

GBD PROFILE: THAILAND

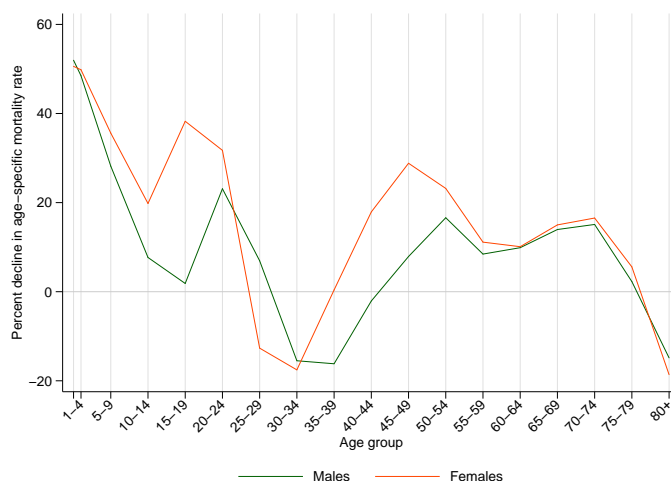
GLOBAL BURDEN OF DISEASES, INJURIES, AND RISK FACTORS STUDY 2010

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 Thailand, HIV/AIDS, ischemic heart disease, and road injury were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), preterm birth complications showed the largest decrease, falling by 56% from 1990 to 2010.
- The leading risk factor in Thailand is dietary risks.

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



ALL-CAUSE MORTALITY RATE

- This chart shows the change in mortality rate at every age range. The points above 0 on the chart indicate positive declines in the all-cause mortality rate, while points below 0 indicate an increase in mortality rate between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by males aged <1 year (52%). Females aged 80+ years saw the largest increase in mortality rate (19%).

