

NONCOMMUNICABLE DISEASES IN THE REGION OF THE AMERICAS FACTS AND FIGURES



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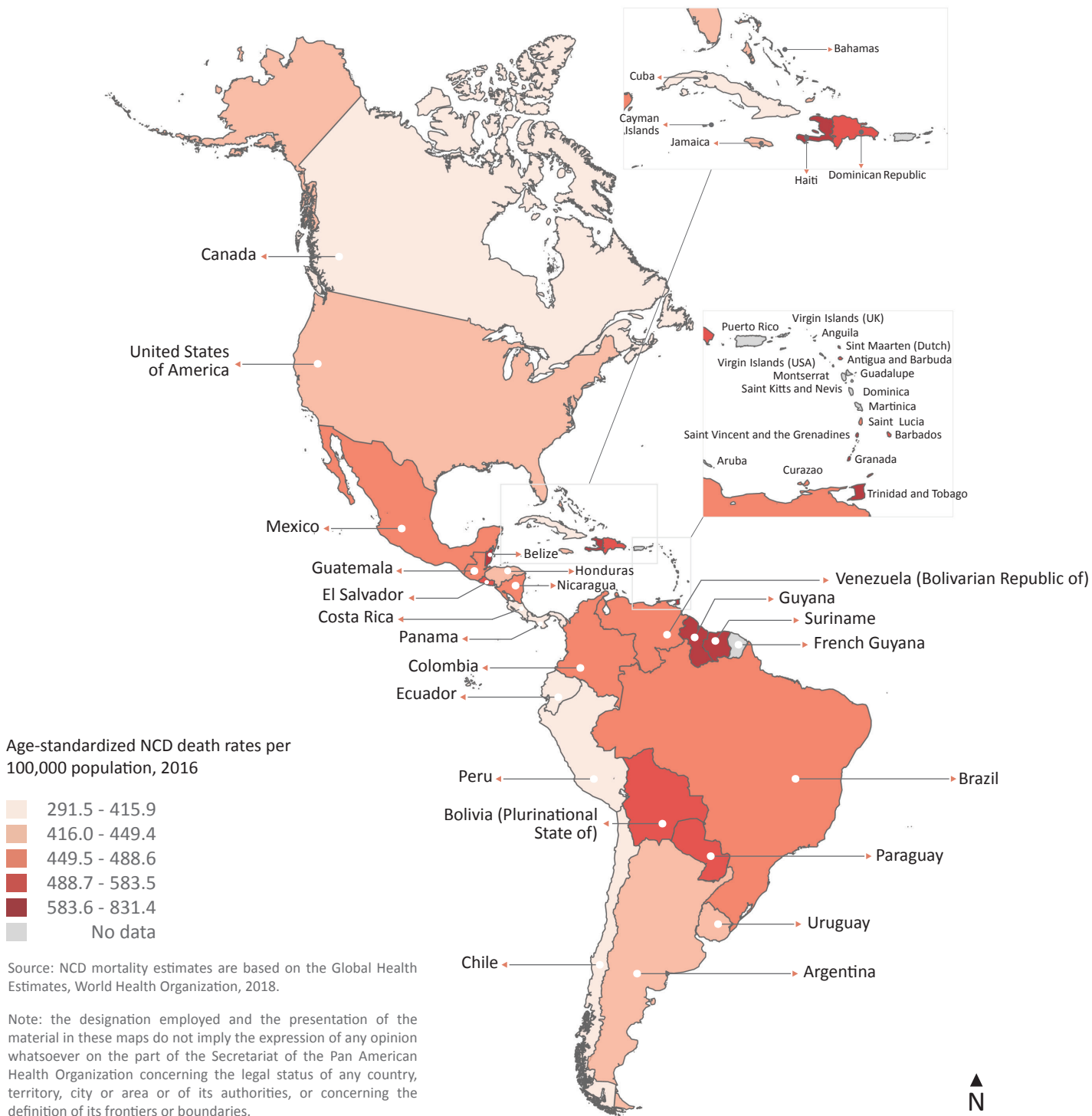
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NONCOMMUNICABLE DISEASE MORTALITY IN THE AMERICAS

The Region of the Americas has an NCD mortality rate of 436.5 per 100,000 population¹, which ranges from a high in Guyana of 831.4 deaths per 100,000 population, to a low in Canada of 291.5 deaths per 100,000 population. Twenty-two countries have NCD mortality rates above the regional mean, as shown in darker color in the map below. Countries in the Caribbean sub-region exhibit the highest NCD mortality rates in the region, where 7 countries² have rates above 583.5 per 100,000 population.



1. Data presented are estimates for the year 2016.

2. The countries with the highest NCD mortality rates, in order of ranking are: Guyana, Haiti, Belize, Saint Vincent and the Grenadines, Trinidad and Tobago, Suriname, and Grenada.

NONCOMMUNICABLE DISEASES IN THE REGION OF THE AMERICAS: FACTS AND FIGURES

Noncommunicable diseases (NCDs) and their risk factors are the leading causes of morbidity, mortality, and disability in the Americas, and they represent both a public health challenge and a serious threat to economic and social development. In the Region of the Americas, NCDs cause approximately 5.5 million deaths per year, representing 80.7% of all deaths in the region. Of the total deaths from NCDs, 38.9% are premature deaths occurring in people under 70 years of age.

This booklet presents data on NCD mortality and prevalence of NCD risk factors, by country, for the Region of the Americas. The focus is on the 5 x 5 NCD agenda which includes the main NCDs (cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases), and mental health (suicide); as well as the main NCD risk factors (tobacco use, harmful use of alcohol, unhealthy diet, insufficient physical activity), along with air pollution. It includes information on the number and percentage of deaths, age-standardized death rates, premature death from NCDs and the prevalence of NCD risk factors.

The data sources and definition of indicators are described in the technical notes.

