

GBD PROFILE: JAPAN

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.

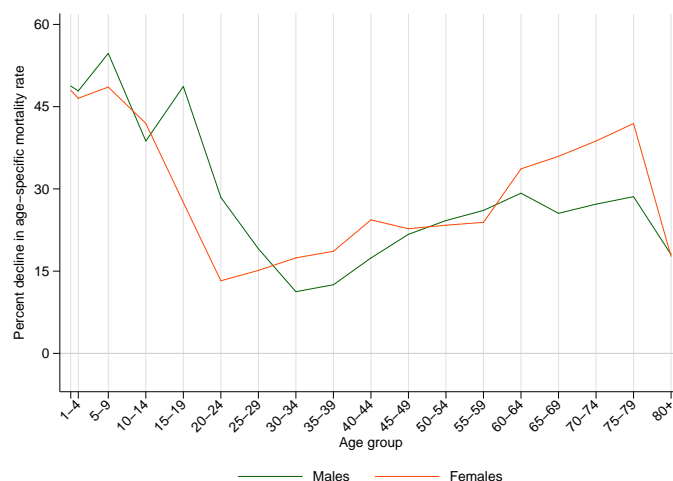
PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Japan, cerebrovascular disease, ischemic heart disease, and lower respiratory infections were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), road injury showed the largest decrease, falling by 42% from 1990 to 2010.
- The leading risk factor in Japan is dietary risks.

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 males aged 5-9 years (55%). Males aged 30-34 years saw the smallest decrease in mortality rate (11%).

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



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, Japan

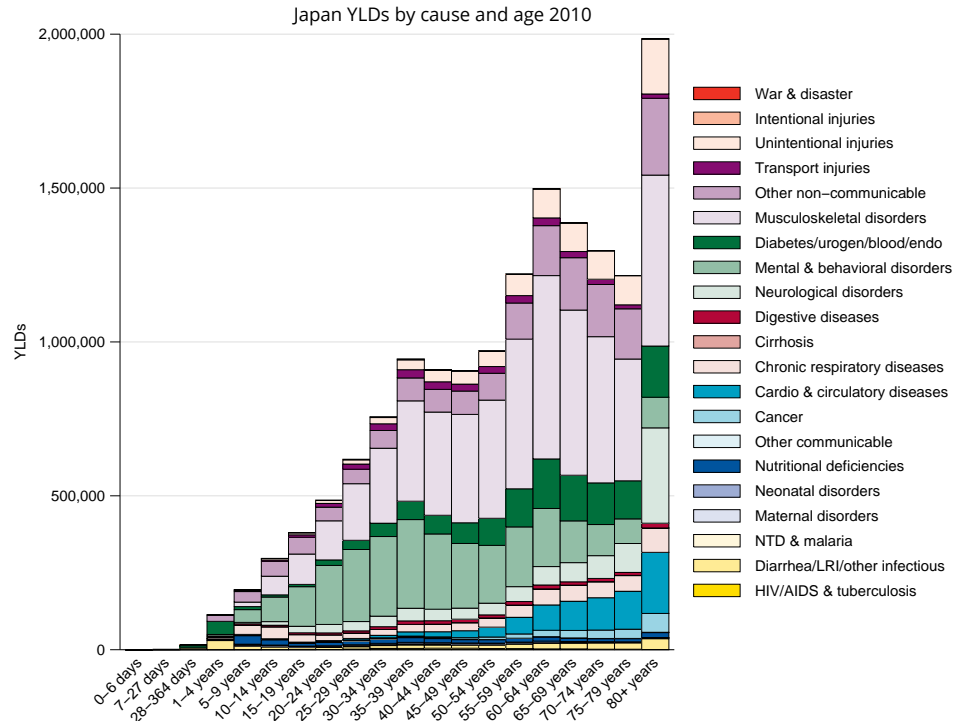
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
1,778 (12.1%)	1 Stroke	1 Stroke	1,800 (11.2%)	-1
1,193 (8.1%)	2 Ischemic heart disease	2 Ischemic heart disease	1,521 (9.5%)	28
1,185 (8.0%)	3 Stomach cancer	3 Lower respiratory infections	1,177 (7.3%)	41
837 (5.7%)	4 Lower respiratory infections	4 Lung cancer	1,033 (6.4%)	45
830 (5.6%)	5 Self-harm	5 Self-harm	986 (6.1%)	31
722 (4.9%)	6 Lung cancer	6 Stomach cancer	907 (5.7%)	-25
673 (4.6%)	7 Liver cancer	7 Colorectal cancer	705 (4.4%)	39
577 (3.9%)	8 Road injury	8 Liver cancer	621 (3.9%)	-13
506 (3.4%)	9 Colorectal cancer	9 Cirrhosis	432 (2.7%)	-8
481 (3.3%)	10 Other cardio & circulatory	10 Pancreatic cancer	404 (2.5%)	54
461 (3.1%)	11 Cirrhosis	11 Chronic kidney disease	321 (2.0%)	36
299 (2.0%)	12 COPD	12 COPD	295 (1.8%)	-1
266 (1.8%)	13 Congenital anomalies	13 Road injury	265 (1.7%)	-58
264 (1.8%)	14 Pancreatic cancer	14 Breast cancer	254 (1.6%)	46
236 (1.6%)	15 Chronic kidney disease	15 Gallbladder cancer	252 (1.6%)	30
186 (1.3%)	16 Rheumatic heart disease	16 Other cardio & circulatory	243 (1.5%)	-50
191 (1.3%)	17 Gallbladder cancer	17 Esophageal cancer	226 (1.4%)	26
185 (1.3%)	18 Leukemia	18 Leukemia	188 (1.2%)	2
180 (1.2%)	19 Esophageal cancer	19 Interstitial lung diseases	185 (1.2%)	124
178 (1.2%)	20 Hypertensive heart disease	20 Hypertensive heart disease	180 (1.1%)	-3
174 (1.2%)	21 Breast cancer	21 Non-Hodgkin lymphoma	154 (1.0%)	33
160 (1.1%)	22 Diabetes	22 Congenital anomalies	140 (0.9%)	-49
143 (1.0%)	23 Cardiomyopathy	23 Aortic aneurysm	140 (0.9%)	97
132 (0.9%)	24 Asthma	24 Falls	138 (0.9%)	35
127 (0.9%)	25 Drowning	25 Drowning	130 (0.8%)	6
	26 Non-Hodgkin lymphoma	26 Cardiomyopathy		
	27 Falls	27 Diabetes		
	34 Interstitial lung diseases	34 Rheumatic heart disease		
	35 Aortic aneurysm	49 Asthma		

