.7	-2.1 (-2.8 to -1.4)*	1.6 (-0.3 to 3.6)
	Black men	9.9	8.1	8.3	-2.1 (-3.1 to -1.2)*	1.9 (0.7 to 3.1)*
	White men	4.4	3.8	4.1	-1.4 (-2.2 to -0.6)*	1.9 (1.1 to 2.7)*
Other Heart Disease	Black women	31.2	21.1	22.7	-2.7 (-3.2 to -2.1)*	0.5 (-0.9 to 1.9)
	White women	11.2	9.2	9.6	-1.3 (-1.8 to -0.8)*	1.0 (0.5 to 1.5)*
	Black men	63.5	41.2	45.2	-3.0 (-3.4 to -2.6)*	1.0 (0.0 to 2.0)*
	White men	23.1	19.1	20.1	-1.3 (-1.7 to -0.9)*	0.4 (0.0 to 0.7)*

CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. Mean annual percentage change shown for AAMR for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table E. Trends in age-adjusted mortality rates from total and cause-specific heart disease deaths stratified by race-sex subgroups in decedents ≥65 years in the US, 1999-2018

Heart Disease Subtype		AAMR per 100,000			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
Total Heart Disease	Black women	1797.1	1089.0	973.7	-4.1 (-4.5 to -3.7)*	-1.6 (-2.0 to -1.2)*
	White women	1509.8	943.7	863.1	-4.1 (-4.3 to -3.8)*	-1.1 (-1.7 to -0.6)*
	Black men	2353.2	1499.5	1426.5	-3.6 (-3.9 to -3.4)*	-0.9 (-1.2 to -0.6)*
	White men	2133.2	1366.5	1289.3	-4.2 (-4.2 to -3.1)*	-0.8 (-1.1 to -0.4)*
Ischemic Heart Disease	Black women	1243.0	649.2	489.0	-5.2 (-5.6 to -4.9)*	-4.0 (-4.5 to -3.5)*
	White women	1079.3	558.0	434.1	-5.5 (-5.9 to -5.0)*	-3.4 (-3.9 to -2.9)*
	Black men	1667.2	952.4	789.1	-4.7 (-5.1 to -4.2)*	-2.7 (-3.2 to -2.3)*
	White men	1641.3	922.5	780.7	-4.7 (-5.2 to -4.2)*	-2.4 (-2.8 to -2.0)*
Heart Failure	Black women	146.6	117.3	144.3	-1.8 (-2.7 to -0.8)*	3.2 (2.4 to 4.0)*
	White women	146.3	118.7	140.0	-1.8 (-2.6 to -0.9)*	2.6 (2.0 to 3.1)*
	Black men	171.7	135.2	183.1	-1.7 (-2.2 to -1.3)*	4.1 (3.1 to 5.2)*
	White men	159.0	139.1	173.6	-1.3 (-1.8 to -0.9)*	3.6 (2.6 to 4.7)*
Hypertensive Heart Disease	Black women	138.5	105.7	117.6	-2.0 (-2.4 to -1.6)*	0.6 (-1.0 to 2.3)
	White women	51.6	52.2	77.8	0.3 (0.0 to 0.6)	5.8 (4.3 to 7.3)*
	Black men	148.5	130.4	162.9	-0.6 (-2.4 to 1.2)	2.5 (1.4 to 3.6)*
	White men	45.3	51.8	85.1	1.2 (0.6 to 1.9)*	7.4 (5.7 to 9.1)*
Valvular Heart Disease	Black women	30.7	24.8	24.3	-1.5 (-1.9 to -1.2)*	-1.5 (-1.9 to -1.2)*
	White women	51.5	49.2	44.1	-0.3 (-0.5 to 0.1)*	-1.7 (-2.9 to -0.5)*
	Black men	30.6	25.0	23.7	-1.1 (-1.7 to -0.4)*	-1.1 (-1.7 to -0.4)*
	White men	55.3	54.1	47.8	0.1 (-0.2 to 0.5)	-1.9 (-3.6 to -0.1)*
Arrhythmia	Black women	40.1	42.2	45.5	0.7 (-1.3 to 2.6)	1.0 (-0.1 to 2.0)
	White women	44.0	58.7	64.1	2.1 (1.8 to 2.4)*	2.1 (1.8 to 2.4)*
	Black men	52.5	48.5	54.4	0.1 (-0.4 to 0.6)	0.1 (-0.4 to 0.6)
	White men	49.2	57.8	68.9	1.2 (0.6 to 1.8)*	2.8 (2.3 to 3.3)*
Pulmonary Heart Disease	Black women	42.4	33.5	40.9	-1.3 (-2.1 to -0.5)*	2.2 (0.7 to 3.8)*
	White women	25.9	25.3	26.2	0.0 (-1.3 to 1.3)	1.5 (1.2 to 1.8)*
	Black men	45.1	32.6	35.9	-2.1 (-3.4 to -0.9)*	0.9 (-0.6 to 2.5)
	White men	26.6	21.7	22.3	-1.8 (-2.7 to -0.9)*	2.1 (1.0 to 3.2)*
Other Heart Disease	Black women	157.7	117.3	112.1	-2.3 (-2.6 to -1.9)*	-1.1 (-1.9 to -0.3)*
	White women	112.3	82.6	76.9	-2.5 (-3.0 to -1.9)*	-1.0 (-3.2 to 1.1)
	Black men	240.5	176.8	177.3	-2.4 (-2.8 to -1.9)*	-0.1 (-1.2 to 1.0)
	White men	158.5	120.9	111.0	-2.1 (-2.6 to -1.6)*	-1.0 (-1.4 to -0.6)*

CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. Mean annual percentage change shown for AAMR for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table F. Trends in age-adjusted mortality rates from total and cause-specific heart disease deaths stratified by race-sex subgroups in decedents 65-84 years in the US, 1999-2018

Heart Disease Subtype	AAMR per 100,000			Mean Annual Percent Change (95% CI)		
	1999	2011	2018	1999-2011	2011-2018	
Total Heart Disease	Total	1166.1	696.5	641.5	-4.3 (-4.7 to -3.8)*	-1.0 (-1.3 to -0.8)*
	Black women	1300.3	743.4	675.7	-4.8 (-5.0 to -4.6)*	-1.4 (-1.9 to -0.8)*
	White women	889.4	524.8	466.5	-4.5 (-4.7 to -4.3)*	-1.4 (-1.9 to -0.9)*
	Black men	1862.9	1171.2	1144.1	-3.8 (-4.0 to -3.6)*	-0.7 (-1.2 to -0.1)*
	White men	1498.8	892.6	833.2	-4.2 (-4.5 to -3.8)*	-0.9 (-1.2 to -0.7)*
Ischemic Heart Disease	Total	879.6	459.2	381.0	-5.3 (-5.7 to -4.9)*	-2.7 (-2.9 to -2.4)*
	Black women	898.9	444.5	343.9	-5.8 (-6.5 to -5.0)*	-3.5 (-4.1 to -3.0)*
	White women	646.9	321.1	252.4	-5.7 (-6.1 to -5.2)*	-3.5 (-3.9 to -3.2)*
	Black men	1329.7	746.8	644.2	-4.8 (-5.5 to -4.2)*	-2.2 (-2.8 to -1.5)*
	White men	1180.7	626.5	533.8	-5.1 (-5.5 to -4.7)*	-2.2 (-2.5 to -1.9)*
Heart Failure	Total	76.6	61.6	74.0	-2.0 (-2.7 to -1.3)*	3.0 (1.2 to 4.8)*
	Black women	92.4	69.6	88.0	-2.4 (-3.1 to -1.7)*	4.0 (2.3 to 5.7)*
	White women	67.9	54.0	60.7	-2.0 (-2.9 to -1.0)*	2.1 (1.5 to 2.8)*
	Black men	111.3	91.8	128.2	-1.3 (-1.8 to -0.8)*	4.4 (3.2 to 5.6)*
	White men	86.1	71.0	88.6	-1.7 (-2.1 to -1.3)*	3.6 (2.6 to 4.6)*
Hypertensive Heart Disease	Total	35.8	34.4	49.0	-0.2 (-0.7 to 0.4)	4.8 (4.2 to 5.5)*