NONCOMMUNICABLE DISEASE MORTALITY

	Total population 2016	DEATHS					PROPORTION OF DEATHS DUE TO NCDS (%)						All NCDS		
		Total number of deaths	NCD deaths			All NCDS	Cardio-vascular diseases	Cancer	Chronic respiratory diseases	Diabetes	Other NCDS	2016			
			Total	Male	Female							Total	Male	Female	
The Americas	992,182,000	6,875,460	5,549,900	2,843,510	2,706,390	80.7	28.1	19.6	7.2	5.0	20.8	436.5	518.1	369.6	
North America	358,490,000	3,058,000	2,700,200	1,354,700	1,345,500	88.3	29.4	23.2	8.7	3.0	24.1	405.0	476.8	342.8	
Canada	36,290,000	256,000	226,200	112,700	113,500	88.3	24.9	30.6	7.3	2.7	22.9	291.5	340.5	248.6	
United States of America	322,200,000	2,802,000	2,474,000	1,242,000	1,232,000	88.3	29.9	22.4	8.8	3.0	24.2	417.8	492.1	353.4	
Central America and Mexico	174,948,000	890,000	686,000	357,160	328,600	76.9	23.9	12.8	5.2	12.7	22.3	454.0	520.8	397.3	
Belize	367,000	2,000	1,400	760	600	67.4	25.5	14.3	3.2	7.9	16.5	711.9	808.1	617.5	
Costa Rica	4,857,000	25,000	20,500	11,000	9,500	83.3	29.3	23.4	6.5	3.7	20.3	366.4	429.3	310.6	
El Salvador	6,345,000	42,000	31,100	16,000	15,100	73.8	23.2	15.7	2.9	5.4	26.6	491.1	594.1	412.2	
Guatemala	16,582,000	80,000	47,500	23,900	23,500	59.2	17.3	10.0	3.4	8.3	20.3	451.2	502.5	409.1	
Honduras	9,113,000	39,000	26,200	13,000	13,200	66.5	25.1	14.0	4.3	2.1	21.0	442.3	493.1	401.0	
Mexico	127,500,000	653,000	521,800	272,700	249,000	79.9	24.4	12.3	5.6	15.3	22.4	457.7	525.7	399.4	
Nicaragua	6,150,000	29,000	22,300	11,500	10,800	76.4	24.6	14.1	3.6	5.6	28.5	473.1	547.8	412.2	
Panama	4,034,000	20,000	15,200	8,300	6,900	74.6	27.2	17.3	6.4	7.0	16.8	368.0	430.7	311.2	
Latin Caribbean	32,972,000	256,000	182,600	95,700	86,900	71.3	33.1	16.2	3.9	3.5	14.5	545.0	612.0	486.1	
Cuba	11,476,000	98,000	82,400	44,200	38,300	83.7	35.6	24.9	5.6	2.4	15.1	399.8	470.4	336.9	
Dominican Republic	10,649,000	66,000	47,500	25,600	21,800	72.3	34.9	16.0	2.6	3.7	15.1	491.3	560.7	427.5	
Haiti	10,847,000	92,000	52,700	25,900	26,800	57.1	28.9	7.4	3.4	4.3	13.2	751.4	812.2	701.4	
Andean Area	139,268,000	790,000	563,200	295,300	268,000	71.2	26.5	17.1	5.4	5.1	17.1	450.0	530.3	385.5	
Bolivia (Plurinational State of)	10,888,000	71,000	45,900	23,500	22,400	64.5	23.5	11.2	4.6	4.0	21.2	495.0	539.5	456.3	
Colombia	48,653,000	282,000	211,400	110,100	101,200	74.8	29.7	19.9	6.5	3.4	15.3	462.8	547.2	396.1	
Ecuador	16,385,000	84,000	60,700	31,500	29,300	72.2	23.6	16.6	5.2	7.7	19.1	405.0	455.6	361.2	
Peru	31,774,000	172,000	119,400	61,500	57,900	69.2	20.8	16.6	5.6	3.5	22.8	414.6	477.5	361.6	
Venezuela (Bolivarian Republic of)	31,568,000	181,000	125,800	68,700	57,200	69.5	29.9	15.8	4.0	8.3	11.6	473.8	593.2	381.6	
Southern Cone	279,626,000	1,827,000	1,377,600	720,400	657,200	75.3	27.9	18.6	7.0	4.6	17.1	444.1	550.0	362.6	
Argentina	43,847,000	328,000	254,500	128,500	126,000	77.6	27.8	20.0	10.5	2.8	16.5	424.7	552.3	334.4	
Brazil	207,700,000	1,320,000	975,400	516,800	458,500	73.9	28.0	17.7	6.4	5.0	16.8	451.8	555.6	370.2	
Chile	17,910,000	110,000	92,900	47,500	45,400	84.7	27.1	25.5	6.4	4.7	21.0	379.5	471.8	309.7	
Paraguay	6,725,000	36,000	27,000	14,000	13,100	74.4	28.9	15.9	3.2	6.6	19.7	506.0	552.6	464.0	
Uruguay	3,444,000	33,000	27,800	13,600	14,200	84.9	28.2	26.3	8.2	2.9	19.4	436.7	580.0	340.1	
Non-Latin Caribbean	6,878,000	51,920	40,480	20,630	19,820	76.8	30.8	17.2	3.1	10.8	14.9	534.6	615.9	469.5	
Antigua and Barbuda	101,000	650	530	270	260	81.8	32.8	20.6	4.4	8.2	15.8	548.3	667.3	464.7	
Bahamas	391,000	2,400	1,800	890	880	73.9	30.3	22.2	1.7	5.0	14.7	418.4	511.0	351.8	
Barbados	285,000	3,200	2,700	1,300	1,300	82.8	29.4	22.7	3.5	8.9	18.2	522.7	638.4	436.6	
Dominica	74,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Grenada	107,000	780	630	310	330	81.3	31.9	20.0	2.5	10.6	16.3	607.0	706.9	525.4	
Guyana	773,000	6,600	4,400	2,300	2,200	67.6	34.5	8.4	2.9	8.3	13.5	831.4	886.6	777.9	
Jamaica	2,881,000	20,000	15,800	7,900	7,900	80.0	29.7	19.8	3.2	11.9	15.4	434.3	480.2	395.3	
Saint Kitts and Nevis	55,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Saint Lucia	178,000	1,300	1,100	560	530	82.0	33.3	19.3	4.9	8.8	15.8	488.0	565.1	422.1	
Saint Vincent and the Grenadines	110,000	890	720	400	320	81.0	35.6	18.6	3.3	10.8	12.7	655.7	789.9	541.1	
Suriname	558,000	4,000	3,000	1,600	1,400	75.9	33.2	15.7	2.4	6.4	18.3	616.5	759.7	503.5	
Trinidad and Tobago	1,365,000	12,100	9,800	5,100	4,700	80.7	32.6	15.5	3.3	15.3	14.0	620.3	755.5	519.0	