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 Japan are low back pain, other musculoskeletal disorders, neck pain, major depressive disorder, and falls.

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.

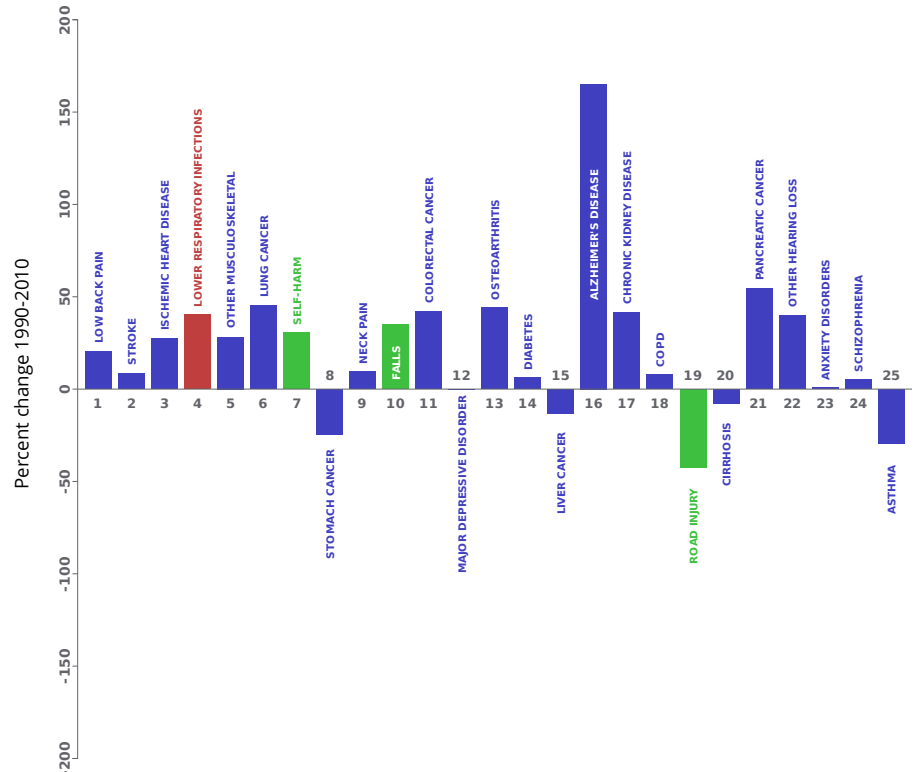


DISABILITY-ADJUSTED LIFE YEARS (DALYs)

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

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.

