

GBD PROFILE: BANGLADESH

GLOBAL BURDEN OF DISEASES, INJURIES, AND RISK FACTORS STUDY 2010

The Global Burden of Disease Study 2010 (GBD 2010) is a collaborative project of nearly 500 researchers in 50 countries led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. It is the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors. GBD serves as a global public good to inform evidence-based policymaking and health systems design.

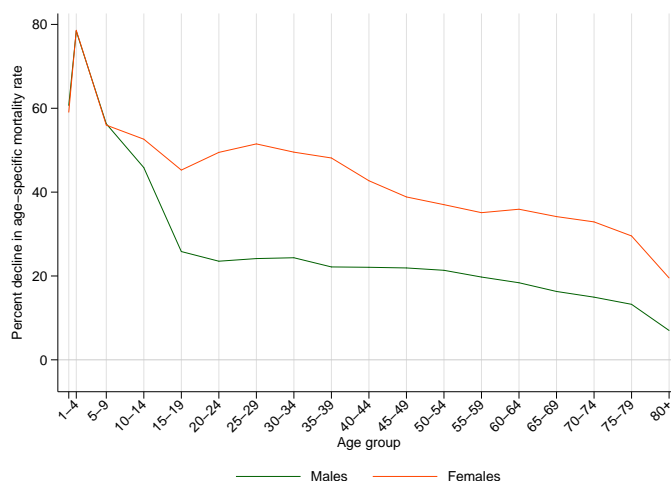
PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Bangladesh, preterm birth complications, lower respiratory infections, and neonatal encephalopathy (birth asphyxia and birth trauma) were the highest ranking causes i
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), diarrheal diseases showed the largest decrease, falling by 85% from 1990 to 2010.
- The leading risk factor in Bangladesh is tobacco smoking.

ALL-CAUSE MORTALITY RATE

- This chart shows the decline in mortality rate at every age range. The higher points on the chart indicate that declines in mortality rates were faster in those age groups between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by females aged 1-4 years (79%). Males aged 80+ years saw the smallest decrease in mortality rate (7%).

Percent decline in age-specific mortality rate by sex from 1990-2010 in Bangladesh



CAUSES OF PREMATURE DEATH

Years of life lost (YLLs) quantify premature mortality by weighting younger deaths more than older deaths.