NONCOMMUNICABLE DISEASE MORTALITY

DEATH RATES, AGE-STANDARDIZED PER 100,000 POPULATION

PREMATURE NCD DEATHS

Cardiovascular diseases			Cancer			Diabetes			Chronic respiratory diseases			Suicide	Proportion of NCD deaths <70 years of age (%)	Probability of dying between 30-70 years due to NCDs (%)				
														Total	Male	Female		
2016			2016			2016			2016			Total	Total	Male	Female			
Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female							
150.7	185.2	121.6	105.7	122.4	93.5	33.1	35.6	30.8	36.2	44.2	30.3	9.1	38.9	15.1	17.8	12.6	The Americas	
127.6	159.6	99.3	113.5	131.7	99.3	14.6	18.2	11.5	37.9	43.7	33.7	13.4	33.6	14.1	16.9	11.4	North America	
75.8	94.8	58.5	110.9	126.9	98.3	9.1	11.5	7.0	22.4	27.1	18.9	10.4	28.5	9.8	11.5	8.1	Canada	
133.4	167.0	103.9	113.8	132.3	99.4	15.3	19.0	12.0	39.7	45.6	35.4	13.7	34.1	14.6	17.5	11.8	United States of America	
139.2	165.4	116.8	77.2	81.6	74.3	77.9	80.5	75.4	29.6	35.4	25.1	5.5	41.8	15.2	16.8	13.8	Central America and Mexico	
288.1	326.1	249.8	138.8	170.7	108.5	85.6	75.6	95.3	35.6	52.5	19.3	5.9	47.5	22.1	25.5	18.5	Belize	
126.0	152.2	101.9	105.2	122.8	91.0	16.4	16.4	16.3	27.3	32.1	23.3	7.5	36.6	11.5	13.7	9.4	Costa Rica	
150.3	179.0	128.3	106.5	104.8	107.9	36.9	33.6	39.3	18.6	20.7	17.0	13.5	38.0	14.0	15.1	13.1	El Salvador	
135.0	149.1	123.6	78.3	78.4	78.5	68.2	61.1	74.0	26.6	31.3	22.9	2.9	44.2	14.9	14.9	15.0	Guatemala	
170.8	235.1	117.0	95.2	98.4	94.0	15.0	10.6	18.6	29.2	25.8	32.1	3.4	45.0	14.0	16.1	12.1	Honduras	
136.5	161.6	114.8	72.1	76.4	69.4	91.4	96.6	86.6	31.0	37.8	25.7	5.2	41.6	15.7	17.4	14.1	Mexico	
155.0	172.0	141.4	89.6	99.9	82.3	36.9	32.3	40.5	22.5	27.3	19.0	11.9	44.6	14.2	14.8	13.7	Nicaragua	
130.9	162.6	101.8	88.8	100.6	79.1	35.8	35.0	36.3	30.0	35.3	25.3	4.4	38.0	13.0	15.4	10.8	Panama	
264.0	290.6	239.1	112.8	131.9	97.3	32.2	27.0	36.5	29.2	36.4	23.5	10.9	43.6	20.6	22.9	18.3	Latin Caribbean	
161.1	190.2	134.3	127.1	155.2	103.1	12.1	10.6	13.3	26.1	29.7	23.4	10.1	34.7	16.4	19.0	13.8	Cuba	
238.3	271.4	206.9	110.1	127.6	95.4	26.2	25.6	26.6	17.4	20.9	14.2	10.5	44.4	19.0	21.7	16.5	Dominican Republic	
398.1	415.8	381.6	100.3	111.4	93.0	59.4	45.6	70.8	44.1	58.6	32.7	12.2	52.4	26.5	28.2	25.0	Haiti	
169.7	209.6	137.0	107.5	117.3	101.2	33.2	35.9	30.9	34.3	42.8	27.8	6.3	43.5	15.4	17.6	13.3	Andean Area	
180.5	206.4	156.8	89.5	81.3	98.1	32.9	30.8	34.8	34.5	41.2	29.1	12.9	46.6	17.2	17.7	16.8	Bolivia (Plurinational State of)	
185.6	228.9	150.6	120.9	135.1	110.7	21.3	22.4	20.4	41.0	51.1	33.3	7.0	44.0	15.8	18.3	13.5	Colombia	
131.6	154.2	111.5	95.1	98.3	93.6	44.8	44.8	44.8	28.3	35.6	22.2	7.2	39.7	13.0	13.9	12.2	Ecuador	
124.1	146.7	103.9	100.6	106.2	97.7	21.7	23.6	19.9	33.6	42.1	26.8	5.1	41.5	12.6	14.1	11.2	Peru	
207.3	272.9	155.6	106.1	123.4	95.2	57.3	66.2	49.8	27.8	35.0	22.8	3.8	45.5	18.1	21.8	14.5	Venezuela (Bolivarian Republic of)	
162.9	204.5	130.0	111.5	136.9	93.7	27.7	29.9	25.8	40.1	52.4	31.7	7.0	42.6	16.2	19.6	13.1	Southern Cone	
143.4	193.2	106.6	119.7	147.8	101.9	16.1	20.9	12.6	53.1	70.9	41.7	9.1	33.5	15.8	19.7	12.2	Argentina	
170.3	211.6	137.2	108.5	133.1	90.8	30.3	32.2	28.6	39.1	50.6	31.1	6.1	45.4	16.6	20.0	13.5	Brazil	
116.6	148.3	91.1	118.6	144.6	101.6	20.5	24.3	17.8	27.1	35.8	21.4	9.7	33.4	12.4	14.8	10.1	Chile	
199.8	220.7	179.7	109.4	124.9	96.7	46.3	38.1	53.7	22.0	30.3	14.9	9.3	45.0	17.5	18.7	16.3	Paraguay	
132.4	176.6	101.1	154.3	206.2	120.6	15.0	19.0	12.2	38.7	58.9	26.4	18.4	29.3	16.7	21.4	12.5	Uruguay	
219.0	245.1	195.6	116.4	142.4	98.4	74.1	72.1	76.0	21.7	31.9	13.6	9.0	38.1	18.6	21.0	16.4	Non-Latin Caribbean	
217.1	257.0	187.9	139.4	180.7	114.4	56.5	60.8	52.1	29.1	37.4	22.6	0.5	45.6	22.6	25.2	20.0	Antigua and Barbuda	
171.9	206.0	144.1	124.7	161.4	102.7	28.0	28.7	27.2	9.6	15.3	5.8	1.6	44.5	15.5	18.6	12.7	Bahamas	
179.7	214.9	151.0	150.2	188.3	124.6	53.3	55.2	51.2	21.0	31.1	14.2	0.4	28.4	16.2	19.7	12.9	Barbados	
...	Dominica
235.4	267.6	207.6	155.5	197.0	127.2	79.0	85.2	71.9	18.5	21.3	16.6	1.7	36.2	21.4	25.5	17.3	Grenada	
443.5	465.3	418.1	97.8	95.8	102.8	101.1	90.2	110.0	39.0	50.7	28.9	30.2	57.9	30.5	32.4	28.8	Guyana	
152.7	160.5	144.9	115.8	144.5	92.6	64.5	54.3	73.3	17.4	27.8	8.7	2.0	30.3	14.7	16.0	13.4	Jamaica	
...	Saint Kitts and Nevis
191.3	209.9	173.3	120.6	141.4	106.1	51.0	50.0	51.4	28.4	43.6	15.4	7.3	40.1	18.8	20.7	16.9	Saint Lucia	
287.9	337.7	242.9	150.1	191.0	119.6	88.4	93.0	85.1	26.0	41.3	13.0	2.4	41.0	23.2	27.1	19.1	Saint Vincent and the Grenadines	
272.2	338.5	216.9	126.1	152.7	108.9	51.7	56.9	47.3	19.9	28.8	13.2	23.2	47.3	21.7	26.4	17.2	Suriname	
249.4	295.7	209.1	117.6	147.6	100.3	115.5	129.4	105.1	26.0	37.4	17.7	12.9	42.7	21.3	24.6	18.0	Trinidad and Tobago	

