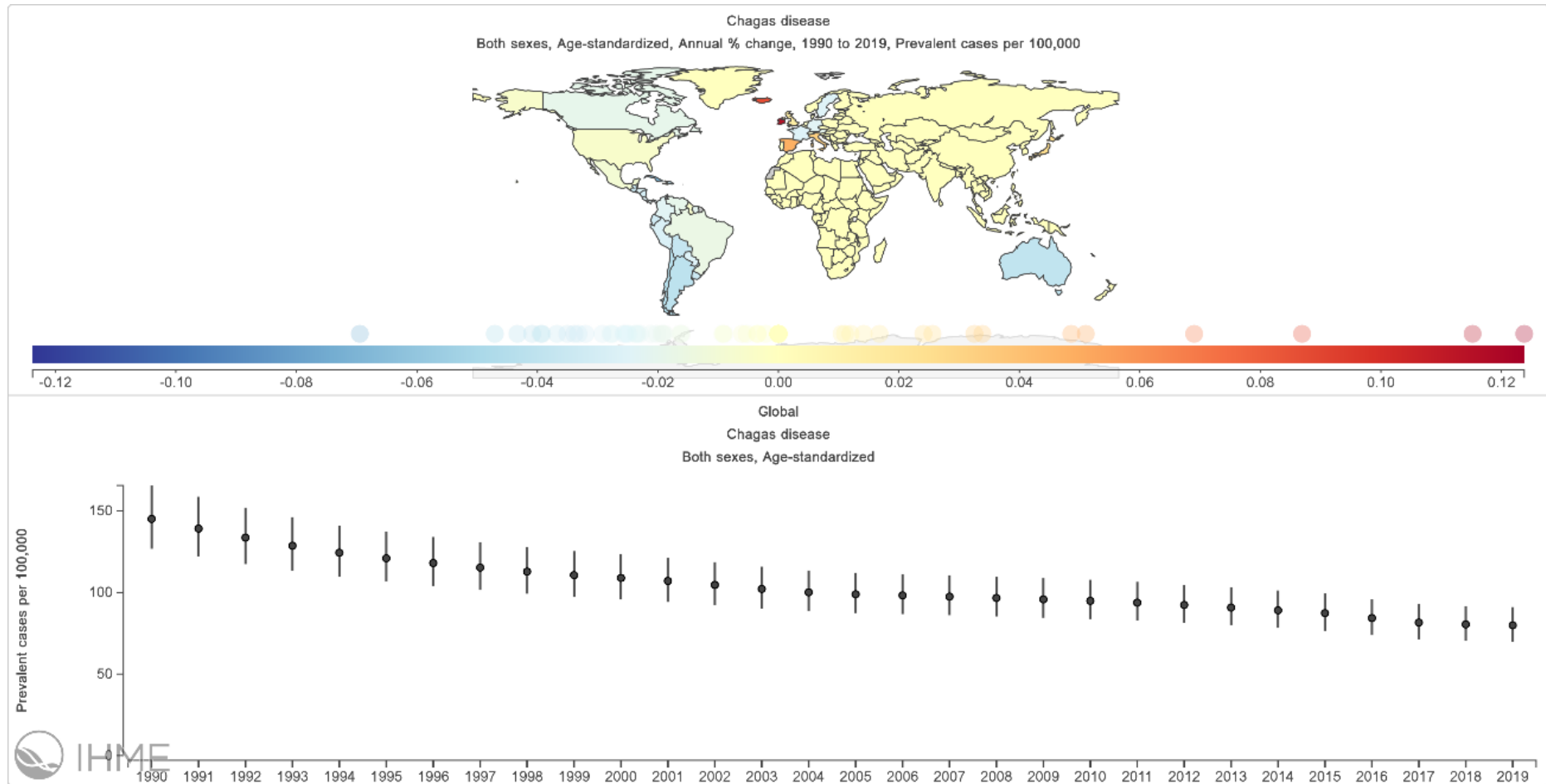
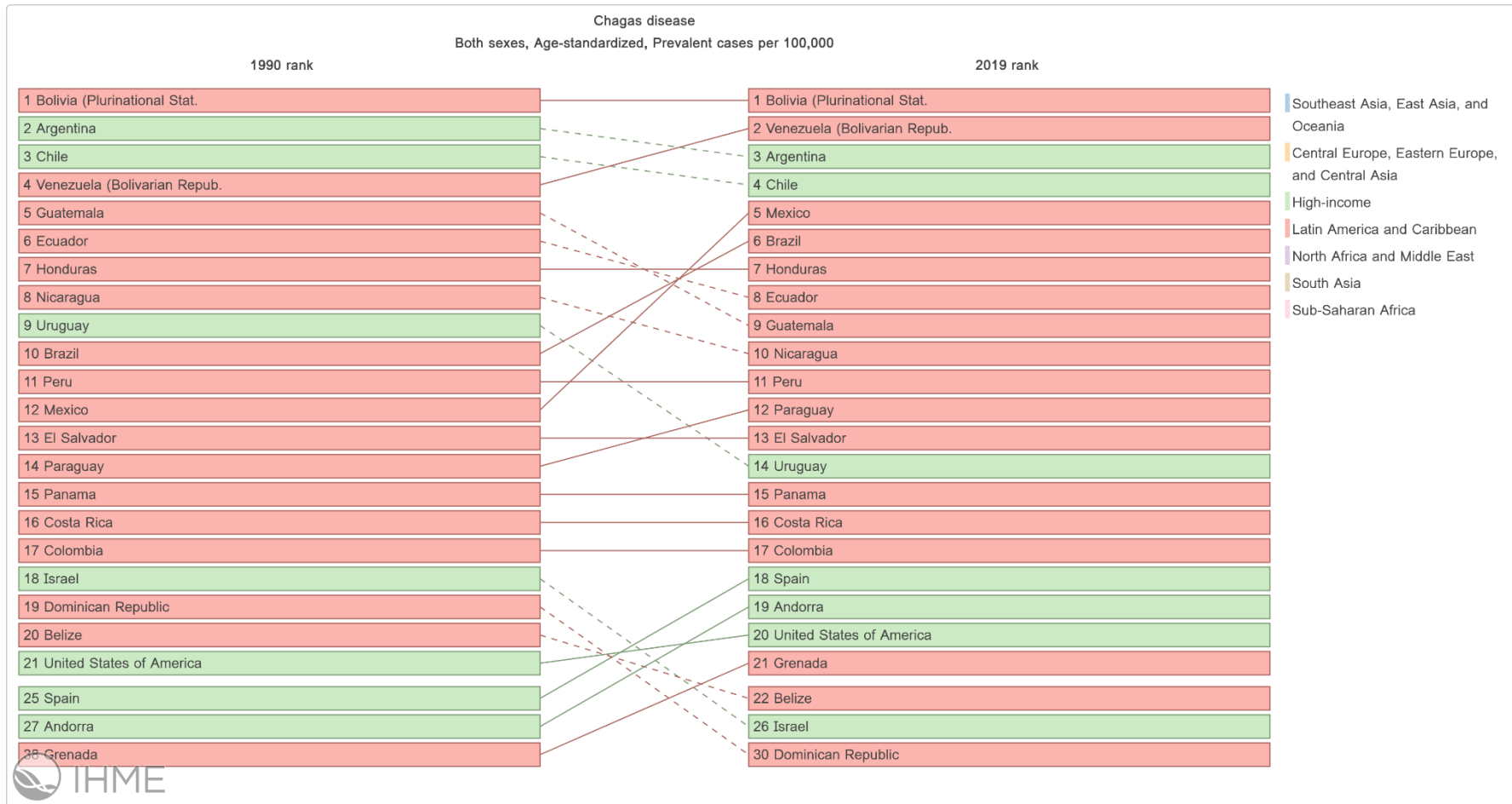


**Global, Regional, and National Trends of Chagas Disease from 1990 to 2019: Comprehensive Analysis of the Global Burden of Disease Study**

