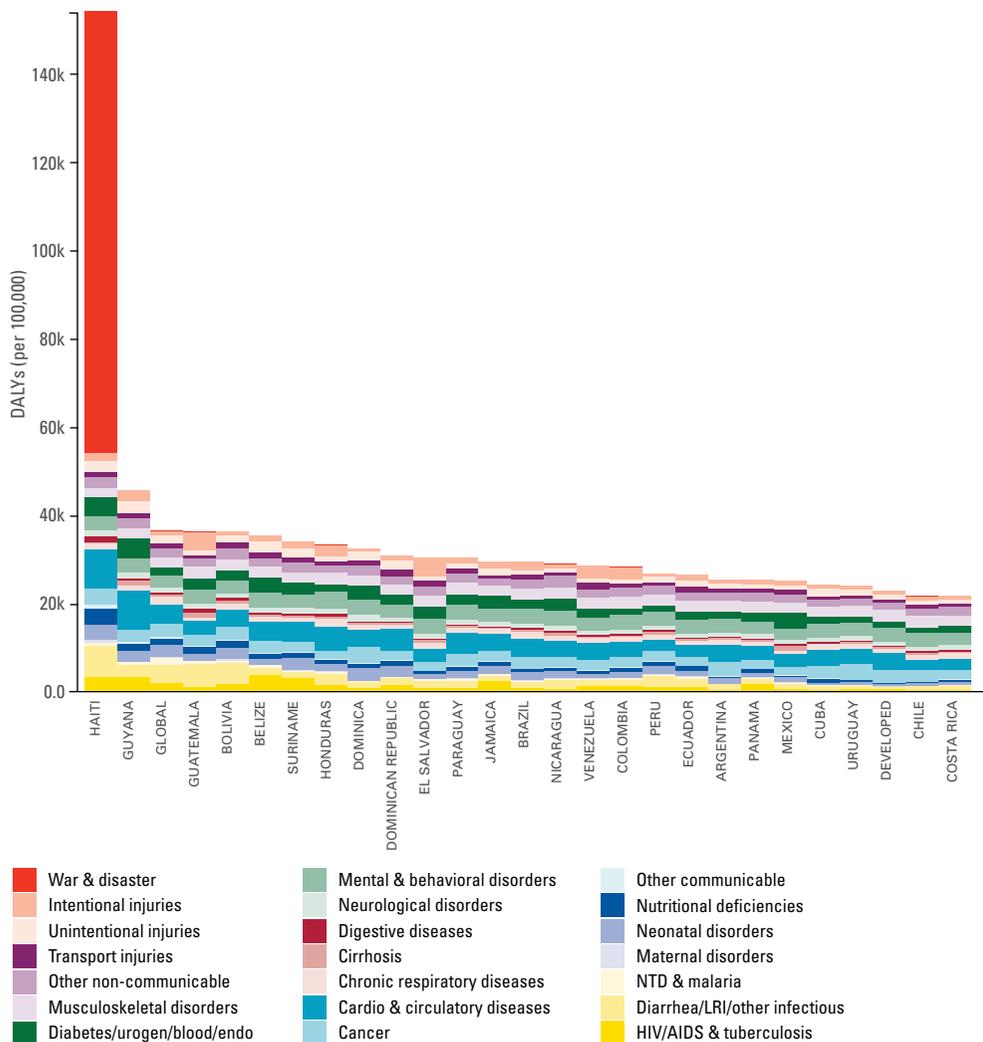# USING GBD TO ASSESS COUNTRIES' HEALTH PROGRESS

GBD found that factors such as population growth, longer lives, and decreasing mortality are causing increases in years of healthy life lost, or DALYs, from non-communicable diseases in many countries. Although non-communicable diseases are increasing relative to other health problems as a result of these demographic changes, GBD found that many countries are actually showing improvements in health as measured by age-standardized DALY rates.

