Priority health conditions and life expectancy disparities

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Abstract

Identifying conditions behind health disparities can guide policy, planning, and financing to battle the most urgent health problems. This study examined the impact of 145 causes of death on life expectancy disparities, highlighting the impact of two sets of "priority conditions"—eight infectious and maternal and child health conditions ("I-8") and seven noncommunicable diseases and injuries ("NCD-7")—across 184 countries and nine geographic regions, 2000–2021. Western Europe and Canada (the "North Atlantic") were used as a benchmark for life expectancy achievable with advanced health care and living standards. Life expectancy gaps were decomposed by cause of death using Pollard's decomposition on the Global Health Estimates from the World Health Organization. The priority conditions accounted for over 70% of the life expectancy gap compared to the North Atlantic in most regions and countries. Outside sub-Saharan Africa, the NCD-7 accounted for the largest share (eg, 82% in China and 49% in India). Only a few conditions not considered priority conditions had any substantial impact, and only in specific contexts. However, COVID-19 increased disparities. The varying impact of specific priority conditions can help focus health policy and guide interventions to reduce risk factors and treat conditions.

Keywords: Life expectancy decomposition; causes of death; priority setting

Introduction

Advances in public health and medicine, together with rising living standards, have greatly improved health, as reflected, for example, in largely uninterrupted gains in life expectancy over the past two centuries.[1,2] However, large health disparities suggest highly uneven improvements across countries. For example, while life expectancy at birth is 82 years in Western Europe, it is 62 years in sub-Saharan Africa.[3] Limited capacity to finance and mobilize resources leaves full coverage of vital services out of reach for many countries.[4] A focus on a limited number of highly cost-effective interventions targeted at conditions with a large or rising impact on health is more feasible.[5–8]

Here, we quantified how much 145 causes of death available in the Global Health Estimates (GHE) from the World Health Organization (WHO) contributed to the life expectancy gap in global regions and countries compared to the North Atlantic (Western Europe and Canada)—which serves as a benchmark for a life expectancy that is achievable with high living standards and advanced health care. We highlight the impact of two sets of causes which are suggested "priority conditions" by the third *Lancet* Commission on Investing in Health:[9] 1) eight infectious and maternal and child health conditions and 2) seven important noncommunicable diseases (NCDs) and injuries.

Life expectancy serves as a reliable summary health indicator that reflects the composite impact of most adverse health exposures and morbidities on population health, including both acute exposures, such as deadly infections and injuries, and an accumulation of adverse

exposures over the life course, such as nutrition, environmental contaminants, morbidities, and health behaviors.[10]

Data and methods

Data

Data on number of deaths by cause came from the WHO's GHE (see appendix pp 2–3 for more details).[11,12] Deaths were reported by age and sex for 204 countries over the period 2000–2021. Five-year age groups were used for ages 5–84, with an open-ended group for 85 and older. Deaths before age five were estimated for two age groups: 0–11 months and 1–4 years.

We multiply the proportion of all deaths from each cause within each age interval from the WHO GHE by the corresponding all-cause age-specific mortality rate from the United Nations (UN) World Population Prospects (WPP) 2024.[3] Therefore, the life expectancy and gaps presented in this paper will be the same as those provided by the UN. We used life tables with single year age intervals for ages 0–100+ from the UN WPP and estimated the causes specific mortality rates using the same cause-proportions for all single-year ages within the broader WHO GHE age intervals.

The first eight priority conditions include a set of infectious diseases, maternal deaths, and conditions causing the most child deaths (collectively referred to as the I-8).[5] These were:

1) Neonatal conditions
2) Lower respiratory infections
3) Diarrheal diseases
4) HIV/AIDS
5) Tuberculosis
6) Malaria

7) Childhood-cluster diseases: Whooping cough, Diphtheria, Measles, Tetanus
8) Maternal conditions

Seven NCDs and injuries (NCD-7) were also highlighted as priority conditions:

1) Atherosclerotic cardiovascular diseases (ischemic heart disease, ischemic stroke)
2) Hemorrhagic stroke
3) NCDs strongly linked to infections (stomach cancer, liver cancer secondary to hepatitis B, liver cancer secondary to hepatitis C, cervical cancer, rheumatic heart disease, cirrhosis due to hepatitis B, cirrhosis due to hepatitis C)
4) NCDs strongly linked to tobacco use (mouth and oropharynx cancer; trachea, bronchus, and lung cancer; larynx cancer; chronic obstructive pulmonary disease)
5) Diabetes (diabetes mellitus, chronic kidney disease due to diabetes)
6) Road injury
7) Suicide (self-harm)

Collectively, these 15 priority conditions reflect 30 causes of death as defined in the WHO GHE data (items in parentheses above: see table on page 3 in the appendix). The other 115 causes of death are referred to as "all other causes."

Methods

We used regional classifications from the third *Lancet* Commission on Investing in Health, consisting of seven geographic regions and the three most populous countries, China, India, and the United States (appendix p 4). We focus on 2019 to avoid distortions due to COVID-19 and show results for 2000 for comparison across time. (Supplement 2 provides results for all countries 2000–2021 by sex and overall.)

We decomposed the difference in life expectancy between the North Atlantic and target locations (ie, other regions and countries of interest) into components (in terms of years) attributable to the 145 causes of death. The North Atlantic in 2019 was used, even when analyzing other years in the target locations, to facilitate comparisons across time. The North

Atlantic was chosen since it had the greatest life expectancy (82 years[3]) of the regions highlighted in the third *Lancet* Commission on Investing in Health.

We used Pollard's decomposition method to quantify the contribution of each cause to the total life expectancy gap.[13,14] The formulas described here apply specifically to life tables with a radix of one and single-year age intervals.

$$C_i = \sum_{x=1}^{100+} w_x({}_n m_{x,i} - {}_n \ddot{m}_{x,i})$$

Component C_i shows the gap in life expectancy attributable to cause *i*, and is calculated as the difference in the cause-specific mortality rate at age *x* to *x+n* between the target location (${}_n m_{x,i}$) and the North Atlantic (${}_n \ddot{m}_{x,i}$), multiplied by a weight w_x representing the contribution of deaths at age *x* to the overall life expectancy gap, summed across all ages 0–100+.

The weight w_x is calculated as:

$$w_x = \frac{l_x \ddot{e}_x + \ddot{l}_x e_x + l_{x+1} \ddot{e}_{x+1} + \ddot{l}_{x+1} e_{x+1}}{4}$$

where e_x is life expectancy at age *x* and l_x is the proportion of the original cohort surviving to age *x* in the target location, with two dots over a letter indicating the same measures for the North Atlantic. For age *x=100+*, the weight is calculated as:

$$w_{100+} = \frac{\ddot{T}_{100+}/M_{100+} + T_{100+}/\ddot{M}_{100+,i}}{2}$$

where T is the number of years contributed after age *100* and M is the all-cause mortality rate at age 100+. The sum of C_i over all causes of death is the total gap in life expectancy between the target location and the North Atlantic.

To facilitate the presentation of results, we removed causes that had a negative impact, which occurred when the target location had achieved lower cause-specific mortality rates than the North Atlantic. However, after this adjustment, adding the impact of all causes together could result in a total impact greater than the actual life expectancy gap. Therefore, we projected the estimated proportional impact of each cause (after removing negative impacts) back onto the life expectancy gap. (Supplement 2 provides results with negative impacts included.)

Supplementary analyses

We present summary statistics on the extent to which the priority conditions accounted for life expectancy disparities across 184 countries with lower life expectancy than the North Atlantic. We also show results using two alternative decomposition methods: Arriaga's[15] method and a method based on counterfactual age-specific mortality rates[16] (see appendix p 6 for description of methods). Finally, we provide estimates for all causes, regions, and countries, 2000–2021, by sex and overall.

Data availability

Global Health Estimates are available from the World Health Organization upon request. The UN WPP 2024 are available online at https://population.un.org/wpp/.

Code availability

All codes used in this paper is available at https://github.com/O-Karlsson/Priority-health-conditions-and-life-expectancy-disparities/.

Results

Regions and selected countries in 2000 and 2019

In 2000, sub-Saharan Africa had a 31-year life expectancy gap compared to the (2019) North Atlantic benchmark (figure 1 and table 1). Higher mortality from I-8 accounted for 21 of those years (67% of the total gap). Meanwhile, higher mortality from the NCD-7 accounted for 4.4 years (14%). By 2019, the life expectancy gap for sub-Saharan Africa had declined to 22 years—11 (50%) of which were attributable to I-8 and 5 (23%) to NCD-7. Central Asia had had a nearly even split between I-8 and NCD-7, with 8.1 years (39%) of a 21-year gap explained by I-8 and 8.4 (40%) by the NCD-7 in 2000. In 2019, the life expectancy gap there had declined to 15 years, less of which was explained by I-8 (4.2 years, 29%) and more by the NCD-7 (7.1 years, 48%). In 2000, India had a life expectancy gap of 20 years, 11 (55%) explained by I-8 and 5.2 (27%) attributable to mortality from NCD-7. In 2019, the life expectancy gap in India had declined to 12 years, of which 3.4 (29%) were attributable to I-8 and 5.6 (49%) to NCD-7.

In Western Pacific & Southeast Asia, 5.3 years (41%) of a 13-year life expectancy gap were attributable to I-8 and 5 (39%) to NCD-7 in 2000. In 2019, the life expectancy gap was 7.4 years, 2.1 years (28%) explained by I-8 and 3.7 (50%) by NCD-7. In Latin America & the Caribbean, the life expectancy gap was 11 years in 2000, 2.5 years (22%) accounted for by I-8 and 4.8 (42%) by NCD-7. The gap was 7 years in 2019, 1.4 years (20%) due to I-8, and 2.8 (40%) due to NCD-7. In the Middle East & North Africa, the life expectancy gap was 13 years in 2000, of which 2.6 years (20%) were attributable to I-8 and 7.1 years (56%) to NCD-7. That gap was 7.6 years in 2019, of which 1 year (13%) was attributable to I-8 and 4.6 years (60%) to the NCD-7.

In Central & Eastern Europe in 2000, I-8 accounted for 0.9 years (8.2%) of a 14-year gap, while the NCD-7 accounted for 9.2 years (66%). In 2019, the gap was 7.6 years, of which 0.5 years (7%) were accounted for by I-8 and 5.2 years (68%) by the NCD-7. In China, the I-8 explained 1.7 years (17%) of a 10-year life expectancy gap in 2000, while the NCD-7 accounted for 6.3 years (63%). In 2019, the life expectancy gap in China had declined to 4.3 years, with 0.2 years (4%) attributable to I-8 and 3.5 years (82%) to NCD-7. The United States had a 5.4-year gap in 2000, of which 0.3 years (6%) were explained by I-8 and 3.6 years (66%) by NCD-7. In 2019, the life expectancy gap was 3.3 years, 0.1 years (3%) due to I-8, and 1.5 years (44%) due to NCD-7.

A more detailed look at the causes behind the life expectancy gaps in 2019

In sub-Saharan Africa in 2019, where I-8 still explains half the total life expectancy gap, lower respiratory infections accounted for the largest share by individual cause (2.1 years, 9.6%; figure 2 and table 1). Tuberculosis accounted for 2 years (9.2%), HIV/AIDS for 1.6 years (7.5%), neonatal conditions for 1.5 years (7.1%), and diarrheal diseases for 1.4 years (6.5%). Maternal conditions accounted for 1.2 years (5.4%) for females in sub-Saharan Africa (appendix p 8).

In India in 2019 neonatal conditions and diarrheal diseases accounted for about 1 year (8%) of the life expectancy gap each. Lower respiratory infections and tuberculosis account for around 5% each, contributing 0.7 and 0.5 years, respectively. Further, in India in 2019—where the NCD-7 have risen in importance relative to the I-8 since 2000—atherosclerotic CVDs accounted for the largest share of the life expectancy gap, 2.1 years (18%), followed by tobacco-related NCDs (1.6 years, 14%; figure 3 and table 1). Hemorrhagic stroke, diabetes, and infection-related NCDs each contributed approximately 0.5 years (5%). In

China, atherosclerotic CVDs explained 1.2 years (27%) of the life expectancy gap. Hemorrhagic stroke accounted for 0.8 years (19%), tobacco-related NCDs for 0.7 years (17%), and infection-related NCDs for 0.5 years (11%).

Most I-8 had a reduced impact between 2000 and 2019 (table 1). In sub-Saharan Africa, the impact of HIV/AIDS, diarrheal diseases, malaria, tuberculosis, and childhood cluster diseases declined the most. In India, diarrheal diseases, neonatal conditions, and lower respiratory infections had the most significant decline in impact.

For NCD-7, the change in impact varied across locations and causes of death, with the impact of most causes decreasing over time. In general, there were no substantial increases in the impact of individual NCD-7 conditions in absolute terms, although the impact of atherosclerotic CVDs and diabetes rose somewhat in a few regions, for example, sub-Saharan Africa and India. Meanwhile, there were considerable declines in the impact of atherosclerotic CVDs in Central & Eastern Europe, Middle East & North Africa, and Latin America & the Caribbean. China had a substantial decline in the impact of tobacco-related NCDs, hemorrhagic stroke, and infection-related NCDs.

Country-level analysis

The percentage of life expectancy gap attributable to higher I-8 mortality ranged from 0 to 63% of the total gap across the 184 countries with lower life expectancy than the North Atlantic (with a median of 16%: figure 4 and appendix p 10 for tabulated estimates). The percentage share accounted for by higher mortality from the NCD-7 ranged from 13% to 82% across countries (with a median of 48%). The percentage share accounted for by both I-8 and

NCD-7 combined ranged from 30% to 89% across countries and was 72% in the median country.

Only in low-income countries was the median percentage share accounted for by I-8 greater than the NCD-7. There was a large positive correlation (r = 0.82) between the share accounted for by I-8 and the total gap in life expectancy across countries (appendix p 11).

Sex-specific results, alternative decomposition methods, and other important conditions

The impact of I-8 was substantially greater for females in India, primarily due to a larger impact from diarrheal diseases (0.7 years for males and 1.2 for females) and to a lesser extent due to lower respiratory infections and neonatal conditions (appendix pp 8 and 12). Maternal condition also had a notable impact in some regions, such as sub-Saharan Africa and Central Asia. The impact of NCD-7 was somewhat greater for females in sub-Saharan Africa (4.8 vs 5.3 years), primarily due to atherosclerotic CVDs (2.6 vs 3.1) and infection-related NCDs (0.6 vs 1).

Tuberculosis had a greater impact on males in sub-Saharan Africa. Overall, the life expectancy gap was much greater for males than females in Central & Eastern Europe (9.9 vs 5.4-year gap), partially due to atherosclerotic CVDs (4.2 vs 3.4 years) and tobacco-related NCDs (0.6 vs 0 years). Tobacco-related NCDs also had a somewhat bigger impact on males in Central Asia (1 vs 0.5 years). In addition, there was an impact of road injuries for males in some regions, for example, sub-Saharan Africa. Suicide was not a prominent explanatory factor in any region except somewhat for males in Central & Eastern Europe, 0.4 years (3.7%), and in the United States, 0.2 years (6%).

The North Atlantic had a 0.5- and 0.2-year decline in life expectancy between 2019 and 2021, for males and females, respectively (appendix p 13). The gap in life expectancy (compared to the North Atlantic in 2019) had grown considerably in the United States in 2021, to 6.3 years for males and 5.1 years for females, with COVID-19 explaining 1.7 years (27%) and 1.5 years (28%) of the total gap, respectively. Life expectancy in Latin America & the Caribbean, Central & Eastern Europe, and India was impacted by COVID-19 to a much greater extent than in the North Atlantic, increasing the life expectancy gap.

Results were highly similar when using different decomposition methods (appendix pp 15 and 17).

Here, we note all causes not included in the I-8 or NCD-7 that had an impact greater than either 0.5 years or 10% of the total gap in life expectancy in 2019 in the six regions and three countries highlighted. Interpersonal violence accounted for 1.3 years (17% of the total life expectancy gap) for males in Latin America & the Caribbean and 0.6 years (3.6%) in sub-Saharan Africa (appendix p 19). (Interpersonal violence contributed 3 of a 13-year gap for males in El Salvador; the highest globally: see Supplement 2.) In the United States, drug use disorders accounted for 0.5 years (15%) for males and “Alzheimer disease and other dementias” accounted for 0.4 years (12%) for females. Hypertensive heart disease had an impact of 0.8 years (3.6%) for females in sub-Saharan Africa and 0.5 years (6.8%) in the Middle East & North Africa. “Cardiomyopathy, myocarditis, endocarditis” had an impact of 0.5 years (5.5%) for males in Central & Eastern Europe.