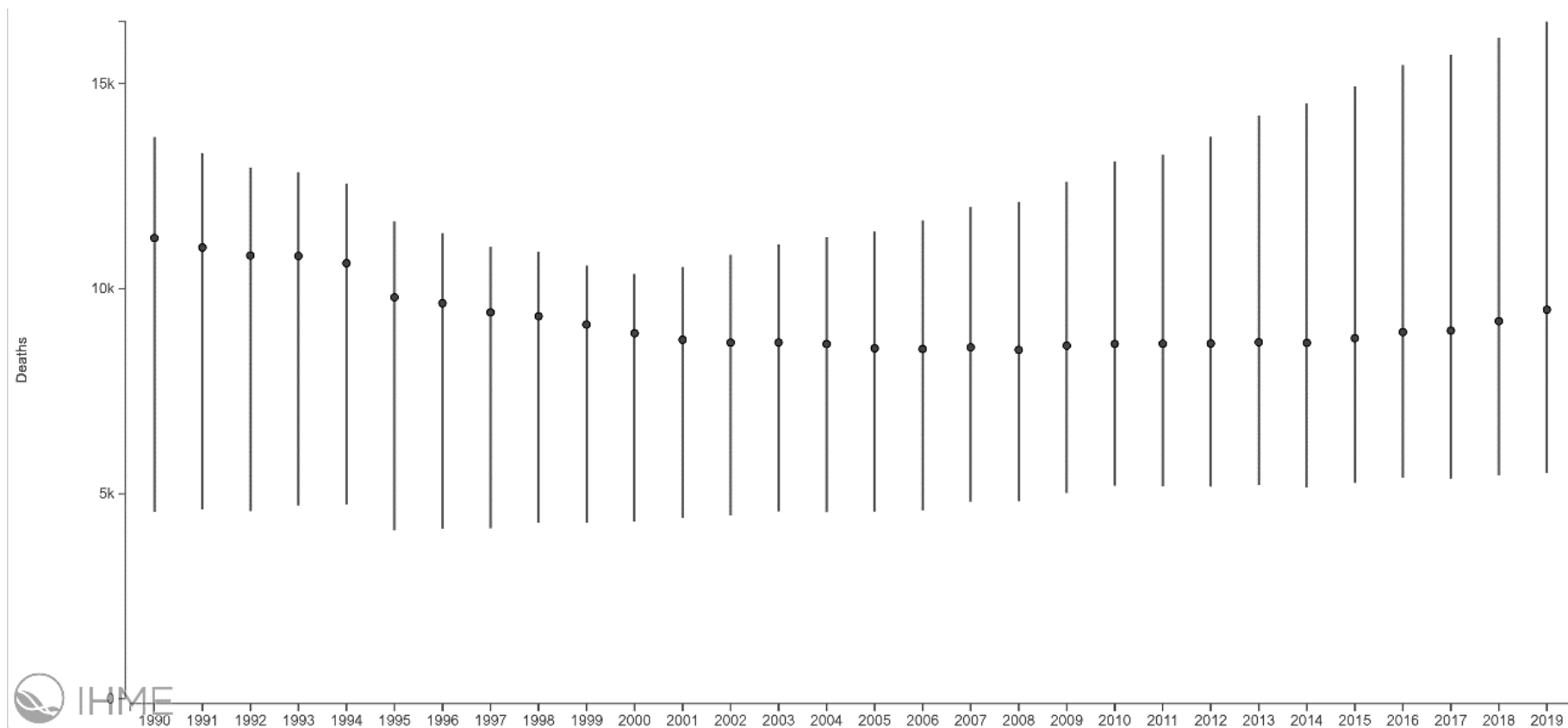
**Supplementary File**



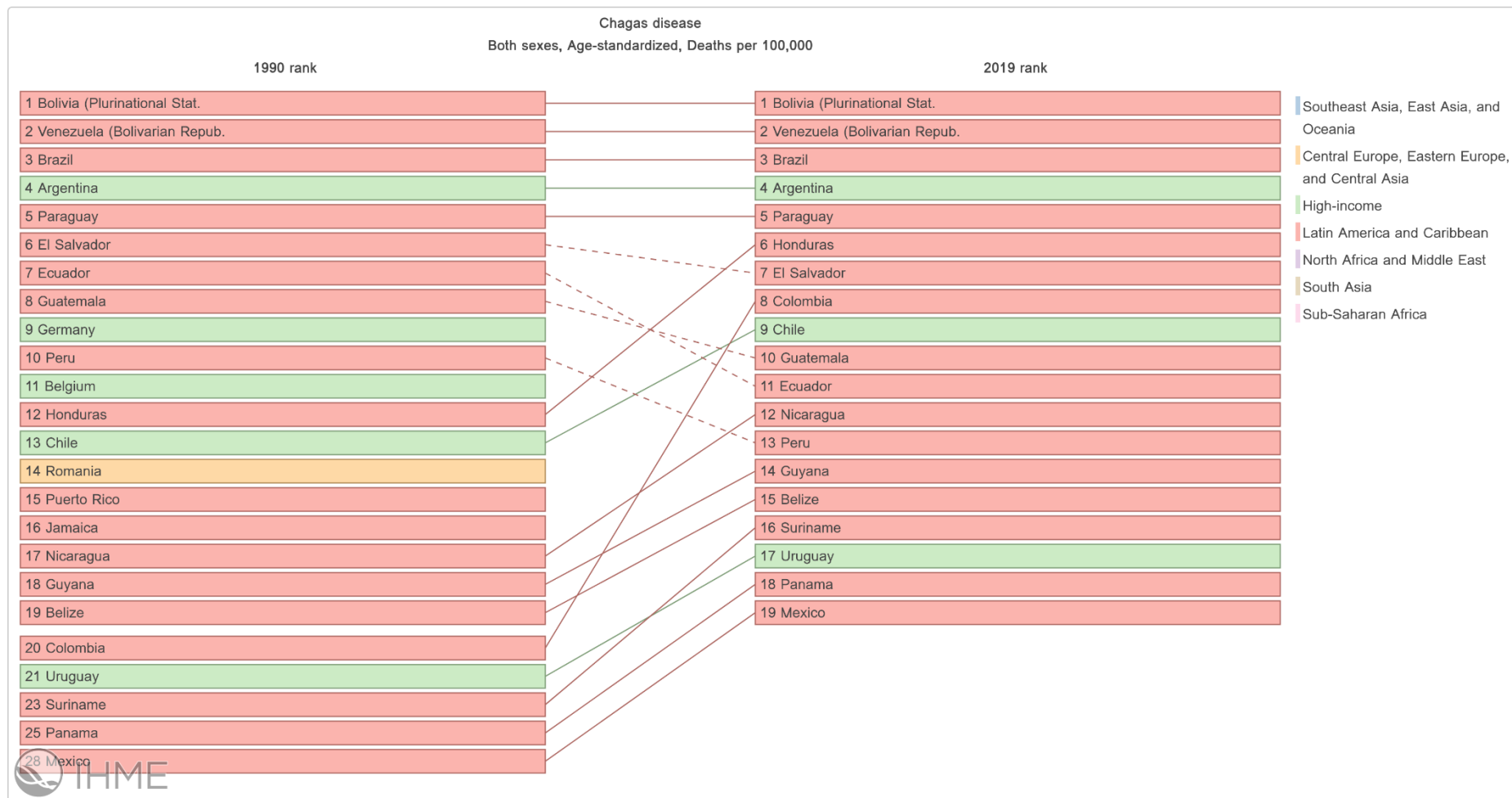
**Supplementary Figure 1.** Global Chagas Disease (CD) age-standardized prevalence rate trends from 1990 to 2019. **Top:** Annual % change in the age-standardized prevalence rate per country. **Bottom:** Mean estimates and uncertainty intervals of the global age-standardized prevalence rate per year.



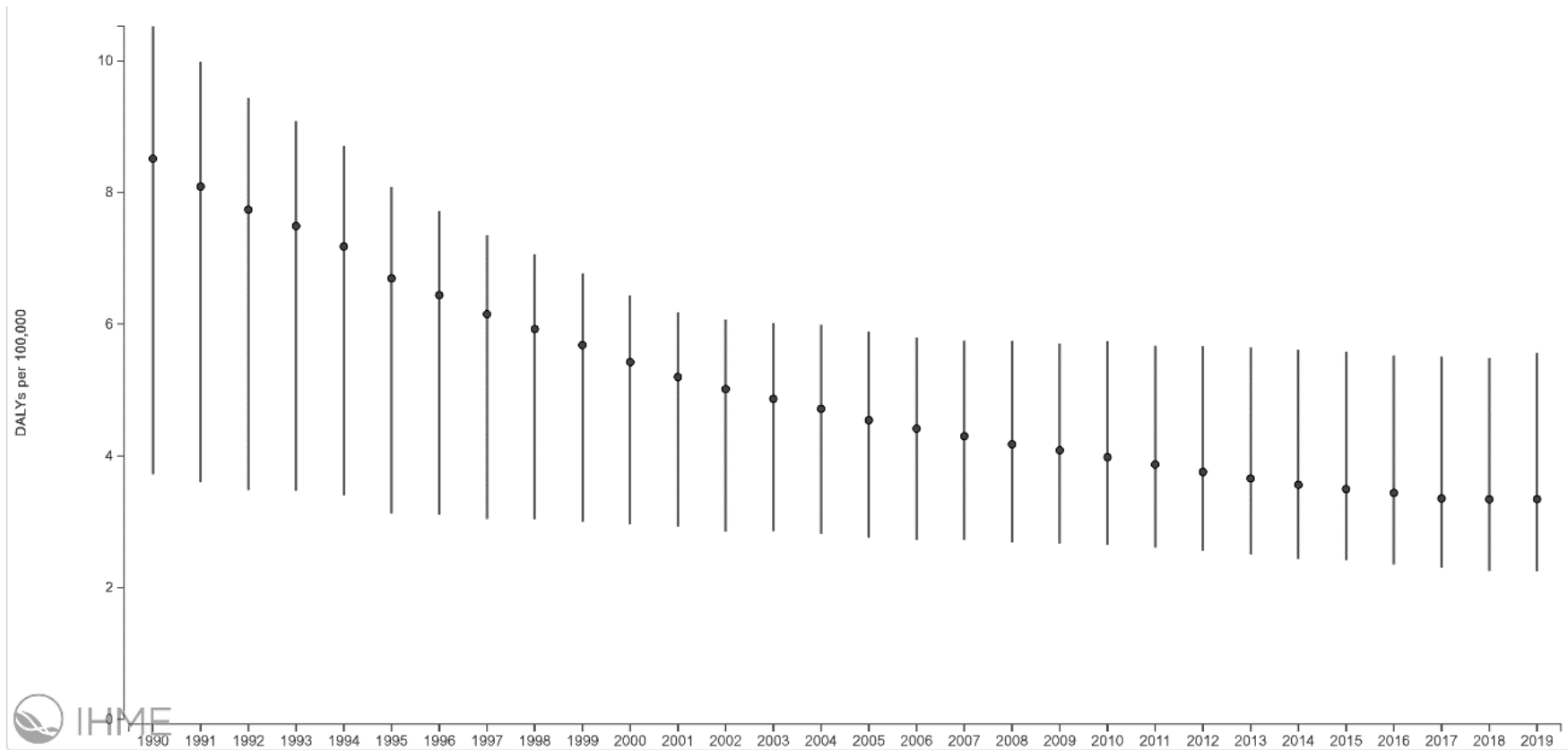
**Supplementary Figure 2.** Ranking of countries by Chagas Disease prevalence rate per 100,000 population in 1990 and 2019.



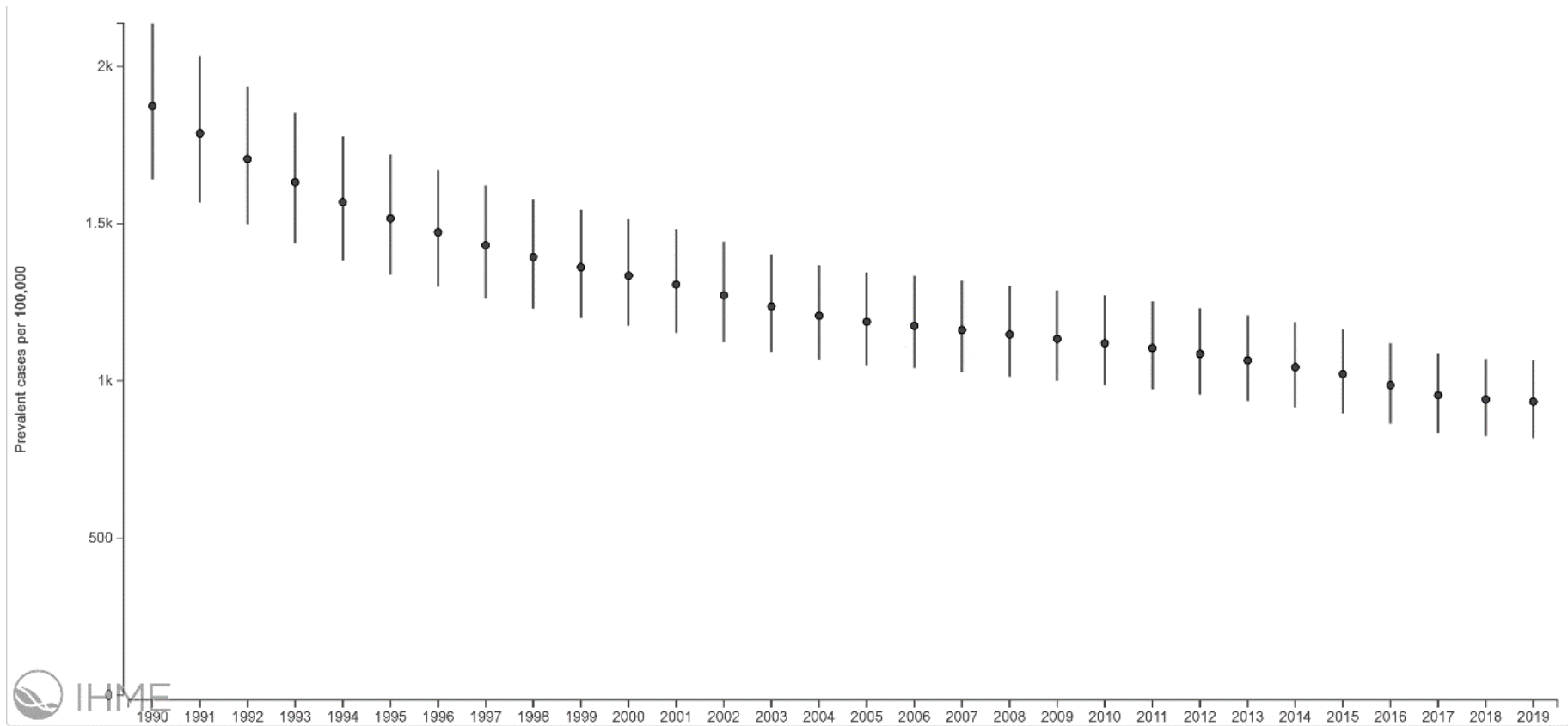
**Supplementary Figure 3.** Global Chagas Disease (CD) absolute number of attributed deaths from 1990 to 2019.