RISK FACTOR PREVALENCE

	TOBACCO						ALCOHOL			OVERWEIGHT AND OBESITY								
	Prevalence of current tobacco smoking in adults (%)			Prevalence of current tobacco use in adolescents (%)			Alcohol per capita consumption in adults (litres/per person/year)			Prevalence of overweight and obesity in adults (%)			Prevalence of obesity in adults (%)			Prevalence of obesity in adolescents (%)		
	2017			2016			2018			2016			2016			2016		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
The Americas	15.2	19.3	11.1	11.4	12.1	10.5	7.8	12.2	3.6	62.5	64.1	60.9	28.3	25.9	31.0	12.8	14.0	11.5
North America	19.6	22.8	16.4	7.5	8.4	6.5	9.7	15.0	4.6	67.5	72.4	62.7	35.5	34.9	36.2	19.8	21.4	18.0
Canada	13.5	16.0	11.1	2016-17 10.0	12.1	7.8	9.2	14.3	4.2	64.1	69.8	58.5	29.4	29.5	29.3	11.4	13.6	9.1
United States of America	20.3	23.6	17.0	2018 7.2	8.0	6.3	9.8	15.1	4.6	67.9	72.7	63.2	36.2	35.5	37.0	20.7	22.3	19.0
Central America and Mexico	11.2	17.3	5.2	18.0	19.9	15.9	5.9	9.4	2.5	62.9	61.0	64.6	27.2	22.3	31.4	12.3	13.4	11.1
Belize	...	...	...	2014 12.3	16.6	8.2	6.5	10.4	2.7	54.8	48.1	61.2	24.1	16.5	31.5	10.6	10.8	10.4
Costa Rica	10.1	15.1	5.1	2013 8.9	9.7	8.1	4.6	7.4	1.9	61.6	59.9	63.3	25.7	21.1	30.4	10.8	11.0	10.5
El Salvador	10.5	18.7	2.3	2015 13.1	15.3	10.7	3.7	6.2	1.6	59.9	57.0	62.3	24.6	18.9	28.9	10.3	9.4	11.1
Guatemala	...	...	...	2015 17.1	19.5	14.4	2.5	4.1	1.1	55.9	51.4	59.9	21.2	15.1	26.4	8.4	8.4	8.5
Honduras	...	...	...	2016 7.9	9.6	6.4	4.1	6.6	1.6	55.8	51.8	59.5	21.4	15.6	26.9	8.2	7.8	8.6
Mexico	14.3	21.9	6.7	2011 19.8	21.6	17.7	6.6	10.5	2.8	64.9	63.6	66.0	28.9	24.3	32.8	13.5	15.2	11.7
Nicaragua	...	...	...	2014 17.6	20.6	14.5	5.4	8.8	2.2	58.2	54.7	61.4	23.7	17.9	29.0	9.3	8.7	10.0
Panama	6.0	9.7	2.2	2017 7.8	7.9	7.4	7.7	12.1	3.3	58.8	56.2	61.3	22.7	17.8	27.6	9.0	8.0	10.0
Latin Caribbean	15.6	22.3	8.9	12.9	13.9	11.6	6.4	10.2	2.6	58.2	54.2	62.0	24.9	19.2	30.4	10.6	12.1	9.1
Cuba	27.8	40.5	15.1	2010 11.5	13.0	9.7	6.2	9.9	2.6	58.5	54.5	62.5	24.6	18.9	30.3	9.7	10.7	8.7
Dominican Republic	9.7	11.6	7.8	2016 7.4	8.3	6.0	7.1	11.3	3.0	61.2	56.9	65.3	27.6	21.0	34.1	13.1	13.7	12.5
Haiti	8.5	13.5	3.4	2005 19.7	20.3	19.2	5.8	9.5	2.3	54.9	51.1	58.3	22.7	17.9	26.9	9.2	12.1	6.1
Andean Area	5.2	8.2	2.2	13.8	15.0	12.3	5.6	8.9	2.5	59.1	56.8	61.2	22.0	17.6	26.2	8.0	8.4	7.5
Bolivia (Plurinational State of)	...	...	...	2018 10.9	13.6	8.1	5.2	7.9	2.5	56.1	52.2	59.8	20.2	14.5	25.6	7.8	8.2	7.3