Ranks for top 25 causes of YLLs 1990-2010, Bangladesh

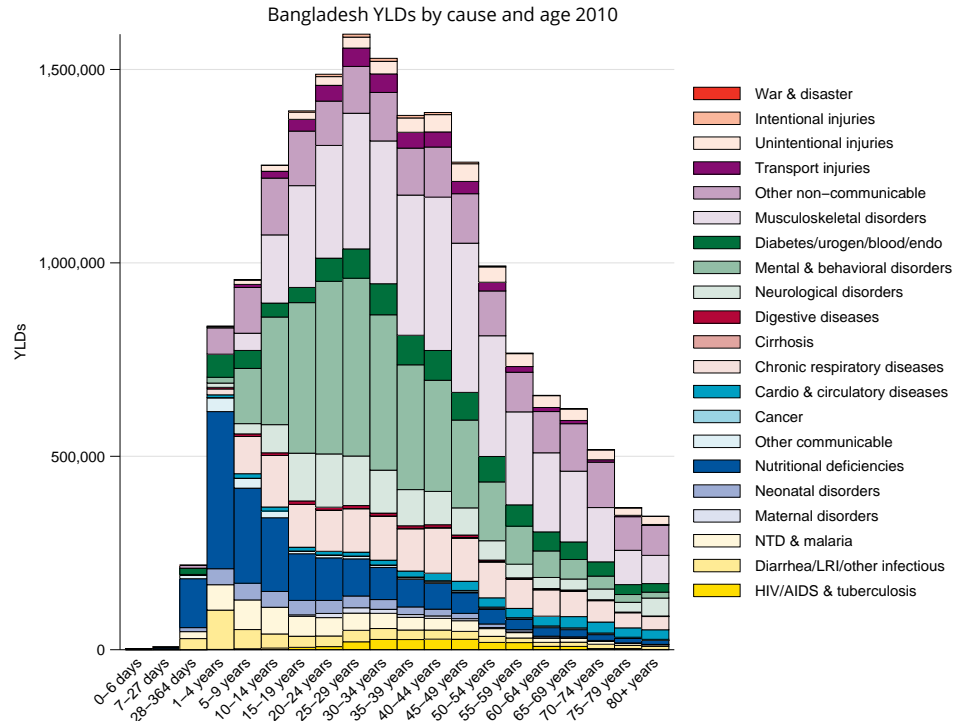
| # YLLs in thousands (% of total) | Rank and disorder 1990 | Rank and disorder 2010 | # YLLs in thousands (% of total) | % change |
|-------------------------------------|--------------------------------|--------------------------------|-------------------------------------|----------|
| 8,491 (13.5%) | 1 Diarrheal diseases | 1 Preterm birth complications | 2,915 (8.5%) | -58 |
| 7,348 (11.7%) | 2 Preterm birth complications | 2 Lower respiratory infections | 2,310 (6.7%) | -65 |
| 6,617 (10.5%) | 3 Lower respiratory infections | 3 Neonatal encephalopathy | 2,289 (6.7%) | -26 |
| 3,071 (4.9%) | 4 Drowning | 4 Drowning | 1,344 (3.9%) | -59 |
| 3,037 (4.8%) | 5 Neonatal encephalopathy | 5 COPD | 1,170 (3.4%) | -1 |
| 2,934 (4.7%) | 6 Protein-energy malnutrition | 6 Diarrheal diseases | 1,155 (3.4%) | -86 |
| 1,314 (2.1%) | 7 Tuberculosis | 7 Ischemic heart disease | 1,086 (3.2%) | 244 |
| 1,186 (1.9%) | 8 COPD | 8 Tuberculosis | 999 (2.9%) | -22 |
| 1,120 (1.8%) | 9 Congenital anomalies | 9 Chronic kidney disease | 809 (2.4%) | -10 |
| 1,170 (1.9%) | 10 Tetanus | 10 Cirrhosis | 744 (2.2%) | 1 |
| 968 (1.5%) | 11 Maternal disorders | 11 Stroke | 752 (2.2%) | -5 |
| 1,014 (1.6%) | 12 Neonatal sepsis | 12 Neonatal sepsis | 740 (2.2%) | -29 |
| 914 (1.5%) | 13 Syphilis | 13 Poisonings | 619 (1.8%) | -26 |
| 915 (1.5%) | 14 Chronic kidney disease | 14 Congenital anomalies | 613 (1.8%) | -45 |
| 815 (1.3%) | 15 Poisonings | 15 Protein-energy malnutrition | 605 (1.8%) | -80 |
| 1,119 (1.8%) | 16 Measles | 16 Diabetes | 596 (1.7%) | 133 |
| 737 (1.2%) | 17 Cirrhosis | 17 Self-harm | 561 (1.6%) | 42 |
| 771 (1.2%) | 18 Malaria | 18 Typhoid fevers | 585 (1.7%) | 22 |
| 614 (1.0%) | 19 Stroke | 19 Stomach cancer | 487 (1.4%) | 22 |
| 648 (1.0%) | 20 Mechanical forces | 20 Other cardio & circulatory | 437 (1.3%) | 123 |
| 631 (1.0%) | 21 Glomerulonephritis | 21 Non-Hodgkin lymphoma | 499 (1.4%) | 47 |
| 482 (0.8%) | 22 Peptic ulcer | 22 Maternal disorders | 407 (1.2%) | -58 |
| 385 (0.6%) | 23 Self-harm | 23 Falls | 384 (1.1%) | 11 |
| 481 (0.8%) | 24 Typhoid fevers | 24 Peptic ulcer | 376 (1.1%) | -22 |
| 403 (0.6%) | 25 Stomach cancer | 25 Lung cancer | 328 (1.0%) | 120 |
| | 28 Falls | 29 Syphilis | | |
| | 30 Ischemic heart disease | 34 Glomerulonephritis | | |
| | 32 Non-Hodgkin lymphoma | 35 Mechanical forces | | |
| | 33 Diabetes | 44 Malaria | | |
| | 39 Other cardio & circulatory | 58 Tetanus | | |
| | 45 Lung cancer | 74 Measles | | |

This chart shows the change in the top 25 causes of YLLs due to premature mortality from 1990 to 2010. Solid lines indicate a cause has moved up in rank or stayed the same. Broken lines indicate a cause has moved down in rank. The causes are color coded by blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes of death.