Discussion

In the six regions and the three most populous countries highlighted in this paper, mortality from the priority conditions, the I-8 and NCD-7, together accounted for almost 80% of the life expectancy disparity relative to the North Atlantic in most cases. The NCD-7 commonly accounted for over half the total gap in 2019. We observed an impressive decline in the impact of I-8 in sub-Saharan Africa 2000–2019, which drove a large overall decline in the life expectancy disparity. Meanwhile, the impact of NCD-7 rose. Further, India transitioned from having most of the disparity attributable to deaths from I-8 in 2000 to having a larger share explained by NCD-7 in 2019. The NCD-7 and I-8 together accounted for over 70% of the life expectancy disparity in most countries.

Among the 115 causes not among the I-8 and NCD-7, hardly any had a large impact (or more than 10% or 0.5 years of the total life expectancy gap), which underscores the importance of relatively few priority conditions. However, interpersonal violence had a large impact for males in Latin America & the Caribbean, and drug use disorder had a considerable impact in the United States. (However, by 2021, the COVID-19 pandemic had put most regions further behind the North Atlantic, especially India, Latin America & the Caribbean, and Central & Eastern Europe.)

Our results highlight the importance of ensuring coverage of the most essential health interventions aimed at the 15 priority conditions for improving population health. The WHO suggested that in 2021, 4.5 billion people were not covered by essential health services[17,18] and that current health expenditure is far below what is needed to provide these.[4,19,20] The World Bank estimated that even with favorable policies and economic growth, the financing gap in low and middle-income countries would only be reduced by about a third by 2030.[4] In settings with severely constrained finances, covering a limited number of critical

interventions addressing the most urgent health problems might be more financially and administratively feasible, without sacrificing population health gains.[5]

The priority conditions are prominent or rising health concerns with known determinants and cost-effective solutions.[5,21] The relative impact of each cause on life expectancy disparities can guide policy emphasis, planning, and the allocation of additional health spending. Of the causes highlighted in this paper, atherosclerotic CVDs accounted for the largest share of the life expectancy gap in all regions except sub-Saharan Africa (where it also accounts for a substantial and increasing share). The importance of atherosclerotic CVDs highlights the need for improving diagnosis of hypertension[22] and medical interventions (eg, statins) and behavioral interventions (eg, reduced smoking, improved diet, and increased physical activity) to delay mortality from these causes.[23] Preventative interventions for diabetes, such as taxation of sugary drinks,[24] and improved diagnosis and treatment,[25] can be implemented to combat the considerable and rising relative impact of diabetes in some regions.

The significant effect of tobacco-related NCDs in China and India suggests that gains can be made through tobacco control, for instance, by legislation restricting smoking[26] and taxation.[7] However, in both China and India, smoking is much more prevalent among males (while both prevalence and sex differences are smaller in the North Atlantic). Still, the impact of tobacco-related NCDs was similar for males and females in China and greater for females in India, which may suggest that other factors, such as outdoor[27] and indoor[28] air pollution, may play a role.

An expansion of maternal and child health interventions (especially prevention of diarrhea, neonatal conditions, and lower respiratory infections) and tuberculosis interventions remains essential in sub-Saharan Africa, India, Central Asia, and Western Pacific & Southeast Asia.

Since childhood deaths often result from repeated adverse exposures, an intervention aimed at reducing deaths from one condition can also indirectly reduce mortality from other causes.[29] Poor health in childhood can also have compounding effects on human development in terms of health,[30,31] physiological[32] and cognitive development[33] and schooling and income,[34] which in turn are linked to life expectancy.[35]

Some of the causes highlighted here contributed little to the life expectancy disparities. The relatively small impact of childhood-cluster diseases highlights the success of the widespread (although incomplete) distribution of vaccines.[36,37] For example, in sub-Saharan Africa, the impact of childhood-cluster diseases was considerable in 2000 (1.5 years) but had declined substantially by 2019 (to 0.4 years). Further, suicide had little (or, often, no) impact on life expectancy disparities since suicide is not particularly rare in the North Atlantic.[38] Suicide is also only the most extreme consequence of poor mental health, which is a rising health concern, and is associated with heightened mortality from a range of conditions, likely stemming from factors such as health behaviors, access to care, and socioeconomic factors.[39,40]

Previous studies have used the measures of amenable mortality—or deaths that could have been avoided with timely and effective care—to measure shortcomings in health.[41,42] Amenable mortality evidences a similar geographic distribution as the life expectancy disparities in this study and also suggests a greater need for addressing mortality from infectious diseases and maternal and child deaths at lower levels of development.[41] This study takes a more general approach using a more straightforward metric and benchmarks shortcomings to an outcome that has been achieved. However, studies using amenable mortality remind us that further improvements can be achieved even in our benchmark—the North Atlantic—by reducing avoidable deaths.

Some limitations and caveats should be kept in mind when interpreting these results. First, there are caveats related to using life expectancy to identify current shortcomings in health. Mortality often results from repeated or extended periods of adverse exposures (eg, smoking, diet, and early life infections and undernutrition) involving many interlinked factors. Since (period) life expectancy gives a snapshot of current age-specific mortality, this decomposition will not capture the impact of recent health interventions and changes in underlying risk factors that impact mortality rates with delays. For example, recent dramatic declines in tobacco use in India are likely to reduce the impact of tobacco-related NCDs in the future.[43] Therefore, the results from this paper should be viewed together with information on recent changes in underlying risk factors.

Second, there are limitations related to data quality. Data in countries without well-functioning vital registration systems relied on censuses, survey data (eg, sibling survival), and model life tables to estimate all-cause mortality; and various methods and sources for specific causes of death.[12] However, data quality issues were unlikely to be an underlying factor in driving the predominant importance of the priority conditions.

Conclusions

This study underscores the significant impact of 15 priority conditions on life expectancy disparities, with notable regional variations and transitions over time. The decline in deaths from I-8, particularly in sub-Saharan Africa, contrasts with the rising importance of NCD-7, highlighting the evolving nature of global health challenges. These findings emphasize the critical importance of focusing limited resources on the key conditions that contribute the most to poor health and health disparities.

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Role of the funding source

The funding sources played a role in the data collection and analysis, reporting and interpretation of results, or the decision to submit the manuscript for publication. Authors were not precluded from accessing data in the study, and they accept responsibility to submit for publication.

Compliance with ethical standards

This project used publicly accessible secondary aggregate data from the WHO and UN. These activities do not meet the regulatory definition of human subject research. As such, an Institutional Review Board review was not required.

Contributions

Omar Karlsson did data management, analysis, reporting, and wrote the manuscript. Dean Jamison and Omar Karlsson devised the conceptual idea of the paper. All authors provided critical feedback on the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Declarations of interest

None.

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Supplementary information

Supplements 1 and 2.

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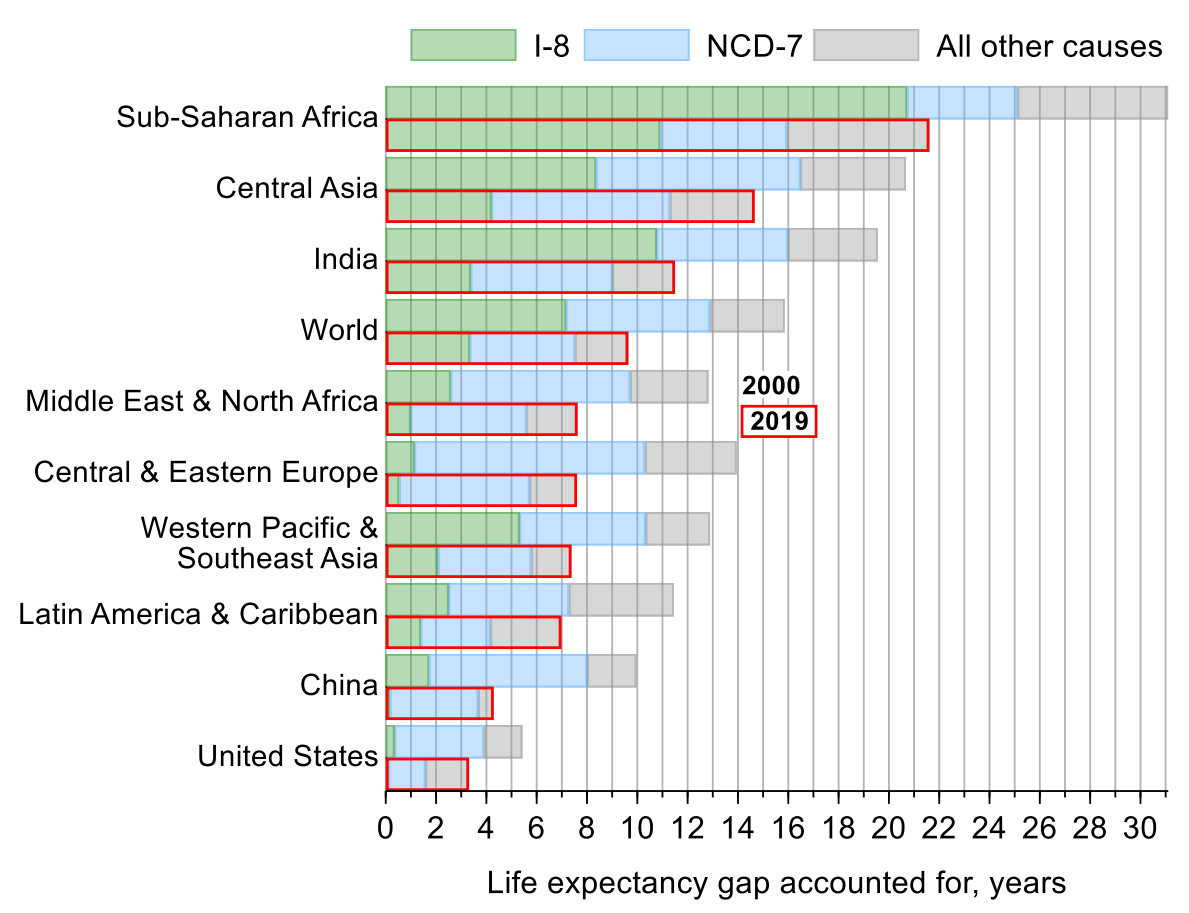
Table 1. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8 and NCD-7, 2000 and 2019

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Total gap	14	7.6	21	15	10.0	4.3	20	12	11	7.0	13	7.6	31	22	5.4	3.3	13	7.4
Total impact of NCD-7	9.2	5.2	8.1	7.1	6.3	3.5	5.2	5.6	4.8	2.8	7.1	4.6	4.4	5.0	3.6	1.5	5.0	3.7
	(66)	(68)	(39)	(48)	(63)	(82)	(27)	(49)	(42)	(40)	(56)	(60)	(14)	(23)	(66)	(44)	(39)	(50)
Atherosclerotic CVDs	6.3	3.9	4.2	3.8	1.1	1.2	1.7	2.1	2.0	1.1	4.4	3.0	1.1	1.4	2.0	0.6	1.5	1.2
	(45)	(51)	(20)	(26)	(11)	(27)	(8.5)	(18)	(18)	(15)	(34)	(39)	(3.7)	(6.6)	(37)	(18)	(11)	(16)
Hemorrhagic stroke	0.8	0.4	1.2	0.8	1.7	0.8	0.6	0.6	0.6	0.3	0.6	0.3	1.0	1.0	0.1	<0.1	1.2	1.0
	(5.7)	(4.7)	(5.6)	(5.7)	(17)	(19)	(3.2)	(5.0)	(5.6)	(4.1)	(5.0)	(3.4)	(3.2)	(4.7)	(2.7)	(1.5)	(9.5)	(13)
Tobacco-related NCDs	0.5	0.1	0.9	0.7	1.8	0.7	1.4	1.6	0.4	0.2	0.3	0.1	0.2	0.2	0.7	0.3	0.5	0.3
	(3.7)	(1.8)	(4.3)	(5.0)	(18)	(17)	(7.2)	(14)	(3.8)	(2.5)	(2.1)	(1.5)	(0.7)	(1.1)	(13)	(7.7)	(3.8)	(4.4)
Infection-related NCDs	0.5	0.3	1.1	0.8	1.0	0.5	0.7	0.5	0.5	0.2	0.9	0.5	0.7	0.8	0.1	0.1	0.9	0.5
	(3.7)	(4.0)	(5.2)	(5.5)	(9.6)	(11)	(3.4)	(4.2)	(4.1)	(3.2)	(7.0)	(6.6)	(2.4)	(3.6)	(1.1)	(1.9)	(6.8)	(7.1)
Road injury	0.4	0.2	0.3	0.3	0.5	0.2	0.4	0.3	0.4	0.3	0.5	0.3	0.7	0.7	0.3	0.2	0.5	0.3
	(3.2)	(2.4)	(1.4)	(1.9)	(4.8)	(5.4)	(1.8)	(2.4)	(3.8)	(4.4)	(4.2)	(4.1)	(2.3)	(3.4)	(6.3)	(6.2)	(4.0)	(4.4)
Diabetes	<0.1	0.1	0.5	0.6	0.1	0.1	0.3	0.5	0.8	0.7	0.4	0.5	0.5	0.8	0.2	0.2	0.4	0.4
	(0.2)	(1.5)	(2.3)	(4.4)	(1.4)	(2.2)	(1.5)	(4.2)	(6.8)	(10)	(3.3)	(6.0)	(1.7)	(3.5)	(3.9)	(5.2)	(2.8)	(5.3)
Suicide	0.6	0.2	0.1	0	0.1	0	0.2	0.1	0	0	0	0	0.1	0.1	<0.1	0.1	0.1	0
	(4.3)	(2.6)	(0.4)	(0)	(1.3)	(0)	(1.1)	(1.3)	(0)	(0)	(0)	(0)	(0.2)	(0.5)	(0.9)	(4.3)	(0.4)	(0)
Total impact of I-8	1.1	0.5	8.4	4.2	1.7	0.2	11	3.4	2.5	1.4	2.6	1.0	21	11	0.3	0.1	5.3	2.1
	(8.2)	(7.0)	(40)	(29)	(17)	(3.9)	(55)	(29)	(22)	(20)	(20)	(13)	(67)	(50)	(6.4)	(3.2)	(41)	(28)
Neonatal conditions	0.3	<0.1	3.1	1.9	0.8	0.1	2.6	1.0	0.8	0.4	1.2	0.5	2.1	1.5	0.1	0.1	1.3	0.5
	(2.2)	(0.4)	(15)	(13)	(7.6)	(1.4)	(13)	(8.6)	(7.4)	(5.5)	(9.2)	(6.3)	(6.7)	(7.1)	(2.4)	(2.1)	(10)	(7.4)
Lower respiratory infections	0.3	0.2	1.4	0.7	0.5	<0.1	1.4	0.7	0.8	0.7	0.7	0.3	2.7	2.1	0.1	0	1.1	0.5
	(2.4)	(2.0)	(6.6)	(4.5)	(5.2)	(0.7)	(7.1)	(5.7)	(6.6)	(9.3)	(5.4)	(4.2)	(8.6)	(9.6)	(1.7)	(0)	(8.3)	(7.4)
Diarrheal diseases	<0.1	0	1.4	0.5	0.1	<0.1	2.8	0.9	0.3	0.1	0.3	<0.1	2.6	1.4	0	<0.1	0.8	0.3
	(0.2)	(0)	(7.0)	(3.6)	(1.4)	(0.1)	(14)	(8.1)	(2.4)	(1.2)	(2.4)	(0.6)	(8.2)	(6.5)	(0)	(0.3)	(6.1)	(3.4)
Tuberculosis	0.3	0.1	1.0	0.5	0.2	<0.1	2.4	0.5	0.2	0.1	0.1	0.1	3.6	2.0	<0.1	0	1.4	0.5
	(2.2)	(1.3)	(4.9)	(3.4)	(1.7)	(0.7)	(12)	(4.8)	(1.9)	(1.1)	(1.1)	(0.8)	(12)	(9.2)	(0)	(0)	(11)	(6.4)