Colombia	8.2	12.6	3.9	2017 20.2	20.6	19.6	5.7	9.2	2.4	59.0	56.6	61.2	22.3	17.6	26.6	6.1	6.3	6.0
Ecuador	...	...	...	2016 13.0	15.3	10.7	5.6	8.6	2.7	56.0	52.6	59.2	19.9	14.9	24.7	8.0	8.9	7.2
Peru	10.2	16.6	3.8	2014 9.7	10.9	8.4	6.0	9.2	2.9	57.5	54.8	60.1	19.7	15.2	24.2	6.4	7.0	5.8
Venezuela (Bolivarian Republic of)	...	...	...	2010 9.4	11.0	7.2	5.4	8.5	2.3	63.4	62.9	63.8	25.6	22.4	28.6	12.4	13.0	11.6
Southern Cone	17.2	21.4	12.8	10.8	10.1	11.3	7.8	12.4	3.6	57.9	59.4	56.4	23.5	20.3	26.3	10.2	11.8	8.5
Argentina	21.9	27.7	16.1	2018 20.2	18.7	21.4	9.5	14.7	4.7	62.7	66.2	59.3	28.3	27.3	29.0	14.4	18.3	10.4
Brazil	13.8	17.6	9.9	2015 6.9	6.7	7.0	7.3	11.7	3.2	56.5	57.6	55.4	22.1	18.5	25.4	9.0	10.1	7.8
Chile	45.0	49.2	40.7	2013 24.5	19.8	27.8	9.4	14.5	4.6	63.1	64.7	61.4	28.0	24.9	31.0	13.6	15.6	11.5
Paraguay	13.4	21.7	5.1	2014 7.0	7.4	6.6	5.8	9.1	2.5	53.5	53.7	53.3	20.3	17.1	23.4	9.1	10.0	8.0
Uruguay	22.5	26.0	18.9	2014 12.8	12.7	12.5	11.1	17.4	5.4	62.9	64.9	60.8	27.9	24.9	30.6	12.2	14.2	10.0
Non-Latin Caribbean	...	...	...	14.4	16.7	12.1	6.1	9.7	2.6	53.2	45.5	60.6	23.2	14.8	31.0	10.8	10.7	10.9
Antigua and Barbuda	...	...	...	2017 7.5	7.9	7.0	7.5	12.1	3.4	48.0	40.1	55.6	18.9	11.6	25.9	10.0	9.6	10.3
Bahamas	11.0	18.6	3.3	2013 12.6	16.1	8.4	4.2	6.7	1.9	64.4	60.3	68.1	31.6	24.4	38.1	15.3	15.7	14.9
Barbados	7.7	13.3	2.1	2013 14.5	17.4	11.4	9.8	16.2	4.2	52.4	44.7	59.9	23.1	14.7	31.3	10.7	10.6	10.9
Dominica	...	...	...	2009 25.3	30.4	19.8	8.1	13.0	3.3	60.3	54.7	65.7	27.9	19.9	35.6	13.3	12.7	14.0
Grenada	...	...	...	2016 9.7	12.5	7.1	9.5	15.1	4.0	51.4	43.7	58.8	21.3	13.3	29.0	9.2	9.1	9.3
Guyana	12.6	23.0	2.3	2015 14.8	19.0	10.4	6.3	10.0	2.5	49.4	41.5	56.6	20.2	12.7	27.1	8.7	8.4	9.0
Jamaica	11.3	18.2	4.4	2017 15.6	15.9	15.0	4.1	6.6	1.7	55.5	47.4	63.2	24.7	15.3	33.4	11.4	11.0	11.9
Saint Kitts and Nevis	...	...	...	2010 9.2	10.4	7.8	9.5	14.9	4.2	52.3	45.0	59.3	22.9	15.3	30.1	10.8	11.0	10.6
Saint Lucia	...	...	...	2017 10.2	12.4	8.1	9.8	15.8	4.1	48.1	39.3	56.3	19.7	12.0	27.0	7.6	7.1	8.0
Saint Vincent and the Grenadines	...	...	...	2011 19.4	23.6	14.6	8.4	13.4	3.4	55.0	48.9	61.1	23.7	16.6	31.0	10.9	11.1	10.7
Suriname	...	...	...	2016 11.7	17.1	7.3	5.0	8.0	2.1	58.9	53.4	64.2	26.4	18.9	33.7	12.3	13.8	10.7
Trinidad and Tobago	...	...	...	2017 14.0	17.3	10.8	9.0	14.2	4.1	46.0	37.1	54.5	18.6	10.8	26.0	9.4	9.4	9.4