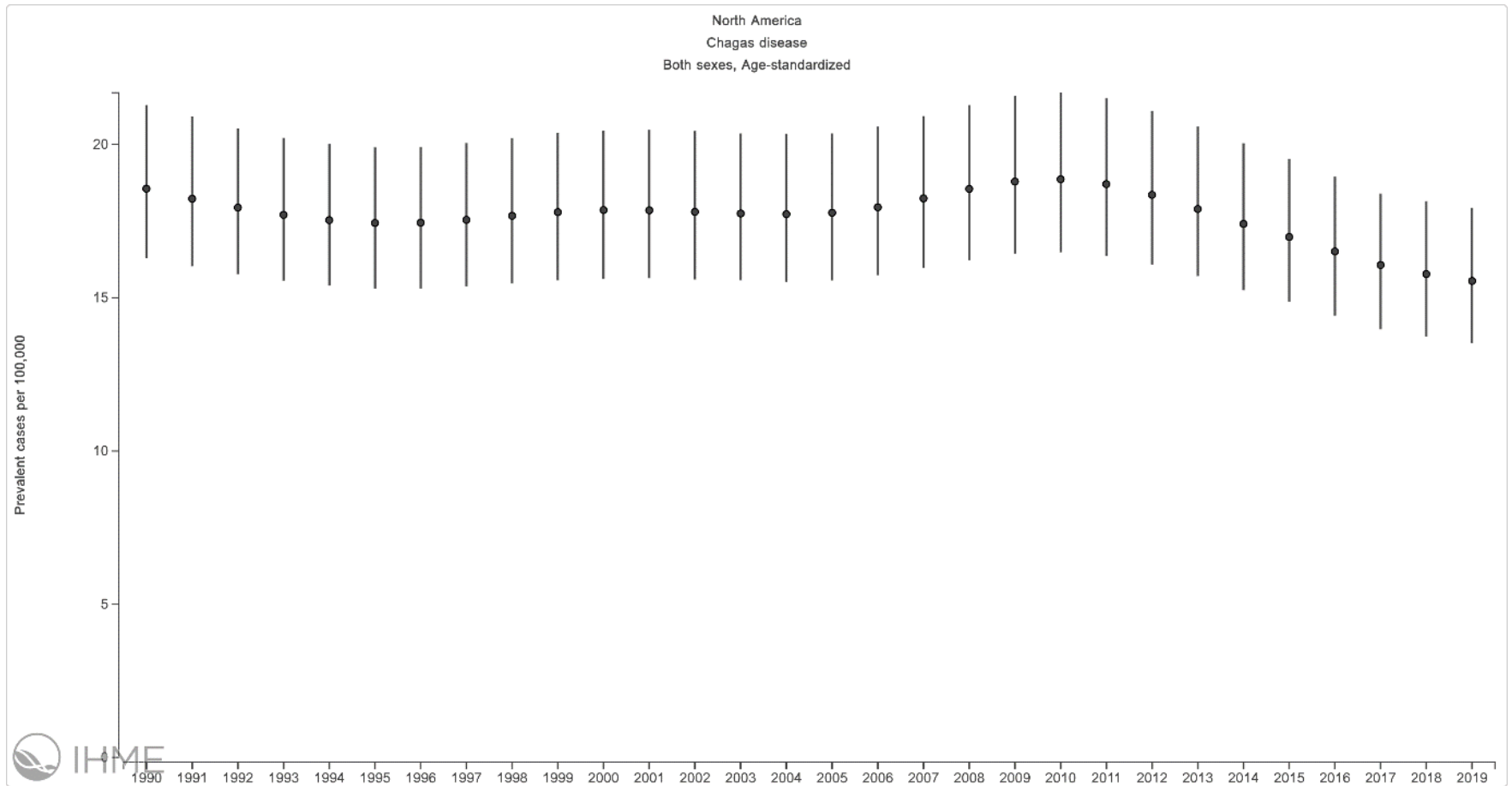
**Supplementary Figure 4.** Ranking of countries by Chagas Disease death rate per 100,000 population in 1990 and 2019.



**Supplementary Figure 5.** Global Chagas Disease (CD) disability-adjusted life-years (DALYs) age-standardized rate from 1990 to 2019.

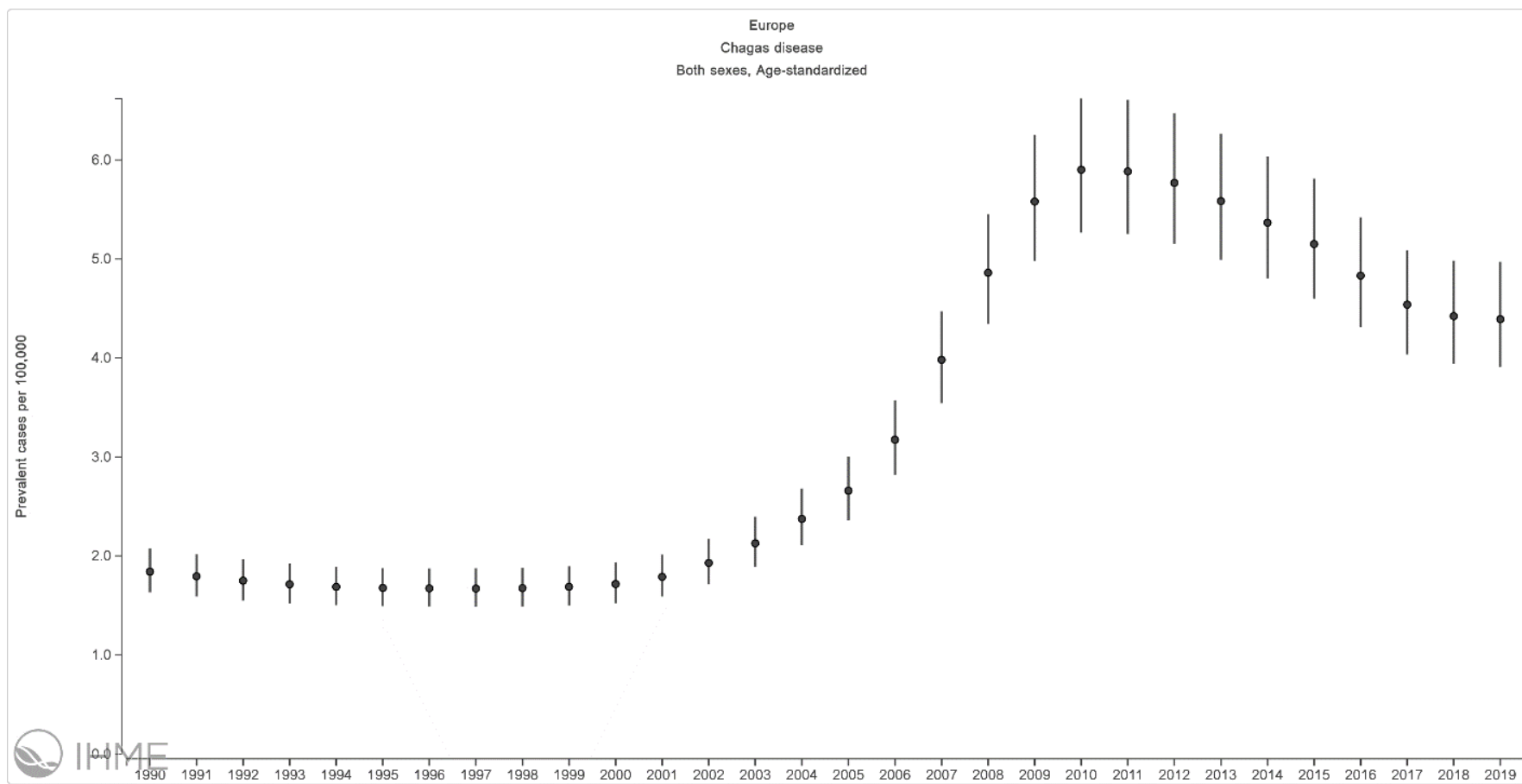


**Supplementary Figure 6.** Chagas Disease (CD) age-adjusted prevalence rate per 100,000 population in the Latin American Region from 1990 to 2019.

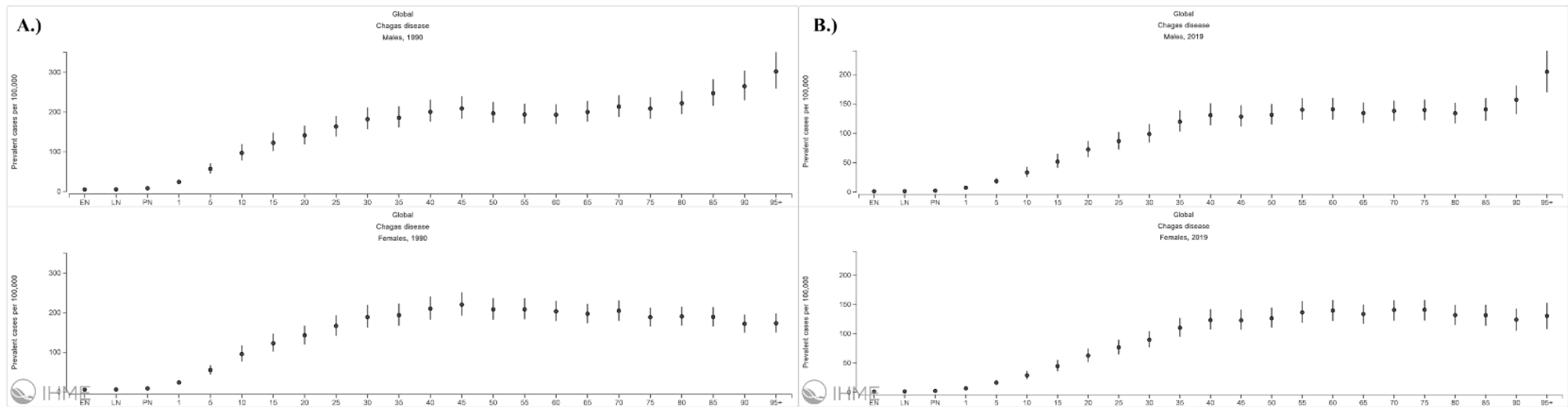


**Supplementary Figure 7.** Chagas Disease (CD) age-adjusted prevalence rate per 100,000 population in North America from 1990 to 2019.