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, Thailand

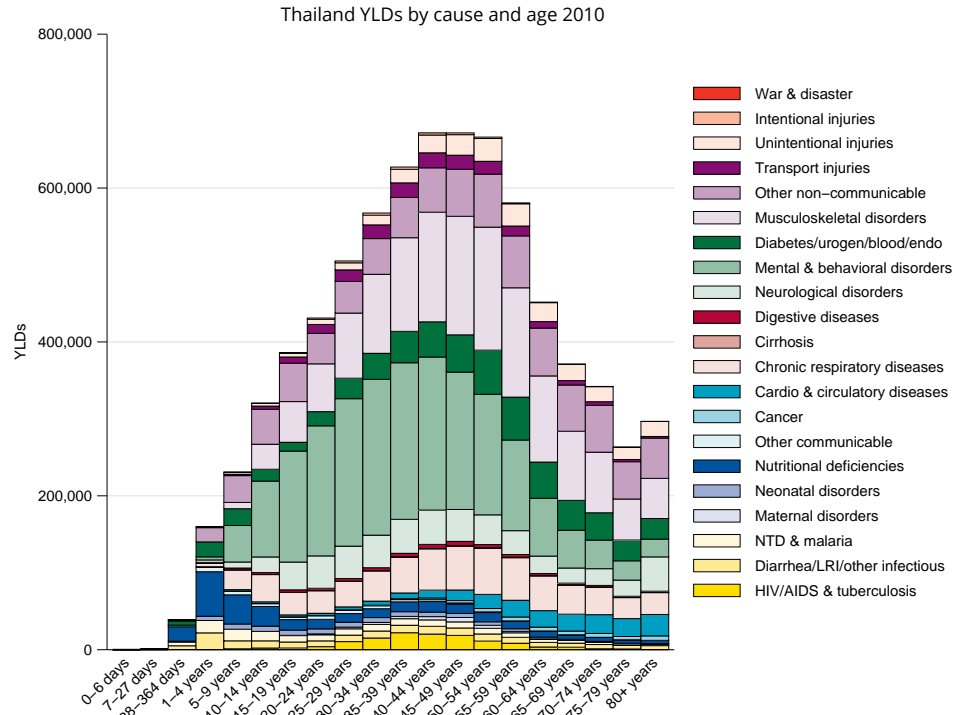
| # YLLs in thousands (% of total) | Rank and disorder 1990 | Rank and disorder 2010 | # YLLs in thousands (% of total) | % change |
|-------------------------------------|--------------------------------|--------------------------------|-------------------------------------|----------|
| 900 (8.8%) | 1 Ischemic heart disease | 1 HIV/AIDS | 1,064 (8.5%) | 445 |
| 659 (6.5%) | 2 Road injury | 2 Ischemic heart disease | 971 (7.8%) | 2 |
| 592 (5.8%) | 3 Lower respiratory infections | 3 Road injury | 867 (7.0%) | 37 |
| 505 (5.0%) | 4 Stroke | 4 Lower respiratory infections | 796 (6.4%) | 43 |
| 465 (4.6%) | 5 Preterm birth complications | 5 Stroke | 787 (6.3%) | 60 |
| 423 (4.1%) | 6 Interpersonal violence | 6 Liver cancer | 631 (5.1%) | 114 |
| 390 (3.8%) | 7 Congenital anomalies | 7 Self-harm | 456 (3.7%) | 61 |
| 466 (4.5%) | 8 Measles | 8 Lung cancer | 395 (3.2%) | 104 |
| 303 (3.0%) | 9 Drowning | 9 Diabetes | 380 (3.0%) | 128 |
| 298 (2.9%) | 10 Cirrhosis | 10 Interpersonal violence | 406 (3.3%) | -11 |
| 305 (3.0%) | 11 Tuberculosis | 11 Cirrhosis | 341 (2.7%) | 10 |
| 294 (2.9%) | 12 Liver cancer | 12 Drowning | 321 (2.6%) | 9 |
| 296 (2.9%) | 13 Self-harm | 13 Chronic kidney disease | 291 (2.3%) | 84 |
| 197 (1.9%) | 14 Rheumatic heart disease | 14 COPD | 269 (2.2%) | 56 |
| 195 (1.9%) | 15 HIV/AIDS | 15 Tuberculosis | 242 (1.9%) | -16 |
| 194 (1.9%) | 16 Lung cancer | 16 Preterm birth complications | 182 (1.5%) | -61 |
| 222 (2.2%) | 17 Typhoid fevers | 17 Congenital anomalies | 175 (1.4%) | -56 |
| 184 (1.8%) | 18 Other cardio & circulatory | 18 Other cardio & circulatory | 170 (1.4%) | -7 |
| 180 (1.8%) | 19 Cardiomyopathy | 19 Colorectal cancer | 162 (1.3%) | 123 |
| 172 (1.7%) | 20 COPD | 20 Typhoid fevers | 206 (1.6%) | -7 |
| 168 (1.6%) | 21 Diabetes | 21 Rheumatic heart disease | 148 (1.2%) | -24 |
| 159 (1.6%) | 22 Chronic kidney disease | 22 Hypertensive heart disease | 123 (1.0%) | -29 |
| 152 (1.5%) | 23 Hypertensive heart disease | 23 Asthma | 106 (0.8%) | 90 |
| 154 (1.5%) | 24 Diarrheal diseases | 24 Leukemia | 104 (0.8%) | 51 |
| 141 (1.4%) | 25 Neonatal encephalopathy | 25 Meningitis | 97 (0.8%) | 40 |
| | 27 Meningitis | 30 Diarrheal diseases | | |
| | 29 Colorectal cancer | 31 Neonatal encephalopathy | | |
| | 31 Leukemia | 52 Cardiomyopathy | | |
| | 32 Asthma | 59 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 Thailand are major depressive disorder, low back pain, neck pain, migraine, and chronic obstructive pulmonary disease.

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.