	Black women	103.5	72.1	79.1	-2.6 (-3.1 to -2.1)*	0.6 (-0.6 to 1.9)
	White women	27.9	26.1	37.1	-0.5 (-1.1 to 0.1)	5.3 (3.1 to 7.5)*
	Black men	124.0	107.5	133.9	-0.4 (-1.0 to 0.2)	1.7 (0.2 to 3.2)*
	White men	30.3	33.8	52.7	1.0 (-0.1 to 2.2)	6.2 (5.6 to 6.9)*
Valvular Heart Disease	Total	28.8	23.3	20.1	-1.6 (-1.8 to -1.4)*	-1.6 (-1.8 to -1.4)*
	Black women	21.5	16.1	15.4	-2.3 (-2.7 to -2.0)*	-2.3 (-2.7 to -2.0)*
	White women	27.6	23.1	19.2	-1.5 (-1.7 to -1.3)*	-2.6 (-3.7 to -1.5)*
	Black men	24.0	16.4	15.7	-1.6 (-2.3 to -0.9)*	-1.6 (-2.3 to -0.9)*
	White men	32.5	26.8	23.4	-1.2 (-1.5 to -0.9)*	-1.2 (-1.5 to -0.9)*
Arrhythmia	Total	27.2	30.7	33.5	1.0 (-1.3 to 3.4)	1.9 (1.4 to 2.4)*
	Black women	27.3	25.9	29.6	-0.2 (-0.7 to 0.3)	-0.2 (-0.7 to 0.3)
	White women	24.2	29.7	30.5	1.3 (1.0 to 1.6)*	1.3 (1.0 to 1.6)*
	Black men	39.2	33.9	40.8	0.2 (-0.4 to 0.9)	0.2 (-0.4 to 0.9)
	White men	31.0	34.1	39.1	0.9 (-0.2 to 2.0)	1.8 (0.3 to 3.4)*
Pulmonary Heart Disease	Total	20.9	17.4	18.3	-1.3 (-2.7 to 0.1)	1.0 (0.5 to 1.6)*
	Black women	36.2	27.7	33.9	-1.8 (-2.5 to -1.0)*	2.1 (0.6 to 3.6)*
	White women	20	17.7	18.1	-0.7 (-2.3 to 0.9)	0.6 (0.2 to 1.0)*
	Black men	38.2	27.2	31.7	-2.2 (-3.6 to -0.8)*	1.6 (-0.2 to 3.4)
	White men	19.8	15.8	16.4	-2.3 (-3.2 to -1.4)*	1.5 (0.3 to 2.6)*
Other Heart Disease	Total	97.2	69.8	65.6	-2.6 (-2.9 to -2.2)*	-1.1 (-1.4 to -0.8)*
	Black women	120.5	87.5	85.8	-2.5 (-3.1 to -2.0)*	-0.6 (-1.8 to 0.6)
	White women	74.9	53	48.4	-2.7 (-3.2 to -2.2)*	-1.2 (-1.6 to -0.8)*
	Black men	196.5	147.5	149.6	-2.5 (-3.7 to -1.3)*	0.2 (-1.2 to 1.7)
	White men	118.4	84.5	79.1	-2.6 (-3.0 to -2.2)*	-1.1 (-1.5 to -0.8)*

CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. Mean annual percentage change shown for AAMR for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, p<0.05.

Supplementary Table G. Years of potential life lost from total heart disease (using average US life expectancy as the referent) in the overall US population and in race-sex subgroups, 1999-2018.

	Race-Sex Group	Years of Potential Life Lost (per 100,000 population)			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
Total Heart Disease	Overall	1493.5	1079.7	1068.1	-2.7 (-2.9 to -2.6)*	0.1 (-0.2 to 0.4)
	Black women	1959.5	1298.2	1291.5	-3.6 (-3.9 to -3.3)*	-0.1 (-0.7 to 0.5)
	White women	817.1	598.0	595.3	-2.6 (-2.7 to -2.4)*	0.2 (-0.2 to 0.6)
	Black men	3607.7	2476.9	2507.9	-2.9 (-3.4 to -2.5)*	0.2 (-0.9 to 1.3)
	White men	1969.3	1429.1	1387.1	-2.6 (-2.8 to -2.5)*	-0.4 (-0.7 to -0.2)*

CI: Confidence interval. Mean annual percentage change shown for years of potential life lost for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table H. Years of potential life lost from total heart disease (using age 85 as the referent) in the overall US population and in race-sex subgroups, 1999-2018.

	Race-Sex Group	Years of Potential Life Lost (per 100,000 population)			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
Total Heart Disease	Overall	2512.0	1731.0	1694.8	-3.1 (-3.2 to -2.9)*	-0.4 (-0.6 to -0.1)*
	Black women	3179.9	2030.5	1988.9	-3.7 (-4.5 to -2.9)*	-0.3 (-0.7 to 0.1)
	White women	1495.8	1025.1	995.7	-3.1 (-3.3 to -3.0)*	-0.2 (-0.5 to 0.2)
	Black men	5597.2	3779.2	3864.5	-3.1 (-3.5 to -2.8)*	0.1 (-0.3 to 0.6)
	White men	3305.7	2285.0	2211.6	-3.0 (-3.2 to -2.9)*	-0.4 (-0.7 to -0.2)*

CI: Confidence interval. Mean annual percentage change shown for years of potential life lost for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table I. Heart failure-related cardiovascular mortality trends by race, sex, and age in the US, 1999-2018

	Race-Sex Group	AAMR or YPLL per 100,000			Mean Annual Percent Change (95% CI)	
		1999	2011	2018	1999-2011	2011-2018
AAMR (All Ages)	Total	74.6	53.3	58.1	-2.8 (-3.5 to -2.1)*	1.3 (0.6 to 1.9)*
	Black women	67.6	48.5	53.3	-2.9 (-3.7 to -2.2)*	1.7 (0.8 to 2.6)*
	White women	67.5	47.3	50.3	-3.0 (-4.0 to -2.1)*	0.9 (0.1 to 1.7)*
	Black men	82.1	61.3	73.6	-2.4 (-2.8 to -1.9)*	2.7 (2.2 to 3.2)*
	White men	86.3	63.2	70.4	-2.5 (-3.2 to -1.9)*	1.5 (1.2 to 1.9)*
AAMR (<45)	Total	0.8	0.9	1.2	0.0 (-1.4 to 1.4)	4.9 (3.1 to 6.7)*
	Black women	1.9	1.7	2	-0.6 (-1.2 to 0.0)*	2.0 (0.9 to 3.2)*
	White women	0.5	0.5	0.6	-1.5 (-2.9 to -0.2)*	4.2 (1.5 to 6.9)*
	Black men	2.6	3.1	4.3	1.1 (-1.4 to 3.7)	4.8 (2.8 to 6.9)*
	White men	0.8	0.8	1.1	-0.1 (-1.9 to 1.8)	4.5 (2.8 to 6.3)*
AAMR (45-64)	Total	20.1	15.1	20.2	-2.5 (-2.8 to -2.3)*	4.3 (3.7 to 5.0)*
	Black women	32	25.1	32	-2.1 (-3.1 to -1.0)*	3.8 (2.7 to 4.9)*
	White women	12.3	8.9	11.1	-3.2 (-3.7 to -2.8)*	3.7 (2.6 to 4.8)*
	Black men	52.8	41.4	58	-1.6 (-2.5 to -0.7)*	4.8 (3.8 to 5.9)*
	White men	24.1	17.6	23.6	-2.7 (-3.0 to -2.5)*	4.5 (3.9 to 5.1)*
AAMR (≥65)	Total	550.5	390.6	418.4	-2.9 (-3.6 to -2.1)*	1.0 (0.4 to 1.6)*
	Black women	468.7	330.8	354.8	-3.1 (-3.9 to -2.3)*	1.4 (0.5 to 2.3)*
	White women	510	356.2	375.4	-3.0 (-4.0 to -2.1)*	0.8 (0.0 to 1.6)*
	Black men	543.7	396.4	458.6	-2.6 (-3.1 to -2.1)*	2.2 (1.6 to 2.8)*
	White men	636	465.3	509.9	-2.6 (-3.3 to -1.8)*	1.3 (0.9 to 1.7)*
YPLL	Total	203	150	189	-2.8 (-3.1 to -2.5)*	3.7 (3.3 to 4.1)*
	Black women	284	218	268	-2.3 (-3.1 to 1.6)*	3.3 (2.5 to 4.1)*
	White women	189	131	152	-3.2 (-4.3 to -2.1)*	2.3 (1.4 to 3.2)*
	Black men	257	226	312	-1.0 (-1.8 to -0.2)*	4.8 (3.9 to 5.7)*
	White men	195	140	178	-2.9 (-3.1 to -2.7)*	3.9 (3.4 to 4.3)*