YEARS LIVED WITH DISABILITY (YLDs)

Years lived with disability (YLDs) are estimated by weighting the prevalence of different conditions based on severity. The top five leading causes of YLDs in Bangladesh are low back pain, iron-deficiency anemia, major depressive disorder, chronic obstructive pulmonary disease, and anxiety disorders.

The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows which age groups had the most YLDs in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain.

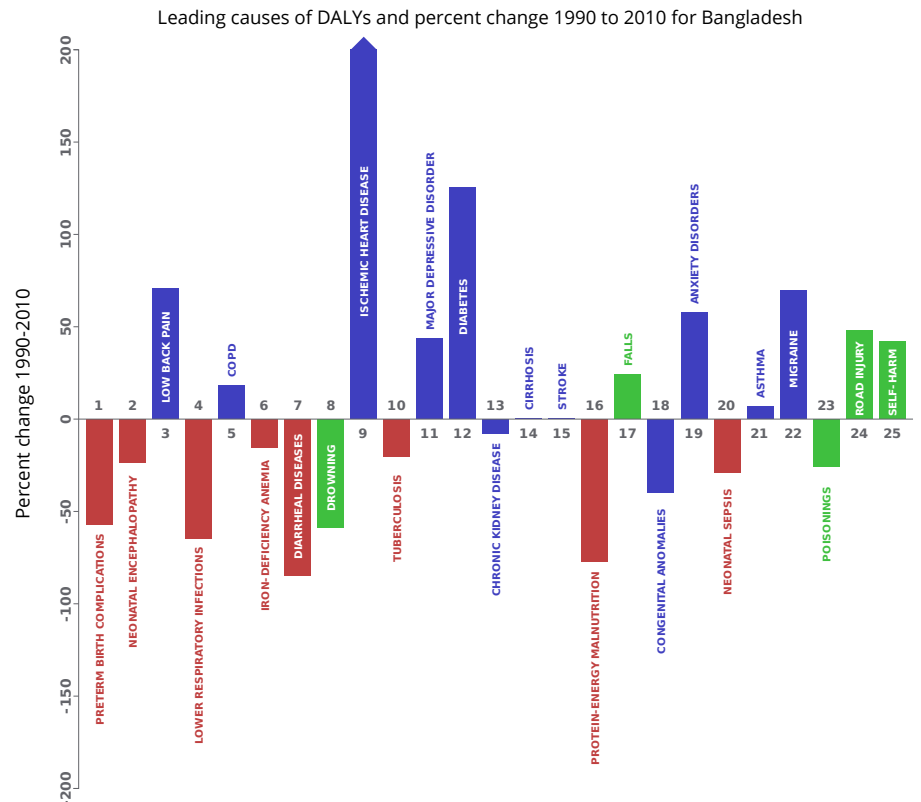


DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Bangladesh, the top three causes of DALYs in 2010 were preterm birth complications, neonatal encephalopathy (birth asphyxia and birth trauma), and low back pain. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was ischemic heart disease.

The top 25 causes of DALYs are ranked from left to right in order of the number of DALYs they contributed in 2010. Bars going up show the percent by which DALYs have increased since 1990. Bars going down show the percent by which DALYs have decreased. Globally, non-communicable diseases and injuries are generally on the rise, while communicable, maternal, neonatal, and nutritional causes of DALYs are generally on the decline.

- Communicable, maternal, neonatal, and nutritional
- Non-communicable
- Injuries