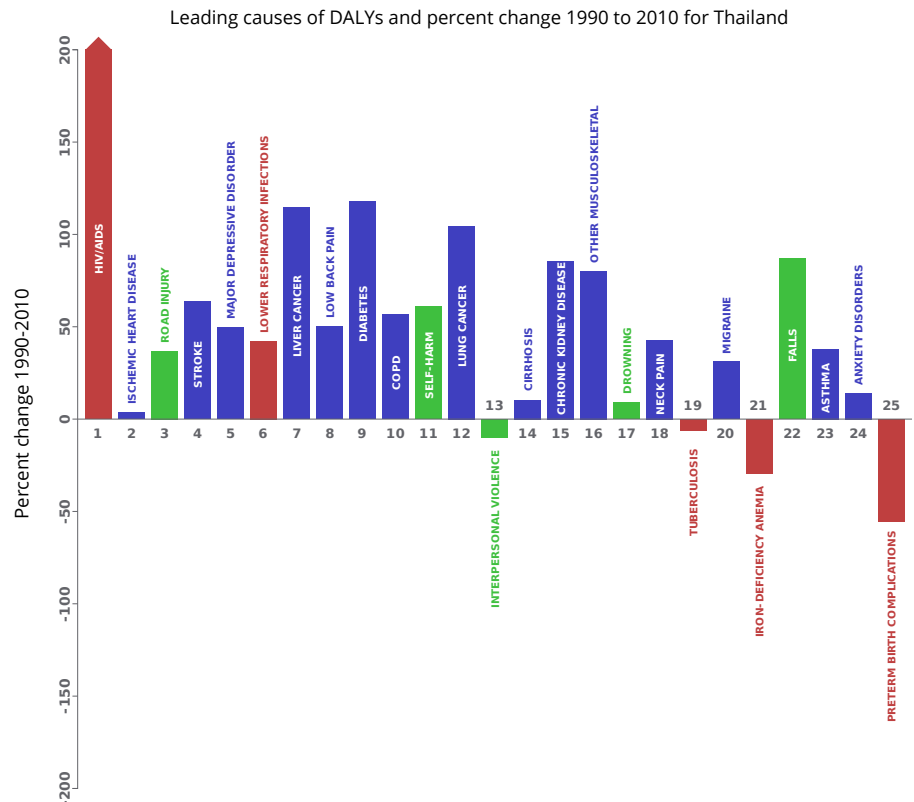


DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Thailand, the top three causes of DALYs in 2010 were HIV/AIDS, ischemic heart disease, and road injury. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were HIV/AIDS, liver cancer, diabetes mellitus, and chronic obstructive pulmonary 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.

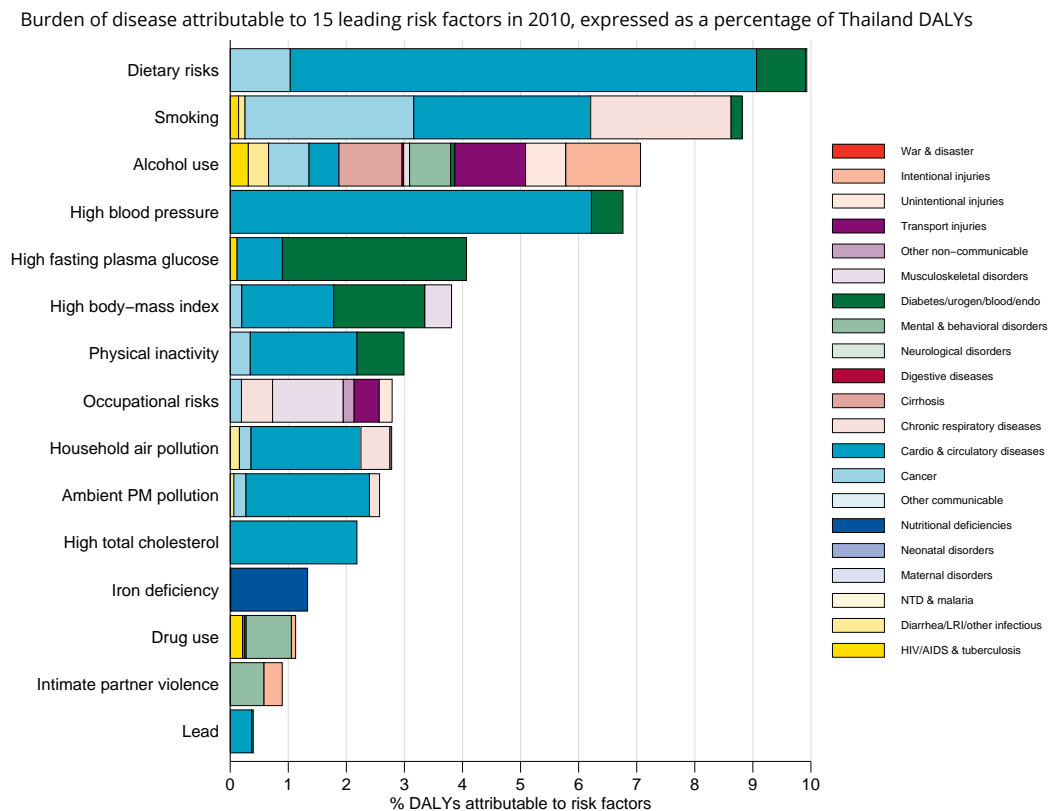
- Communicable, maternal, neonatal, and nutritional
- Non-communicable
- Injuries



RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Thailand are dietary risks, tobacco smoking, and alcohol use. The leading risk factors for children under 5 and adults aged 15-49 years were childhood underweight and alcohol use, respectively, in 2010.