	Central & Eastern Europe		Central Asia		China		India		Latin America & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Malaria	0	0	<0.1	<0.1	0	0	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.3	1.3	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.4)	(0.2)	(0.1)	(0)	(0.2)	(0.1)	(7.2)	(5.9)	(0)	(0)	(0.3)	(0.2)
HIV/AIDS	0.1	0.2	0	0.1	<0.1	<0.1	0.5	0.1	0.3	0.2	<0.1	<0.1	5.1	1.6	0.1	<0.1	0.2	0.1
	(1.0)	(3.2)	(0)	(0.7)	(0.4)	(0.8)	(2.8)	(0.6)	(2.8)	(2.2)	(0.1)	(0.2)	(16)	(7.5)	(2.3)	(0.7)	(1.8)	(1.9)
Childhood-cluster diseases	<0.1	<0.1	1.1	0.3	0.1	<0.1	0.8	0.1	<0.1	<0.1	0.2	<0.1	1.5	0.4	0	0	0.3	0.1
	(0.1)	(0)	(5.2)	(1.8)	(0.8)	(0.1)	(3.9)	(1.0)	(0.2)	(0.2)	(1.2)	(0.5)	(4.7)	(2.0)	(0)	(0)	(2.5)	(0.8)
Maternal conditions	<0.1	<0.1	0.4	0.2	<0.1	<0.1	0.3	<0.1	0.1	<0.1	0.1	<0.1	0.9	0.6	<0.1	<0.1	0.1	<0.1
	(0.1)	(0)	(1.9)	(1.3)	(0.2)	(0.1)	(1.3)	(0.4)	(0.5)	(0.5)	(0.5)	(0.3)	(3.0)	(2.7)	(0.1)	(0.1)	(1.0)	(0.7)
Total impact of other causes	3.6	1.9	4.2	3.4	1.9	0.6	3.6	2.5	4.2	2.8	3.1	2.0	6.0	5.7	1.5	1.7	2.6	1.6
	(26)	(25)	(20)	(23)	(20)	(14)	(18)	(22)	(36)	(40)	(24)	(27)	(19)	(26)	(28)	(52)	(20)	(22)

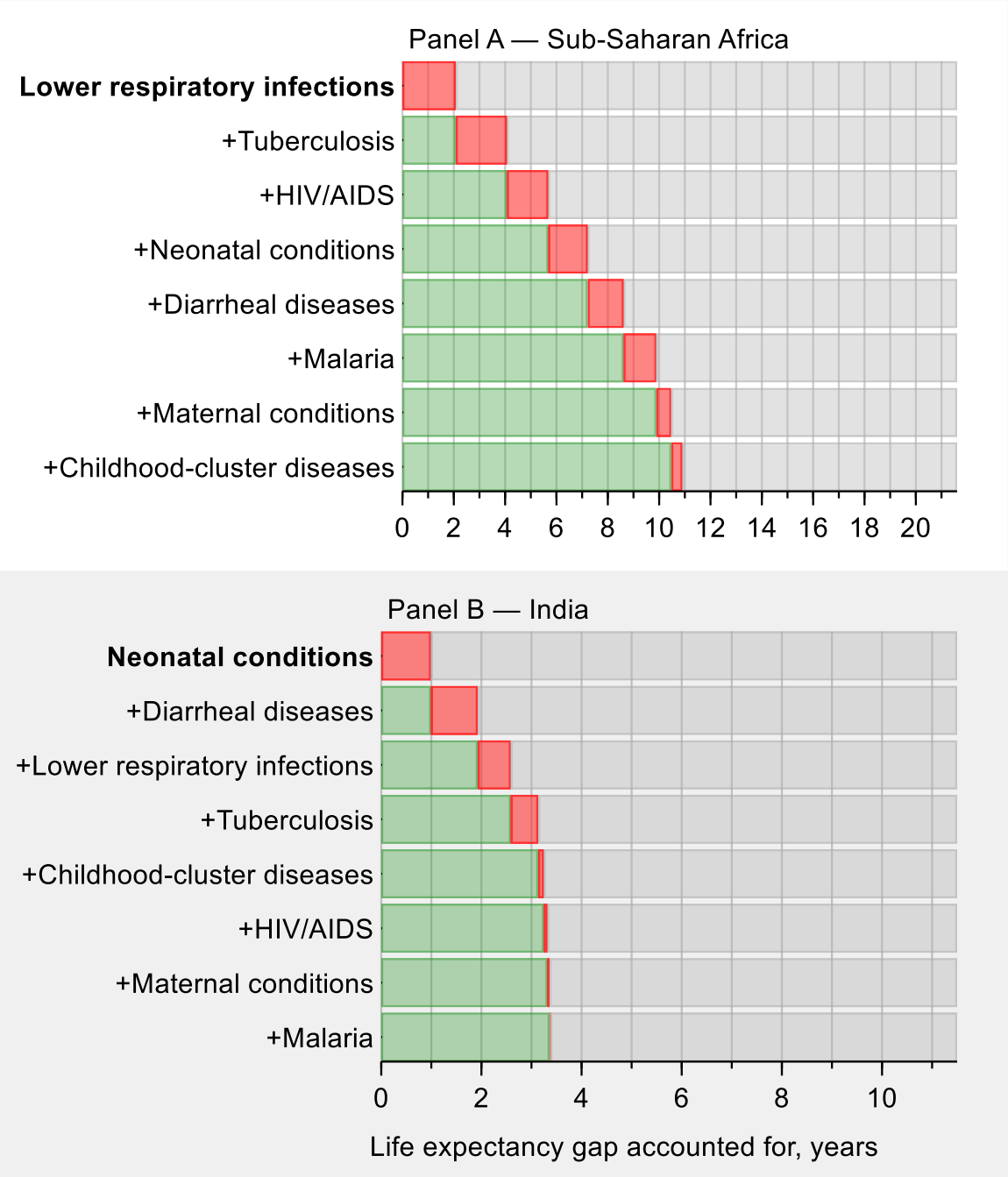
Note: Number of years are shown with the percentage of the total gap in parentheses below. Both 2000 and 2019 were compared to the North Atlantic in 2019 (which had a life expectancy of 82 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 3 and 11.

Figure 1. Life expectancy gap compared to the North Atlantic in 2019 attributable to sets of causes, 2000 and 2019



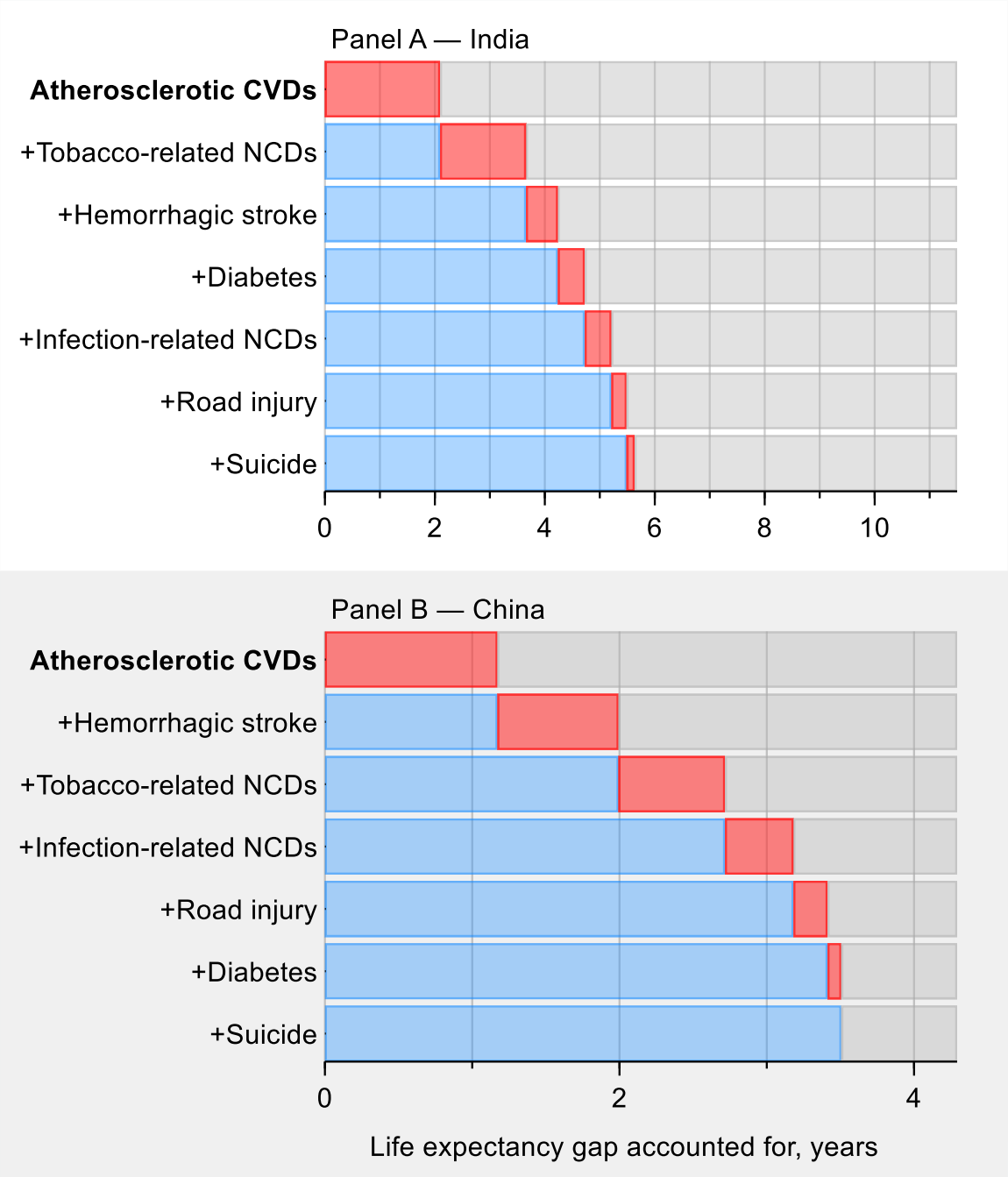
Note: Both 2000 and 2019 were compared to the North Atlantic in 2019 (which had a life expectancy of 82 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 3 and 11.

Figure 2. Life expectancy gap compared to the North Atlantic attributable to individual I-8: Sub-Saharan Africa and India, 2019



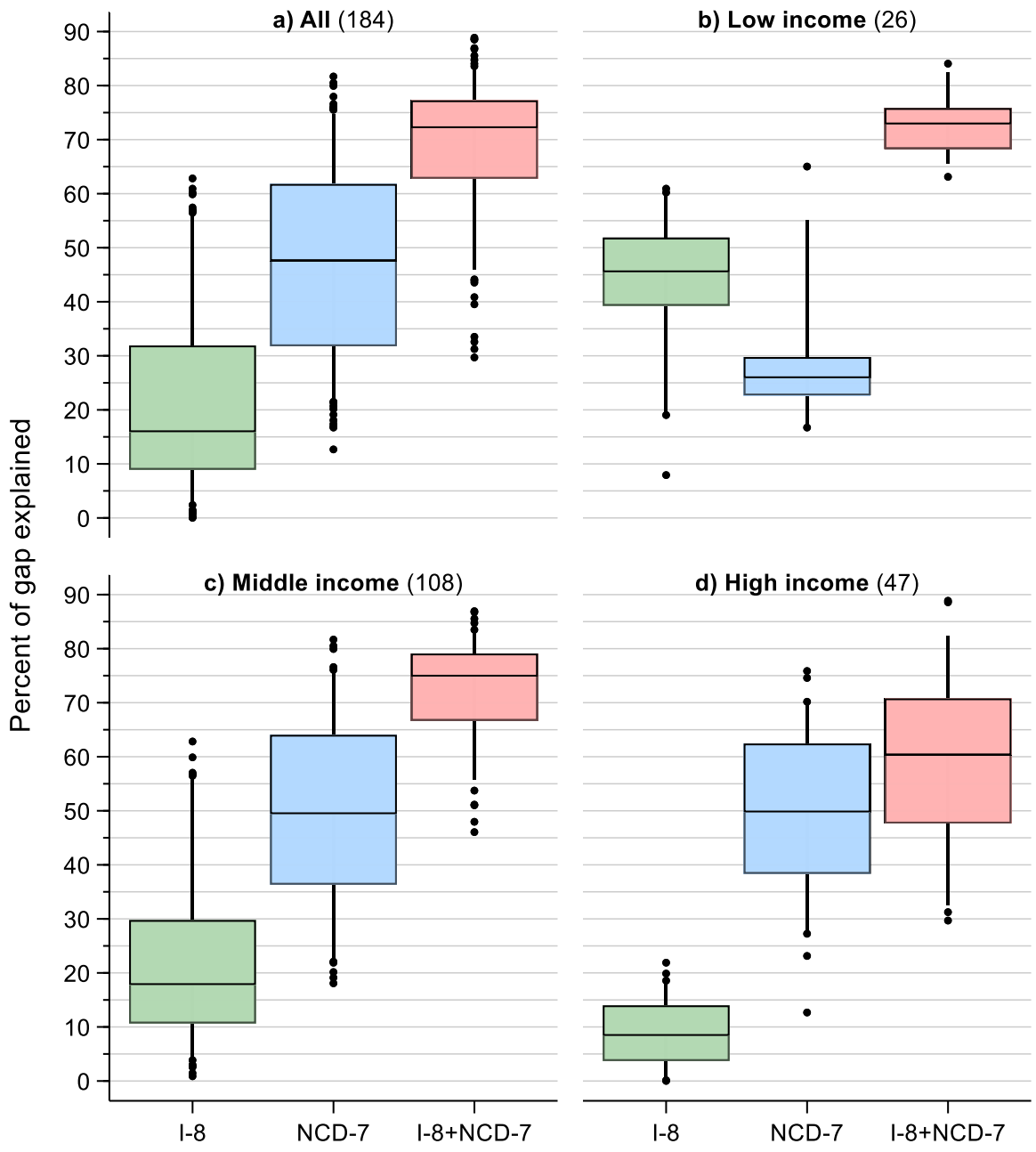
Note: Life expectancy in the North Atlantic was 82 years in 2019. The full bars show the total life expectancy gap. Red parts show life expectancy gap accounted for by the cause indicated on the y-axis. Green+red parts show the cumulative contribution of the causes indicated at and above each bar on the y-axis to the gap. Gray part shows the proportion not accounted for. Data from references 3 and 11.

Figure 3. Life expectancy gap compared to the North Atlantic attributable to individual NCD-7: India and China, 2019



Note: Life expectancy in the North Atlantic was 82 years in 2019. The full bars show the total life expectancy gap. Red parts show life expectancy gap accounted for by the cause indicated on the y-axis. Blue+red parts show the cumulative contribution of the causes indicated at and above each bar on the y-axis to the gap. Gray part shows the proportion not accounted for. Data from references 3 and 11.

Figure 4. Percentage of life expectancy gap compared to the North Atlantic attributable to I-8 and NCD-7: Distribution across countries, 2019



Note: Number of countries is shown in parentheses. Only countries with lower life expectancy than the North Atlantic (or 82 years) were included. Results are shown overall and by 2019 World Bank Income groups (three countries were not classified). Percentiles 5 and 95 (line) and 25, 50, and 75 (box) are shown. Dots indicate country estimates below percentile 5 and above percentile 95. Countries were equally weighted for descriptive statistics. See appendix p 10 for tabulated descriptive statistics. See supplement 2 for a dataset including all estimates. The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 3 and 11.

Priority health conditions and life expectancy disparities

Supplement 1

More Information on Global Health Estimates 2

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More Information on Global Health Estimates

The World Health Organization's (WHO) Global Health Estimates (GHE) contains the number of deaths by cause for each country, as collected by vital registration systems and death registers when available, or otherwise estimated using various data and methods.[1,2]

Deaths in the GHE are disaggregated into Levels 2, 3, and 4 (with Level 2 causes disaggregated into Level 3 causes and Level 3 causes into Level 4 causes). This paper mainly used Level 3 causes. Exceptions were Level 2 causes which were not disaggregated further—maternal conditions, an "other" category for neoplasms, diabetes mellitus, and sudden infant death syndrome—and Level 4 causes that were a part of the priority conditions—malaria (Level 4) from "parasitic and vector diseases" (Level 3), liver cancer secondary to hepatitis B and C from "liver cancer," cirrhosis due to hepatitis B and C from "cirrhosis of the liver," and chronic kidney disease due to diabetes from "kidney diseases." Deaths from all causes added up to the total number of deaths.

Some causes of death in the GHE data were aggregated further in the main results according to underlying risk factors and treatment. Therefore, the 15 priority conditions reflect 30 underlying causes of death as defined in the WHO GHE data (see table S1).

We project the proportion of all deaths from each cause in the GHE onto the all-cause mortality rate in the United Nations (UN) World Population Prospects (WPP) 2024,[3] since the UN WPP 2024 was used for most analyses in the *Lancet*'s third Commission on Investing in Health.

Table S1. Causes of death, according to the World Health Organization's Global Health Estimates (GHE) 2021, included in the I-8 and NCD-7 conditions.