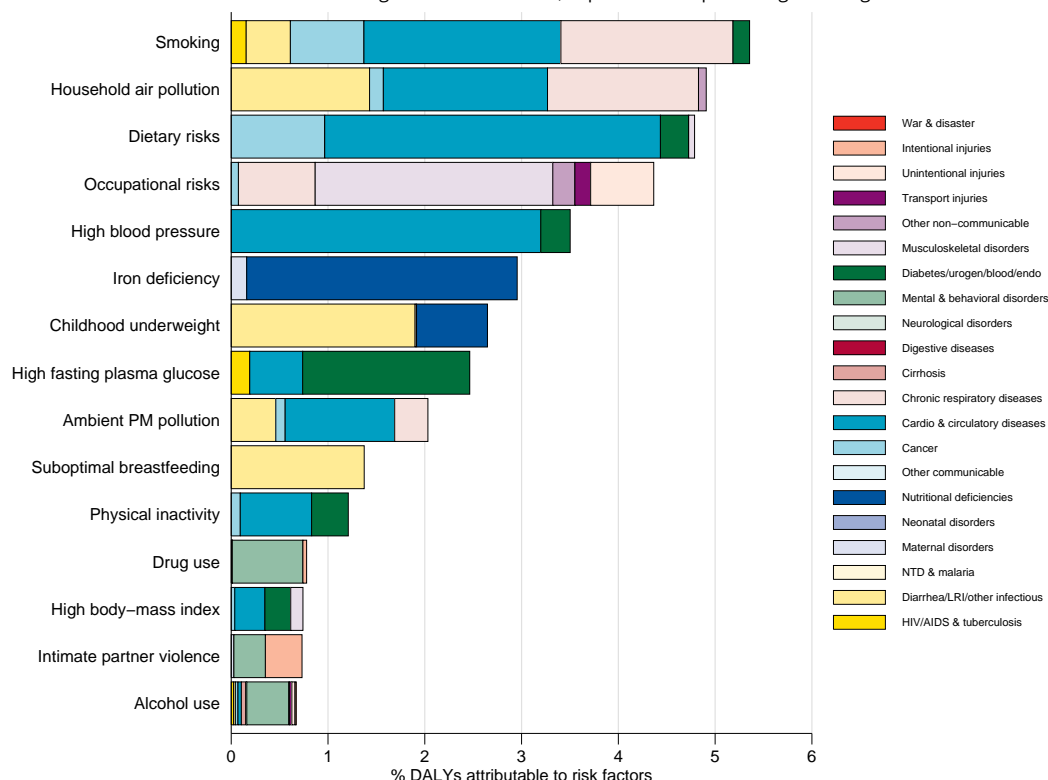


RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Bangladesh are tobacco smoking, household air pollution from solid fuels, and dietary risks. The leading risk factors for children under 5 and adults aged 15-49 years were childhood underweight and occupational risks, respectively, in 2010.

Burden of disease attributable to 15 leading risk factors in 2010, expressed as a percentage of Bangladesh DALYs

The graph shows the top 15 risk factors for Bangladesh. The colored portion of each bar represents the specific diseases attributable to that risk factor while bar size represents the percentage of DALYs linked to specific risk factors.



COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Bangladesh against other comparator countries provides key insight into public health successes and areas where Bangladesh might be falling behind. The table identifies Bangladesh's rank across 14 other comparator countries, selected and ordered by income per capita, for five metrics of interest, with 1 indicating the best rank and 15 indicating the worst rank.

- Age-standardized rates are used to make meaningful comparisons across time by adjusting for changes in population size and age structure.
- Life expectancy incorporates mortality, and health-adjusted life expectancy further incorporates years lived in less than ideal health.
- In 2010, Bangladesh ranked 3rd for age-standardized YLL rate and 5th for age-standardized YLD rate.

Age-standardized death rates, YLL rates, YLD rates, and life expectancy at birth and health-adjusted life expectancy at birth for 1990 and 2010, both sexes combined