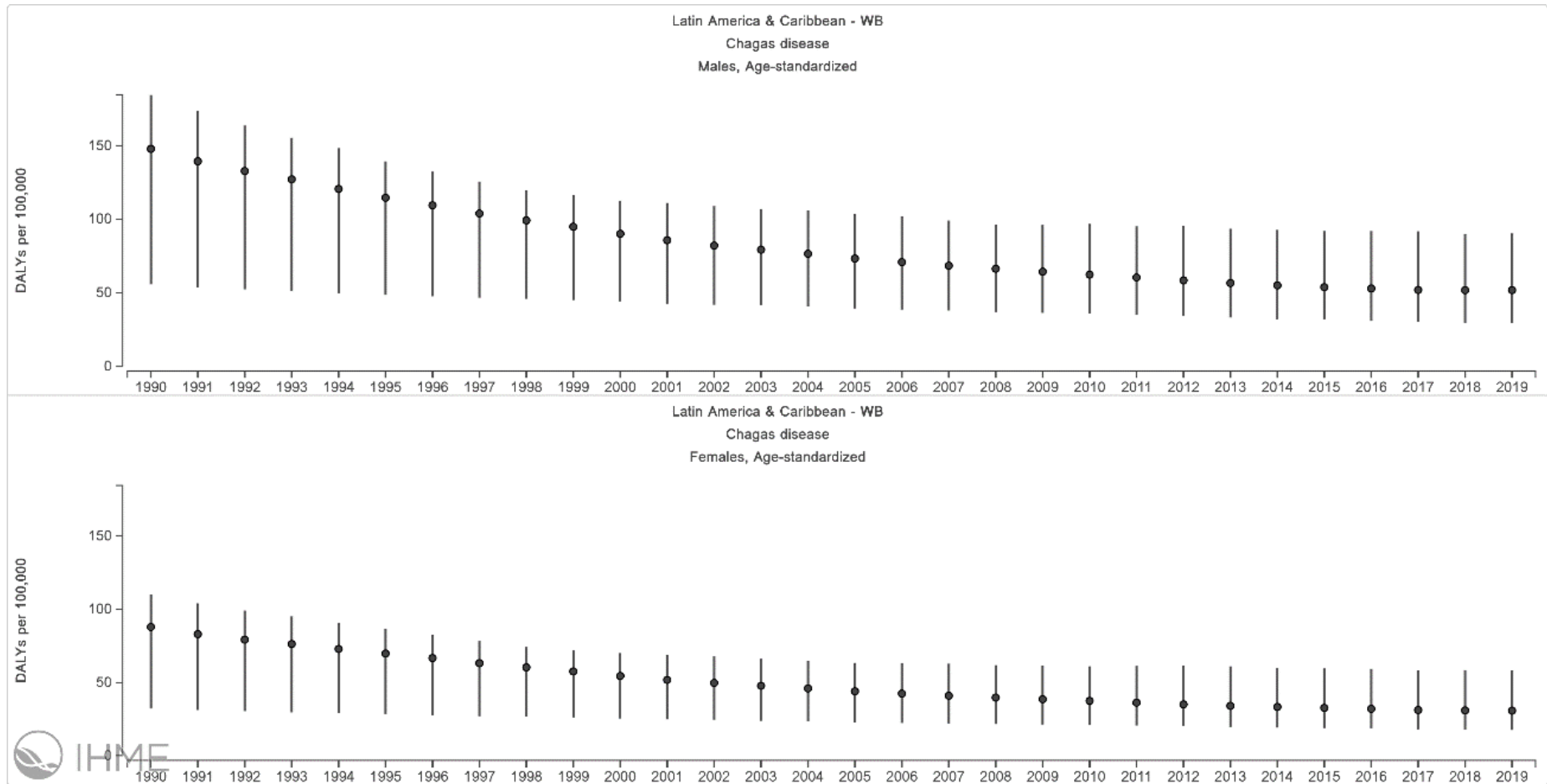




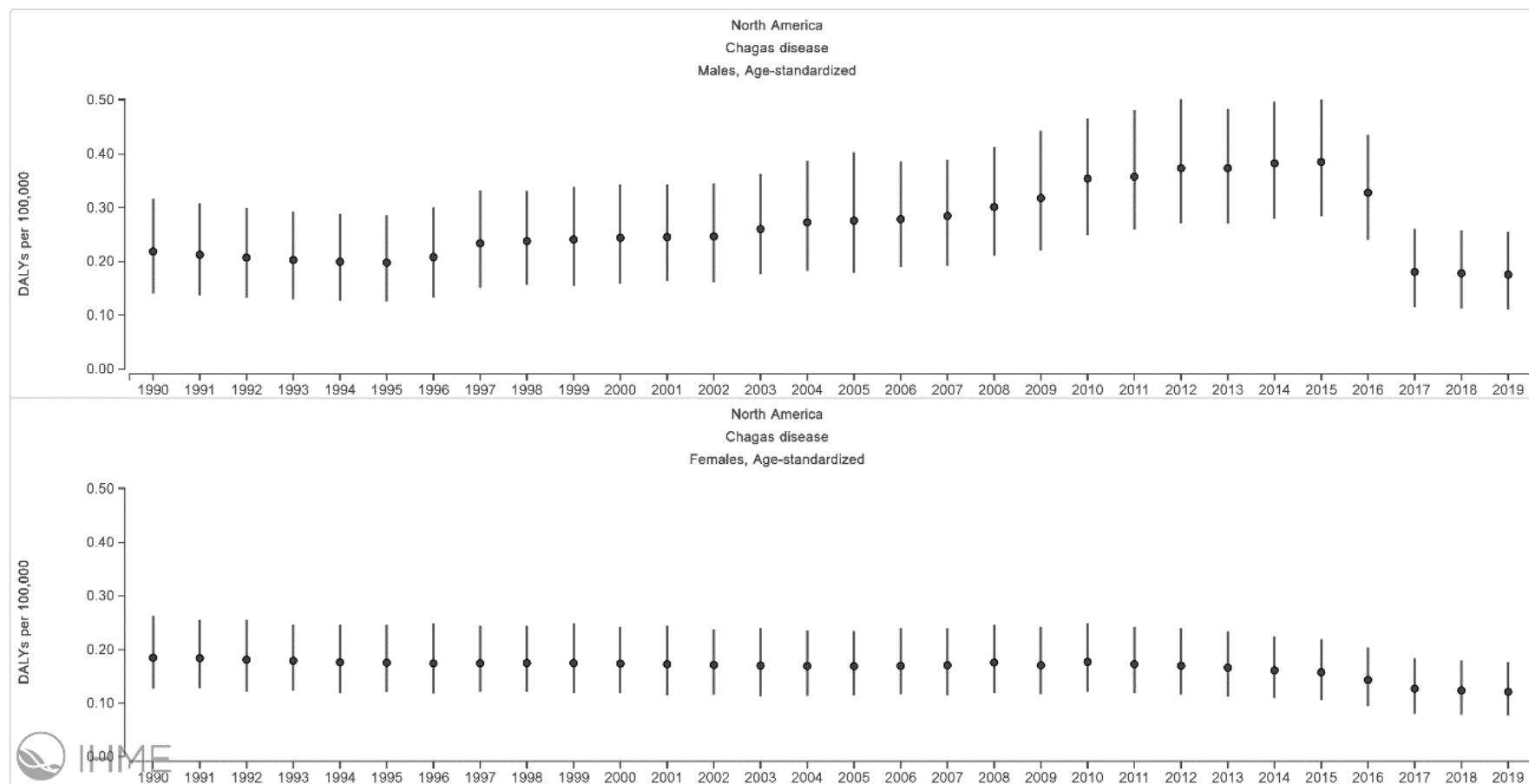
**Supplementary Figure 8.** Chagas Disease (CD) age-adjusted prevalence rate per 100,000 population in the European Region from 1990 to 2019.



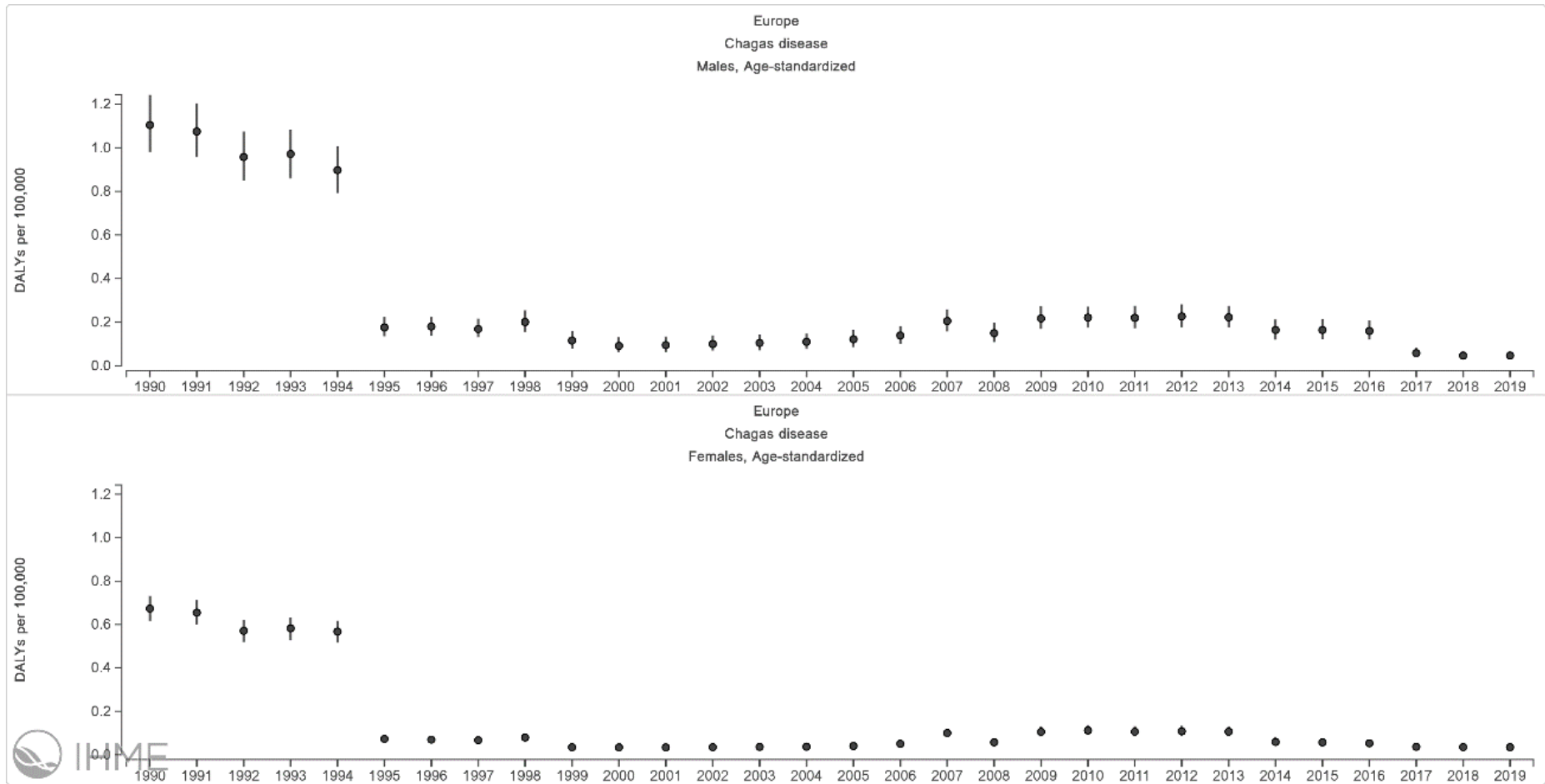
**Supplementary Figure 9.** Global Chagas Disease prevalence rate per 100,000 population by age and sex in A.) 1990 and B.) 2019.



**Supplementary Figure 10.** Chagas Disease disability-adjusted life-years (DALYs) rate per 100,000 population in the Latin American Region by sex from 1990 to 2019.