The graph shows the top 15 risk factors for Thailand. 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 Thailand against other comparator countries provides key insight into public health successes and areas where Thailand might be falling behind. The table identifies Thailand'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, Thailand ranked 1st for age-standardized YLD rate and 10th for life expectancy.

| 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 |
| Jamaica | 676 | 1 | 610 | 6 | 18,618 | 1 | 16,417 | 8 | 12,075 | 4 | 12,909 | 12 | 73.6 | 1 | 75.3 | 6 | 63.2 | 1 | 62.8 | 10 |
| Macedonia | 873 | 13 | 682 | 11 | 21,414 | 6 | 13,939 | 3 | 11,940 | 3 | 11,694 | 8 | 70.9 | 8 | 75 | 8 | 61.2 | 7 | 64.8 | 6 |
| Saint Vincent and the Grenadines | 890 | 14 | 753 | 14 | 26,567 | 12 | 20,602 | 14 | 13,233 | 15 | 13,056 | 14 | 68.7 | 14 | 72 | 14 | 58.5 | 14 | 60.2 | 14 |
| Dominican Republic | 765 | 8 | 683 | 12 | 23,701 | 10 | 18,385 | 10 | 12,154 | 6 | 12,232 | 11 | 70.8 | 10 | 73.7 | 12 | 60.9 | 9 | 62.2 | 12 |
| Colombia | 760 | 5 | 617 | 7 | 23,157 | 8 | 16,372 | 7 | 12,110 | 5 | 11,643 | 6 | 71.1 | 7 | 75 | 7 | 61.1 | 8 | 64.7 | 7 |
| Dominica | 831 | 11 | 669 | 10 | 24,475 | 11 | 19,240 | 12 | 12,486 | 11 | 13,022 | 13 | 70.3 | 11 | 73.8 | 11 | 60.2 | 11 | 61.5 | 13 |
| Belize | 765 | 7 | 805 | 15 | 20,556 | 3 | 21,887 | 15 | 12,951 | 14 | 13,377 | 15 | 72 | 3 | 71.2 | 15 | 61.2 | 6 | 59.4 | 15 |
| Thailand | 712 | 4 | 663 | 9 | 20,676 | 4 | 17,227 | 9 | 11,069 | 1 | 10,369 | 1 | 72.4 | 2 | 74.1 | 10 | 63.2 | 2 | 65.3 | 5 |
| Peru | 803 | 9 | 551 | 3 | 27,953 | 14 | 14,679 | 4 | 12,854 | 13 | 11,692 | 7 | 68.9 | 13 | 76.4 | 4 | 58.6 | 13 | 65.7 | 4 |
| Azerbaijan | 961 | 15 | 695 | 13 | 31,387 | 15 | 20,272 | 13 | 12,212 | 8 | 11,620 | 5 | 66.7 | 15 | 72.5 | 13 | 57.4 | 15 | 62.5 | 11 |
| Tunisia | 698 | 2 | 541 | 2 | 21,287 | 5 | 13,716 | 2 | 11,328 | 2 | 11,199 | 3 | 72 | 4 | 76.4 | 3 | 62.2 | 3 | 66 | 3 |
| Ecuador | 700 | 3 | 522 | 1 | 22,420 | 7 | 14,956 | 5 | 12,265 | 9 | 11,404 | 4 | 72 | 5 | 77 | 1 | 61.7 | 5 | 66.4 | 1 |
| Bosnia and Herzegovina | 834 | 12 | 584 | 5 | 19,064 | 2 | 12,248 | 1 | 12,186 | 7 | 11,057 | 2 | 71.9 | 6 | 76.5 | 2 | 61.8 | 4 | 66.3 | 2 |
| Algeria | 762 | 6 | 584 | 4 | 23,346 | 9 | 15,484 | 6 | 12,395 | 10 | 12,215 | 10 | 70.9 | 9 | 75.5 | 5 | 60.3 | 10 | 64.2 | 8 |
| El Salvador | 809 | 10 | 661 | 8 | 26,931 | 13 | 18,474 | 11 | 12,585 | 12 | 11,781 | 9 | 69.6 | 12 | 74.2 | 9 | 59.5 | 12 | 63.9 | 9 |

