# USING GBD TO ASSESS COUNTRIES'
HEALTH PROGRESS

GBD found that factors such as population growth, longer lives, and decreasing mortality are driving up DALYs, or healthy years lost, 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.

Using age-standardized rates to assess the disease burden in Algeria between 1990 and 2010, for example, diarrheal diseases declined by 72%, lung cancer declined by 27%, and tuberculosis declined by 44%. In Iran, the health loss caused by lower respiratory infections and stroke dropped by 55% and 39%, respectively, over this same period. Similarly, in Jordan, the DALYs caused by road injuries declined by 26% despite a slight increase globally. 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 22 shows age-standardized DALYs per 100,000 people. The leading causes of premature death and disability are aggregated. For example, causes such as low back pain and neck pain are grouped into the category of musculoskeletal disorders. In the lower-middle-income countries of Djibouti, Iraq, and Yemen, age-standardized rates of communicable, newborn, nutritional, and maternal conditions exceeded 10,000 DALYs for every 100,000 people, while other lower- and upper-middle-income countries in Figure 22 had rates of 5,000 per 100,000 or lower (Iran, Jordan, Libya, Syria, and Tunisia). Lebanon had the lowest age-standardized rates of communicable, newborn, nutritional, and maternal conditions at approximately 2,500 per 100,000 people. Djibouti had the highest rates of HIV/AIDS and tuberculosis in comparison to other countries. Notably, Egypt had a high age-standardized rate of cardiovascular and circulatory diseases relative to the other countries shown in Figure 22. All countries had sizeable age-standardized rates of DALYs from non-communicable diseases, underscoring the double burden of disease from both communicable and non-communicable diseases that many middle-income countries face.