RISK FACTOR PREVALENCE

RAISED BLOOD GLUCOSE			RAISED BLOOD PRESSURE			PHYSICAL INACTIVITY			SALT			AIR POLLUTION		
Prevalence of raised fasting blood glucose (%)			Prevalence of raised blood pressure (%)			Prevalence of physical inactivity in adults (%)			Salt intake in adults (grams/day)			Ambient air pollution (proportion of exceedance of PM2.5)	Household air pollution (%)	
2014			2015			2016			2010					
Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female			
8.3	8.5	8.1	17.6	20.3	14.8	39.3	33.1	45.2	8.7	9.4	8.6			The Americas
7.1	8.0	6.2	12.9	15.3	10.5	38.9	31.1	46.3	9.0	10.0	9.0	-	<5	North America
5.5	6.2	4.8	13.2	15.6	10.8	28.6	25.7	31.4	9.0	10.0	9.0	-	<5	Canada
7.3	8.2	6.4	12.9	15.3	10.5	40.0	31.7	48.0	9.0	10.0	9.0	-	<5	United States of America
10.8	10.4	11.2	19.9	22.2	17.8	...	...	...	7.1	7.4	7.1	2.0	21.0	Central America and Mexico
12.7	10	15.2	22.7	24.4	21.0	...	...	...	7.0	7.0	6.0	2.1	15	Belize
8.9	8.8	8.9	18.7	21.0	16.3	46.1	37.7	54.3	8.0	8.0	8.0	1.6	7	Costa Rica
10.1	9.3	10.7	18.7	20.4	17.2	...	...	...	8.0	9.0	8.0	2.3	14	El Salvador
9.7	8.9	10.4	21.2	22.0	20.4	37.1	37.1	37.1	7.0	8.0	7.0	2.4	55	Guatemala
9.3	8.5	10.0	21.4	22.6	20.2	...	...	...	7.0	8.0	7.0	2.0	47	Honduras
11.2	10.9	11.5	19.7	22.3	17.3	28.9	25.5	32.2	7.0	7.0	7.0	2.0	15	Mexico
10.1	9.2	11.0	20.8	21.6	19.9	...	...	...	8.0	9.0	8.0	1.7	48	Nicaragua
9.3	8.9	9.8	19.9	22.3	17.3	...	...	...	9.0	9.0	8.0	1.1	11	Panama
9.0	8.1	9.9	21.6	23.3	19.8	25.4	21.9	28.9	7.0	7.0	6.0	1.5	10.3	Latin Caribbean
8.4	7.3	9.6	19.0	20.9	16.9	36.9	30.9	42.8	7.0	7.0	6.0	1.7	21	Cuba
10.1	8.6	11.4	21.5	23.8	19.1	39.0	34.4	43.4	7.0	7.0	6.0	1.3	10	Dominican Republic
8.7	8.6	8.8	24.5	25.2	23.7	...	...	...	7.0	7.0	6.0	1.5	>95	Haiti
8.4	8.2	8.6	17.6	19.9	15.2	25.7	23.1	28.1	9.0	9.4	8.7	1.8	10.1	Andean Area
8.0	7.0	8.9	17.9	19.7	16.1	...	...	...	9.0	10.0	9.0	2.0	20	Bolivia (Plurinational State of)
8.5	8.3	8.7	19.2	21.5	16.9	44.0	38.8	48.9	10.0	11.0	10.0	1.5	8	Colombia
8.0	7.5	8.5	17.9	19.8	16.0	27.2	24.6	29.7	8.0	8.0	7.0	1.5	<5	Ecuador
7.7	7.2	8.1	13.7	16.1	11.2	...	...	...	8.0	8.0	7.0	2.4	25	Peru
9.5	9.9	9.0	18.6	21.5	15.7	31.4	29.5	33.3	9.0	9.0	9.0	1.6	<5	Venezuela (Bolivarian Republic of)
8.7	8.3	9.0	23.0	26.8	19.3	44.3	38.6	49.7	9.5	10.2	9.3	1.2		Southern Cone
9.7	9.9	9.5	22.6	27.6	17.6	41.6	37.6	45.3	8.0	8.0	7.0	1.2	<5	Argentina
8.3	7.8	8.7	23.3	26.7	19.9	47.0	40.4	53.3	10.0	11.0	10.0	1.1	<5	Brazil
10.5	10.2	10.8	20.9	25.4	16.5	26.6	24.4	28.6	7.0	7.0	7.0	2.1	8	Chile
8.1	8.0	8.3	24.6	27.8	21.3	37.4	38.1	36.8	11.0	11.0	10.0	1.1	34	Paraguay
9.5	9.1	9.8	20.7	24.7	16.8	22.4	18.7	25.7	7.0	7.0	7.0	-	<5	Uruguay
11.9	9.9	13.7	23.1	25.5	20.7	31.0	24.7	37.1	6.1	6.6	6.0	1.8		Non-Latin Caribbean
11.5	9.9	13.0	23.4	26.4	20.4	...	...	...	7.0	7.0	6.0	1.8	<5	Antigua and Barbuda
12.5	11.2	13.7	20.9	25.2	16.8	43.3	30.0	55.6	8.0	8.0	7.0	1.8	<5	Bahamas
12.2	10.5	13.7	24.4	27.0	21.7	42.9	29.3	54.9	9.0	9.0	8.0	2.2	<5	Barbados
11.1	8.5	13.6	22.5	25.7	19.4	21.6	13.4	29.8	7.0	7.0	7.0	1.8	9	Dominica
11.1	8.8	13.3	24.3	26.8	21.6	28.7	21.9	35.4	7.0	7.0	6.0	2.2	<5	Grenada
10.9	9.1	12.6	23.1	24.5	21.5	...	...	...	6.0	7.0	6.0	2.0	26	Guyana
11.9	9.3	14.4	21.8	24.5	19.2	32.6	28.4	36.6	5.0	5.0	5.0	1.3	10	Jamaica
14.5	12.7	16.3	25.3	27.9	22.7	32.2	24.1	40.4	...	...	...	1.2	<5	Saint Kitts and Nevis
14.5	13.7	15.1	27.1	29.9	24.4	39.8	26.6	52.1	7.0	8.0	7.0	2.1	<5	Saint Lucia
10.6	9.3	11.8	23.3	25.9	20.7	...	...	...	7.0	7.0	7.0	2.1	<5	Saint Vincent and the Grenadines
12.3	10.9	13.5	22.4	24.6	19.9	44.4	38.1	50.6	7.0	8.0	7.0	2.4	10	Suriname
11.7	10.4	13.0	25.8	27.6	23.9	38.2	27.2	48.6	7.0	8.0	7.0	2.2	<5	Trinidad and Tobago

DEMOGRAPHIC DATA

Population (2016): The estimated mid-year population size in both sexes combined for 2016, by country.

Methods of estimation

The population estimates were taken from the latest revision of the World Population Prospects, Revision 2017. Further details on the estimation methods are published in the World Population Prospects Report 2017 (1). Population estimates are regional and subregional levels were calculated by adding population estimates at country level for those countries included in each subregion.

MORTALITY DATA

Total number of deaths (2016): estimated number of deaths due to all-causes, by country in 2016.

NCD deaths (2016): estimated number of deaths due to all NCDs, by sex, by country.

Proportion of deaths due to NCDs (2016): percentage of NCD deaths from the total number of deaths, by sex, by country.

- **All NCDs:** percentage of all NCD deaths from the total number of deaths.
- **Cardiovascular diseases:** percentage of deaths due to cardiovascular diseases from all NCD deaths.
- **Cancer:** percentage of deaths due to cancer from all NCD deaths.
- **Chronic respiratory diseases:** percentage of deaths due to chronic respiratory diseases from all NCD deaths.
- **Diabetes:** percentage of deaths due to diabetes from all NCD deaths.
- **Other NCDs:** percentage of NCD deaths, excluding the four main NCDs (cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases), from all NCD deaths.

Death rates (2016):

- **NCDs:** age-standardized all NCD death rates per 100,000 population by sex and by country.
- **Cardiovascular diseases:** age-standardized cardiovascular diseases death rates per 100,000 population by sex and by country.
- **Cancer:** age-standardized cancer death rates per 100,000 population by sex and by country.
- **Chronic respiratory diseases:** age-standardized chronic respiratory disease death rates per 100,000 population by sex and by country.
- **Diabetes:** age-standardized diabetes death rates per 100,000 population by sex and by country.
- **Suicide:** age-standardized suicide death rates per 100,000 population by sex and by country.