| Country | Age-standardized death rate (per 100,000) | | | | Age-standardized YLL rate (per 100,000) | | | | Age-standardized YLD rate (per 100,000) | | | | Life expectancy at birth | | | | Health-adjusted life expectancy at birth | | | |
|-------------------|---|----------|------------|----------|---|----------|---------------|----------|---|-----------|---------------|----------|--------------------------|----------|-----------|----------|--|----------|-------------|----------|
| | 1990 | | 2010 | | 1990 | | 2010 | | 1990 | | 2010 | | 1990 | | 2010 | | 1990 | | 2010 | |
| | Rate | Rank | Rate | Rank | Rate | Rank | Rate | Rank | Rate | Rank | Rate | Rank | LE | Rank | LE | Rank | HALE | Rank | HALE | Rank |
| Côte d'Ivoire | 1,400 | 11 | 1,457 | 12 | 58,331 | 11 | 56,879 | 11 | 14,774 | 11 | 13,910 | 11 | 55.7 | 12 | 56.2 | 11 | 46.8 | 11 | 47.7 | 12 |
| The Gambia | 1,315 | 8 | 1,109 | 8 | 54,039 | 9 | 41,302 | 9 | 14,365 | 6 | 13,291 | 6 | 57.2 | 9 | 62.2 | 9 | 48.4 | 9 | 53.2 | 9 |
| Kenya | 1,092 | 2 | 1,013 | 5 | 39,731 | 2 | 36,153 | 6 | 13,184 | 3 | 12,884 | 3 | 63 | 2 | 64.8 | 6 | 53.8 | 2 | 55.5 | 5 |
| Timor-Leste | 1,223 | 4 | 872 | 4 | 45,244 | 4 | 26,770 | 4 | 14,698 | 9 | 13,715 | 8 | 60.5 | 5 | 68.7 | 4 | 50.7 | 5 | 58 | 4 |
| Chad | 1,508 | 13 | 1,389 | 11 | 67,610 | 14 | 58,839 | 13 | 15,080 | 14 | 14,364 | 13 | 52.5 | 14 | 55.5 | 13 | 43.9 | 14 | 46.8 | 13 |
| Benin | 1,312 | 7 | 1,080 | 7 | 58,713 | 12 | 38,726 | 7 | 15,237 | 15 | 13,830 | 10 | 55.9 | 11 | 63.4 | 7 | 46.6 | 12 | 53.7 | 8 |
| Ghana | 1,185 | 3 | 1,030 | 6 | 45,628 | 5 | 35,128 | 5 | 14,555 | 8 | 13,298 | 7 | 60.5 | 4 | 64.9 | 5 | 50.9 | 4 | 55.3 | 6 |
| Bangladesh | 1,295 | 6 | 864 | 3 | 49,258 | 6 | 26,361 | 3 | 14,743 | 10 | 13,206 | 5 | 58.9 | 6 | 69 | 3 | 49.2 | 8 | 58.4 | 3 |
| Lesotho | 1,316 | 9 | 2,130 | 14 | 43,569 | 3 | 85,888 | 14 | 13,503 | 4 | 15,483 | 14 | 60.9 | 3 | 47.4 | 14 | 52 | 3 | 40.2 | 14 |
| Zambia | 1,722 | 15 | 1,533 | 13 | 73,053 | 15 | 57,620 | 12 | 15,030 | 12 | 13,732 | 9 | 50.6 | 15 | 55.8 | 12 | 42.7 | 15 | 47.8 | 11 |
| North Korea | 895 | 1 | 832 | 2 | 25,915 | 1 | 21,755 | 1 | 10,569 | 1 | 10,347 | 1 | 68.9 | 1 | 70.8 | 1 | 60.7 | 1 | 62.4 | 1 |
| Haiti | 1,717 | 14 | 3,321 | 15 | 61,823 | 13 | 137,295 | 15 | 15,059 | 13 | 16,428 | 15 | 54.1 | 13 | 37.2 | 15 | 45.7 | 13 | 31.8 | 15 |
| Tanzania | 1,357 | 10 | 1,137 | 9 | 55,603 | 10 | 43,461 | 10 | 14,553 | 7 | 14,177 | 12 | 56.6 | 10 | 61.7 | 10 | 47.8 | 10 | 52.2 | 10 |
| Nepal | 1,285 | 5 | 832 | 1 | 49,745 | 7 | 26,361 | 2 | 13,660 | 5 | 12,959 | 4 | 58.8 | 7 | 69.2 | 2 | 49.8 | 6 | 58.8 | 2 |
| Comoros | 1,439 | 12 | 1,223 | 10 | 52,340 | 8 | 38,959 | 8 | 13,050 | 2 | 12,879 | 2 | 57.5 | 8 | 62.8 | 8 | 49.5 | 7 | 54 | 7 |

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Bangladesh relative to the same comparator countries for the leading causes of DALYs in 1990 (top) and 2010 (bottom).

- The columns are ordered by the absolute number of DALYs in Bangladesh for that particular year, with greatest burden on the left.
- The numbers indicate the rank across countries for each cause in terms of age-standardized DALY rates, with 1 as the best performance and 15 as the worst.

| Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 1990 | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|------------------------|--------------------|------------------------|------------------------|---------------|---------------------------|-----------|------------------------|-----------------|----------|-----------------------------|------------|----------------------|-------------------|---------------------------|-----------|-----------|------------|-------------------|-----------|
| Country | Diarrheal diseases | Preterm birth complications | Lower respiratory infections | Neonatal encephalopathy | Protein-energy malnutrition | Drowning | COPD | Iron-deficiency anemia | Tuberculosis | Low back pain | Congenital anomalies | Tetanus | Maternal disorders | Neonatal sepsis | Syphilis | Chronic kidney disease | Poisonings | Cirrhosis | Measles | Major depressive disorder | Malaria | Stroke | Asthma | Mechanical forces | Falls |
| Côte d'Ivoire | 13 | 13 | 6 | 8 | 7 | 4 | 9 | 7 | 4 | 7 | 6 | 9 | 7 | 13 | 3 | 4 | 6 | 13 | 10 | 12 | 12 | 8 | 8 | 7 | 14 |
| The Gambia | 6 | 5 | 14 | 3 | 10 | 9 | 11 | 12 | 8 | 11 | 8 | 10 | 12 | 14 | 6 | 7 | 3 | 12 | 11 | 15 | 11 | 13 | 12 | 3 | 12 |
| Kenya | 2 | 4 | 9 | 4 | 9 | 7 | 2 | 6 | 5 | 4 | 2 | 1 | 3 | 8 | 5 | 1 | 7 | 2 | 8 | 6 | 9 | 4 | 4 | 1 | 3 |
| Timor-Leste | 5 | 10 | 10 | 2 | 5 | 11 | 8 | 5 | 13 | 5 | 14 | 12 | 9 | 2 | 4 | 14 | 2 | 3 | 13 | 13 | 6 | 10 | 14 | 12 | 4 |
| Chad | 15 | 9 | 15 | 6 | 14 | 3 | 7 | 14 | 10 | 13 | 3 | 15 | 13 | 11 | 12 | 2 | 11 | 7 | 14 | 10 | 7 | 5 | 9 | 11 | 11 |
| Benin | 7 | 12 | 13 | 12 | 13 | 8 | 6 | 13 | 2 | 10 | 7 | 8 | 14 | 12 | 7 | 3 | 9 | 10 | 15 | 7 | 13 | 6 | 7 | 6 | 10 |
| Ghana | 3 | 8 | 4 | 9 | 6 | 1 | 3 | 11 | 3 | 1 | 4 | 7 | 4 | 15 | 2 | 5 | 4 | 11 | 12 | 11 | 10 | 7 | 2 | 2 | 7 |
| Bangladesh | 10 | 15 | 3 | 14 | 8 | 15 | 14 | 9 | 6 | 15 | 10 | 11 | 5 | 4 | 8 | 15 | 15 | 15 | 5 | 2 | 4 | 1 | 11 | 13 | 13 |
| Lesotho | 9 | 7 | 2 | 7 | 2 | 5 | 12 | 4 | 15 | 6 | 11 | 2 | 2 | 3 | 9 | 11 | 10 | 1 | 3 | 4 | 1 | 12 | 13 | 14 | 1 |
| Zambia | 8 | 1 | 8 | 11 | 15 | 12 | 5 | 2 | 12 | 3 | 5 | 3 | 8 | 6 | 13 | 9 | 14 | 14 | 4 | 14 | 14 | 9 | 3 | 8 | 15 |
| North Korea | 1 | 2 | 1 | 1 | 1 | 14 | 13 | 1 | 1 | 8 | 15 | 4 | 1 | 1 | 1 | 13 | 5 | 6 | 1 | 3 | 2 | 11 | 1 | 4 | 8 |
| Haiti | 14 | 6 | 5 | 10 | 3 | 2 | 1 | 15 | 14 | 2 | 9 | 13 | 11 | 10 | 14 | 12 | 1 | 5 | 2 | 8 | 5 | 15 | 10 | 9 | 6 |
| Tanzania | 11 | 3 | 11 | 5 | 11 | 10 | 4 | 10 | 9 | 12 | 1 | 5 | 10 | 7 | 11 | 6 | 12 | 9 | 6 | 5 | 15 | 3 | 5 | 5 | 2 |
| Nepal | 12 | 11 | 12 | 15 | 4 | 6 | 15 | 8 | 11 | 14 | 13 | 14 | 6 | 5 | 10 | 8 | 13 | 8 | 7 | 1 | 3 | 2 | 15 | 15 | 9 |