Differences in population growth and ages across countries can make a country with a younger population appear better in terms of health performance than a country with an older population. Similarly, countries with low population growth will add less disease burden over time than countries with a fast-growing population. Researchers can remove the impact of these factors to isolate what is important for comparisons of health performance using age-standardized rates of DALYs and YLLs.

For example, many countries in Latin America and the Caribbean have made progress in reducing age-standardized rates of DALYs from meningitis, iron-deficiency anemia, and maternal disorders, such as Bolivia, Guatemala, Haiti, and Honduras. Multiple countries in the region generally made progress in reducing age-standardized rates of DALYs from non-communicable diseases including ischemic heart disease and stroke. Conversely, many countries in Latin America and the Caribbean experienced rising age-standardized rates of DALYs due to diabetes, musculoskeletal, and drug use disorders. To explore age-standardized DALY rates of diseases and injuries at the country level between 1990 and 2010, visit IHME's data visualization tools at www.ihmeuw.org/GBDcountryviz.

GBD can be used to compare and contrast disease patterns across countries. Figure 21 shows causes of age-standardized DALYs per 100,000 people. Many countries in Latin America and the Caribbean have rates of DALYs from communicable, maternal, nutritional, and newborn conditions that are much lower than the world as a whole. Low- and low-middle-income countries in the region such as Belize, Bolivia, Guatemala, Guyana, and Haiti have the highest rates for these conditions, while upper-middle-income countries such as Argentina, Chile, Costa Rica, Cuba, and Uruguay have rates of communicable, maternal, nutritional, and newborn conditions comparable to developed countries as a whole. Even without the enormous age-standardized DALY rates due to deaths from forces of nature, Haiti had the highest rates from communicable, maternal, nutritional, and newborn conditions among countries shown in Figure 21. Countries such as Belize, Dominica, Guyana, Haiti, and Mexico have age-standardized DALY rates of diabetes and urogenital, blood, and endocrine disorders that are greater than other countries in the region as well as the global average. Age-standardized DALY rates of intentional injuries in most countries

Figure 21: Age-standardized DALY rates across select countries in Latin American and Caribbean, 2010

Legend:
- War & disaster
- Intentional injuries
- Unintentional injuries
- Transport injuries
- Other non-communicable
- Musculoskeletal disorders
- Diabetes/urogen/blood/endo
- Mental & behavioral disorders
- Neurological disorders
- Digestive diseases
- Cirrhosis
- Chronic respiratory diseases
- Cardio & circulatory diseases
- Cancer
- Other communicable
- Nutritional deficiencies
- Neonatal disorders
- Maternal disorders
- NTD & malaria
- Diarrhea/LRI/other infectious
- HIV/AIDS & tuberculosis

Note: The size of the colored portion in each bar represents number of age-standardized DALYs per 100,000 people attributable to each cause. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain. To view an interactive version of this figure, visit IHME's website: http://ihmeuw.org/gbdcausepattern.

in Latin America and the Caribbean exceed global rates, especially in Colombia, El Salvador, Guatemala, Guyana, and Honduras. Many countries in the region are performing better than global rankings on transport injuries, and the rates of DALYs due to transport injuries in some developing countries, including Cuba, Guatemala, Jamaica, Nicaragua, and Uruguay, were lower than those in developed countries.

The GBD approach affords countries a unique opportunity to explore their success in improving health outcomes over time. GBD can also be used to better understand how fast a country's health is improving relative to similar countries. This type of progress assessment is called benchmarking. Benchmarking is a tool that can help countries put their health achievements in context and identify areas for improvement. IHME invites countries interested in collaborating on benchmarking exercises to contact us.

As an example of a benchmarking exercise, Figure 22 ranks levels of years of life lost in Latin American and Caribbean countries in 2010. The columns are arranged by the top 30 causes of YLLs in the region. The countries are ordered according to levels of premature mortality. For each cause, rankings are coded to reflect each country's level of age-standardized YLLs relative to the others. The best performers for each cause are in green, while the worst performers for each cause appear in red. Yellow shading indicates that the ranking for a particular country does not have a statistically significant difference from the regional average. Black indicates no ranking was assigned due to zero YLLs from a given cause.