Premature deaths from all NCDs (2016): percentage of NCD deaths that occurred in people under 70 years of age from all NCD deaths.

Probability of premature NCD mortality (2016): unconditional probability of dying at exact ages of 30 to 70 years from any of the four main NCDs (CVD, cancer, diabetes, and chronic respiratory disease) expressed in percentage by sex and by country.

Methods of estimation

Noncommunicable disease mortality data were calculated based on the estimated number of deaths from the WHO Global Health Estimates (GHE) 2018 (2).

Estimated deaths by age, sex, cause of death, and year for 33 out of 35 PAHO Member States were extracted from the WHO GHE 2000-2016 comprehensive dataset (2). Dominica and Saint Kitts and Nevis were excluded because no estimates were available, as their populations are less than 90,000 persons. The WHO methods and data sources for the GHE estimates 2000-2016 are documented elsewhere (3). In summary, data from national vital statistics and mortality information systems reported to PAHO and WHO by national authorities are the main source. Mortality data were corrected to account for missing sex and age, and deaths were rescaled by sub-registration. Cause of death data quality issues due to diagnostic and coding accuracy were adjusted using death distribution methods. For instance, deaths with underlying causes of death coded to ill-defined and garbage codes are redistributed to well-defined causes and mapped to the GHE cause of death list (3).

Noncommunicable diseases comprise all deaths with an underlying cause of death in Group II of the GHE list of causes. The four major NCD deaths are those with the underlying cause of death coded as cardiovascular diseases (I00-I99), cancer (C00-C97), diabetes (E10-E14) and chronic respiratory diseases (J30-J98), according to the International Classification of Diseases, 10th Revision (ICD-10) and their mapping to the GHE cause of death list (3).

Age-standardized NCD death rates, age-standardized death rates from the four main NCDs and age-sex-specific death rates by country for the year 2016 were calculated using World Population Prospects, 2017 Revision database (4) for countries with population size 90,000 and over, and the International Database from the US Census Bureau (5) for countries and territories with populations less than 90,000. The WHO World Standard Population (6) was used to calculate the age-standardized mortality rates by the direct method.

Premature mortality from NCDs, using the unconditional probability of dying between ages 30 and 70 years from any of the four main NCDs, was estimated for 2016 using age-specific death rates (in 5-year age groups, e.g. 30-34 ... 65-69, for those between 30 and 70 years) of the combined four main NCDs, for

each Member State (2). Using the life table method, the risk of death between the exact ages of 30 and 70 years, from any of the four NCDs and in the absence of other causes of death, was calculated as described below.

Five-year death rates were calculated using the equation below:

$${}_5M_x = \frac{{}_5D_x \text{ from 4 NCDs between exact age (x) and age (x+5)}}{{}_5P_x}$$

Five-year death rates were then translated into the probability of death for each NCD using the following formula:

$${}_5q_x = \frac{5 \times {}_5M_x}{1 + 2.5 \times {}_5M_x}$$

And the unconditional probability of death, for the 30-70 age range, was calculated using the formula:

$${}_{40}Q_{30} = 1 - (1 - {}_5q_{30}) \times (1 - {}_5q_{35}) \times \dots \times (1 - {}_5q_{65})$$

Suicide death rates were calculated from the estimated total number of suicide deaths per 100,000 population, using ICD 10 codes: X60–X84, Y87.0.

All mortality indicators were calculated at regional and subregional levels applying the corresponding method of calculation of the indicator using the aggregated number of deaths and respective aggregated population for those countries and territories in each sub-region.

RISK FACTORS

Prevalence estimates are age-standardized for the risk factors defined below:

- **Total alcohol per capita consumption (APC), in liters of pure alcohol** (2018): total (sum of recorded APC and unrecorded APC) amount of alcohol consumed per person (15 years and older) over a calendar year, adjusted for tourist consumption, in liters of pure alcohol.
- **Insufficient physical activity** (2016): the percentage of the population aged 18 years and older who were physically inactive – defined as not meeting the WHO recommendations on physical activity for health: 150 minutes of moderate-intensity physical activity per week or 75 minutes of vigorous-intensity physical activity per week or an equivalent combination of moderate- and vigorous-intensity physical activity.
- **Salt intake** (2010): the mean population salt intake in grams per day among adults aged 20 years and older.
- **Current tobacco smoking** (2017): the percentage of the population aged 15 years and older who smoke any tobacco products.

- **Current tobacco use** (2016): the percentage of the student population aged 13 to 15 years who smoked cigarettes on one or more days, or smoked any tobacco product other than cigarettes, or used any smokeless tobacco product in the past 30 days prior to the survey.
- **Raised blood pressure** (2015): the percentage of the population aged 18 years and older having systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg.
- **Raised blood glucose** (2014): the percentage of the population aged 18 years and older who have a fasting plasma glucose of 7.0 mmol/L or higher, or a history of a diagnosis of diabetes, or use of insulin or oral hypoglycemic drugs.
- **Obesity** (2014):
 - **adults**: the percentage of the population aged 18 years and older having a body mass index (BMI) ≥ 30 kg/m².
 - **adolescents**: the percentage of the population aged 10–19 years who are more than 2 SD above the median of the WHO growth reference for children and adolescents.
- **Overweight** (2016):
 - **adults**: the percentage of the population aged 18 years and older having a body mass index (BMI) ≥ 25 kg/m².
- **Ambient air pollution** (2016): the exceedance of the WHO guideline level for the annual mean concentration of particles of ≤ 2.5 micrometers in the air (proportion).
- **Household air pollution** (2016): the percentage of the population with primary reliance on polluting fuels and technologies.

Methods of estimation

The primary data source for the estimates for total alcohol per capita consumption (APC) was government data on recorded alcohol per capita consumption supplied by the respective country. If these data were not available, data from economic operators and the Food and Agriculture Organization of the United Nations statistical database (FAOSTAT) were used. The total per capita consumption of alcohol in 2016 was calculated from a three-year average of recorded (for 2015, 2016, and 2017) per capita consumption and applying unrecorded proportion (for 2016) and tourist consumption (for 2016) of tourists visiting the country and inhabitants visiting other countries. For male and female per capita consumption, the proportion of alcohol consumed by men versus women, and the UN Population Division population estimates for 2016 (4), were used. Further details on the estimation methods can be found in the corresponding publication (7).