| Comoros | 4 | 14 | 7 | 13 | 12 | 13 | 10 | 3 | 7 | 9 | 12 | 6 | 15 | 9 | 15 | 10 | 8 | 4 | 9 | 9 | 8 | 14 | 6 | 10 | 5 |
| Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Country | Preterm birth complications | Neonatal encephalopathy | Low back pain | Lower respiratory infections | COPD | Iron-deficiency anemia | Diarrheal diseases | Drowning | Ischemic heart disease | Tuberculosis | Major depressive disorder | Diabetes | Chronic kidney disease | Cirrhosis | Stroke | Protein-energy malnutrition | Falls | Congenital anomalies | Anxiety disorders | Neonatal sepsis | Asthma | Migraine | Poisonings | Road injury | Self-harm |
| Côte d'Ivoire | 13 | 12 | 7 | 13 | 10 | 9 | 13 | 7 | 13 | 9 | 7 | 13 | 9 | 15 | 11 | 12 | 14 | 10 | 6 | 15 | 10 | 9 | 6 | 15 | 6 |
| The Gambia | 8 | 4 | 10 | 12 | 7 | 12 | 6 | 6 | 7 | 5 | 8 | 9 | 11 | 9 | 7 | 8 | 10 | 11 | 4 | 13 | 8 | 13 | 3 | 12 | 3 |
| Kenya | 5 | 3 | 4 | 10 | 2 | 7 | 10 | 8 | 2 | 8 | 10 | 2 | 1 | 2 | 4 | 13 | 4 | 4 | 8 | 9 | 4 | 3 | 7 | 8 | 10 |
| Timor-Leste | 9 | 2 | 5 | 4 | 9 | 3 | 4 | 10 | 15 | 14 | 13 | 5 | 13 | 1 | 8 | 4 | 3 | 15 | 5 | 2 | 14 | 8 | 1 | 2 | 7 |
| Chad | 12 | 8 | 13 | 15 | 8 | 14 | 15 | 5 | 4 | 12 | 9 | 8 | 3 | 12 | 5 | 15 | 13 | 9 | 9 | 12 | 7 | 12 | 11 | 13 | 2 |
| Benin | 10 | 6 | 11 | 11 | 4 | 13 | 5 | 4 | 8 | 4 | 4 | 7 | 2 | 10 | 6 | 10 | 9 | 6 | 3 | 11 | 6 | 11 | 5 | 9 | 5 |
| Ghana | 7 | 5 | 1 | 6 | 6 | 10 | 3 | 3 | 12 | 2 | 5 | 10 | 6 | 13 | 9 | 9 | 7 | 5 | 7 | 14 | 2 | 10 | 4 | 7 | 1 |
| Bangladesh | 15 | 15 | 15 | 2 | 14 | 6 | 2 | 15 | 3 | 3 | 3 | 6 | 15 | 11 | 1 | 5 | 12 | 8 | 12 | 3 | 11 | 14 | 15 | 1 | 9 |
| Lesotho | 14 | 13 | 6 | 14 | 13 | 4 | 14 | 9 | 5 | 15 | 14 | 14 | 14 | 6 | 14 | 3 | 1 | 14 | 2 | 4 | 15 | 6 | 9 | 3 | 8 |
| Zambia | 2 | 10 | 3 | 8 | 5 | 2 | 11 | 13 | 9 | 13 | 11 | 12 | 10 | 14 | 10 | 14 | 15 | 3 | 10 | 7 | 3 | 1 | 14 | 11 | 13 |
| North Korea | 1 | 1 | 8 | 1 | 12 | 1 | 1 | 12 | 11 | 1 | 1 | 1 | 8 | 8 | 12 | 1 | 8 | 13 | 1 | 1 | 1 | 5 | 8 | 5 | 15 |
| Haiti | 6 | 7 | 2 | 5 | 1 | 15 | 12 | 2 | 14 | 11 | 6 | 15 | 7 | 3 | 15 | 6 | 11 | 12 | 15 | 10 | 13 | 7 | 2 | 6 | 4 |
| Tanzania | 3 | 9 | 12 | 7 | 3 | 11 | 7 | 11 | 1 | 7 | 15 | 4 | 4 | 4 | 2 | 7 | 2 | 1 | 14 | 6 | 5 | 4 | 12 | 10 | 12 |
| Nepal | 4 | 14 | 14 | 3 | 15 | 5 | 9 | 1 | 10 | 6 | 2 | 3 | 5 | 7 | 3 | 2 | 5 | 2 | 13 | 5 | 12 | 15 | 13 | 4 | 14 |
| Comoros | 11 | 11 | 9 | 9 | 11 | 8 | 8 | 14 | 6 | 10 | 12 | 11 | 12 | 5 | 13 | 11 | 6 | 7 | 11 | 8 | 9 | 2 | 10 | 14 | 11 |
| Ranking Legend | | 1 - 3 | | | 4 - 7 | | | 8 - 11 | | | 12 - 15 | | | | | | | | | | | | | | |