I-8	**GHE causes of death**
1 Childhood-cluster diseases	Childhood-cluster diseases (whooping cough, diphtheria, measles, tetanus)
2 Diarrheal diseases	Diarrheal diseases
3 HIV/AIDS	HIV/AIDS
4 Lower respiratory infections	Lower respiratory infections
5 Malaria	Malaria
6 Maternal conditions	Maternal conditions
7 Neonatal conditions	Neonatal conditions
8 Tuberculosis	Tuberculosis
NCD-7	**GHE causes of death**
1 Atherosclerotic CVD[a]	Ischemic heart disease Ischemic stroke
2 Diabetes	Chronic kidney disease due to diabetes Diabetes mellites
3 Haemorrhagic stroke	Haemorrhagic stroke
4 Infection-associated NCDs[b]	Cervical cancer Cirrhosis due to hepatitis B Cirrhosis due to hepatitis C Liver cancer secondary to hepatitis B Liver cancer secondary to hepatitis C Rheumatic heart disease Stomach cancer
5 Road injury	Road injury
6 Strongly tobacco-associated NCDs[b]	Chronic obstructive pulmonary disease Larynx cancer Mouth and oropharynx cancer Trachea, bronchus, and lung cancer
7 Suicide	Self-harm

[a] Cardiovascular disease

[b] Noncommunicable diseases

Table S2: Regions

Central & Eastern Europe	Central Asia	Latin America & the Caribbean	Middle East & North Africa	North Atlantic	Sub-Saharan Africa	Western Pacific & Southeast Asia
Afghanistan	Albania	Antigua & Barbuda	Algeria	Andorra	Angola	American Samoa
Azerbaijan	Armenia	Argentina	Bahrain	Austria	Benin	Australia
Kazakhstan	Belarus	Bahamas, The	Egypt, Arab Rep.	Belgium	Botswana	Bangladesh
Kyrgyz Republic	Bosnia & Herzegovina	Barbados	Iran, Islamic Rep.	Bermuda	Burkina Faso	Bhutan
Mongolia	Bulgaria	Belize	Iraq	Canada	Burundi	Brunei Darussalam
Pakistan	Croatia	Bolivia	Israel	Cyprus	Cabo Verde	Cambodia
Tajikistan	Czechia	Brazil	Jordan	Denmark	Cameroon	Cook Islands
Turkmenistan	Estonia	Chile	Kuwait	Finland	Central African Republic	Fiji
Uzbekistan	Georgia	Colombia	Lebanon	France	Chad	Guam
	Hungary	Costa Rica	Libya	Germany	Comoros	Indonesia
	Latvia	Cuba	Morocco	Greece	Congo, Dem. Rep.	Japan
	Lithuania	Dominica	Oman	Greenland	Congo, Rep.	Kiribati
	Moldova	Dominican Republic	Qatar	Iceland	Côte d'Ivoire	Korea, Dem. People's Rep.
	Montenegro	Ecuador	Saudi Arabia	Ireland	Djibouti	Korea, Rep.
	North Macedonia	El Salvador	Syria	Italy	Equatorial Guinea	Lao PDR
	Poland	Grenada	Tunisia	Luxembourg	Eritrea	Malaysia
	Romania	Guatemala	Türkiye	Malta	Eswatini	Maldives
	Russia	Guyana	United Arab Emirates	Monaco	Ethiopia	Marshall Islands
	Serbia	Haiti	West Bank & Gaza	Netherlands	Gabon	Micronesia, Fed. Sts.
	Slovak Republic	Honduras	Yemen, Rep.	Norway	Gambia, The	Myanmar
	Slovenia	Jamaica		Portugal	Ghana	Nauru
	Ukraine	Mexico		San Marino	Guinea	Nepal
		Nicaragua		Spain	Guinea-Bissau	New Zealand
		Panama		Sweden	Kenya	Niue
		Paraguay		Switzerland	Lesotho	Northern Mariana Islands
		Peru		United Kingdom	Liberia	Palau
		Puerto Rico			Madagascar	Papua New Guinea
		St. Kitts & Nevis			Malawi	Philippines
		St. Lucia			Mali	Samoa
		St. Vincent & the Grenadines			Mauritania	Singapore
		Suriname			Mauritius	Solomon Islands
		Trinidad & Tobago			Mozambique	Sri Lanka

Central & Eastern Europe	Central Asia	Latin America & the Caribbean	Middle East & North Africa	North Atlantic	Sub-Saharan Africa	Western Pacific & Southeast Asia
		Uruguay			Namibia	Taiwan, China
		Venezuela, RB			Niger	Thailand
		Virgin Islands (U.S.)			Nigeria	Timor-Leste
					Rwanda	Tokelau
					Senegal	Tonga
					Seychelles	Tuvalu
					Sierra Leone	Vanuatu
					Somalia	Vietnam
					South Africa	
					South Sudan	
					Sudan	
					São Tomé & Príncipe	
					Tanzania	
					Togo	
					Uganda	
					Zambia	
					Zimbabwe	

Alternative decomposition methods

Arriaga's method

Arriaga's method[4,5] is done in two steps. First, the contribution of all-cause mortality at each age to the life expectancy gap is calculated. Using a life table with single-year age intervals and a radix of one the contribution w_x at age *x* is calculated as:

$$w_x = l_x \left[\frac{{}_n\ddot{L}_x}{\ddot{l}_x} - \frac{{}_nL_x}{l_x} \right] + \left[l_x \frac{\ddot{l}_{x+1}}{\ddot{l}_x} - l_{x+1} \right] \ddot{e}_{x+1}$$

where ${}_n\ddot{L}_x$ is the "person proportion" contributed at age *x* to *x*+*n* and l_x is the proportion surviving to age *x* in the target location, with two dots over a letter indicating the same estimates for the North Atlantic. $\ddot{e}_x$ is the life expectancy at age *x* in the North Atlantic. The first term shows the direct effect, and the rest shows the indirect effect. The direct effect is the years gap that arises strictly within the corresponding age interval, and the indirect effect is the additional years gap due to changes in the number of survivors at the end of the age interval. The indirect effect is excluded for the last age interval.

The contribution of each cause of deaths is then obtained in the second step:

$$C_i = \sum_{x=1}^{100+} w_x \frac{\ddot{m}_{x,i} - m_{x,i}}{\ddot{M}_x - M_x}$$

where ${}_n\ddot{m}_{x,i}$ is the cause-specific mortality rate for cause *i* at age *x* to *x*+*n* and ${}_n\ddot{M}_x$ is all-cause mortality rate at age *x* to *x*+*n*. C_i is the impact of cause *i* on the life expectancy gap between the North Atlantic and the target location. As for Pollard's method, summing up C_i over all causes of deaths shows the total gap in life expectancy.

Decomposing life expectancy gaps using counterfactual age- and cause-specific mortality rates.

A final method relies on counterfactual mortality rates.[6] First, we adjusted the age specific all-cause mortality rate ($_nM_x$) at age *x* to *x*+*n* for mortality ($_nm_{x,i}$) from each cause *i*.

$$_n\widehat{M}_{x,i} = {}_nM_x + \left({}_n\ddot{m}_{x,\mathrm{i}} - {}_nm_{x,i}\right)\left[1 - \frac{{}_nM_x - {}_nm_{x,i}}{2}\right]$$

$_n\widehat{M}_{x,i}$ is the age-specific all-cause mortality rate if the target location had the same mortality rate from cause *i* as the North Atlantic. Those hypothetically not dying from cause *i* were then exposed to the survival rate for all causes except *i* for the remainder of the age interval, expressed by the term in the square brackets. Then, we constructed a life table using the adjusted mortality rates, calculated the adjusted life expectancy ($\hat{e}_{0,i}$) using a standard life table method, and compared to the observed life expectancy (e_0).

$$C_i = \hat{e}_{0,i} - e_0$$

Different from the other methods, the resulting components will not sum up to the total gap in life expectancy, due to interaction effects—which arise from the nonlinear effect of mortality decline on life expectancy gain.

We remove causes that had a negative contribution to the life expectancy gap (ie, the gap would have been larger if the target location had the same cause specific mortality as the North Atlantic), and then projected the proportional impact of each cause back on the total life expectancy gap. Therefore, adding up all components will sum up to the total gap in life expectancy.

Table S3. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8 and NCD-7, males (M) and females (F) in 2019

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total gap	9.9	5.4	15	14	4.6	3.7	11	12	7.6	6.2	7.5	7.6	21	22	3.4	3.0	8.0	6.7
Total impact of NCD-7	6.2	4.2	7.1	7.0	3.7	3.1	5.4	5.6	2.7	2.8	4.4	4.7	4.8	5.3	1.5	1.4	4.0	3.4
	(63)	(77)	(47)	(50)	(80)	(82)	(51)	(46)	(35)	(45)	(59)	(62)	(23)	(24)	(45)	(46)	(50)	(50)
Atherosclerotic CVDs	4.2	3.4	3.6	3.9	1.1	1.2	2.1	1.9	1.0	1.1	2.6	3.2	1.2	1.6	0.6	0.5	1.2	1.1
	(42)	(62)	(24)	(28)	(24)	(32)	(20)	(16)	(13)	(18)	(35)	(42)	(5.8)	(7.4)	(18)	(17)	(14)	(17)
Hemorrhagic stroke	0.4	0.3	0.8	0.9	0.9	0.7	0.5	0.6	0.3	0.3	0.2	0.3	0.9	1.1	<0.1	0.1	1.0	0.9
	(4.4)	(4.8)	(5.2)	(6.2)	(19)	(19)	(5.2)	(4.9)	(3.5)	(4.8)	(2.9)	(3.8)	(4.2)	(5.1)	(1.2)	(1.7)	(12)	(14)
Tobacco-related NCDs	0.6	<0.1	1.0	0.5	0.8	0.6	1.5	1.6	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.4	0.2
	(5.7)	(0.1)	(6.7)	(3.3)	(17)	(15)	(14)	(13)	(2.3)	(2.7)	(3.1)	(0.9)	(1.1)	(1.0)	(5.0)	(14)	(5.6)	(2.9)
Infection-related NCDs	0.3	0.3	0.7	0.8	0.6	0.3	0.4	0.6	0.2	0.3	0.6	0.4	0.6	1.0	0.1	0.1	0.6	0.5
	(3.4)	(5.0)	(4.8)	(6.0)	(13)	(8.3)	(3.6)	(4.9)	(2.2)	(4.7)	(7.5)	(5.4)	(2.7)	(4.6)	(1.9)	(1.9)	(7.2)	(7.0)
Road injury	0.3	0.1	0.5	0.1	0.3	0.1	0.4	0.1	0.5	0.1	0.4	0.2	1.0	0.4	0.2	0.1	0.5	0.1
	(2.7)	(1.6)	(3.1)	(0.9)	(6.1)	(4.0)	(3.7)	(1.0)	(6.1)	(2.0)	(5.6)	(2.3)	(4.6)	(2.0)	(7.1)	(4.7)	(6.1)	(2.0)
Diabetes	0.1	0.1	0.5	0.8	0.1	0.1	0.4	0.6	0.6	0.8	0.4	0.6	0.7	0.8	0.2	0.1	0.3	0.5
	(0.8)	(2.6)	(3.3)	(5.4)	(1.5)	(3.0)	(4.0)	(4.5)	(8.2)	(13)	(4.8)	(7.3)	(3.2)	(3.7)	(5.5)	(4.7)	(4.1)	(6.9)
Suicide	0.4	<0.1	<0.1	0	0	<0.1	0.1	0.2	0	0	0	0	0.2	<0.1	0.2	0.1	0	<0.1
	(3.7)	(0.4)	(0.1)	(0)	(0)	(0.8)	(0.9)	(1.6)	(0)	(0)	(0)	(0)	(0.9)	(0.2)	(6.0)	(1.8)	(0)	(0.1)
Total impact of I-8	0.8	0.2	4.3	4.0	0.2	0.1	3.0	3.8	1.4	1.3	1.0	1.0	11	11	0.1	0.1	2.2	1.9
	(8.1)	(4.5)	(29)	(29)	(4.0)	(3.8)	(28)	(31)	(19)	(22)	(13)	(13)	(50)	(51)	(3.1)	(3.3)	(28)	(29)
Neonatal conditions	<0.1	<0.1	2.0	1.8	0.1	0.1	0.9	1.1	0.4	0.4	0.5	0.5	1.6	1.4	0.1	0.1	0.6	0.5
	(0.3)	(0.5)	(14)	(13)	(1.3)	(1.5)	(8.7)	(8.7)	(5.4)	(5.6)	(6.7)	(6.0)	(7.7)	(6.5)	(2.0)	(2.2)	(7.5)	(7.4)
Lower respiratory infections	0.3	<0.1	0.7	0.6	<0.1	<0.1	0.5	0.8	0.6	0.7	0.3	0.3	2.1	2.0	0	0	0.6	0.5
	(2.8)	(0.8)	(4.8)	(4.1)	(0.7)	(0.6)	(5.1)	(6.4)	(8.2)	(11)	(4.3)	(4.2)	(9.9)	(9.3)	(0)	(0)	(7.6)	(7.1)
Diarrheal diseases	0	0	0.5	0.5	<0.1	<0.1	0.7	1.2	0.1	0.1	<0.1	<0.1	1.4	1.4	<0.1	<0.1	0.2	0.3
	(0)	(0)	(3.6)	(3.7)	(0.2)	(0.1)	(6.8)	(9.6)	(1.0)	(1.3)	(0.6)	(0.5)	(6.6)	(6.3)	(0.2)	(0.4)	(2.9)	(4.1)
Tuberculosis	0.1	<0.1	0.6	0.4	<0.1	<0.1	0.6	0.5	0.1	0.1	0.1	0.1	2.2	1.7	0	0	0.6	0.4
	(1.5)	(0.7)	(3.9)	(2.9)	(0.8)	(0.5)	(5.6)	(3.9)	(1.3)	(0.8)	(0.7)	(0.8)	(10)	(7.8)	(0)	(0)	(7.0)	(5.5)

	Central & Eastern Europe		Central Asia		China		India		Latin America & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Malaria	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3	1.3	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0.1)	(0.1)	(6.0)	(5.9)	(0)	(0)	(0.1)	(0.2)
HIV/AIDS	0.3	0.1	0.2	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.1	<0.1	<0.1	1.5	1.7	<0.1	<0.1	0.2	0.1
	(3.5)	(2.3)	(1.1)	(0.3)	(0.9)	(0.7)	(0.8)	(0.4)	(2.6)	(1.6)	(0.2)	(0.1)	(7.1)	(7.8)	(0.8)	(0.4)	(2.0)	(1.9)
Childhood-cluster diseases	<0.1	<0.1	0.3	0.3	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.5	0	0	0.1	0.1
	(0)	(0)	(1.7)	(1.9)	(0.1)	(0.2)	(0.9)	(1.1)	(0.1)	(0.2)	(0.5)	(0.5)	(1.9)	(2.1)	(0)	(0)	(0.8)	(0.9)
Maternal conditions	0	<0.1	0	0.3	0	<0.1	0	0.1	0	0.1	0	<0.1	0	1.2	0	<0.1	0	0.1
	(0)	(0)	(0)	(2.5)	(0)	(0.2)	(0)	(0.8)	(0)	(1.2)	(0)	(0.7)	(0)	(5.4)	(0)	(0.3)	(0)	(1.6)
Total impact of other causes	2.8	1.0	3.6	3.1	0.7	0.5	2.2	2.8	3.5	2.1	2.1	1.9	5.9	5.4	1.8	1.5	1.8	1.4
	(29)	(19)	(24)	(22)	(16)	(14)	(21)	(23)	(46)	(33)	(28)	(25)	(28)	(25)	(52)	(51)	(23)	(21)