Figure 22 can be used to compare the performance of Latin American and Caribbean countries and can help countries identify priority areas for improvement. For example, Cuba performed better than the regional average for most causes of premature death, but performed poorly in areas such as ischemic heart disease, COPD, and lung, colorectal, and breast cancers. Jamaica was the top performer in the region for causes including road injuries, cirrhosis, self-harm, and drowning, but ranked near the bottom for stroke, diabetes, HIV/AIDS, hypertension, and breast cancer. Country comparisons can be used for selecting case studies to understand why performance differs across countries. For example, case studies could potentially reveal why a lower-middle-income country such as El Salvador performed much better for neonatal encephalopathy and tuberculosis than Peru, an upper-middle-income country.

To further illustrate how benchmarking can be implemented at the country level, IHME is currently working with public health experts in the United Kingdom to explore changes in population health over time and to compare its health performance to other countries with similar and higher levels of health spending. Through close collaboration with decision-makers at the National Health Service and Public Health England, the IHME-UK benchmarking project is examining the context in which health progress has occurred, such as the UK's provision of universal health coverage and its implementation of numerous public health interventions.

Figure 22: Causes of leading years of life lost, Latin America and Caribbean countries relative to regional average, 2010

Cause	COSTA RICA	CUBA	CHILE	URUGUAY	ANTIGUA AND BARBUDA	PANAMA	ARGENTINA	PERU	ECUADOR	MEXICO	COLOMBIA	JAMAICA	NICARAGUA	VENEZUELA	BRAZIL	SAINT LUCIA	PARAGUAY	DOMINICAN REPUBLIC	EL SALVADOR	DOMINICA	HONDURAS	SAINT VINCENT AND THE GRENADINES	SURINAME	GRENADA	BELIZE	BOLIVIA	GUATEMALA	GUYANA	HAITI
MENINGITIS	1	3	2	6	8	11	13	21	16	4	20	19	25	10	14	15	23	24	5	12	6	7	9	27	17	18	28	26	29
TUBERCULOSIS	4	1	9	5	3	21	7	26	25	17	13	2	24	15	16	11	22	19	8	12	10	18	6	14	20	28	23	27	29
CERVICAL CANCER	3	5	7	6	2	12	11	23	16	14	15	20	27	21	9	19	29	13	25	1	18	10	17	22	28	26	24	8	
PROTEIN-ENERGY MALNUTRITION	2	1	3	6	4	22	8	20	21	19	23	9	25	16	14	5	18	12	17	10	26	15	11	7	13	27	24	28	29
LEUKEMIA	18	12	13	20	5	9	19	24	25	21	23	10	27	15	8	7	28	14	16	22	4	2	6	29	26	3	11		
CARDIOMYOPATHY	12	11	9	23	17	8	24	16	14	1	5	18	6	3	27	22	19	2	7	26	10	20	15	29	13	2	4	25	28
BREAST CANCER	15	20	11	29	21	8	28	6	4	10	9	24	4	16	18	19	26	14	5	13	6	1	22	2	25	17	23	27	
COLORECTAL CANCER	22	27	16	29	23	18	28	8	3	4	12	19	7	14	25	13	20	10	5	21	1	15	11	24	6	9	2	17	26
OTHER CARDIO & CIRCULATORY	6	3	2	12	22	4	21	13	9	7	10	19	5	1	17	27	15	8	11	25	26	1	18	29	23	20	14	24	28
STOMACH CANCER	25	1	24	14	3	17	9	26	23	5	22	11	19	8	12	13	15	4	21	18	27	6	1	8	10	29	7	20	
DROWNING	11	2	3	8	5	19	6	7	24	10	16	1	15	12	18	22	13	9	20	17	23	21	28	27	25	14	29	4	