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Thailand 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 Thailand 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 | Ischemic heart disease | Road injury | Lower respiratory infections | Stroke | Major depressive disorder | Preterm birth complications | Interpersonal violence | Low back pain | Congenital anomalies | Measles | Iron-deficiency anemia | COPD | Tuberculosis | Drowning | Cirrhosis | Liver cancer | Self-harm | Diabetes | HIV/AIDS | Migraine | Neck pain | Diarrheal diseases | Rheumatic heart disease | Anxiety disorders | Other cardio & circulatory |
| Jamaica | 3 | 1 | 2 | 11 | 6 | 1 | 11 | 6 | 4 | 3 | 13 | 3 | 1 | 1 | 1 | 6 | 1 | 14 | 11 | 7 | 11 | 7 | 13 | 3 | 7 |
| Macedonia | 13 | 4 | 3 | 15 | 9 | 11 | 3 | 15 | 12 | 4 | 1 | 9 | 2 | 2 | 3 | 11 | 11 | 7 | 7 | 14 | 13 | 8 | 12 | 13 | 11 |
| Saint Vincent and the Grenadines | 6 | 3 | 10 | 10 | 15 | 15 | 8 | 3 | 8 | 2 | 15 | 2 | 3 | 14 | 8 | 12 | 10 | 15 | 13 | 8 | 12 | 4 | 6 | 15 | 13 |
| Dominican Republic | 11 | 8 | 7 | 9 | 12 | 12 | 9 | 1 | 11 | 11 | 14 | 5 | 12 | 4 | 14 | 4 | 8 | 11 | 10 | 10 | 9 | 13 | 8 | 9 | 5 |
| Colombia | 9 | 10 | 6 | 5 | 11 | 3 | 15 | 11 | 7 | 6 | 8 | 11 | 8 | 10 | 6 | 9 | 9 | 1 | 6 | 4 | 4 | 6 | 5 | 10 | 6 |
| Dominica | 4 | 7 | 9 | 6 | 7 | 14 | 6 | 4 | 5 | 1 | 9 | 1 | 6 | 11 | 7 | 14 | 4 | 13 | 15 | 11 | 10 | 2 | 3 | 4 | 15 |
| Belize | 8 | 5 | 12 | 7 | 10 | 6 | 5 | 5 | 1 | 7 | 12 | 4 | 9 | 9 | 5 | 13 | 7 | 10 | 14 | 9 | 5 | 5 | 1 | 12 | 14 |
| Thailand | 7 | 12 | 5 | 4 | 1 | 4 | 12 | 2 | 9 | 15 | 4 | 14 | 13 | 15 | 13 | 15 | 13 | 3 | 12 | 12 | 3 | 3 | 15 | 1 | 10 |
| Peru | 1 | 6 | 14 | 1 | 4 | 9 | 10 | 9 | 2 | 10 | 10 | 6 | 15 | 8 | 10 | 10 | 5 | 2 | 8 | 5 | 6 | 14 | 4 | 11 | 2 |
| Azerbaijan | 15 | 11 | 15 | 12 | 2 | 7 | 7 | 12 | 13 | 9 | 7 | 13 | 11 | 7 | 15 | 2 | 6 | 5 | 1 | 13 | 15 | 11 | 11 | 6 | 1 |
| Tunisia | 12 | 15 | 4 | 8 | 5 | 8 | 2 | 8 | 14 | 8 | 3 | 8 | 4 | 3 | 4 | 1 | 3 | 4 | 3 | 1 | 2 | 10 | 14 | 5 | 8 |
| Ecuador | 2 | 13 | 13 | 2 | 3 | 2 | 13 | 7 | 6 | 14 | 11 | 15 | 14 | 12 | 11 | 3 | 12 | 8 | 5 | 3 | 8 | 12 | 9 | 8 | 4 |
| Bosnia and Herzegovina | 14 | 2 | 1 | 14 | 8 | 5 | 1 | 13 | 3 | 5 | 2 | 12 | 7 | 5 | 9 | 7 | 14 | 9 | 4 | 15 | 14 | 1 | 2 | 14 | 9 |
| Algeria | 10 | 9 | 8 | 13 | 14 | 13 | 4 | 14 | 15 | 13 | 5 | 7 | 10 | 6 | 2 | 8 | 2 | 12 | 2 | 2 | 1 | 9 | 10 | 2 | 12 |
| El Salvador | 5 | 14 | 11 | 3 | 13 | 10 | 14 | 10 | 10 | 12 | 6 | 10 | 5 | 13 | 12 | 5 | 15 | 6 | 9 | 6 | 7 | 15 | 7 | 7 | 3 |
| Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Country | HIV/AIDS | Ischemic heart disease | Road injury | Stroke | Major depressive disorder | Lower respiratory infections | Liver cancer | Low back pain | Diabetes | COPD | Self-harm | Lung cancer | Interpersonal violence | Cirrhosis | Chronic kidney disease | Other musculoskeletal | Drowning | Neck pain | Tuberculosis | Migraine | Iron-deficiency anemia | Falls | Asthma | Anxiety disorders | Preterm birth complications |
| Jamaica | 14 | 3 | 2 | 11 | 5 | 4 | 5 | 5 | 13 | 3 | 1 | 10 | 13 | 2 | 10 | 5 | 4 | 7 | 1 | 10 | 12 | 10 | 13 | 12 | 3 |
| Macedonia | 3 | 14 | 3 | 15 | 7 | 1 | 11 | 15 | 7 | 10 | 7 | 14 | 3 | 3 | 2 | 6 | 1 | 14 | 3 | 14 | 1 | 13 | 4 | 10 | 4 |
| Saint Vincent and the Grenadines | 12 | 9 | 4 | 9 | 9 | 6 | 10 | 3 | 14 | 1 | 9 | 3 | 10 | 8 | 8 | 13 | 11 | 5 | 2 | 7 | 14 | 14 | 11 | 3 | 14 |
| Dominican Republic | 10 | 13 | 13 | 10 | 4 | 9 | 12 | 1 | 10 | 4 | 8 | 8 | 9 | 9 | 11 | 3 | 8 | 8 | 9 | 9 | 13 | 6 | 9 | 8 | 13 |
| Colombia | 11 | 6 | 8 | 4 | 13 | 7 | 4 | 12 | 2 | 14 | 10 | 7 | 14 | 5 | 4 | 14 | 9 | 4 | 8 | 4 | 9 | 1 | 6 | 14 | 8 |
| Dominica | 7 | 4 | 9 | 5 | 11 | 8 | 13 | 6 | 12 | 2 | 6 | 5 | 6 | 6 | 6 | 10 | 13 | 9 | 7 | 11 | 10 | 11 | 15 | 4 | 12 |
| Belize | 15 | 10 | 11 | 7 | 10 | 11 | 14 | 4 | 15 | 6 | 11 | 9 | 12 | 12 | 13 | 11 | 14 | 6 | 10 | 8 | 15 | 9 | 12 | 2 | 7 |
| Thailand | 13 | 5 | 15 | 6 | 8 | 12 | 15 | 2 | 5 | 15 | 15 | 13 | 8 | 10 | 12 | 4 | 15 | 3 | 14 | 12 | 3 | 3 | 7 | 1 | 2 |
| Peru | 6 | 2 | 6 | 2 | 6 | 14 | 9 | 10 | 1 | 8 | 5 | 4 | 5 | 13 | 5 | 12 | 7 | 10 | 15 | 5 | 8 | 2 | 10 | 11 | 9 |
| Azerbaijan | 2 | 15 | 5 | 13 | 2 | 15 | 7 | 11 | 6 | 12 | 4 | 11 | 7 | 15 | 7 | 8 | 6 | 13 | 13 | 13 | 7 | 7 | 1 | 7 | 11 |
| Tunisia | 5 | 12 | 14 | 8 | 14 | 3 | 1 | 8 | 8 | 11 | 3 | 12 | 2 | 4 | 3 | 1 | 3 | 2 | 5 | 1 | 5 | 5 | 8 | 5 | 10 |
| Ecuador | 9 | 1 | 12 | 3 | 3 | 13 | 6 | 7 | 4 | 9 | 12 | 1 | 11 | 11 | 14 | 9 | 12 | 12 | 11 | 3 | 11 | 8 | 2 | 13 | 6 |
| Bosnia and Herzegovina | 1 | 11 | 1 | 14 | 1 | 2 | 2 | 13 | 3 | 13 | 13 | 15 | 1 | 7 | 1 | 7 | 2 | 15 | 6 | 15 | 2 | 15 | 3 | 6 | 1 |
| Algeria | 4 | 8 | 7 | 12 | 15 | 5 | 3 | 14 | 11 | 7 | 2 | 6 | 4 | 1 | 9 | 2 | 5 | 1 | 12 | 2 | 6 | 12 | 5 | 15 | 15 |
| El Salvador | 8 | 7 | 10 | 1 | 12 | 10 | 8 | 9 | 9 | 5 | 14 | 2 | 15 | 14 | 15 | 15 | 10 | 11 | 4 | 6 | 4 | 4 | 14 | 9 | 5 |
| Ranking Legend | 1 - 3 | 4 - 7 | | | 8 - 11 | | | 12 - 15 | | | | | | | | | | | | | | | | | |