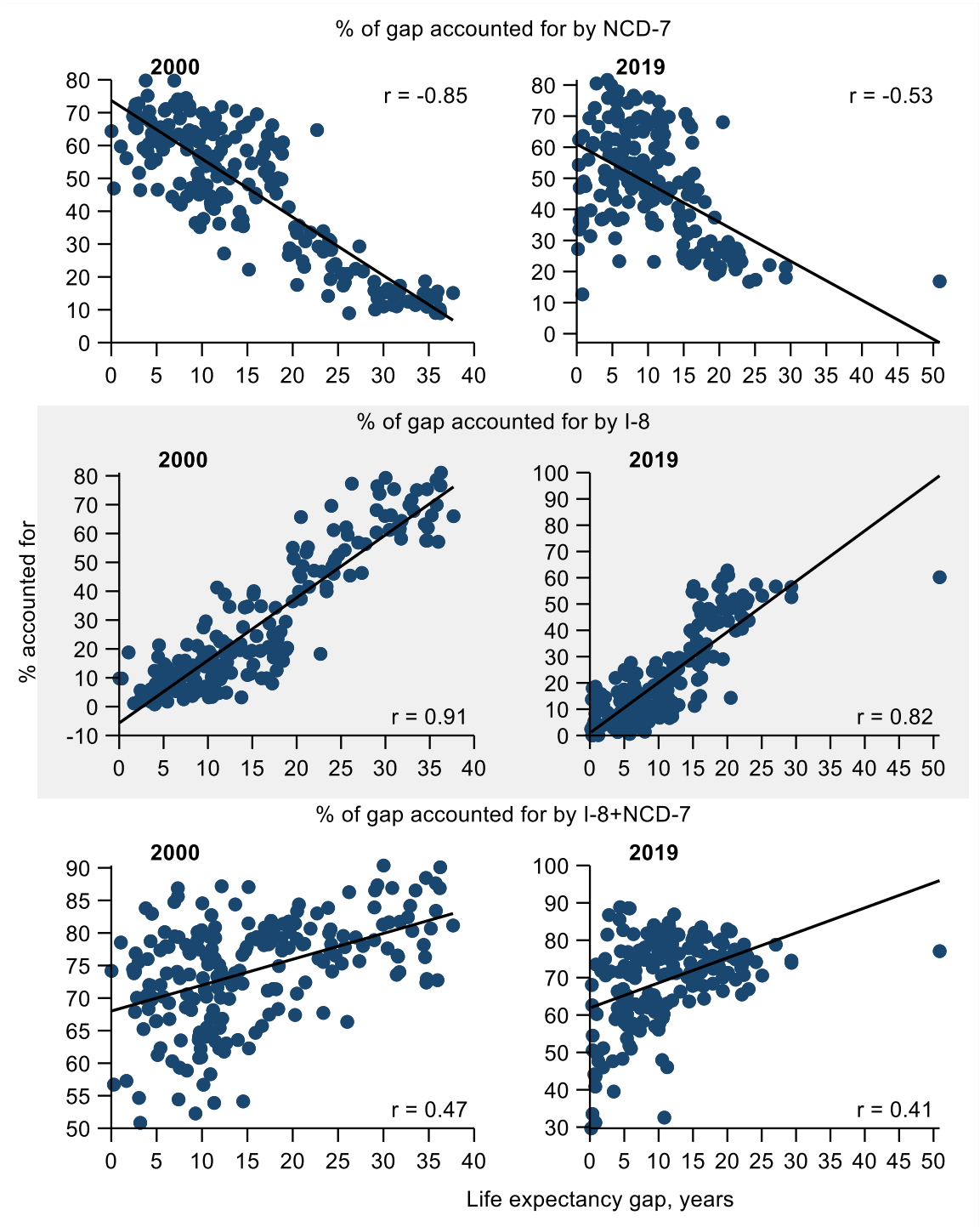
Note: Number of years are shown with the percentage of the total gap in parentheses below. Males were compared to males in the 2019 North Atlantic (who had a life expectancy of 80 years) and females to females in the North Atlantic (who had a life expectancy of 84 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Table S4. Tabulated estimates from Figure 1: Percentage of life expectancy gap compared to the North Atlantic attributable to I-8 and NCD-7: Distribution across countries, 2019

	All			Low income			Middle income			High income		
	I-8	NCD-7	Both	I-8	NCD-7	Both	I-8	NCD-7	Both	I-8	NCD-7	Both
Minimum	0.0	13	30	7.9	17	63	0.9	18	46	0.0	13	30
Percentile 5	2.4	22	46	19	17	66	3.9	23	56	0.2	27	33
Percentile 25	8.9	32	63	39	23	68	11	36	67	3.7	38	48
Median	16	48	72	45	26	73	18	49	75	8.3	50	60
Percentile 75	32	62	77	52	30	76	30	64	79	14	62	71
Percentile 95	56	75	83	60	55	82	56	76	83	19	70	82
Maximum	63	82	89	61	65	84	63	82	87	22	76	89
Interquartile range	23	30	15	13	7.1	7.6	19	28	12	10	24	23
Mean	22	47	69	43	29	72	23	49	73	8.8	50	59
Standard deviation	17	17	12	13	12	5.0	16	17	9.1	5.8	14	15
Number of countries	184	184	184	26	26	26	108	108	108	47	47	47

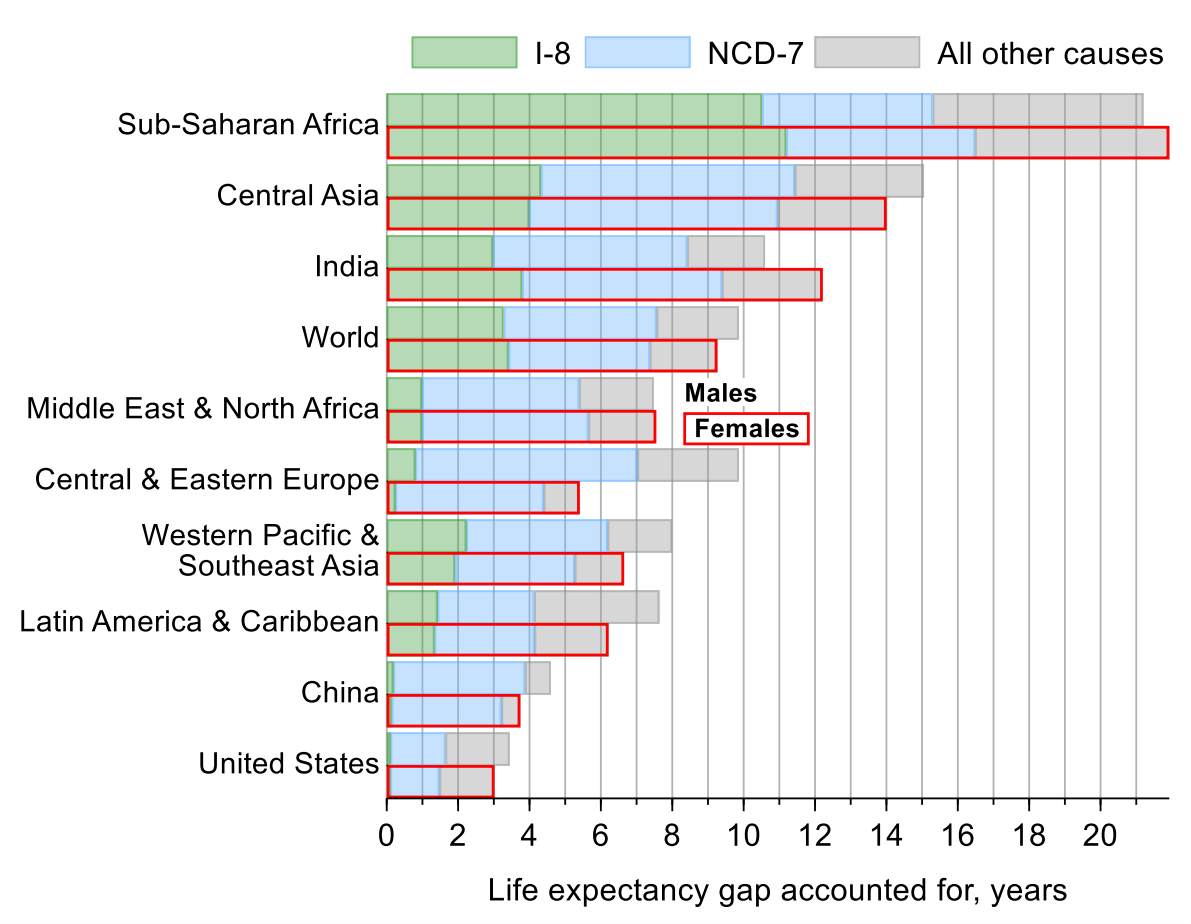
Note: 'Both' shows I-8+NCD-7. Results are shown overall and by 2019 World Bank Income groups (three countries were not classified). Only countries with lower life expectancy than the North Atlantic (or 82 years) were included. Countries were equally weighted for descriptive statistics. The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Figure S1. Country-level correlation between the percentage of life expectancy gap attributable to I-8 and NCD-7 and the total life expectancy gap



Note: Pearson's (r) correlation coefficients are shown. Countries were equally weighted. Both 2000 and 2019 were compared to the North Atlantic in 2019 (which had a life expectancy of 82 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Figure S2. Life expectancy gap compared to the North Atlantic in 2019 attributable to sets of causes, males and females in 2019



Note: Males were compared to males in the North Atlantic (who had a life expectancy of 80 years) and females to females in the North Atlantic (who had a life expectancy of 84 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Table S5. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8 and NCD-7, males (M) and females (F) in 2021

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		North Atlantic		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total gap	12	8.4	16	15	4.4	3.6	14	16	11	9.2	9.2	9.5	0.5	0.2	22	22	6.3	5.1	9.4	8.2
Total impact of NCD-7	4.9	3.8	5.9	6.4	3.6	2.9	4.0	5.5	2.5	2.7	3.5	4.2	<0.1	0	4.4	5.1	1.9	1.5	3.4	3.3
	(40)	(45)	(36)	(42)	(81)	(82)	(29)	(35)	(22)	(29)	(38)	(45)	(1.2)	(0)	(20)	(23)	(30)	(29)	(36)	(40)
Atherosclerotic CVDs	3.3	3.0	3.0	3.5	1.1	1.1	1.6	1.9	1.0	1.1	2.1	2.9	0	0	1.2	1.6	0.7	0.6	1.0	1.1
	(27)	(36)	(19)	(23)	(24)	(32)	(11)	(12)	(8.7)	(12)	(23)	(30)	(0)	(0)	(5.3)	(7.1)	(12)	(12)	(11)	(14)
Hemorrhagic stroke	0.4	0.2	0.7	0.8	0.8	0.7	0.4	0.6	0.2	0.3	0.2	0.3	0	0	0.8	1.1	0.1	0.1	0.8	0.9
	(2.9)	(2.9)	(4.0)	(5.3)	(19)	(19)	(2.9)	(3.9)	(2.1)	(2.9)	(1.8)	(2.7)	(0)	(0)	(3.9)	(4.9)	(1.1)	(1.5)	(9.0)	(11)
Tobacco-related NCDs	0.4	<0.1	0.8	0.4	0.8	0.6	1.1	1.4	0.1	0.1	0.1	0.1	0	0	0.2	0.2	0.1	0.3	0.4	0.2
	(3.3)	(0.1)	(4.9)	(2.8)	(18)	(16)	(7.8)	(9.2)	(0.6)	(0.7)	(1.1)	(0.6)	(0)	(0)	(0.8)	(1.0)	(2.1)	(6.2)	(3.9)	(2.3)
Infection-related NCDs	0.3	0.3	0.6	0.8	0.6	0.3	0.3	0.6	0.1	0.3	0.4	0.4	<0.1	0	0.5	0.9	0.1	0.1	0.5	0.5
	(2.3)	(3.1)	(3.5)	(5.1)	(13)	(8.2)	(2.2)	(4.0)	(1.1)	(2.8)	(4.6)	(3.8)	(0.6)	(0)	(2.4)	(3.9)	(1.6)	(1.6)	(5.4)	(5.6)
Diabetes	0.1	0.1	0.4	0.7	0.1	0.1	0.3	0.6	0.6	0.8	0.3	0.5	<0.1	0	0.6	0.8	0.2	0.2	0.3	0.5
	(0.6)	(1.7)	(2.6)	(4.9)	(1.6)	(3.1)	(2.2)	(3.6)	(5.4)	(8.8)	(3.2)	(5.4)	(0.6)	(0)	(3.0)	(3.7)	(4.0)	(3.8)	(3.1)	(5.8)
Road injury	0.2	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.4	0.1	0.4	0.2	0	0	0.9	0.4	0.3	0.2	0.4	0.1
	(1.6)	(0.8)	(2.6)	(0.8)	(6.0)	(3.8)	(2.3)	(0.8)	(3.9)	(1.3)	(4.5)	(1.9)	(0)	(0)	(4.1)	(2.0)	(5.5)	(3.6)	(4.5)	(1.4)
Suicide	0.3	<0.1	0	0	0	<0.1	<0.1	0.2	0	0	0	0	0	0	0.2	0.1	0.3	0.1	0	<0.1
	(2.3)	(0.2)	(0)	(0)	(0)	(0.7)	(0.2)	(1.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0.9)	(0.2)	(4.1)	(1.1)	(0)	(0.1)
Total impact of I-8	0.8	0.2	3.9	3.7	0.1	0.1	2.5	3.4	1.2	1.1	0.9	0.9	0	0	9.1	10.0	0.1	0.1	2.1	1.9
	(6.4)	(2.9)	(24)	(24)	(3.2)	(2.9)	(18)	(21)	(11)	(12)	(9.4)	(9.6)	(0)	(0)	(42)	(45)	(1.6)	(2.0)	(22)	(23)
Neonatal conditions	<0.1	<0.1	1.9	1.7	<0.1	<0.1	0.8	1.0	0.4	0.3	0.5	0.4	0	0	1.5	1.3	0.1	0.1	0.6	0.5
	(0.2)	(0.2)	(12)	(11)	(0.8)	(1.0)	(6.0)	(6.1)	(3.5)	(3.6)	(5.2)	(4.7)	(0)	(0)	(7.1)	(6.0)	(1.0)	(1.2)	(6.1)	(5.9)
Lower respiratory infections	0.2	<0.1	0.6	0.5	<0.1	<0.1	0.4	0.7	0.5	0.5	0.2	0.3	0	0	1.9	1.8	0	0	0.5	0.4
	(1.8)	(0.5)	(3.6)	(3.2)	(0.5)	(0.4)	(3.0)	(4.4)	(4.1)	(5.1)	(2.7)	(2.8)	(0)	(0)	(8.6)	(8.3)	(0)	(0)	(5.2)	(4.8)
Diarrheal diseases	0	0	0.4	0.4	<0.1	0	0.5	1.0	0.1	0.1	<0.1	<0.1	0	0	1.3	1.2	<0.1	<0.1	0.2	0.3
	(0)	(0)	(2.7)	(2.9)	(0.1)	(0)	(3.6)	(6.3)	(0.6)	(0.7)	(0.4)	(0.4)	(0)	(0)	(5.8)	(5.6)	(0.1)	(0.2)	(2.2)	(3.1)
Tuberculosis	0.1	<0.1	0.6	0.5	<0.1	<0.1	0.5	0.5	0.1	0.1	0.1	0.1	0	0	1.8	1.5	0	0	0.7	0.5
	(1.2)	(0.5)	(3.6)	(3.0)	(0.8)	(0.5)	(3.9)	(3.0)	(1.1)	(0.7)	(0.6)	(0.7)	(0)	(0)	(8.2)	(6.5)	(0)	(0)	(7.1)	(5.6)
Malaria	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	1.3	1.3	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(5.8)	(5.8)	(0)	(0)	(0.1)	(0.2)
HIV/AIDS	0.4	0.1	0.2	0.1	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1	<0.1	0	0	1.2	1.4	<0.1	<0.1	0.1	0.1

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		North Atlantic		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(3.2)	(1.7)	(1.2)	(0.4)	(0.9)	(0.7)	(0.6)	(0.3)	(1.4)	(1.0)	(0.2)	(0.1)	(0)	(0)	(5.5)	(6.3)	(0.5)	(0.2)	(1.3)	(1.5)
Maternal conditions	0	<0.1	0	0.4	0	<0.1	0	0.1	0	0.1	0	0.1	0	0	0	1.2	0	<0.1	0	0.1
	(0)	(0)	(0)	(2.3)	(0)	(0.3)	(0)	(0.6)	(0)	(1.1)	(0)	(0.6)	(0)	(0)	(0)	(5.3)	(0)	(0.3)	(0)	(1.5)
Childhood-cluster diseases	0	0	0.2	0.2	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0	0	0.2	0.2	0	0	<0.1	<0.1
	(0)	(0)	(1.0)	(1.2)	(0.1)	(0.2)	(0.4)	(0.4)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(1.1)	(1.0)	(0)	(0)	(0.3)	(0.3)
Total impact of other causes	6.6	4.4	6.5	5.2	0.7	0.5	7.5	6.9	7.7	5.4	4.8	4.4	0.5	0.2	8.1	7.2	4.3	3.5	3.9	3.0
	(53)	(52)	(40)	(34)	(16)	(15)	(54)	(44)	(67)	(59)	(53)	(46)	(99)	(99)	(38)	(32)	(68)	(69)	(41)	(37)
COVID-19	3.5	2.8	2.3	1.7	0	0	4.8	3.4	4.3	3.5	2.4	2.1	0.5	0.2	2.0	1.5	1.7	1.5	1.5	1.2
	(28)	(34)	(14)	(11)	(0)	(0)	(34)	(21)	(38)	(37)	(27)	(22)	(89)	(93)	(9.1)	(6.6)	(27)	(28)	(16)	(15)
Pandemic-related	0.6	0.6	0.9	0.5	<0.1	<0.1	1.1	0.8	0.2	0.1	0.9	0.6	0	0	0.8	0.6	0	0	0.7	0.4
	(5.2)	(6.7)	(5.8)	(3.6)	(0.2)	(0.2)	(7.6)	(5.2)	(1.3)	(1.1)	(9.3)	(6.3)	(0)	(0)	(3.5)	(2.6)	(0)	(0)	(7.1)	(5.3)