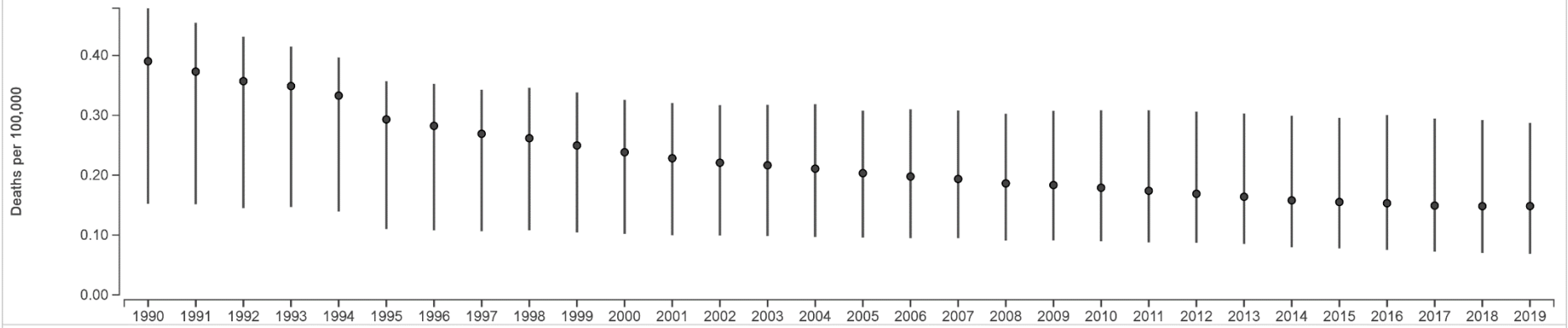


**Supplementary Figure 11.** Chagas Disease disability-adjusted life-years (DALYs) rate per 100,000 population in North America by sex from 1990 to 2019.

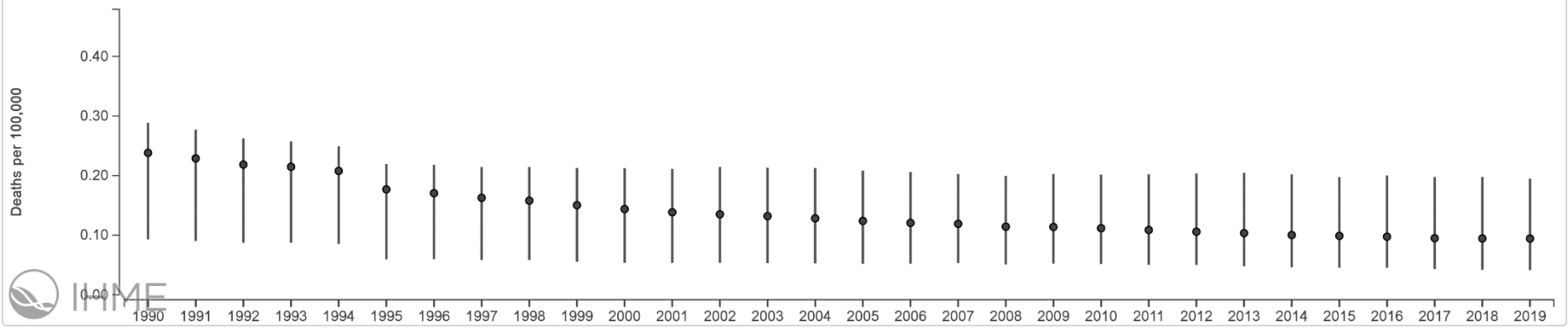


**Supplementary Figure 12.** Chagas Disease disability-adjusted life-years (DALYs) rate per 100,000 population in the European Region by sex from 1990 to 2019.

Global  
Chagas disease  
Males, Age-standardized



Global  
Chagas disease  
Females, Age-standardized



**Supplementary Figure 13.** Global Chagas Disease death rate per 100,000 population by sex from 1990 to 2019.

**Supplementary Table 1.** Number and age-standardized rate for Chagas Disease prevalence in 1990 and 2019 and the percentage change by country/US state.

Country/State	Prevalence (rate per 100,000 population) 1990	Prevalence (rate per 100,000 population) 2019	Percentage Change 1990-2019 (%)	Prevalence number 1990	Prevalence number 2019	Percentage Change 1990-2019 (%)
<i>Andorra</i>	12.38 (9.47- 15.75)	16.79 (11.86- 23.43)	35.62	7.85 (5.98 - 9.97)	17.48 (12.15- 24.32)	122.56
<i>Antigua and Barbuda</i>	0.67 (0.53- 0.86)	1.79 (0.93- 3.22)	167.16	0.35 (0.27 - 0.44)	1.85 (0.94- 3.40)	432.12
<i>Argentina</i>	4987.04 (4423.46- 5566.96)	1524.07 (1343.16- 1736.00)	-69.44	1622896.4 (1441816.8 - 1811864.5)	735490.88 (648796.81- 838063)	-54.68
<i>Australia</i>	14.01 (12.42- 15.78)	4.49 (3.92- 5.20)	-67.95	2561.94 (2270.29- 2886.15)	1302.89 (1133.42- 1496.13)	-49.14
<i>Austria</i>	2.21 (1.94- 2.52)	1.23 (1.04- 1.45)	-44.34	196.15 (172.17- 223.49)	132.49 (111.20- 156.01)	-32.46
<i>Bahamas</i>	0.33 (0.16- 0.53)	1.46 (0.96- 2.15)	342.42	0.69 (0.35- 1.06)	6.26 (4.12- 9.18)	812.67
<i>Barbados</i>	0.18 (0.14- 0.24)	0.17 (0.13- 0.23)	-5.56	0.47 (0.37- 0.59)	0.68 (0.52- 0.89)	46.01
<i>Belize</i>	22.01 (16.99- 27.96)	13.82 (10.41- 18.05)	-37.21	28.28 (21.40- 36.68)	48.06 (36.11- 64.53)	69.94
<i>Bermuda</i>	0.01 (0.01- 0.01)	0.02 (0.01- 0.02)	100.00	0.01 (0.00- 0.01)	0.01 (0.01- 0.02)	151.30
<i>Bolivia (Plurinational State of)</i>	14498.60 (12803.28- 16303.82)	4993.53 (4540.19- 5483.11)	-65.56	795786.94 (700556.5- 899392.56)	556181.13 (507218.66- 611029.13)	-30.11
<i>Brazil</i>	1463.32 (1240.20- 1711.31)	912.36 (788.20- 1048.06)	-37.65	1918996.9 (1616752.4- 2249374.3)	2164570.3 (1868033.1- 2483588.8)	12.80
<i>Canada</i>	12.62 (11.15- 14.37)	7.29 (6.34- 8.37)	-42.23	3843.56 (3399.36- 4378.21)	3168.60 (2762.52- 3617.78)	-17.56
<i>Chile</i>	3911.59 (3485.31- 4430.37)	1114.17 (987.04- 1261.69)	-71.52	503984.09 (448713.91- 571287.44)	247197.23 (219291.86- 279687.94)	-50.95
<i>Colombia</i>	468.44 (400.30- 545.60)	240.60 (206.44- 280.79)	-48.64	127234.67 (107715.62- 149349.77)	123429.94 (105866.1- 144254.94)	-2.99

<b>Costa Rica</b>	896.06 (744.08- 1069.90)	449.12 (372.40- 526.10)	-49.88	22965.70 (18965.57- 27498.37)	22954.49 (18962.20- 26926.05)	-0.05
<b>Cuba</b>	0.99 (0.86- 1.14)	0.13 (0.09- 0.18)	-86.87	107.13 (92.91- 122.46)	17.78 (12.12- 24.42)	-83.40
<b>Denmark</b>	2.27 (1.97- 2.58)	2.05 (1.72- 2.40)	-9.69	134.88 (117.23- 153.39)	137.31 (114.83- 161.24)	1.80
<b>Dominica</b>	0.02 (0.01- 0.02)	0.57 (0.03- 2.30)	2750.00	0.01 (0.01- 0.01)	0.44 (0.03- 1.78)	4597.84
<b>Dominican Republic</b>	22.03 (19.35- 24.98)	7.02 (6.11- 8.13)	-68.13	1060.87 (930.59- 1206.39)	732.03 (634.09- 847.80)	-31.00
<b>Ecuador</b>	1965.65 (1647.37- 2313.59)	776.74 (653.95- 928.24)	-60.48	167052.69 (139128.86- 197316.98)	132898.13 (111731.95- 159078.03)	-20.45
<b>El Salvador</b>	1292.21 (1104.18- 1516.38)	576.32 (487.87- 670.43)	-55.40	56107.54 (47588.09- 66221.41)	35519.66 (30012.51- 41400.86)	-36.69
<b>France</b>	3.22 (2.86- 3.64)	1.54 (1.34- 1.75)	-52.17	2063.35 (1831.78- 2332.31)	1157.35 (1010.04- 1314.54)	-43.91
<b>Germany</b>	1.27 (1.13- 1.44)	0.65 (0.56- 0.74)	-48.82	1194.84 (1055.05- 1354.01)	647.61 (563.53- 740.64)	-45.80
<b>Grenada</b>	1.94 (1.20- 2.74)	14.35 (8.82- 21.04)	639.69	1.18 (0.75- 1.63)	16.05 (9.90- 23.29)	1259.02
<b>Guatemala</b>	1967.54 (1667.02- 2316.64)	712.89 (605.96- 835.04)	-63.77	121036.18 (101590.44- 143467.08)	110211.03 (92889.24- 129231.16)	-8.94
<b>Guyana</b>	14.46 (11.54- 18.15)	12.15 (9.33- 15.55)	-15.98	78.50 (61.36- 100.52)	85.70 (65.85- 111.84)	9.17
<b>Honduras</b>	1903.46 (1616.01- 2215.56)	904.78 (776.29- 1054.24)	-52.47	66869.28 (56657.88- 78305.21)	76312.81 (65038.65- 88780.77)	14.12
<b>Iceland</b>	0.07 (0.01- 0.15)	0.90 (0.45- 1.73)	1185.71	0.19 (0.03- 0.39)	3.45 (1.67- 6.55)	1725.41
<b>Ireland</b>	0.13 (0.09- 0.18)	3.78 (3.31- 4.30)	2807.69	4.67 (3.22- 6.38)	215.85 (188.25- 246.38)	4525.73
<b>Israel</b>	40.40 (35.63- 45.38)	10.32 (9.06- 11.77)	-74.46	1841.69 (1621.90- 2067.95)	983.44 (864.63- 1119.86)	-46.60
<b>Italy</b>	4.78 (4.23- 5.36)	12.28 (10.87- 14.03)	156.90	3134.50 (2776.68- 3516.82)	8676.86 (7685.51- 9847.33)	176.82
<b>Japan</b>	0.25 (0.22- 0.28)	0.52 (0.45- 0.60)	108.00	358.48 (313.68- 409.86)	751.24 (652.78- 863.21)	109.56
<b>Luxembourg</b>	1.22 (0.89- 1.55)	0.70 (0.30- 1.35)	-42.62	5.51 (4.07- 7.01)	5.35 (2.33- 10.28)	-2.97
<b>Mexico</b>	1347.48 (1120.54- 1614.53)	1030.50 (877.70- 1205.66)	-23.52	939303.44 (769873.56- 1139743.9)	1311109.6 (1115869.6- 1534459.9)	39.58
<b>Netherlands</b>	2.38 (2.10- 2.68)	2.15 (1.86- 2.46)	-9.66	408.78 (361.65- 460.24)	431.16 (374.02- 492.83)	5.48
<b>Nicaragua</b>	1559.28 (1313.79- 1843.13)	668.67 (566.27- 779.08)	-57.12	44839.46 (37587.15- 53213.13)	39908.47 (33606.16- 46667.06)	-11.00