Figure 22: Age-standardized DALY rates across countries in the Middle East and North Africa, 2010
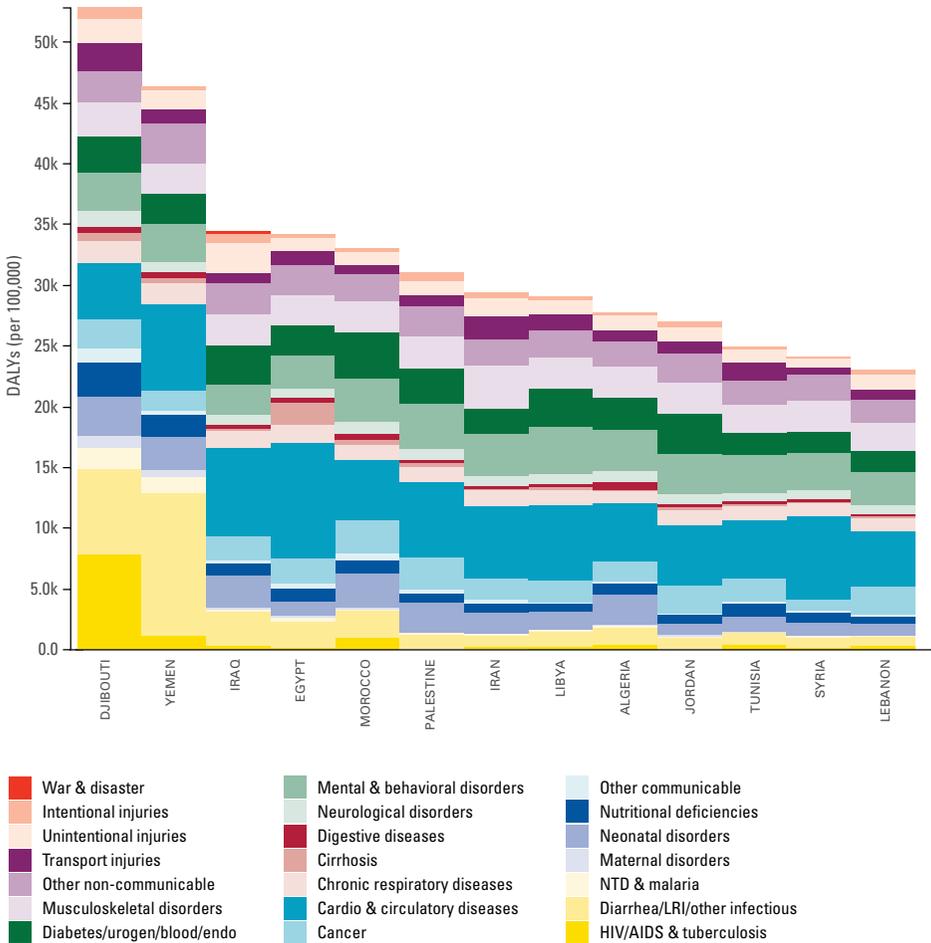
Note: The size of the colored portion in each bar represents number of age-standardized DALYs per 100,000 people attributable to each cause. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain. Palestine is the GBD equivalent of the West Bank and Gaza in the World Bank classification system. To view an interactive version of this figure, visit IHME's website: http://ihmeuw.org/gbdcausepattern.
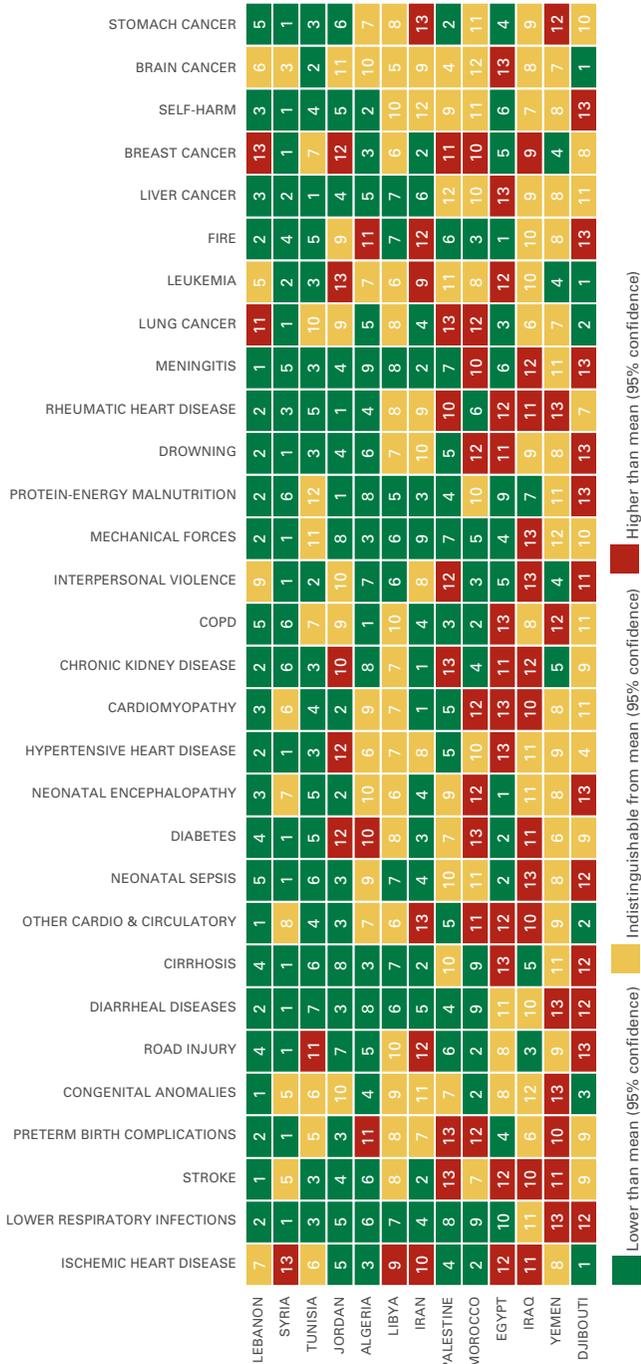
The GBD approach affords countries a unique opportunity to explore their success in improving health outcomes over time. GBD can also be used to better understand how fast a country's health is improving relative to similar countries. This type of progress assessment is called benchmarking. Benchmarking 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 23 shows levels of premature death, or YLLs, ranked for each country in the Middle East and North Africa relative to the regional average in 2010. The countries are ordered according to levels of premature mortality. The columns are arranged by the top 30 causes of DALYs. For each cause, rankings are coded to reflect each country's level of age-standardized DALYs 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 is not statistically significant from the regional average. For example, in comparison to the 11 other countries, Morocco performed better than average for ischemic heart disease (second), congenital anomalies (second), road injuries (second), chronic kidney disease (fourth), and COPD (second), among others. Relative to the other countries shown in Figure 23, Djibouti performed below average for some causes including lower respiratory infections (12th), road injuries (13th), cirrhosis (12th), and diarrheal diseases (12th), while also performing well above average for ischemic heart disease (first) and congenital anomalies (third).