Note: Number of years are shown with the percentage of the total gap in parentheses below. Males were compared to males in the 2019 North Atlantic (who had a life expectancy of 80 years) and females to females in the North Atlantic (who had a life expectancy of 84 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Table S6. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8 and NCD-7, 2000 and 2019: Arriaga's method

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Total gap	14	7.6	21	15	9.9	4.3	19	11	11	7.0	13	7.6	31	22	5.4	3.3	13	7.4
Total impact of NCD-7	8.6	5.0	7.4	6.7	6.1	3.5	5.0	5.5	4.6	2.7	6.9	4.5	3.7	4.6	3.5	1.5	4.8	3.6
	(62)	(65)	(36)	(46)	(62)	(81)	(25)	(48)	(40)	(39)	(54)	(59)	(12)	(21)	(64)	(44)	(37)	(49)
Atherosclerotic CVDs	5.5	3.6	3.6	3.5	1.1	1.1	1.6	2.1	1.9	1.0	4.1	2.9	0.8	1.2	1.9	0.6	1.4	1.1
	(39)	(47)	(18)	(24)	(11)	(27)	(8.2)	(18)	(16)	(14)	(32)	(37)	(2.7)	(5.6)	(36)	(17)	(11)	(15)
Hemorrhagic stroke	0.8	0.4	1.1	0.8	1.6	0.8	0.6	0.6	0.6	0.3	0.6	0.3	0.8	0.9	0.2	<0.1	1.2	1.0
	(5.7)	(4.7)	(5.3)	(5.7)	(16)	(19)	(3.1)	(5.2)	(5.6)	(4.1)	(5.0)	(3.4)	(2.6)	(4.3)	(2.8)	(1.5)	(9.2)	(13)
Tobacco-related NCDs	0.6	0.2	0.8	0.7	1.7	0.7	1.2	1.4	0.4	0.2	0.3	0.1	0.2	0.2	0.7	0.2	0.5	0.3
	(4.0)	(2.0)	(3.8)	(4.6)	(17)	(16)	(6.2)	(12)	(3.4)	(2.3)	(2.1)	(1.4)	(0.5)	(0.9)	(13)	(7.4)	(3.5)	(4.2)
Infection-related NCDs	0.5	0.3	1.1	0.8	1.0	0.5	0.7	0.5	0.5	0.2	0.9	0.5	0.7	0.8	0.1	0.1	0.9	0.5
	(3.9)	(4.3)	(5.2)	(5.6)	(9.9)	(11)	(3.4)	(4.3)	(4.2)	(3.3)	(7.0)	(6.8)	(2.2)	(3.5)	(1.1)	(2.0)	(6.8)	(7.1)
Road injury	0.5	0.2	0.3	0.3	0.5	0.2	0.4	0.3	0.5	0.3	0.6	0.3	0.7	0.7	0.4	0.2	0.5	0.3
	(3.5)	(2.6)	(1.5)	(2.0)	(5.0)	(5.6)	(1.9)	(2.6)	(4.0)	(4.5)	(4.5)	(4.3)	(2.3)	(3.5)	(6.5)	(6.3)	(4.1)	(4.6)
Diabetes	<0.1	0.1	0.5	0.6	0.1	0.1	0.3	0.5	0.8	0.7	0.4	0.5	0.4	0.7	0.2	0.2	0.4	0.4
	(0.3)	(1.5)	(2.2)	(4.3)	(1.4)	(2.3)	(1.4)	(4.2)	(6.6)	(10)	(3.2)	(6.0)	(1.3)	(3.1)	(4.0)	(5.2)	(2.8)	(5.3)
Suicide	0.7	0.2	0.1	0	0.1	0	0.2	0.2	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0
	(4.7)	(2.8)	(0.4)	(0)	(1.3)	(0)	(1.2)	(1.4)	(0)	(0)	(0)	(0)	(0.2)	(0.5)	(1.0)	(4.4)	(0.4)	(0)
Total impact of I-8	1.3	0.6	8.8	4.4	1.8	0.2	11	3.4	2.6	1.4	2.7	1.0	21	11	0.4	0.1	5.4	2.1
	(9.2)	(7.7)	(43)	(30)	(18)	(4.0)	(56)	(30)	(23)	(20)	(21)	(13)	(69)	(52)	(6.6)	(3.3)	(42)	(28)
Neonatal conditions	0.3	<0.1	3.3	2.1	0.8	0.1	2.8	1.1	0.9	0.4	1.3	0.5	2.4	1.7	0.1	0.1	1.4	0.6
	(2.5)	(0.5)	(16)	(14)	(8.0)	(1.4)	(14)	(9.3)	(7.9)	(5.7)	(9.8)	(6.6)	(7.9)	(8.0)	(2.5)	(2.1)	(11)	(7.8)
Lower respiratory infections	0.4	0.2	1.5	0.7	0.5	<0.1	1.5	0.7	0.7	0.6	0.7	0.3	2.7	2.1	0.1	0	1.0	0.5
	(2.8)	(2.4)	(7.1)	(4.7)	(5.4)	(0.7)	(7.5)	(5.8)	(6.5)	(8.9)	(5.7)	(4.4)	(8.8)	(9.5)	(1.6)	(0)	(8.1)	(7.1)
Diarrheal diseases	<0.1	0	1.4	0.5	0.1	<0.1	2.5	0.9	0.3	0.1	0.3	<0.1	2.6	1.4	0	<0.1	0.8	0.3
	(0.2)	(0)	(6.9)	(3.5)	(1.5)	(0.1)	(13)	(7.4)	(2.5)	(1.2)	(2.5)	(0.6)	(8.3)	(6.5)	(0)	(0.3)	(6.1)	(3.4)
Tuberculosis	0.3	0.1	1.0	0.5	0.2	<0.1	2.4	0.6	0.2	0.1	0.1	0.1	3.3	1.9	<0.1	0	1.4	0.5
	(2.4)	(1.3)	(5.0)	(3.5)	(1.8)	(0.7)	(12)	(4.9)	(1.9)	(1.1)	(1.2)	(0.8)	(10)	(8.8)	(0)	(0)	(11)	(6.4)

	Central & Eastern Europe		Central Asia		China		India		Latin America & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Malaria	0	0	<0.1	<0.1	0	0	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.5	1.4	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.4)	(0.2)	(0.1)	(0)	(0.2)	(0.1)	(8.2)	(6.4)	(0)	(0)	(0.3)	(0.2)
HIV/AIDS	0.2	0.3	0	0.1	<0.1	<0.1	0.6	0.1	0.3	0.2	<0.1	<0.1	5.3	1.7	0.1	<0.1	0.2	0.1
	(1.1)	(3.5)	(0)	(0.8)	(0.4)	(0.8)	(2.9)	(0.7)	(3.0)	(2.3)	(0.1)	(0.2)	(17)	(7.9)	(2.4)	(0.7)	(1.9)	(2.0)
Childhood-cluster diseases	<0.1	<0.1	1.1	0.3	0.1	<0.1	0.8	0.1	<0.1	<0.1	0.2	<0.1	1.6	0.5	0	0	0.3	0.1
	(0.1)	(0)	(5.6)	(1.9)	(0.9)	(0.1)	(4.3)	(1.0)	(0.3)	(0.2)	(1.3)	(0.5)	(5.3)	(2.2)	(0)	(0)	(2.6)	(0.9)
Maternal conditions	<0.1	<0.1	0.4	0.2	<0.1	<0.1	0.3	<0.1	0.1	<0.1	0.1	<0.1	1.0	0.6	<0.1	<0.1	0.1	0.1
	(0.1)	(0)	(2.0)	(1.4)	(0.2)	(0.1)	(1.4)	(0.4)	(0.5)	(0.5)	(0.5)	(0.3)	(3.2)	(2.9)	(0.1)	(0.1)	(1.1)	(0.7)
Total impact of other causes	4.1	2.1	4.3	3.5	2.0	0.6	3.6	2.5	4.3	2.9	3.2	2.1	5.9	5.7	1.6	1.7	2.6	1.6
	(29)	(27)	(21)	(24)	(20)	(15)	(19)	(22)	(37)	(41)	(25)	(27)	(19)	(26)	(29)	(53)	(20)	(22)

Note: Number of years are shown with the percentage of the total gap in parentheses below. Both 2000 and 2019 were compared to the North Atlantic in 2019 (which had a life expectancy of 82 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Table S7. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8 and NCD-7, 2000 and 2019: decomposition based on counterfactual age- and cause-specific mortality rates

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Total gap	14	7.6	21	15	9.9	4.3	19	11	11	7.0	13	7.6	31	22	5.4	3.3	13	7.4
Total impact of NCD-7	8.7	5.1	7.0	6.5	6.0	3.5	4.7	5.4	4.5	2.7	6.7	4.4	3.4	4.4	3.5	1.5	4.7	3.6
	(62)	(67)	(34)	(44)	(60)	(81)	(24)	(47)	(39)	(38)	(52)	(58)	(11)	(20)	(65)	(44)	(37)	(49)
Atherosclerotic CVDs	5.8	3.9	3.5	3.4	1.0	1.1	1.5	2.1	1.8	1.0	4.1	2.9	0.8	1.1	2.0	0.6	1.3	1.1
	(42)	(51)	(17)	(24)	(10)	(26)	(7.7)	(18)	(16)	(14)	(32)	(38)	(2.5)	(5.2)	(37)	(18)	(10)	(15)
Hemorrhagic stroke	0.7	0.3	1.0	0.8	1.6	0.8	0.6	0.6	0.6	0.3	0.6	0.2	0.8	0.9	0.1	<0.1	1.2	1.0
	(5.2)	(4.4)	(4.8)	(5.2)	(16)	(19)	(2.9)	(4.9)	(5.4)	(4.0)	(4.6)	(3.2)	(2.4)	(4.0)	(2.7)	(1.5)	(9.1)	(13)
Tobacco-related NCDs	0.5	0.1	0.7	0.6	1.7	0.7	1.1	1.4	0.4	0.2	0.2	0.1	0.1	0.2	0.7	0.2	0.4	0.3
	(3.6)	(1.9)	(3.3)	(4.1)	(17)	(16)	(5.8)	(13)	(3.2)	(2.2)	(1.9)	(1.3)	(0.5)	(0.9)	(13)	(7.5)	(3.4)	(4.2)
Infection-related NCDs	0.5	0.3	1.0	0.8	0.9	0.5	0.6	0.5	0.5	0.2	0.8	0.5	0.6	0.7	0.1	0.1	0.8	0.5
	(3.5)	(3.9)	(4.9)	(5.3)	(9.4)	(11)	(3.2)	(4.2)	(4.0)	(3.2)	(6.4)	(6.3)	(2.0)	(3.3)	(1.1)	(1.9)	(6.6)	(7.0)
Road injury	0.5	0.2	0.3	0.3	0.5	0.3	0.4	0.3	0.5	0.3	0.6	0.3	0.7	0.8	0.4	0.2	0.5	0.3
	(3.5)	(2.5)	(1.5)	(2.1)	(5.3)	(5.9)	(1.9)	(2.6)	(4.1)	(4.6)	(4.7)	(4.5)	(2.3)	(3.5)	(6.6)	(6.2)	(4.2)	(4.6)
Diabetes	<0.1	0.1	0.4	0.6	0.1	0.1	0.3	0.5	0.7	0.7	0.4	0.4	0.4	0.6	0.2	0.2	0.3	0.4
	(0.3)	(1.4)	(2.0)	(3.9)	(1.4)	(2.2)	(1.3)	(3.9)	(6.3)	(10)	(2.9)	(5.5)	(1.2)	(2.8)	(3.8)	(5.2)	(2.7)	(5.2)
Suicide	0.6	0.2	0.1	0	0.1	0	0.3	0.2	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0
	(4.6)	(2.6)	(0.4)	(0)	(1.3)	(0)	(1.3)	(1.4)	(0)	(0)	(0)	(0)	(0.2)	(0.5)	(1.0)	(4.4)	(0.4)	(0)
Total impact of I-8	1.3	0.6	9.2	4.7	1.9	0.2	11	3.5	2.7	1.4	2.9	1.1	22	12	0.4	0.1	5.5	2.1
	(9.3)	(7.3)	(45)	(32)	(19)	(4.4)	(57)	(31)	(23)	(20)	(23)	(14)	(70)	(53)	(6.6)	(3.3)	(43)	(29)
Neonatal conditions	0.4	<0.1	3.5	2.2	0.8	0.1	2.9	1.1	1.0	0.4	1.4	0.6	2.3	1.7	0.1	0.1	1.4	0.6
	(2.6)	(0.5)	(17)	(15)	(8.5)	(1.5)	(15)	(9.9)	(8.3)	(5.9)	(11)	(7.3)	(7.3)	(8.1)	(2.6)	(2.1)	(11)	(7.8)
Lower respiratory infections	0.4	0.2	1.5	0.7	0.6	<0.1	1.5	0.7	0.8	0.6	0.8	0.3	2.7	2.1	0.1	0	1.1	0.5
	(2.8)	(2.2)	(7.5)	(5.0)	(5.7)	(0.8)	(7.7)	(5.9)	(6.6)	(9.0)	(6.1)	(4.5)	(8.7)	(9.7)	(1.6)	(0)	(8.3)	(7.3)
Diarrheal diseases	<0.1	0	1.4	0.5	0.2	<0.1	2.6	0.9	0.3	0.1	0.4	0.1	2.5	1.4	0	<0.1	0.8	0.3
	(0.3)	(0)	(7.0)	(3.6)	(1.6)	(0.2)	(13)	(7.6)	(2.7)	(1.2)	(2.8)	(0.7)	(8.2)	(6.6)	(0)	(0.3)	(6.2)	(3.4)
Tuberculosis	0.3	0.1	1.0	0.5	0.2	<0.1	2.4	0.5	0.2	0.1	0.1	0.1	3.3	1.9	<0.1	0	1.4	0.5
	(2.3)	(1.2)	(4.9)	(3.4)	(1.7)	(0.7)	(12)	(4.8)	(1.9)	(1.1)	(1.1)	(0.7)	(11)	(8.8)	(0)	(0)	(11)	(6.4)

	Central & Eastern Europe		Central Asia		China		India		Latin America & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19	'00	'19
Malaria	0	0	<0.1	<0.1	0	0	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.5	1.4	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.4)	(0.2)	(0.1)	(0)	(0.2)	(0.2)	(8.2)	(6.6)	(0)	(0)	(0.3)	(0.2)
HIV/AIDS	0.2	0.3	0	0.1	<0.1	<0.1	0.6	0.1	0.4	0.2	<0.1	<0.1	5.7	1.8	0.1	<0.1	0.2	0.1
	(1.1)	(3.3)	(0)	(0.8)	(0.4)	(0.9)	(2.9)	(0.7)	(3.1)	(2.3)	(0.1)	(0.2)	(18)	(8.2)	(2.3)	(0.7)	(1.9)	(2.0)
Childhood-cluster diseases	<0.1	<0.1	1.3	0.3	0.1	<0.1	0.9	0.1	<0.1	<0.1	0.2	<0.1	1.7	0.5	0	0	0.4	0.1
	(0.1)	(0)	(6.1)	(2.1)	(0.9)	(0.2)	(4.6)	(1.1)	(0.3)	(0.2)	(1.5)	(0.6)	(5.5)	(2.3)	(0)	(0)	(2.7)	(0.9)
Maternal conditions	<0.1	<0.1	0.4	0.2	<0.1	<0.1	0.3	<0.1	0.1	<0.1	0.1	<0.1	1.0	0.6	<0.1	<0.1	0.1	0.1
	(0.1)	(0)	(2.2)	(1.5)	(0.2)	(0.1)	(1.5)	(0.4)	(0.5)	(0.5)	(0.6)	(0.3)	(3.3)	(3.0)	(0.1)	(0.1)	(1.1)	(0.7)
Total impact of other causes	3.9	1.9	4.3	3.5	2.1	0.6	3.6	2.5	4.3	2.9	3.2	2.1	5.8	5.7	1.5	1.7	2.6	1.6
	(28)	(25)	(21)	(24)	(21)	(15)	(19)	(22)	(37)	(41)	(25)	(27)	(19)	(26)	(29)	(52)	(20)	(22)