<b>Panama</b>	1025.04 (858.28- 1200.76)	518.47 (434.29- 606.20)	-49.42	21443.64 (17888.40- 25311.50)	21771.47 (18233.92- 25453.20)	1.53
<b>Paraguay</b>	1210.41 (1043.74- 1412.94)	584.81 (500.48- 687.14)	-51.68	40414.16 (34573.66- 47289.16)	39103.23 (33426.53- 46034.36)	-3.24
<b>Peru</b>	1413.44 (1207.69- 1651.78)	635.63 (552.15- 731.03)	-55.03	256753.69 (218829.02- 302078.94)	217437.05 (188880.84- 250655.31)	-15.31
<b>Portugal</b>	5.43 (4.71- 6.20)	5.44 (4.70- 6.28)	0.18	607.82 (528.29- 694.46)	702.11 (609.11- 804.98)	15.51
<b>Puerto Rico</b>	8.53 (7.44- 9.76)	11.76 (10.12- 13.64)	37.87	306.48 (267.45- 350.01)	495.37 (428.09- 571.79)	61.63
<b>Saint Lucia</b>	0.68 (0.37- 1.01)	0.96 (0.22- 2.12)	41.18	0.65 (0.37- 0.96)	2.03 (0.47- 4.46)	211.56
<b>Saint Vincent and the Grenadines</b>	0.09 (0.07- 0.12)	0.15 (0.12- 0.20)	66.67	0.07 (0.05- 0.09)	0.20 (0.15- 0.26)	182.77
<b>Spain</b>	13.62 (12.05- 15.37)	55.76 (49.65- 63.12)	309.40	5783.02 (5115.92- 6522.33)	30863.88 (27428.64- 34841.59)	433.70
<b>Suriname</b>	11.14 (7.68- 15.12)	6.04 (4.31- 7.93)	-45.78	33.81 (22.87- 46.17)	36.10 (25.78- 47.80)	6.76
<b>Sweden</b>	17.72 (15.77- 20.00)	8.59 (7.53- 9.80)	-51.52	1718.83 (1527.38- 1939.41)	1007.12 (880.97- 1148.46)	-41.41
<b>Switzerland</b>	12.34 (10.92- 13.90)	9.49 (8.39- 10.81)	-23.10	1001.75 (885.63- 1131.16)	1015.87 (895.60- 1153.04)	1.41
<b>Trinidad and Tobago</b>	5.40 (4.69- 6.27)	2.06 (1.49- 2.74)	-61.85	52.91 (45.81- 61.25)	34.29 (24.47- 45.91)	-35.19
<b>United Kingdom</b>	0.12 (0.11- 0.14)	0.18 (0.16- 0.21)	50.00	77.61 (68.82- 87.41)	145.66 (127.51- 165.99)	87.68
<b>Uruguay</b>	1529.56 (1289.07- 1792.29)	572.50 (486.99- 669.22)	-62.57	49440.20 (41739.49- 57864.70)	24746.50 (21094.78- 28855.29)	-49.95
<b>Venezuela (Bolivarian Republic of)</b>	2888.71 (2495.06- 3327.43)	1654.73 (1439.50- 1897.81)	-42.72	457479.5 (392331.28- 530739.19)	493902.31 (429738.44- 564220)	7.96
<b>United States of America</b>	19.22 (16.84- 22.10)	16.50 (14.34- 19.04)	-14.15	53505.66 (46913.63- 61492.67)	63553.17 (55365.83- 72997.92)	18.78
<b>Alabama</b>	4.14 (3.59- 4.80)	4.24 (3.66- 4.92)	2.52	187.38 (162.46 - 217.40)	246.44 (213.10 - 285.07)	31.52
<b>Alaska</b>	10.36 (9.15- 11.81)	5.38 (4.71- 6.15)	-48.06	44.95 (39.66 - 51.42)	48.33 (42.33 - 55.27)	7.51
<b>Arizona</b>	9.98 (8.70- 11.51)	5.94 (5.15- 6.87)	-40.49	397.75 (346.89 - 459.10)	497.10 (431.29 - 572.98)	24.98
<b>Arkansas</b>	6.70 (5.80- 7.78)	6.75 (5.81- 7.84)	0.76	175.89 (151.95 - 204.29)	237.74 (205.11 - 275.43)	35.16

<b>California</b>	32.19 (27.95- 37.31)	28.55 (24.68- 33.10)	-11.30	10364.56 (8989.40 - 12023.65)	13600.26 (11761.55 - 15730.08)	31.22
<b>Colorado</b>	8.62 (7.57- 9.90)	5.69 (4.95- 6.56)	-34.03	313.21 (275.08 - 359.43)	364.36 (317.80 - 417.98)	16.33
<b>Connecticut</b>	24.77 (21.86- 28.27)	22.64 (19.87- 25.99)	-8.63	942.72 (832.26 - 1077.58)	983.27 (862.41 - 1121.62)	4.30
<b>Delaware</b>	13.14 (11.46- 15.17)	10.91 (9.45- 12.64)	-16.97	98.56 (85.92 - 113.83)	123.91 (107.46 - 142.84)	25.72
<b>District of Columbia</b>	37.48 (32.65- 43.29)	42.85 (37.20- 49.53)	14.31	266.39 (232.02 - 308.27)	337.05 (291.97 - 388.99)	26.52
<b>Florida</b>	60.67 (53.51- 69.45)	39.16 (34.25- 45.02)	-35.45	8894.82 (7840.39 - 10176.39)	9682.26 (8474.04 - 11081.36)	8.85
<b>Georgia</b>	17.69 (15.49- 20.32)	12.02 (10.44- 13.85)	-32.07	1251.85 (1096.69 - 1439.61)	1502.09 (1307.52 - 1726.49)	19.99
<b>Hawaii</b>	2.65 (2.34- 3.03)	2.02 (1.77- 2.32)	-23.97	32.63 (28.79 - 37.32)	35.00 (30.65 - 40.03)	7.27
<b>Idaho</b>	5.65 (4.94- 6.50)	3.74 (3.25- 4.32)	-33.69	60.20 (52.72 - 69.24)	72.54 (63.12 - 83.38)	20.49
<b>Illinois</b>	7.31 (6.43- 8.38)	6.94 (6.04- 7.99)	-5.10	934.29 (821.34 - 1071.33)	1069.14 (933.22 - 1225.86)	14.43
<b>Indiana</b>	3.56 (3.11- 4.10)	3.51 (3.04- 4.05)	-1.57	220.63 (192.77 - 254.28)	271.74 (236.06 - 312.92)	23.16
<b>Iowa</b>	3.61 (3.15- 4.16)	3.86 (3.35- 4.46)	6.82	111.25 (97.22 - 128.20)	136.74 (118.82 - 157.45)	22.92
<b>Kansas</b>	4.02 (3.51- 4.62)	3.96 (3.44- 4.58)	-1.42	108.97 (95.26 - 125.54)	133.63 (116.15 - 153.84)	22.63
<b>Kentucky</b>	2.81 (2.45- 3.25)	2.82 (2.44- 3.27)	0.54	116.55 (101.58 - 134.80)	148.23 (128.43 - 171.03)	27.19
<b>Louisiana</b>	9.87 (8.53- 11.46)	11.23 (9.68- 13.03)	13.85	445.17 (384.65 - 517.03)	599.41 (517.32 - 694.21)	34.65
<b>Maine</b>	3.17 (2.76- 3.66)	3.61 (3.12- 4.19)	14.08	44.09 (38.40 - 51.03)	56.40 (48.85 - 65.10)	27.92
<b>Maryland</b>	39.31 (34.18- 45.48)	37.65 (32.55- 43.66)	-4.23	2133.10 (1854.11 - 2472.47)	2760.17 (2388.22 - 3188.78)	29.40
<b>Massachusetts</b>	23.95 (21.07- 27.45)	23.23 (20.26- 26.71)	-2.99	1637.90 (1441.21 - 1876.57)	1847.90 (1614.29 - 2117.59)	12.82
<b>Michigan</b>	2.47 (2.17- 2.84)	2.71 (2.36- 3.14)	9.74	255.62 (224.22 - 293.60)	301.52 (262.78 - 346.21)	17.96
<b>Minnesota</b>	7.31 (6.41- 8.39)	6.38 (5.55- 7.36)	-12.68	350.60 (307.62 - 402.60)	411.79 (358.98 - 472.74)	17.45
<b>Mississippi</b>	2.42 (2.11- 2.81)	2.46 (2.13- 2.86)	1.65	66.49 (57.89 - 76.97)	85.19 (73.76 - 98.34)	28.11
<b>Missouri</b>	3.85 (3.36- 4.44)	3.80 (3.30- 4.40)	-1.37	221.25 (193.10 - 255.19)	274.97 (238.69 - 316.80)	24.28

<b>Montana</b>	2.64 (2.31- 3.04)	2.36 (2.05- 2.73)	-10.70	23.40 (20.52 - 26.90)	27.80 (24.22 - 31.93)	18.79
<b>Nebraska</b>	6.68 (5.78- 7.75)	7.12 (6.13- 8.26)	6.56	115.31 (99.67 - 133.91)	154.72 (133.57 - 179.17)	34.17
<b>Nevada</b>	44.31 (38.57- 51.31)	19.51 (16.88- 22.61)	-55.97	576.52 (501.05 - 668.32)	749.09 (648.11 - 865.54)	29.93
<b>New Hampshire</b>	5.82 (5.13- 6.68)	5.08 (4.43- 5.86)	-12.79	72.07 (63.45 - 82.62)	80.26 (70.15 - 91.95)	11.36
<b>New Jersey</b>	45.04 (39.77- 51.48)	40.61 (35.61- 46.61)	-9.82	4041.28 (3565.47 - 4622.57)	4338.88 (3799.74 - 4961.83)	7.36
<b>New Mexico</b>	5.48 (4.80- 6.30)	4.30 (3.73- 4.96)	-21.68	88.77 (77.70 - 102.14)	107.63 (93.63 - 123.74)	21.24
<b>New York</b>	38.32 (33.83- 43.82)	36.11 (31.63- 41.35)	-5.79	7913.06 (6979.19 - 9051.46)	8528.05 (7467.97 - 9755.54)	7.77
<b>North Carolina</b>	13.76 (12.00- 15.89)	10.54 (9.13- 12.21)	-23.40	1036.79 (903.81 - 1198.20)	1309.63 (1135.29 - 1510.47)	26.32
<b>North Dakota</b>	4.24 (3.72- 4.86)	4.17 (3.63- 4.80)	-1.70	28.93 (25.42 - 33.20)	33.42 (29.16 - 38.33)	15.52
<b>Ohio</b>	2.14 (1.88- 2.45)	2.30 (2.00- 2.65)	7.35	260.82 (228.91 - 299.44)	305.77 (266.58 - 350.95)	17.23
<b>Oklahoma</b>	4.42 (3.84- 5.13)	4.50 (3.88- 5.22)	1.80	155.24 (134.58 - 180.12)	204.37 (176.72 - 236.42)	31.65
<b>Oregon</b>	5.38 (4.70- 6.19)	4.39 (3.81- 5.07)	-18.42	172.93 (151.38 - 199.04)	209.35 (182.10 - 240.82)	21.06
<b>Pennsylvania</b>	5.17 (4.55- 5.92)	5.25 (4.58- 6.05)	1.66	701.27 (617.02 - 803.37)	791.78 (691.63 - 907.30)	12.91
<b>Rhode Island</b>	26.15 (22.75- 30.25)	30.46 (26.36- 35.31)	16.48	296.28 (258.03 - 342.89)	378.63 (327.92 - 437.04)	27.80
<b>South Carolina</b>	8.60 (7.55- 9.87)	6.58 (5.72- 7.60)	-23.52	330.77 (290.45 - 379.59)	385.47 (336.17 - 442.24)	16.54
<b>South Dakota</b>	5.38 (4.69- 6.21)	5.18 (4.49- 6.00)	-3.73	39.85 (34.75 - 46.00)	49.88 (43.27 - 57.49)	25.18
<b>Tennessee</b>	6.45 (5.62- 7.46)	5.81 (5.03- 6.73)	-10.02	360.03 (313.75 - 416.45)	458.25 (397.02 - 528.78)	27.28
<b>Texas</b>	24.80 (21.57- 28.72)	17.62 (15.25- 20.42)	-28.96	4468.89 (3884.64 - 5179.59)	5780.83 (5001.98 - 6678.14)	29.36
<b>Utah</b>	22.72 (20.00- 26.03)	11.87 (10.37- 13.61)	-47.75	361.10 (317.89 - 413.86)	400.67 (350.16 - 459.04)	10.96
<b>Vermont</b>	5.48 (4.80- 6.30)	5.64 (4.91- 6.53)	2.89	34.41 (30.17 - 39.55)	40.86 (35.60 - 46.93)	18.74
<b>Virginia</b>	31.04 (27.09- 35.74)	25.85 (22.43- 29.88)	-16.73	2162.02 (1887.05 - 2493.28)	2682.47 (2328.80 - 3090.51)	24.07
<b>Washington</b>	7.01 (6.13- 8.06)	5.39 (4.68- 6.24)	-23.07	380.37 (332.50 - 438.24)	466.57 (405.52 - 537.14)	22.66