Leading causes of DALYs and percent change 1990 to 2010 for Japan

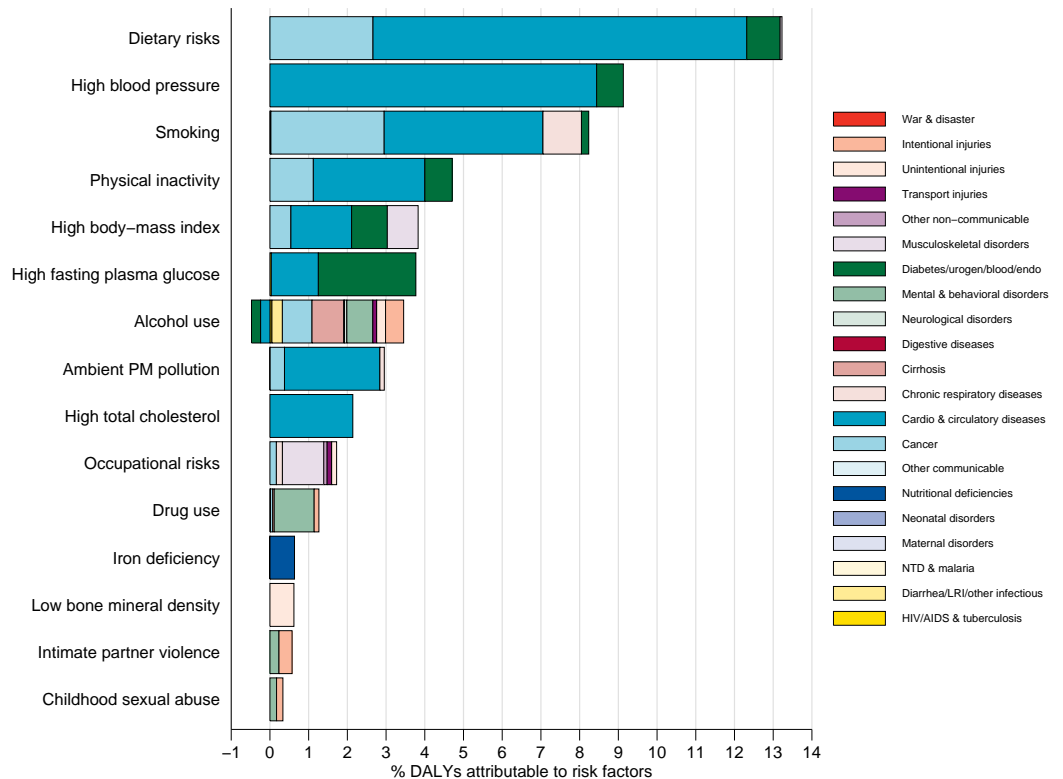


RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Japan are dietary risks, high blood pressure, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15-49 years were zinc deficiency and dietary risks, respectively, in 2010.

The graph shows the top 15 risk factors for Japan. 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.