Note: Number of years are shown with the percentage of the total gap in parentheses below. Both 2000 and 2019 were compared to the North Atlantic in 2019 (which had a life expectancy of 82 years). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

Table S8. Life expectancy gap compared to the North Atlantic in 2019 attributable to specific I-8, NCD-7, and all other causes, males (M) and females (F) in 2019

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total gap	9.9	5.4	15	14	4.6	3.7	11	12	7.6	6.2	7.5	7.6	21	22	3.4	3.0	8.0	6.7
Total impact of NCD-7	6.2	4.2	7.1	7.0	3.7	3.1	5.4	5.6	2.7	2.8	4.4	4.7	4.8	5.3	1.5	1.4	4.0	3.4
	(63)	(77)	(47)	(50)	(80)	(82)	(51)	(46)	(35)	(45)	(59)	(62)	(23)	(24)	(45)	(46)	(50)	(50)
Ischemic heart disease	3.2	2.4	3.0	3.1	0.5	0.7	1.9	1.6	0.8	0.9	2.0	2.2	0.7	1.0	0.6	0.5	0.7	0.7
	(32)	(45)	(20)	(22)	(11)	(18)	(18)	(13)	(10)	(14)	(26)	(30)	(3.2)	(4.4)	(18)	(16)	(8.6)	(10)
Hemorrhagic stroke	0.4	0.3	0.8	0.9	0.9	0.7	0.5	0.6	0.3	0.3	0.2	0.3	0.9	1.1	<0.1	0.1	1.0	0.9
	(4.4)	(4.8)	(5.2)	(6.2)	(19)	(19)	(5.2)	(4.9)	(3.5)	(4.8)	(2.9)	(3.8)	(4.2)	(5.1)	(1.2)	(1.7)	(12)	(14)
Ischemic stroke	1.0	1.0	0.7	0.8	0.6	0.5	0.3	0.3	0.2	0.2	0.7	0.9	0.6	0.7	0	<0.1	0.5	0.5
	(9.9)	(18)	(4.4)	(5.8)	(13)	(13)	(2.4)	(2.6)	(3.0)	(3.9)	(8.7)	(12)	(2.6)	(3.0)	(0)	(0.7)	(5.9)	(7.2)
Chronic obstructive pulmonary disease	0.1	0	0.8	0.4	0.6	0.5	1.3	1.5	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.2
	(1.0)	(0)	(5.5)	(2.9)	(12)	(13)	(12)	(12)	(1.9)	(2.6)	(1.6)	(0.7)	(1.0)	(0.9)	(5.0)	(11)	(4.4)	(2.4)
Road injury	0.3	0.1	0.5	0.1	0.3	0.1	0.4	0.1	0.5	0.1	0.4	0.2	1.0	0.4	0.2	0.1	0.5	0.1
	(2.7)	(1.6)	(3.1)	(0.9)	(6.1)	(4.0)	(3.7)	(1.0)	(6.1)	(2.0)	(5.6)	(2.3)	(4.6)	(2.0)	(7.1)	(4.7)	(6.1)	(2.0)
Diabetes mellitus	0.1	0.1	0.4	0.7	<0.1	<0.1	0.3	0.5	0.5	0.6	0.3	0.4	0.6	0.7	0.1	<0.1	0.2	0.3
	(0.8)	(2.6)	(2.5)	(4.7)	(0.1)	(1.2)	(3.0)	(3.9)	(6.0)	(10)	(3.6)	(5.7)	(2.6)	(3.2)	(2.5)	(1.4)	(2.5)	(5.0)
Stomach cancer	0.2	0.1	0.1	<0.1	0.3	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	0	0	0.1	<0.1
	(1.6)	(1.3)	(0.7)	(0.3)	(7.1)	(3.8)	(0.3)	(0.2)	(1.3)	(1.3)	(1.8)	(1.0)	(0.1)	(0.2)	(0)	(0)	(1.2)	(0.7)
Chronic kidney disease due to diabetes	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	(0)	(0)	(0.7)	(0.8)	(1.4)	(1.8)	(0.9)	(0.6)	(2.2)	(2.7)	(1.2)	(1.6)	(0.6)	(0.5)	(3.0)	(3.3)	(1.6)	(1.9)
Cirrhosis due to hepatitis B	0.1	<0.1	0.1	0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.2	0	0	0.1	0.1
	(0.6)	(0.5)	(0.9)	(0.8)	(2.1)	(1.1)	(0.9)	(0.3)	(0.1)	(0)	(0.6)	(0.5)	(1.4)	(0.9)	(0)	(0)	(1.8)	(1.2)
Rheumatic heart disease	<0.1	0	0.2	0.3	<0.1	0.1	0.2	0.3	0	0	<0.1	<0.1	<0.1	0.1	0	0	<0.1	0.1
	(0)	(0)	(1.3)	(1.9)	(0.7)	(1.3)	(2.0)	(2.7)	(0)	(0)	(0.2)	(0.3)	(0.2)	(0.3)	(0)	(0)	(0.5)	(0.8)
Cervix uteri cancer	0	0.1	0	0.1	0	<0.1	0	0.2	0	0.2	0	<0.1	0	0.6	0	<0.1	0	0.1
	(0)	(2.0)	(0)	(0.5)	(0)	(1.3)	(0)	(1.4)	(0)	(2.8)	(0)	(0.2)	(0)	(2.8)	(0)	(0.3)	(0)	(2.0)
Cirrhosis due to hepatitis C	0.1	0.1	0.2	0.3	0	0	<0.1	<0.1	0.1	<0.1	0.2	0.2	0.1	0.1	0.1	<0.1	0.1	0.1
	(1.1)	(1.1)	(1.5)	(2.3)	(0)	(0)	(0.4)	(0.3)	(0.7)	(0.3)	(3.0)	(2.4)	(0.5)	(0.3)	(1.5)	(1.3)	(1.7)	(1.4)
Liver cancer secondary to hepatitis B	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	0.1	<0.1	0	0	0.1	<0.1
	(0.1)	(0.1)	(0.1)	(0.1)	(2.8)	(0.8)	(0)	(0)	(0)	(0)	(0.5)	(0.2)	(0.5)	(0.2)	(0)	(0)	(1.8)	(0.6)
Suicide	0.4	<0.1	<0.1	0	0	<0.1	0.1	0.2	0	0	0	0	0.2	<0.1	0.2	0.1	0	<0.1
	(3.7)	(0.4)	(0.1)	(0)	(0)	(0.8)	(0.9)	(1.6)	(0)	(0)	(0)	(0)	(0.9)	(0.2)	(6.0)	(1.8)	(0)	(0.1)

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Mouth and oropharynx cancers	0.1	<0.1	0.1	0.1	0	0	0.2	0.1	0	0	0	<0.1	<0.1	<0.1	0	0	0.1	<0.1
	(1.2)	(0.1)	(0.9)	(0.4)	(0)	(0)	(1.5)	(0.8)	(0)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(1.1)	(0.5)
Larynx cancer	0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1
	(0.6)	(0)	(0.3)	(0)	(0)	(0)	(0.4)	(0.1)	(0.3)	(0.1)	(0.5)	(0.1)	(0)	(0)	(0)	(0)	(0.1)	(0)
Liver cancer secondary to hepatitis C	0	0	<0.1	<0.1	0	0	0	0	0	<0.1	0.1	0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.2)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0.3)	(1.4)	(0.8)	(0)	(0)	(0.4)	(0.3)	(0.3)	(0.2)
Trachea, bronchus, lung cancers	0.3	0	0	0	0.2	0.1	0	0	0	0	0.1	0	0	0	0	0.1	0	0
	(2.9)	(0)	(0)	(0)	(5.0)	(2.2)	(0)	(0)	(0)	(0)	(1.0)	(0)	(0)	(0)	(0)	(2.8)	(0)	(0)
Total impact of I-8	0.8	0.2	4.3	4.0	0.2	0.1	3.0	3.8	1.4	1.3	1.0	1.0	11	11	0.1	0.1	2.2	1.9
	(8.1)	(4.5)	(29)	(29)	(4.0)	(3.8)	(28)	(31)	(19)	(22)	(13)	(13)	(50)	(51)	(3.1)	(3.3)	(28)	(29)
Lower respiratory infections	0.3	<0.1	0.7	0.6	<0.1	<0.1	0.5	0.8	0.6	0.7	0.3	0.3	2.1	2.0	0	0	0.6	0.5
	(2.8)	(0.8)	(4.8)	(4.1)	(0.7)	(0.6)	(5.1)	(6.4)	(8.2)	(11)	(4.3)	(4.2)	(9.9)	(9.3)	(0)	(0)	(7.6)	(7.1)
Diarrheal diseases	0	0	0.5	0.5	<0.1	<0.1	0.7	1.2	0.1	0.1	<0.1	<0.1	1.4	1.4	<0.1	<0.1	0.2	0.3
	(0)	(0)	(3.6)	(3.7)	(0.2)	(0.1)	(6.8)	(9.6)	(1.0)	(1.3)	(0.6)	(0.5)	(6.6)	(6.3)	(0.2)	(0.4)	(2.9)	(4.1)
Preterm birth complications	<0.1	<0.1	0.9	0.8	<0.1	<0.1	0.5	0.5	0.2	0.2	0.3	0.3	0.7	0.6	0.1	<0.1	0.3	0.3
	(0.3)	(0.4)	(6.0)	(5.7)	(0.4)	(0.5)	(4.5)	(4.5)	(2.6)	(2.7)	(4.1)	(3.7)	(3.4)	(2.9)	(1.5)	(1.6)	(4.0)	(4.0)
Tuberculosis	0.1	<0.1	0.6	0.4	<0.1	<0.1	0.6	0.5	0.1	0.1	0.1	0.1	2.2	1.7	0	0	0.6	0.4
	(1.5)	(0.7)	(3.9)	(2.9)	(0.8)	(0.5)	(5.6)	(3.9)	(1.3)	(0.8)	(0.7)	(0.8)	(10)	(7.8)	(0)	(0)	(7.0)	(5.5)
Birth asphyxia and birth trauma	<0.1	<0.1	0.8	0.7	<0.1	<0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.6	0.5	0	0	0.2	0.1
	(0.1)	(0.1)	(5.1)	(4.9)	(0.9)	(1.0)	(2.4)	(2.4)	(1.2)	(1.3)	(1.7)	(1.5)	(2.6)	(2.3)	(0)	(0)	(2.2)	(2.2)
Malaria	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3	1.3	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0.1)	(0.1)	(6.0)	(5.9)	(0)	(0)	(0.1)	(0.2)
HIV/AIDS	0.3	0.1	0.2	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.1	<0.1	<0.1	1.5	1.7	<0.1	<0.1	0.2	0.1
	(3.5)	(2.3)	(1.1)	(0.3)	(0.9)	(0.7)	(0.8)	(0.4)	(2.6)	(1.6)	(0.2)	(0.1)	(7.1)	(7.8)	(0.8)	(0.4)	(2.0)	(1.9)
Childhood-cluster diseases	<0.1	<0.1	0.3	0.3	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.5	0	0	0.1	0.1
	(0)	(0)	(1.7)	(1.9)	(0.1)	(0.2)	(0.9)	(1.1)	(0.1)	(0.2)	(0.5)	(0.5)	(1.9)	(2.1)	(0)	(0)	(0.8)	(0.9)
Maternal conditions	0	<0.1	0	0.3	0	<0.1	0	0.1	0	0.1	0	<0.1	0	1.2	0	<0.1	0	0.1
	(0)	(0)	(0)	(2.5)	(0)	(0.2)	(0)	(0.8)	(0)	(1.2)	(0)	(0.7)	(0)	(5.4)	(0)	(0.3)	(0)	(1.6)
Other neonatal conditions	0	0	0.2	0.2	0	0	0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(1.5)	(1.4)	(0)	(0)	(1.3)	(1.3)	(0.6)	(0.6)	(0.5)	(0.5)	(0.8)	(0.7)	(0.4)	(0.5)	(0.6)	(0.6)
Neonatal sepsis and infections	<0.1	<0.1	0.2	0.2	0	0	0.1	0.1	0.1	0.1	<0.1	<0.1	0.2	0.2	<0.1	<0.1	0.1	<0.1
	(0)	(0)	(1.1)	(1.1)	(0)	(0)	(0.5)	(0.5)	(0.9)	(1.0)	(0.4)	(0.4)	(0.9)	(0.7)	(0.1)	(0.1)	(0.7)	(0.7)
Total impact of other causes	2.8	1.0	3.6	3.1	0.7	0.5	2.2	2.8	3.5	2.1	2.1	1.9	5.9	5.4	1.8	1.5	1.8	1.4
	(29)	(19)	(24)	(22)	(16)	(14)	(21)	(23)	(46)	(33)	(28)	(25)	(28)	(25)	(52)	(51)	(23)	(21)
Interpersonal violence	0.1	<0.1	0.2	<0.1	0	<0.1	0.1	<0.1	1.3	0.2	0.1	<0.1	0.6	0.2	0.2	0.1	0.1	<0.1