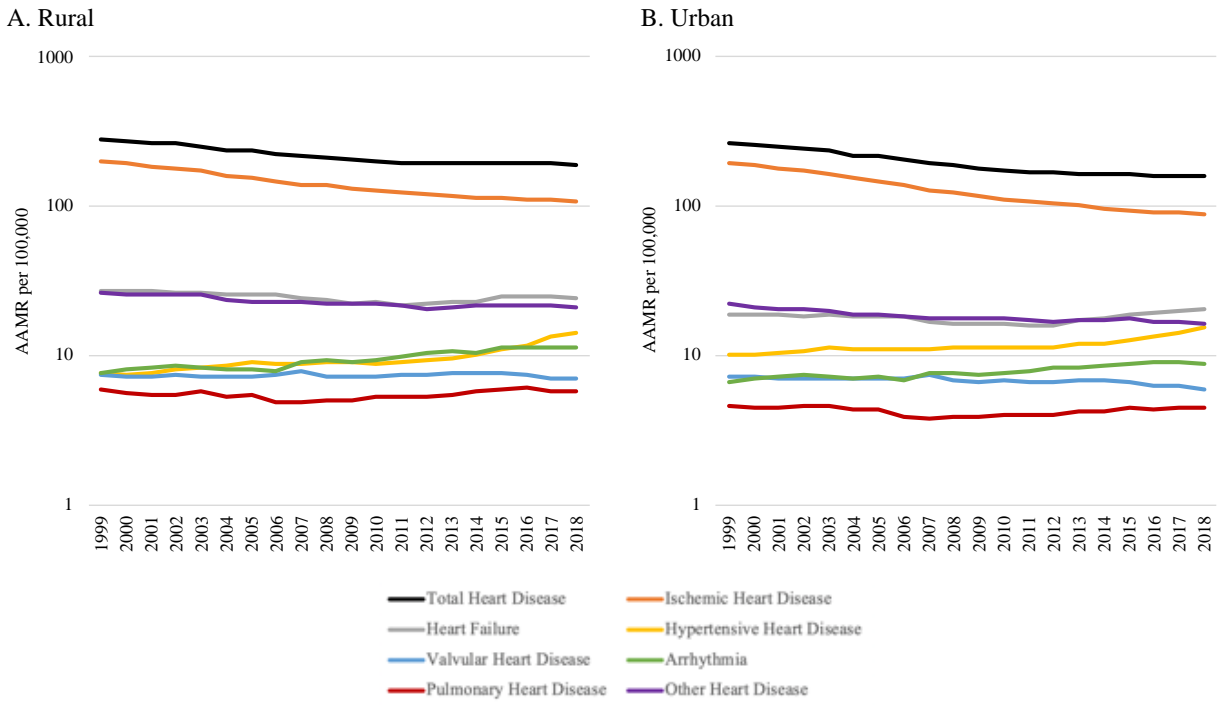
CI: Confidence interval. AAMR: Age-adjusted mortality rate per 100,000 population. YPLL: Years of potential life lost per 100,000 population. Mean annual percentage change shown for AAMR or YPLL for the specified time range. *Indicates that the mean annual percent change is significantly different from zero, $p < 0.05$.

Supplementary Table J. Summary of complementary mortality statistics (total number, relative proportion, age-adjusted mortality rate, and years of potential life lost) for total and cause-specific heart disease deaths in the US for 2018

	Number of decedents	Percent of Total Heart Disease deaths	AAMR per 100,000 (95% CI)	YPLL per 100,000
Total Heart Disease	655381	100%	163.6 (163.2 to 164.0)	1068
Ischemic Heart Disease	365744	55.8%	90.9 (90.6 to 91.2)	578
Heart Failure	83616	12.8%	20.8 (20.7 to 20.9)	64
Hypertensive Heart Disease	60041	9.2%	15.1 (15.0 to 15.2)	132
Valvular Heart Disease	24337	3.7%	6.1 (6.0 to 6.2)	293*
Arrhythmia	36417	5.6%	9.1 (9.0 to 9.2)	
Pulmonary Heart Disease	18026	2.8%	4.6 (4.6 to 4.7)	
Other Heart Disease	67200	10.3%	17.1 (16.9 to 17.2)	