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.

For the UK, GBD estimates of life expectancy and healthy life expectancy (HALE), years lost due to premature death (YLLs), years lived with disability (YLDs), and healthy years lost (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.

Figure 23: Causes of leading years of life lost, the Middle East and North Africa countries relative to regional average, 2010

Cause	LEBANON	SYRIA	TUNISIA	JORDAN	ALGERIA	LIBYA	IRAN	PALESTINE	MOROCCO	EGYPT	IRAQ	YEMEN	DJIBOUTI
STOMACH CANCER	5	1	3	6	7	8	13	2	11	4	9	12	10
BRAIN CANCER	6	3	2	11	10	5	9	4	12	13	8	7	1
SELF-HARM	3	1	4	5	2	10	12	9	11	6	7	8	13
BREAST CANCER	13	1	7	12	3	6	2	11	10	5	9	4	8
LIVER CANCER	3	2	1	4	5	7	6	12	10	13	9	8	11
FIRE	2	4	5	9	11	7	12	6	3	1	10	8	13
LEUKEMIA	5	2	3	13	7	6	9	11	8	12	10	4	1
LUNG CANCER	11	1	10	9	5	8	4	13	12	3	6	7	2
MENINGITIS	1	5	3	4	9	8	2	7	10	6	12	11	13
RHEUMATIC HEART DISEASE	2	3	5	1	4	8	9	10	6	12	11	13	7
DROWNING	2	1	3	4	6	7	10	5	12	11	9	8	13
PROTEIN-ENERGY MALNUTRITION	2	6	12	1	8	5	3	4	10	9	7	11	13
MECHANICAL FORCES	2	1	11	8	3	6	9	7	5	4	13	12	10
INTERPERSONAL VIOLENCE	9	1	2	10	7	6	8	12	3	5	13	4	11
COPD	5	6	7	9	1	10	4	3	2	13	8	12	11
CHRONIC KIDNEY DISEASE	2	6	3	10	8	7	1	13	4	11	12	5	9
CARDIOMYOPATHY	3	6	4	2	9	7	1	5	12	13	10	8	11
HYPERTENSIVE HEART DISEASE	2	1	3	12	6	7	8	5	10	13	11	9	4
NEONATAL ENCEPHALOPATHY	3	7	5	2	10	6	4	9	12	1	11	8	13
DIABETES	4	1	5	12	10	8	3	7	13	2	11	6	9
NEONATAL SEPSIS	5	1	6	3	9	7	4	10	11	2	13	8	12
OTHER CARDIO & CIRCULATORY	1	8	4	3	7	6	13	5	11	12	10	9	2
CIRRHOSIS	4	1	6	8	3	7	2	10	9	13	5	11	12
DIARRHEAL DISEASES	2	1	7	3	8	6	5	4	9	11	10	13	12
ROAD INJURY	4	1	11	7	5	10	12	6	2	8	3	9	13
CONGENITAL ANOMALIES	1	5	6	10	4	9	11	7	2	8	12	13	3
PRETERM BIRTH COMPLICATIONS	2	1	5	3	11	8	7	13	12	4	6	10	9
STROKE	1	5	3	4	6	8	2	13	7	12	10	11	9
LOWER RESPIRATORY INFECTIONS	2	1	3	5	6	7	4	8	9	10	11	13	12
ISCHEMIC HEART DISEASE	7	13	6	5	3	9	10	4	2	12	11	8	1

Legend:
- 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 13 as the worst. Palestine is the GBD equivalent of the West Bank and Gaza in the World Bank classification system.