For physical inactivity, age-standardized estimates are based on data pooled from population-based surveys, which included self-reported data on physical activity at work, at home, for transport, and during leisure time. Regression models were used to adjust survey data to a standard definition and standard age groups. In order to derive a standard year, time trends were estimated

using multilevel mixed-effects modeling. Full methodological details have been published elsewhere (8).

Age-standardized estimates for sodium intake (grams per day) were estimated using hierarchical Bayesian estimation models based upon available data from urine-based and diet-based national and regional surveys. The full methodology has been published (9). The sodium intake estimates were then converted to salt intake estimates by multiplying by 2.54.

Age-adjusted prevalence for current tobacco smoking was estimated using data from national surveys that met the following criteria: i) that the survey provided national summary data for one or more of four tobacco use definitions – daily tobacco smoker, current tobacco smoker, daily cigarette smoker, or current cigarette smoker; ii) that the survey included randomly selected participants who were representative of the national population; and iii) that the survey presented prevalence rates by age and sex. Countries with no surveys, or insufficient surveys (e.g. only one survey in total, or no survey during the previous 10 years), were excluded from the analysis. Regression models were run at the UN subregional level to obtain age-and-sex-specific prevalence rates for current tobacco smoking for the years 2010–2025 (10).

Age-adjusted estimates for raised blood pressure, raised blood glucose, and obesity were based on aggregated data provided by countries to WHO or obtained through a review of published and unpublished literature. The inclusion criteria for estimation analysis stipulated that data had to come from a random sample of the general population, with clearly indicated survey methods and risk factor definition. Detailed estimation methods have been published elsewhere (11, 12, 13).

The indicator of exposure to outdoor air pollution was estimated by dividing the annual mean concentration of fine particulate matter (particles with diameters ≤ 2.5 micrometers) (PM_{2.5}) in a country by the recommended annual mean concentration level of PM_{2.5} found in WHO Air Quality Guidelines: Global Update 2005 (14). Country level estimates of PM_{2.5} were derived using a mathematical model that used ground-level measurements of PM compiled in the WHO outdoor air pollution database (15), data from satellite remote sensing, and other demographic data (16).

The proportion of the population in a country relying mainly on polluting fuels and technologies for cooking was used as a proxy indicator for estimating population exposure to household air pollution. Current households using mainly coal, wood, charcoal, dung, crop residues, and kerosene are considered exposed. Information on the types of fuels and technologies used by households for cooking has been regularly reported in household surveys or census and compiled in the WHO household energy database (17). The data were further modeled to derive point estimates by county and year at the national, urban and rural levels (17).

For the NCD risk factors, the regional prevalence was obtained from WHO, where available, and based on the estimation methods reported by WHO. Where not available, regional prevalence and subregional prevalence were calculated by applying the population-weighted average method to the national estimates and the corresponding population for the year 2016.

- 1) United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Methodology of the United Nations Population Estimates and Projections, Working Paper No. ESA/P/WP.250. New York: United Nations.
- 2) Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization; 2018. (https://www.who.int/healthinfo/global_burden_disease/estimates/en/, accessed 21 March 2018).
- 3) WHO methods and data sources for global causes of death, 2000-2016. Department of Information, Evidence and Research World Health Organization, Geneva March 2018. (http://terrance.who.int/mediacentre/data/ghe/GlobalCOD_method_2000_2016.pdf?ua=1, accessed 4 February 2019).
- 4) UN. Department of Economic and Social Affairs. World Population Prospects – 2017 revision. New York: United Nations Population Division; 2017. (<https://esa.un.org/unpd/wpp/>, accessed 17 August 2018).
- 5) US Census Bureau. International Data Base (IDB). August 2017. (<https://www.census.gov/data-tools/demo/idb/informationGateway.php>, accessed 21 May 2018)
- 6) Ahmad OB, Boschi-Pinto C, Lopez AD, et al. Age standardization of rates: a new WHO standard—GPE Discussion Paper Series: No. 31. World Health Organization 2001. (<http://www.who.int/healthinfo/paper31.pdf>, accessed 21 May 2018)
- 7) Manthey J, Shield K, Rylett M, Hasan O, Probst C, Jürgen R. Global alcohol exposure between 1990 and 2017 and forecasts until 2030: a modelling study. *Lancet*. 2019; 393(10190):2493-2502. doi: 10.1016/S0140-6736(18)32744-2
- 8) Guthold R, Stevens GA, Riley LM, Bull FC. Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *Lancet Global Health*. 2018. DOI: 10.1016/S2214-109X(18)30357-7.
- 9) Powles J, Fahimi S, Micha R et al. Global, regional and national sodium intakes in 1990 and 2010: a systematic analysis of 24h urinary sodium excretion and dietary surveys worldwide. *British Medical Journal*. 2013;3(12):e003733. doi:10.1136/bmjopen-2013-003733.
- 10) WHO global report on trends in prevalence of tobacco smoking 2000–2025, second edition. Geneva: World Health Organization; 2018. (<http://www.who.int/tobacco/publications/surveillance/trends-tobacco-smoking-second-edition/en/>, accessed 16 August 2018).
- 11) NCD-RisC. Worldwide trends in blood pressure from 1975 to 2015: a pooled analysis of 1479 population-based measurement studies with 19.1 million participants. *Lancet*. 2016;389(10064):37–55. doi:10.1016/S0140-6736(16)31919-5.
- 12) NCD-RisC. Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4.4 million participants. 2016. *The Lancet* 387 (10027), 1513–1530.
- 13) NCD-RisC. Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies with 128.9 million participants. *Lancet* 2017.
- 14) WHO Air Quality Guidelines: Global update 2005. Copenhagen: World Health Organization Regional Office for Europe; 2006. (http://www.who.int/phe/health_topics/outdoorair/outdoorair_aqg/en/, accessed 17 August 2018).
- 15) WHO Global Ambient Air Quality Database. Geneva: World Health Organization. (<http://www.who.int/airpollution/data/cities/en/>, accessed 17 August 2018).
- 16) Ambient air pollution: A global assessment of exposure and burden of disease. Geneva, World Health Organization, 2016.
- 17) WHO Household energy database. Geneva: World Health Organization. (<http://www.who.int/airpollution/data/household-energydatabase/en/>, accessed 17 August 2018).



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