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(1.3)	(0.7)	(1.3)	(0.3)	(0)	(0.1)	(0.9)	(0.3)	(17)	(2.8)	(1.5)	(0.5)	(3.0)	(0.9)	(6.7)	(1.7)	(1.7)	(0.5)
Hypertensive heart disease	0.1	0.1	0.2	0.4	0.1	0.1	<0.1	0.3	0.1	0.1	0.4	0.5	0.3	0.8	0.2	0.1	0.1	0.1
	(1.1)	(1.0)	(1.6)	(2.5)	(2.6)	(2.9)	(0.4)	(2.1)	(1.9)	(2.3)	(4.8)	(6.8)	(1.2)	(3.6)	(4.9)	(3.0)	(1.6)	(2.0)
Drowning	0.1	<0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	0.2	0.1
	(1.0)	(0.3)	(1.8)	(1.0)	(2.3)	(1.6)	(1.3)	(0.8)	(0.9)	(0.3)	(0.4)	(0.1)	(1.1)	(0.5)	(0.6)	(0.3)	(2.4)	(1.6)
Other chronic kidney disease	<0.1	<0.1	0.2	0.2	0	0	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.1	0.1	0.2	0.1
	(0.3)	(0.2)	(1.3)	(1.7)	(0)	(0)	(0.9)	(0.7)	(2.9)	(3.3)	(4.1)	(5.0)	(2.1)	(1.8)	(2.6)	(3.0)	(1.9)	(2.0)
Other unintentional injuries	0.2	<0.1	0.2	0.2	0	0	0.2	0.2	0.2	0.1	<0.1	0	0.3	0.2	<0.1	<0.1	0.1	<0.1
	(2.2)	(0.4)	(1.5)	(1.1)	(0)	(0)	(1.9)	(1.6)	(2.0)	(1.1)	(0.2)	(0)	(1.3)	(0.9)	(0.7)	(0.3)	(1.2)	(0.2)
Falls	0.1	0	0.2	<0.1	0.1	<0.1	0.3	0.4	<0.1	<0.1	<0.1	0	0.2	0.1	<0.1	<0.1	0.1	<0.1
	(1.0)	(0)	(1.4)	(0.2)	(1.4)	(0.9)	(2.5)	(3.2)	(0.3)	(0)	(0.2)	(0)	(0.7)	(0.5)	(0.7)	(0.9)	(0.9)	(0.5)
Asthma	<0.1	0	0.2	0.2	<0.1	<0.1	0.2	0.4	<0.1	<0.1	0.1	0.1	0.2	0.2	<0.1	<0.1	0.1	0.1
	(0)	(0)	(1.3)	(1.3)	(0.3)	(0.2)	(2.2)	(3.4)	(0.2)	(0.3)	(0.9)	(1.1)	(0.8)	(1.1)	(0.3)	(0.3)	(1.5)	(2.1)
Congenital heart anomalies	<0.1	<0.1	0.2	0.2	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1
	(0.4)	(0.5)	(1.6)	(1.3)	(1.1)	(1.5)	(0.9)	(0.9)	(1.5)	(1.6)	(1.7)	(1.6)	(0.4)	(0.4)	(0.4)	(0.4)	(1.8)	(1.7)
Meningitis	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.4	0	0	<0.1	<0.1
	(0.1)	(0.1)	(0.8)	(0.9)	(0.1)	(0.1)	(0.5)	(0.6)	(0.2)	(0.2)	(0.2)	(0.2)	(1.9)	(1.8)	(0)	(0)	(0.4)	(0.5)
Collective violence and legal intervention	<0.1	<0.1	0.5	0.1	<0.1	0	<0.1	<0.1	0.1	<0.1	0.4	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
	(0.1)	(0)	(3.3)	(0.7)	(0)	(0)	(0)	(0)	(0.9)	(0.1)	(5.5)	(1.6)	(0.8)	(0.2)	(0.5)	(0)	(0.2)	(0.1)
Protein-energy malnutrition	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.2)	(0.3)	(0.1)	(0.1)	(0.2)	(0.3)	(0.9)	(1.1)	(0.1)	(0.2)	(1.0)	(1.0)	(0.5)	(1.0)	(0.5)	(0.7)
Esophagus cancer	<0.1	0	0.1	0.1	0.2	0.1	0	<0.1	0	0	0	<0.1	<0.1	0.1	0	0	<0.1	<0.1
	(0.1)	(0)	(0.4)	(0.6)	(4.5)	(1.7)	(0)	(0.2)	(0)	(0)	(0)	(0.1)	(0.2)	(0.3)	(0)	(0)	(0.4)	(0.2)
Other congenital anomalies	<0.1	<0.1	0.1	0.1	0	0	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
	(0.2)	(0.3)	(0.6)	(0.8)	(0)	(0)	(0.3)	(0.4)	(0.9)	(1.0)	(1.1)	(1.2)	(0.3)	(0.3)	(0.6)	(0.5)	(0.6)	(0.7)
Cirrhosis due to alcohol use	0.2	0.1	<0.1	<0.1	0	0	0.2	0.1	0.2	<0.1	0	0	0.2	0.1	<0.1	<0.1	<0.1	<0.1
	(2.4)	(1.5)	(0.3)	(0.2)	(0)	(0)	(1.9)	(0.4)	(2.0)	(0.3)	(0)	(0)	(0.7)	(0.2)	(0.7)	(0.5)	(0.5)	(0.2)
Other liver cirrhosis	0.1	0.1	<0.1	0.1	0	0	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	0	<0.1	<0.1	<0.1
	(0.6)	(1.4)	(0.2)	(0.7)	(0)	(0)	(0.8)	(0.8)	(0.7)	(0.6)	(0.4)	(1.0)	(0.5)	(0.7)	(0)	(0.8)	(0.3)	(0.5)
Peptic ulcer disease	0.1	<0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0	0	<0.1	<0.1
	(0.9)	(0.8)	(0.4)	(1.0)	(0.4)	(0.3)	(0.7)	(0.8)	(0.4)	(0.4)	(0.2)	(0.2)	(0.5)	(0.5)	(0)	(0)	(0.4)	(0.4)
Cardiomyopathy, myocarditis, endocarditis	0.5	0.2	0.1	0.1	0	0	<0.1	<0.1	<0.1	<0.1	0	0	0.1	0.1	<0.1	<0.1	0	<0.1
	(5.5)	(4.1)	(1.0)	(0.7)	(0)	(0)	(0.4)	(0.4)	(0.5)	(0.6)	(0)	(0)	(0.6)	(0.5)	(1.2)	(1.3)	(0)	(0.2)
Fire, heat and hot substances	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
	(0.6)	(0.3)	(0.2)	(0.6)	(0.1)	(0.1)	(0.2)	(0.7)	(0.2)	(0.1)	(0.4)	(0.5)	(0.6)	(0.6)	(0.3)	(0.3)	(0.1)	(0.2)
Other urinary diseases	<0.1	<0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
	(0.4)	(0.4)	(0.6)	(0.8)	(0)	(0)	(0.7)	(0.7)	(1.1)	(2.3)	(0)	(0)	(0.5)	(0.3)	(0.2)	(0.7)	(0.4)	(0.5)

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Other infectious diseases	0	0	0.1	0	0	0	0	0	0.1	0.1	0	0	0.2	0.2	0.1	0.1	0	0
	(0)	(0)	(0.5)	(0)	(0)	(0)	(0)	(0)	(1.2)	(1.7)	(0)	(0)	(1.1)	(0.9)	(2.2)	(3.0)	(0)	(0)
Exposure to mechanical forces	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0.4)	(0.1)	(0.3)	(0.1)	(0.7)	(0.3)	(0.2)	(0.2)	(0.5)	(0.1)	(0.9)	(0.2)	(0.4)	(0.1)	(0.4)	(0.1)	(0.3)	(0.1)
STDs excluding HIV	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0	0	<0.1	<0.1
	(0)	(0)	(0.2)	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)	(0.4)	(0.3)	(0)	(0)	(0.3)	(0.4)
Encephalitis	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0.1)	(0.2)	(0.4)	(0.5)	(0.1)	(0.1)	(0.7)	(0.8)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0)	(0)	(0.2)	(0.3)
Paralytic ileus and intestinal obstruction	<0.1	0	<0.1	<0.1	0	0	<0.1	0.1	<0.1	<0.1	0	0	0.2	0.1	0	0	0.1	<0.1
	(0)	(0)	(0.1)	(0.3)	(0)	(0)	(0.4)	(0.5)	(0.4)	(0.5)	(0)	(0)	(0.7)	(0.4)	(0)	(0)	(0.6)	(0.6)
Epilepsy	<0.1	0	0.1	0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0	0.2	0.1	0	0	0	0
	(0)	(0)	(0.4)	(0.5)	(0)	(0)	(0.4)	(0.3)	(0.2)	(0.2)	(0)	(0)	(0.8)	(0.3)	(0)	(0)	(0)	(0)
Hepatitis	0	0	<0.1	0.1	0	0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.2)	(0.8)	(0)	(0)	(0.6)	(0.5)	(0.1)	(0.1)	(0.2)	(0.1)	(0.3)	(0.2)	(0.4)	(0.3)	(0.2)	(0.3)
Neural tube defects	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.2)	(0.3)	(0)	(0)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.2)	(0.3)	(0.3)
Other malignant neoplasms	0.1	<0.1	0.1	0.1	0	0	0	0	<0.1	<0.1	0.1	0.1	0.2	0.3	0	0	<0.1	<0.1
	(0.5)	(0.7)	(0.8)	(0.5)	(0)	(0)	(0)	(0)	(0)	(0.4)	(1.3)	(1.1)	(1.2)	(1.2)	(0)	(0)	(0.6)	(0.4)
Rabies	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	0	0.1	0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.1)	(0.1)	(0.3)	(0.8)	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0.3)	(0.3)	(0)	(0)	(0.2)	(0.2)
Poisonings	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0.6)	(0.3)	(0.1)	(0.1)	(0.5)	(0.6)	(0)	(0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)
Sickle cell disorders and trait	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.3)	(0.6)	(0.1)	(0.1)	(0)	(0)
Pancreatitis	0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(1.2)	(0.8)	(0.1)	(0.2)	(0)	(0)	(0.2)	(0.1)	(0.3)	(0.3)	(0)	(0)	(0.2)	(0)	(0)	(0)	(0.2)	(0)
Dengue	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.2)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.4)	(0.4)
Gallbladder and biliary tract cancer	0	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	0	0	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.3)	(0.1)	(0.5)	(0)	(0)	(0)	(0)	(0)	(0)	(0.3)	(0.5)
Gastritis and duodenitis	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0.1)	(0.2)	(0.3)	(0)	(0.1)	(0.1)	(0.1)	(0)	(0)	(0.2)	(0.1)	(0)	(0)	(0)	(0)
Other nutritional deficiencies	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0.4)	(0)	(0)	(0.1)	(0.3)	(0.1)	(0.1)	(0)	(0.1)	(0)	(0.1)	(0)	(0)	(0.1)	(0.2)
Leukemia	<0.1	<0.1	<0.1	0	0	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0.1)	(0.1)	(0.1)	(0)	(0)	(0.2)	(0)	(0)	(0.2)	(0.5)	(0.6)	(0.5)	(0)	(0)	(0.2)	(0.2)	(0.1)	(0.2)
Other liver cancer	0	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(0)	(0)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0)	(0.2)	(0.3)	(0.3)	(0.1)	(0.1)	(0.3)	(0.2)	(0.2)	(0.2)
Appendicitis	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0)	(0.1)	(0)	(0)	(0.1)	(0.2)	(0.2)	(0.2)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.1)	(0.1)
Sudden infant death syndrome	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.5)	(0.5)	(0.2)	(0)
Upper respiratory infections	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	0	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0)	(0)
Skin diseases	<0.1	<0.1	<0.1	0	0	0	0	0	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0.1)	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0.6)	(0.9)	(0)	(0)	(0.1)	(0.1)	(0.1)	(0)	(0.3)	(0.4)
Schistosomiasis	0	0	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.2)	(0.2)	(0)	(0)	(0)	(0)
Thalassemia	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.2)
Gallbladder and biliary diseases	<0.1	<0.1	0	<0.1	0	0	0	0	<0.1	<0.1	0	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.3)	(0.6)	(0)	(0.1)	(0.1)	(0.2)	(0)	(0)	(0.1)	(0.4)
Other haemoglobinopathies and hemolytic anemia	0	0	<0.1	<0.1	0	0	0	0	<0.1	<0.1	0	0	<0.1	0.1	0	0	<0.1	<0.1
	(0)	(0)	(0.2)	(0.1)	(0)	(0)	(0)	(0)	(0.2)	(0.3)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0.1)	(0.1)
Thyroid cancer	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0.2)	(0.1)	(0.2)	(0)	(0.1)	(0)	(0)	(0)	(0.2)
Natural disasters	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.1)
Yellow fever	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	<0.1	<0.1	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0)	(0)
Leishmaniasis	0	0	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0)	(0)
Urolithiasis	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0.1)	(0.1)	(0)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Echinococcosis	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0)
Cysticercosis	<0.1	<0.1	0	0	<0.1	<0.1	0	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0)	(0)
Acute glomerulonephritis	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Rheumatoid arthritis	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	0	0	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0.1)	(0)	(0.1)	(0)	(0.1)	(0)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Gynecological diseases	0	<0.1	0	<0.1	0	<0.1	0	<0.1	0	<0.1	0	<0.1	0	<0.1	0	0	0	<0.1

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.1)
Parkinson disease	0	0	<0.1	<0.1	0	<0.1	0	<0.1	0	0	<0.1	<0.1	0	<0.1	<0.1	<0.1	0	<0.1
	(0)	(0)	(0.1)	(0.3)	(0)	(0.2)	(0)	(0.1)	(0)	(0)	(0)	(0.2)	(0)	(0.1)	(0.9)	(0.6)	(0)	(0.1)
Intestinal nematode infections	0	0	<0.1	<0.1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Chagas disease	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.3)	(0.3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Inflammatory bowel disease	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1	0	0	0	0
	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Cleft lip and cleft palate	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Testicular cancer	<0.1	0	<0.1	0	0	0	0	0	<0.1	0	0	0	<0.1	0	<0.1	0	0	0
	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
African trypanosomiasis	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Gout	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	<0.1	<0.1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)
Leprosy	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Eating disorders	0	<0.1	0	0	0	<0.1	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Otitis media	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	<0.1	<0.1	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Vitamin A deficiency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Uncorrected refractive errors	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Down syndrome	0	0	0	<0.1	0	0	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Bladder cancer	<0.1	0	<0.1	0	0	0	0	0	0	0	0.1	<0.1	0	<0.1	0	0	0	0
	(0.3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.9)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)
Bipolar disorder	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Anxiety disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Benign prostatic hyperplasia	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Other musculoskeletal disorders	0	0	0	<0.1	0	0	0	<0.1	<0.1	<0.1	0	0	0	<0.1	<0.1	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.5)	(0)	(0)	(0)	(0)	(0.2)	(0.4)	(0)	(0)
Other oral disorders	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other chromosomal anomalies	0	0	0	0	0	0	0	0	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.2)	(0.4)	(0)	(0)
Other circulatory diseases	0.1	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	<0.1	0	0
	(0.8)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.3)	(0)	(0)	(0)	(0)	(0)	(0.2)	(0)	(0)
Other respiratory diseases	0	0	0	0	0	0	<0.1	<0.1	0.1	0.1	0	0	0	0	0	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.4)	(0.9)	(1.5)	(0)	(0)	(0)	(0)	(0)	(0.6)	(0)	(0)
Liver cancer secondary to alcohol use	<0.1	<0.1	0	0	0	<0.1	0	0	0	<0.1	0	0	0	<0.1	0	0	<0.1	<0.1
	(0)	(0.1)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0.3)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)
Lymphatic filariasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other neurological conditions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1.0)	(1.4)	(0)	(0)
Iodine deficiency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Osteoarthritis	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Ovary cancer	0	<0.1	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0
	(0)	(0.6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0)
Brain and nervous system cancers	<0.1	<0.1	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0
	(0.1)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.3)	(0.3)	(0)	(0)	(0)	(0)	(0)	(0)
Drug use disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.3	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(15)	(9.5)	(0)	(0)
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other sense organ disorders	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Colon and rectum cancers	0.1	0.1	0	0	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
	(1.4)	(1.0)	(0)	(0)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Melanoma and other skin cancers	<0.1	<0.1	0	0	0	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0
	(0.1)	(0.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.2)	(0)	(0)	(0)
Cataracts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other digestive diseases	<0.1	0	0	0	0	0	0	0	0.2	0.1	0	0	0	0	<0.1	0.1	0	0

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(2.2)	(2.4)	(0)	(0)	(0)	(0)	(0.7)	(1.7)	(0)	(0)
Dental caries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Onchocerciasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Idiopathic intellectual disability	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Kidney cancer	<0.1	<0.1	0	0	0	0	0	0	0	<0.1	0	0	0	<0.1	<0.1	<0.1	0	0
	(0.4)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)	(0)
Schizophrenia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Migraine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Trachoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Iron-deficiency anemia	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	<0.1	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.2)	(0.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Prostate cancer	0.1	0	0	0	0	0	0	0	0.1	0	0	0	0.3	0	0	0	0	0
	(0.6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1.4)	(0)	(0)	(0)	(1.5)	(0)	(0)	(0)	(0)	(0)
Periodontal disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Glaucoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
COVID-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Alzheimer disease and other dementias	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	<0.1	0.1	0.4	0	0
	(0)	(0)	(0)	(0)	(0)	(1.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(4.0)	(12)	(0)	(0)
Other endocrine, blood and immune disorders	0	0	0	0	0	0	0	0	<0.1	0.1	0	0	0	<0.1	0.1	0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.4)	(0.8)	(0)	(0)	(0)	(0.1)	(2.8)	(3.1)	(0)	(0)
Lymphomas, multiple myeloma	0	0	0	0	0	0	0	0	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.4)	(0.3)	(0.2)	(0.2)	(0.3)	(0.3)	(0)	(0)
Other neoplasms	0	0	0	0	0	0	0	0	<0.1	<0.1	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0.3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Pancreas cancer	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0.4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Corpus uteri cancer	0	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0

	Central & Eastern Europe		Central Asia		China		India		Latin Amer-ica & the Caribbean		Mid. East & North Africa		Sub-Saharan Africa		United States		Western Pacific & SE Asia	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	(0)	(0.6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.7)	(0)	(0)
Multiple sclerosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.1)	(0)	(0)
Breast cancer	<0.1	0	<0.1	0	<0.1	0	<0.1	0	0	0	<0.1	<0.1	<0.1	0.2	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.6)	(0.1)	(1.1)	(0)	(0)	(0)	(0)
Other COVID-19 pandemic-related outcomes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other mental and behavioral disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Other hearing loss	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Back and neck pain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Alcohol use disorders	0.3	0.1	0	0	0	0	<0.1	0	<0.1	0	0	0	0	<0.1	<0.1	<0.1	0	0
	(2.7)	(1.1)	(0)	(0)	(0)	(0)	(0)	(0)	(0.4)	(0)	(0)	(0)	(0)	(0)	(1.0)	(0.7)	(0)	(0)

Note: Number of years are shown with percentage of total gap in parentheses below. Males were compared to males in the North Atlantic (who had a life expectancy of 80) and females to females in the North Atlantic (who had a life expectancy of 84). The I-8 are neonatal conditions, lower respiratory infections, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, childhood-cluster diseases, and maternal conditions. The NCD-7 are atherosclerotic cardiovascular diseases, hemorrhagic stroke, NCDs strongly linked to infections, NCDs strongly linked to tobacco use, diabetes, road injury, and suicide. Data from references 1 and 3.

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