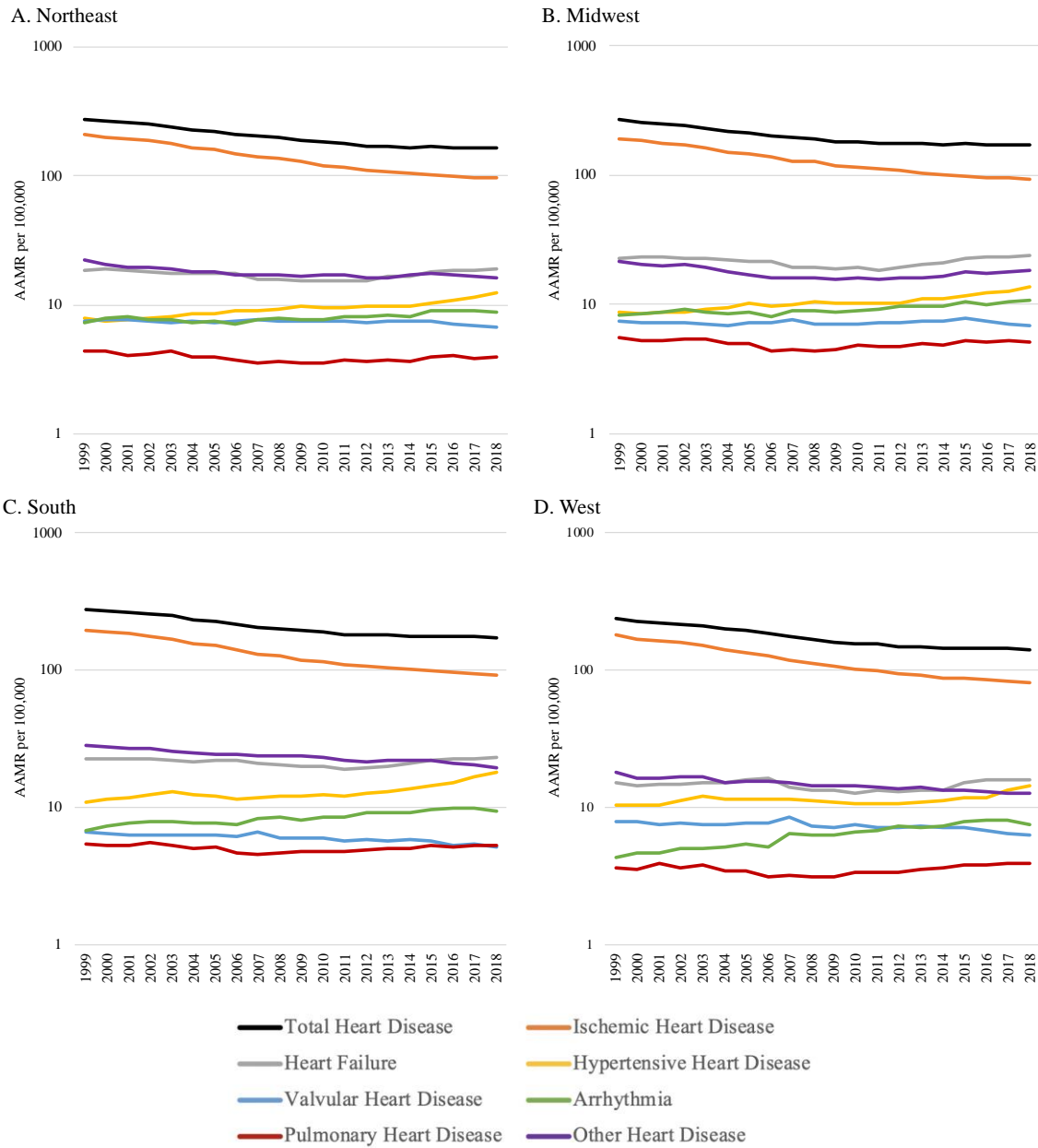
AAMR: Age-adjusted mortality rate per 100,000; CI: confidence interval; YPLL: years of potential life lost. Data displayed are overall (in all race, sex, age, and geography groups). *Aggregate YPLL for “remainder heart disease subtypes.”