HYPERTENSIVE HEART DISEASE	9	5	4	3	22	1	10	2	11	8	13	27	17	21	18	14	19	23	7	24	15	26	20	25	16	12	6	28	29
LUNG CANCER	8	28	22	29	1	18	27	11	12	19	23	6	26	24	15	25	20	3	16	4	9	13	17	21	14	7	5	10	
NEONATAL SEPSIS	3	2	1	4	8	9	23	17	10	5	16	22	12	20	13	21	27	11	18	26	19	14	6	25	15	24	29		
SELF-HARM	17	23	27	26	2	16	24	4	8	11	1	18	20	12	7	13	9	25	6	15	10	28	5	19	14	22	29	3	
DIARRHEAL DISEASES	7	2	1	6	3	17	5	11	18	12	15	22	24	20	13	8	21	23	19	26	10	4	14	9	16	28	25	29	
COPD	17	19	14	26	1	15	22	11	25	28	7	24	21	27	10	8	16	5	29	3	2	4	13	23	8	6			
NEONATAL ENCEPHALOPATHY	4	2	1	3	7	8	5	24	12	11	14	23	17	9	22	15	20	6	16	19	28	18	13	27	10	25	29		
CHRONIC KIDNEY DISEASE	16	2	3	1	8	19	5	10	23	29	14	28	21	9	4	20	15	27	12	6	13	25	18	22	26	24	17	11	
HIV/AIDS	3	2	4	7	8	25	6	12	5	21	26	1	19	14	10	9	20	11	24	22	28	13	29	18	27	23			
CIRRHOSIS	13	2	23	6	7	4	12	21	16	28	3	1	26	14	20	11	9	17	25	8	22	10	5	15	19	24	27	16	
CONGENITAL ANOMALIES	12	2	10	8	3	23	19	9	15	22	24	6	27	11	17	9	16	25	18	20	1	14	26	4	13	5	28	18	
DIABETES	1	2	3	5	20	11	6	4	9	22	7	24	17	12	10	26	19	13	16	18	8	23	15	27	25	14	21	29	28
PRETERM BIRTH COMPLICATIONS	4	2	2	3	14	5	16	15	11	7	13	8	17	10	21	22	18	9	25	20	28	26	12	24	19	26	23		
ROAD INJURY	15	4	9	6	2	17	11	10	27	16	1	8	29	24	12	22	26	28	18	5	19	7	23	3	21	20	14		
LOWER RESPIRATORY INFECTIONS	1	6	4	5	2	8	12	26	24	10	13	3	23	7	16	9	17	19	15	20	14	11	22	27	29	25	28		
STROKE	1	11	5	17	14	12	10	6	3	4	8	24	16	9	20	21	26	22	13	23	19	27	25	15	18	7	28	29	
INTERPERSONAL VIOLENCE	11	3	4	2	1	15	10	5	19	18	26	22	12	27	24	13	17	14	29	7	25	16	9	6	20	8	28	21	23
ISCHEMIC HEART DISEASE	6	22	1	8	11	9	13	10	3	15	4	19	24	17	7	20	27	18	5	28	21	16	25	14	12	29	26		
FORCES OF NATURE			27									26		28					25							24		29	

Legend:
- No ranking assigned
- Higher than mean (95% confidence)
- Indistinguishable from mean (95% confidence)
- Lower than mean (95% confidence)

Note: The columns are ordered by the absolute number of YLLs for that particular year. The numbers indicate the rank across countries for each cause in terms of age-standardized YLL rates, with 1 as the best performance and 29 as the worst.

For the UK, GBD estimates of life expectancy and healthy life expectancy (HALE), YLLs, YLDs, and DALYs will provide a detailed and comprehensive picture of changes in health outcomes over time. Comparing GBD estimates across countries will elucidate areas of health where the UK performs both better and worse than its peers. In addition, analysis of potentially modifiable risk factors can shed light on ways that public health policy could address major causes of ill health and premature death. The IHME-UK benchmarking study aims to identify key opportunities to speed up the pace of health improvements in the nation.

The Global Burden of Disease provides detailed data on diseases, injuries, and risk factors that are essential inputs for evidence-based policymaking. This collaborative project shows that the world's health is undergoing rapid change.