<i>West Virginia</i>	1.73 (1.51- 1.99)	1.98 (1.72- 2.29)	14.53	35.55 (31.14 - 40.88)	42.69 (37.16 - 49.08)	20.11
<i>Wisconsin</i>	2.76 (2.42- 3.16)	2.50 (2.18- 2.89)	-9.20	149.07 (131.05 - 170.90)	170.28 (148.65 - 195.23)	14.23
<i>Wyoming</i>	4.96 (4.35- 5.70)	4.09 (3.55- 4.72)	-17.54	24.11 (21.14 - 27.71)	28.64 (24.95 - 32.90)	18.77

**Supplementary Table 2.** Number of disability-adjusted life-years and age-standardized disability-adjusted life-year rates (per 100,000 population) due to Chagas disease in 1990 and 2019 and the percentage change by country/US state.

Country/State	DALY rate per 100,000 population in 1990	DALY rate per 100,000 population in 2019	Percentage Change 1990-2019 (%)	DALYs (number) 1990	DALYs (number) 2019	Percentage Change 1990-2019 (%)
<i>Andorra</i>	0.11 (0.06 - 0.18)	0.15 (0.09 - 0.26)	34.65	0.07 (0.04 - 0.11)	0.18 (0.10 - 0.31)	154.20
<i>Argentina</i>	116.02 (69.25 - 184.24)	45.77 (28.66 - 119.24)	-60.54	36724.31 (21979.75 - 58618.17)	23552.58 (14648.12 - 61744.26)	-35.87
<i>Australia</i>	0.14 (0.09 - 0.20)	0.04 (0.03 - 0.06)	-69.48	25.55 (16.61 - 37.03)	13.82 (8.74 - 20.32)	-45.92
<i>Austria</i>	0.02 (0.01 - 0.03)	0.01 (0.01 - 0.02)	-45.22	1.91 (1.23 - 2.78)	1.37 (0.84 - 2.01)	-28.33
<i>Belgium</i>	3.86 (2.94 - 4.81)	0.00 (0.00 - 0.00)	-100.00	583.01 (443.89 - 723.71)	0.00 (0.00 - 0.00)	-100.00
<i>Belize</i>	3.68 (1.34 - 5.16)	1.13 (0.71 - 2.58)	-69.29	3.25 (1.22 - 4.52)	2.83 (1.83 - 6.29)	-12.80
<i>Bolivia (Plurinational State of)</i>	339.96 (143.26 - 531.52)	183.76 (64.92 - 328.59)	-45.95	12503.39 (5668.15 - 18939.51)	16882.47 (6156.26 - 29128.09)	35.02
<i>Brazil</i>	245.46 (80.79 - 312.29)	72.32 (44.93 - 125.48)	-70.54	256380.58 (81679.58 - 328720.59)	174194.22 (109039.60 - 302974.38)	-32.06
<i>Canada</i>	0.20 (0.12 - 0.33)	0.07 (0.04 - 0.10)	-66.96	60.26 (36.70 - 96.26)	33.92 (21.43 - 49.37)	-43.71
<i>Chile</i>	40.65 (29.20 - 53.75)	18.01 (12.87 - 24.02)	-55.71	4594.70 (3259.73 - 6165.39)	4195.56 (2987.86 - 5587.42)	-8.69
<i>Colombia</i>	12.26 (9.12 - 21.27)	10.34 (4.79 - 15.53)	-15.67	2617.90 (1966.51 - 4186.43)	5426.21 (2529.02 - 8181.17)	107.27
<i>Costa Rica</i>	9.07 (5.99 - 12.69)	4.59 (2.96 - 6.59)	-49.38	189.64 (123.37 - 270.83)	237.21 (152.93 - 341.43)	25.08
<i>Cuba</i>	0.58 (0.23 - 1.11)	0.00 (0.00 - 0.00)	-99.80	57.16 (22.84 - 109.68)	0.17 (0.09 - 0.29)	-99.70
<i>Denmark</i>	0.02 (0.01 - 0.03)	0.02 (0.01 - 0.03)	-9.83	1.32 (0.85 - 1.94)	1.43 (0.89 - 2.18)	8.47
<i>Dominican Republic</i>	0.26 (0.17 - 0.38)	0.08 (0.05 - 0.11)	-69.79	10.77 (6.91 - 15.67)	7.76 (4.88 - 11.17)	-27.97

<i>Ecuador</i>	24.84 (17.14 - 33.00)	9.75 (6.52 - 14.89)	-60.76	1564.36 (1087.03 - 2095.39)	1530.68 (1023.59 - 2342.76)	-2.15
<i>El Salvador</i>	26.84 (17.48 - 39.51)	12.67 (8.19 - 21.96)	-52.79	918.93 (594.81 - 1293.11)	759.50 (489.69 - 1314.18)	-17.35
<i>Finland</i>	1.37 (0.67 - 2.37)	0.00 (0.00 - 0.00)	-100.00	88.20 (42.83 - 151.93)	0.00 (0.00 - 0.00)	-100.00
<i>France</i>	0.16 (0.06 - 0.30)	0.01 (0.01 - 0.02)	-91.35	121.07 (45.87 - 228.55)	12.22 (7.85 - 17.92)	-89.91
<i>Germany</i>	4.32 (3.97 - 4.69)	0.01 (0.00 - 0.01)	-99.87	5192.56 (4789.89 - 5646.65)	6.83 (4.33 - 10.00)	-99.87
<i>Guatemala</i>	26.62 (18.56 - 35.18)	9.98 (7.11 - 14.11)	-62.50	1168.02 (815.76 - 1589.49)	1251.93 (877.03 - 1753.81)	7.18
<i>Guyana</i>	4.13 (1.37 - 5.99)	1.21 (0.76 - 2.56)	-70.82	11.86 (4.23 - 16.56)	5.95 (3.80 - 12.17)	-49.80
<i>Honduras</i>	24.53 (14.65 - 33.85)	15.80 (7.81 - 24.79)	-35.61	607.24 (384.35 - 843.46)	1003.25 (538.33 - 1518.92)	65.21
<i>Israel</i>	2.65 (1.43 - 4.23)	0.10 (0.06 - 0.15)	-96.20	97.14 (54.82 - 154.80)	10.19 (6.57 - 15.06)	-89.51
<i>Italy</i>	0.04 (0.03 - 0.06)	0.10 (0.07 - 0.15)	137.93	31.33 (20.24 - 45.16)	91.34 (58.99 - 133.67)	191.52
<i>Jamaica</i>	3.26 (1.29 - 6.12)	0.00 (0.00 - 0.00)	-100.00	57.82 (22.85 - 108.70)	0.00 (0.00 - 0.00)	-100.00
<i>Japan</i>	0.00 (0.00 - 0.00)	0.00 (0.00 - 0.01)	83.30	3.64 (2.36 - 5.28)	8.12 (5.16 - 11.87)	122.99
<i>Luxembourg</i>	0.01 (0.01 - 0.02)	0.01 (0.00 - 0.01)	-39.50	0.05 (0.03 - 0.07)	0.05 (0.02 - 0.11)	6.87
<i>Mexico</i>	12.64 (8.35 - 17.93)	10.22 (6.79 - 14.28)	-19.11	6933.23 (4479.72 - 9991.35)	12533.67 (8303.68 - 17462.50)	80.78
<i>Netherlands</i>	0.02 (0.01 - 0.03)	0.02 (0.01 - 0.03)	-14.88	4.09 (2.66 - 5.94)	4.57 (2.92 - 6.66)	11.91
<i>Nicaragua</i>	20.75 (13.90 - 28.09)	9.12 (6.51 - 12.88)	-56.02	411.15 (278.57 - 569.22)	451.35 (316.61 - 645.84)	9.78
<i>Panama</i>	12.78 (8.70 - 16.96)	5.92 (3.78 - 8.69)	-53.63	228.33 (151.79 - 307.84)	247.98 (159.04 - 364.28)	8.60
<i>Paraguay</i>	55.93 (25.82 - 72.47)	26.21 (15.76 - 44.77)	-53.14	1358.92 (659.02 - 1748.67)	1541.27 (947.25 - 2653.88)	13.42
<i>Peru</i>	21.51 (13.69 - 28.98)	8.84 (6.21 - 12.42)	-58.89	2960.96 (1935.81 - 3997.53)	2926.03 (2044.39 - 4115.21)	-1.18
<i>Portugal</i>	0.05 (0.03 - 0.08)	0.05 (0.03 - 0.07)	-8.60	6.29 (3.98 - 9.15)	7.56 (4.76 - 11.25)	20.17
<i>Puerto Rico</i>	3.63 (1.90 - 5.96)	0.11 (0.07 - 0.16)	-97.02	111.07 (58.79 - 181.71)	5.38 (3.40 - 7.94)	-95.15
<i>Spain</i>	0.31 (0.19 - 0.48)	0.48 (0.31 - 0.71)	54.91	157.85 (93.40 - 252.53)	322.37 (206.60 - 469.84)	104.23