Supplementary Figure A. Age-adjusted mortality rates due to total and cause-specific heart disease deaths by county-level urbanization in the US, 1999-2018



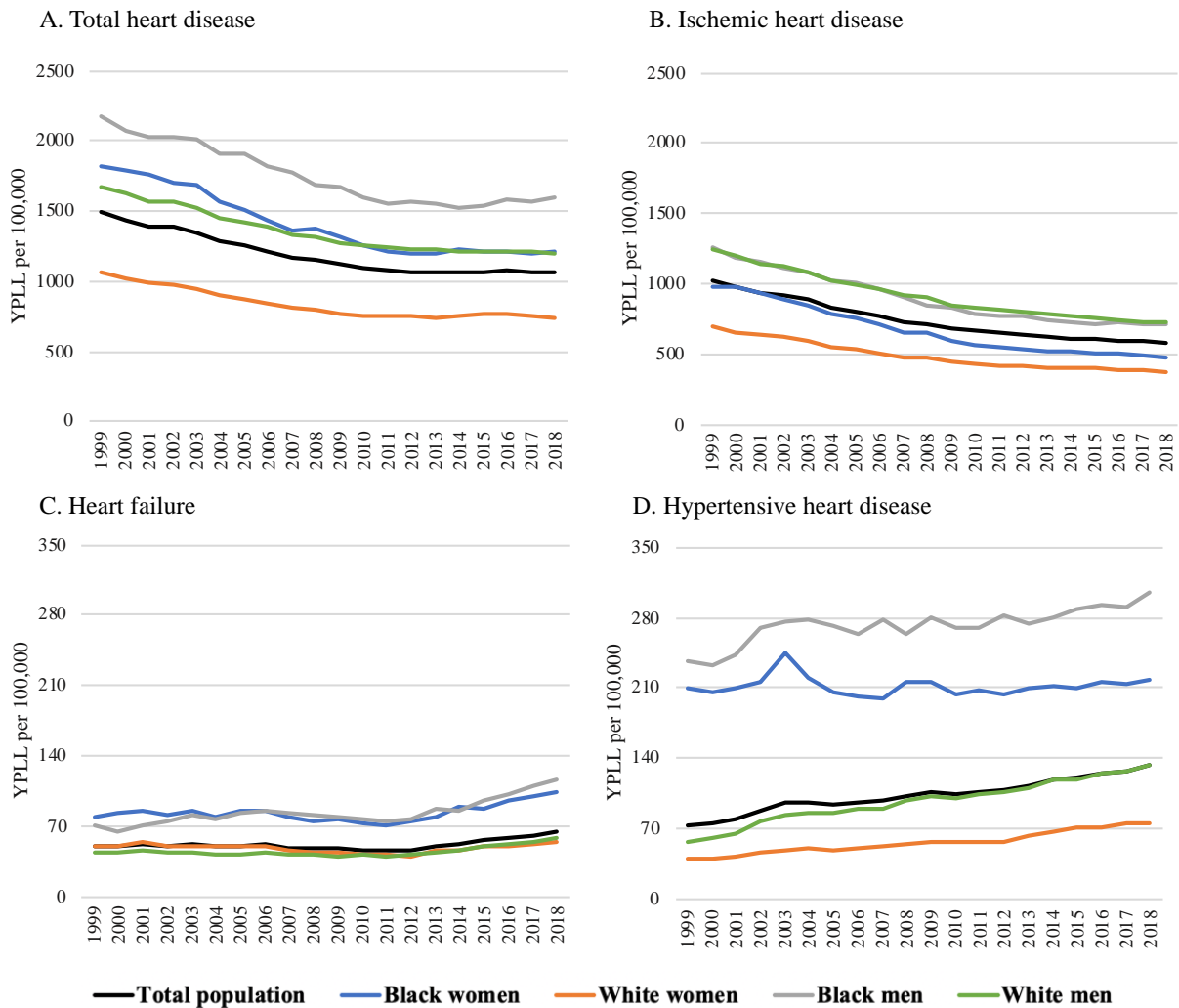
AAMR: Age-adjusted mortality rates. AAMR is displayed on a logarithmic scale.

Supplementary Figure B. Age-adjusted mortality rates due to total and cause-specific heart disease deaths by census region in the US, 1999-2018



AAMR: Age-adjusted mortality rates. AAMR is displayed on a logarithmic scale. The Northeast region includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The Midwest region includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The South region includes Alabama, Arkansas, Delaware, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The West region includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Supplementary Figure C. Age-standardized years of potential life lost per 100,000 population attributable to total heart disease, ischemic heart disease, heart failure, and hypertensive heart disease in the total population and stratified by race-sex subgroups in the US, 1999-2018



Years of potential life lost (YPLL) per 100,000 shown for (A) total heart disease, (B) ischemic heart disease, (C) heart failure, and (D) hypertensive heart disease, in black and white women and men.

Average annual percentage change of YPLL before and after 2011 are listed in Table 3.