<i>Suriname</i>	2.51 (0.98 - 3.57)	0.84 (0.50 - 1.99)	-66.36	6.15 (2.40 - 8.65)	4.45 (2.73 - 10.32)	-27.59
<i>Sweden</i>	0.16 (0.10 - 0.23)	0.08 (0.05 - 0.11)	-50.97	17.10 (11.14 - 24.75)	10.53 (6.66 - 15.31)	-38.40
<i>Switzerland</i>	0.11 (0.07 - 0.16)	0.08 (0.05 - 0.12)	-25.16	9.96 (6.54 - 14.45)	10.61 (6.75 - 15.31)	6.52
<i>Trinidad and Tobago</i>	0.06 (0.04 - 0.09)	0.02 (0.01 - 0.03)	-65.73	0.55 (0.35 - 0.81)	0.37 (0.21 - 0.59)	-32.31
<i>United Kingdom</i>	0.00 (0.00 - 0.00)	0.00 (0.00 - 0.00)	55.76	0.78 (0.50 - 1.12)	1.58 (1.00 - 2.29)	103.27
<i>Uruguay</i>	16.96 (10.66 - 23.34)	7.17 (4.80 - 9.84)	-57.74	587.78 (373.08 - 808.67)	350.72 (237.93 - 484.18)	-40.33
<i>Venezuela (Bolivarian Republic of)</i>	228.02 (99.96 - 285.06)	92.55 (62.26 - 169.48)	-59.41	23314.70 (10840.66 - 28919.13)	27037.40 (18134.19 - 50564.87)	15.97
<i>United States of America</i>	0.21 (0.14 - 0.29)	0.16 (0.10 - 0.23)	-23.84	605.56 (401.39 - 862.61)	686.44 (433.59 - 1008.78)	13.36
<i>Alabama</i>	0.04 (0.03 - 0.06)	0.04 (0.03 - 0.06)	-1.21	1.96 (1.25 - 2.86)	2.69 (1.69 - 3.95)	37.35
<i>Alaska</i>	0.15 (0.09 - 0.21)	0.06 (0.04 - 0.08)	-62.13	0.45 (0.29 - 0.67)	0.52 (0.33 - 0.75)	13.61
<i>Arizona</i>	0.10 (0.06 - 0.15)	0.06 (0.04 - 0.08)	-43.37	4.12 (2.65 - 6.04)	5.39 (3.39 - 7.93)	30.76
<i>Arkansas</i>	0.06 (0.04 - 0.09)	0.06 (0.04 - 0.10)	-0.31	1.84 (1.18 - 2.70)	2.60 (1.63 - 3.82)	40.83
<i>California</i>	0.41 (0.27 - 0.60)	0.28 (0.18 - 0.42)	-31.21	132.05 (86.06 - 191.96)	148.22 (93.01 - 218.22)	12.25
<i>Colorado</i>	0.09 (0.06 - 0.13)	0.05 (0.03 - 0.08)	-38.35	3.21 (2.06 - 4.73)	3.92 (2.48 - 5.76)	22.21
<i>Connecticut</i>	0.24 (0.15 - 0.34)	0.21 (0.13 - 0.31)	-12.46	9.54 (6.15 - 14.06)	10.46 (6.66 - 15.26)	9.65
<i>Delaware</i>	0.13 (0.09 - 0.19)	0.10 (0.06 - 0.15)	-23.24	1.02 (0.66 - 1.50)	1.35 (0.85 - 1.98)	31.81
<i>District of Columbia</i>	0.37 (0.24 - 0.54)	0.44 (0.28 - 0.64)	18.35	2.82 (1.81 - 4.13)	3.67 (2.31 - 5.39)	29.97
<i>Florida</i>	0.59 (0.39 - 0.88)	0.35 (0.22 - 0.52)	-40.22	100.55 (65.48 - 150.45)	104.01 (65.94 - 152.06)	3.44
<i>Georgia</i>	0.18 (0.12 - 0.27)	0.12 (0.08 - 0.18)	-35.28	12.88 (8.27 - 18.94)	16.23 (10.25 - 23.88)	26.03
<i>Hawaii</i>	0.03 (0.02 - 0.04)	0.02 (0.01 - 0.03)	-30.87	0.33 (0.21 - 0.49)	0.37 (0.24 - 0.54)	12.22
<i>Idaho</i>	0.06 (0.04 - 0.08)	0.04 (0.02 - 0.05)	-35.91	0.62 (0.40 - 0.91)	0.78 (0.49 - 1.15)	26.36
<i>Illinois</i>	0.07 (0.05 - 0.10)	0.07 (0.04 - 0.10)	-7.69	9.56 (6.14 - 14.10)	11.49 (7.28 - 16.83)	20.20
<i>Indiana</i>	0.04 (0.02 - 0.05)	0.03 (0.02 - 0.05)	-4.90	2.28 (1.47 - 3.35)	2.94 (1.85 - 4.33)	29.00
<i>Iowa</i>	0.03 (0.02 - 0.05)	0.04 (0.02 - 0.05)	5.47	1.15 (0.74 - 1.69)	1.48 (0.93 - 2.18)	28.82
<i>Kansas</i>	0.04 (0.02 - 0.06)	0.04 (0.02 - 0.06)	-2.53	1.13 (0.72 - 1.65)	1.45 (0.91 - 2.13)	28.45
<i>Kentucky</i>	0.03 (0.02 - 0.04)	0.03 (0.02 - 0.04)	-3.45	1.21 (0.78 - 1.77)	1.61 (1.01 - 2.38)	32.98

<i>Louisiana</i>	0.10 (0.06 - 0.15)	0.11 (0.07 - 0.16)	8.27	4.66 (2.97 - 6.82)	6.56 (4.11 - 9.69)	40.72
<i>Maine</i>	0.03 (0.02 - 0.05)	0.03 (0.02 - 0.05)	4.49	0.46 (0.29 - 0.67)	0.61 (0.39 - 0.90)	33.82
<i>Maryland</i>	0.41 (0.26 - 0.60)	0.36 (0.23 - 0.54)	-10.31	22.07 (14.22 - 32.47)	30.00 (18.87 - 44.16)	35.97
<i>Massachusetts</i>	0.23 (0.15 - 0.34)	0.22 (0.14 - 0.32)	-6.31	16.72 (10.74 - 24.60)	19.84 (12.58 - 29.02)	18.63
<i>Michigan</i>	0.02 (0.02 - 0.04)	0.03 (0.02 - 0.04)	1.78	2.63 (1.69 - 3.87)	3.25 (2.06 - 4.77)	23.75
<i>Minnesota</i>	0.07 (0.05 - 0.10)	0.06 (0.04 - 0.09)	-16.30	3.60 (2.31 - 5.30)	4.44 (2.81 - 6.51)	23.22
<i>Mississippi</i>	0.02 (0.02 - 0.04)	0.02 (0.01 - 0.03)	-1.20	0.69 (0.44 - 1.01)	0.93 (0.58 - 1.37)	34.06
<i>Missouri</i>	0.04 (0.02 - 0.05)	0.04 (0.02 - 0.05)	-3.45	2.29 (1.47 - 3.36)	2.98 (1.88 - 4.39)	30.26
<i>Montana</i>	0.03 (0.02 - 0.04)	0.02 (0.01 - 0.03)	-15.66	0.24 (0.15 - 0.35)	0.30 (0.19 - 0.44)	24.69
<i>Nebraska</i>	0.06 (0.04 - 0.09)	0.07 (0.04 - 0.10)	5.08	1.21 (0.77 - 1.77)	1.69 (1.06 - 2.48)	39.87
<i>Nevada</i>	0.50 (0.33 - 0.74)	0.19 (0.12 - 0.29)	-61.68	5.88 (3.79 - 8.63)	8.12 (5.11 - 11.94)	38.15
<i>New Hampshire</i>	0.06 (0.04 - 0.09)	0.05 (0.03 - 0.07)	-20.84	0.73 (0.47 - 1.08)	0.86 (0.55 - 1.26)	17.08
<i>New Jersey</i>	0.43 (0.28 - 0.63)	0.38 (0.24 - 0.56)	-12.51	40.82 (26.30 - 59.84)	46.27 (29.48 - 67.58)	13.35
<i>New Mexico</i>	0.06 (0.04 - 0.08)	0.04 (0.03 - 0.06)	-28.15	0.92 (0.59 - 1.35)	1.16 (0.73 - 1.71)	27.14
<i>New York</i>	0.45 (0.29 - 0.64)	0.34 (0.21 - 0.50)	-24.15	102.27 (66.13 - 147.58)	91.26 (58.03 - 133.25)	-10.76
<i>North Carolina</i>	0.14 (0.09 - 0.20)	0.10 (0.06 - 0.15)	-27.25	10.75 (6.90 - 15.78)	14.22 (8.94 - 20.95)	32.32
<i>North Dakota</i>	0.04 (0.03 - 0.06)	0.04 (0.02 - 0.06)	-3.47	0.30 (0.19 - 0.44)	0.36 (0.23 - 0.53)	21.22
<i>Ohio</i>	0.02 (0.01 - 0.03)	0.02 (0.01 - 0.03)	2.22	2.68 (1.72 - 3.94)	3.29 (2.08 - 4.83)	22.99
<i>Oklahoma</i>	0.04 (0.03 - 0.06)	0.04 (0.03 - 0.06)	0.37	1.62 (1.04 - 2.37)	2.23 (1.40 - 3.28)	37.53
<i>Oregon</i>	0.05 (0.03 - 0.08)	0.04 (0.03 - 0.06)	-21.77	1.78 (1.15 - 2.62)	2.26 (1.43 - 3.33)	26.93
<i>Pennsylvania</i>	0.05 (0.03 - 0.07)	0.05 (0.03 - 0.07)	-0.74	7.17 (4.60 - 10.58)	8.50 (5.39 - 12.43)	18.56
<i>Rhode Island</i>	0.25 (0.16 - 0.37)	0.29 (0.18 - 0.42)	13.16	3.08 (1.97 - 4.51)	4.12 (2.59 - 6.06)	33.71
<i>South Carolina</i>	0.09 (0.06 - 0.13)	0.06 (0.04 - 0.09)	-29.10	3.39 (2.18 - 5.00)	4.15 (2.63 - 6.10)	22.52
<i>South Dakota</i>	0.05 (0.03 - 0.07)	0.05 (0.03 - 0.07)	-5.39	0.41 (0.27 - 0.61)	0.54 (0.34 - 0.80)	31.07
<i>Tennessee</i>	0.06 (0.04 - 0.09)	0.06 (0.03 - 0.08)	-13.55	3.74 (2.40 - 5.48)	4.98 (3.13 - 7.34)	33.32
<i>Texas</i>	0.26 (0.17 - 0.38)	0.18 (0.11 - 0.26)	-31.07	46.41 (29.79 - 67.88)	62.89 (39.59 - 92.22)	35.51
<i>Utah</i>	0.24 (0.15 - 0.35)	0.12 (0.08 - 0.18)	-48.43	3.67 (2.36 - 5.40)	4.29 (2.73 - 6.27)	16.84
<i>Vermont</i>	0.05 (0.04 - 0.08)	0.05 (0.03 - 0.08)	-6.92	0.35 (0.23 - 0.52)	0.44 (0.28 - 0.65)	24.53
<i>Virginia</i>	0.32 (0.20 - 0.47)	0.25 (0.16 - 0.37)	-21.73	22.22 (14.25 - 32.55)	29.04 (18.30 - 42.72)	30.70
<i>Washington</i>	0.07 (0.05 - 0.10)	0.05 (0.03 - 0.08)	-27.13	3.93 (2.53 - 5.77)	5.05 (3.18 - 7.44)	28.61

<i>West Virginia</i>	0.02 (0.01 - 0.02)	0.02 (0.01 - 0.03)	10.19	0.37 (0.24 - 0.54)	0.46 (0.29 - 0.68)	25.95
<i>Wisconsin</i>	0.03 (0.02 - 0.04)	0.02 (0.01 - 0.03)	-12.71	1.53 (0.98 - 2.25)	1.83 (1.16 - 2.68)	19.93
<i>Wyoming</i>	0.05 (0.03 - 0.07)	0.04 (0.02 - 0.06)	-23.09	0.25 (0.16 - 0.37)	0.31 (0.20 - 0.45)	24.62



## Global, Regional, and National Trends of Chagas Disease from 1990 to 2019

Comprehensive Analysis of the Global Burden of Disease Study

### Background

Chagas Disease (CD) is the parasitic disease with the highest burden and one of the most relevant public health challenges worldwide. However, the information of its burden in non-endemic countries is scarce and heterogeneous.



### Objective



To assess the global prevalence and disability-adjusted life years due to CD using findings from the Global Burden of Disease Study 2019.

### Results

Age-standardized prevalence rate per 100.000 population in 2019  
(% of change 1990-2019)

*Global*



79.86 (-45%) ↓

*Latin America*



933.76 (-50%) ↓

*North America*



15.55 (-16%) ↓

*Europe*



4.12 (111%) ↑

Global age-standardized DALYs rate

3.34 (-61%) ↓



Global Deaths Number

9487 (-16%) ↓