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



COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Japan against other comparator countries provides key insight into public health successes and areas where Japan might be falling behind. The table identifies Japan'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, Japan ranked 1st for age-standardized death rate and 1st for age-standardized YLL 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
Austria	622	8	418	6	13,732	9	8,401	5	11,052	6	11,381	11	75.7	8	80.6	6	65.8	7	69.1	7
Sweden	539	2	403	4	11,196	2	7,296	2	11,378	12	11,250	10	77.6	2	81.4	3	66.8	3	69.6	4
Denmark	656	12	504	13	14,383	11	9,592	12	11,209	10	11,456	13	75.2	11	78.9	12	65.3	11	67.9	12
Belgium	615	7	460	10	13,458	8	9,381	11	11,119	8	10,933	6	75.9	7	79.5	11	65.7	8	68.5	11
United Kingdom	638	9	455	9	13,452	7	8,949	9	11,453	13	11,435	12	75.7	9	79.9	9	65.4	9	68.6	10
Germany	644	10	433	7	14,032	10	8,512	6	11,165	9	11,015	7	75.4	10	80.2	7	65.3	10	69	8
Finland	655	11	437	8	14,467	12	9,050	10	11,092	7	11,248	9	75.1	12	80.1	8	63.8	13	67.3	13
Japan	469	1	352	1	9,658	1	6,827	1	9,406	1	9,094	1	79.1	1	82.6	1	70.1	1	73.1	1
France	549	3	408	5	12,717	6	8,666	7	11,358	11	11,194	8	77.1	3	80.9	5	66.5	5	69.5	6
Taiwan	723	13	481	12	16,396	13	10,440	13	10,592	3	9,639	2	73.7	13	78.8	13	64.8	12	69.5	5
Italy	561	5	389	2	12,202	4	7,485	3	11,038	4	10,907	5	77	4	81.5	2	66.7	4	70.2	3
The Bahamas	949	15	541	15	29,297	15	18,258	15	13,220	14	12,791	14	67.4	15	76	15	57.4	15	63.2	15
Spain	557	4	393	3	12,630	5	7,694	4	10,136	2	10,068	3	76.9	6	81.4	4	67.5	2	70.9	2
Bahrain	811	14	512	14	20,581	14	11,478	14	13,517	15	13,353	15	71.4	14	77.6	14	60.1	14	64.8	14
Greece	573	6	465	11	12,011	3	8,806	8	11,040	5	10,809	4	76.9	5	79.6	10	66.5	6	68.7	9

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Japan 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 Japan 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	Stroke	Low back pain	Ischemic heart disease	Stomach cancer	Lower respiratory infections	Road injury	Self-harm	Other musculoskeletal	Neck pain	Lung cancer	Major depressive disorder	Liver cancer	Diabetes	Falls	Colorectal cancer	Other cardio & circulatory	Osteoarthritis	COPD	Asthma	Cirrhosis	Chronic kidney disease	Anxiety disorders	Drug use disorders	Schizophrenia	Congenital anomalies
Austria	10	10	10	11	2	9	12	12	11	8	5	7	8	14	11	7	8	10	4	14	5	8	11	3	10
Sweden	2	13	9	1	9	3	10	9	4	1	13	6	6	6	6	2	11	2	12	1	2	9	6	11	8
Denmark	5	14	12	2	5	5	13	13	5	14	4	2	9	13	15	1	5	15	8	8	1	7	10	1	12
Belgium	4	7	6	4	8	11	9	7	10	15	7	3	7	11	12	12	6	11	6	6	8	3	8	5	5
United Kingdom	6	12	13	6	12	2	5	5	7	13	3	1	2	7	13	3	10	13	14	2	4	12	15	12	4
Germany	3	15	11	10	6	6	8	10	8	11	9	5	10	12	14	11	7	9	10	12	9	11	9	9	6
Finland	11	9	14	8	10	4	15	6	15	6	10	4	5	15	3	4	4	3	7	7	3	5	2	10	9
Japan	9	4	1	15	11	1	7	15	6	2	1	14	4	2	8	9	13	1	9	5	10	1	4	15	3
France	1	11	3	3	3	8	14	11	9	10	11	9	1	10	10	13	1	5	11	9	6	14	5	6	2
Taiwan	15	3	2	12	14	14	11	2	2	4	2	15	13	4	4	8	12	14	3	15	15	6	1	13	1
Italy	8	6	5	13	1	7	3	8	13	12	8	10	11	9	9	5	2	6	5	10	7	4	14	2	7
The Bahamas	14	1	8	14	15	10	2	3	3	3	14	13	14	1	5	15	14	7	15	13	13	15	13	14	14
Spain	7	2	4	9	7	12	4	14	12	7	6	8	12	5	7	10	9	8	2	11	11	2	12	7	11
Bahrain	12	5	15	5	13	15	6	1	1	5	15	11	15	3	1	14	15	12	13	4	14	13	7	8	15
Greece	13	8	7	7	4	13	1	4	14	9	12	12	3	8	2	6	3	4	1	3	12	10	3	4	13
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																									
Country	Low back pain	Stroke	Ischemic heart disease	Lower respiratory infections	Other musculoskeletal	Lung cancer	Self-harm	Stomach cancer	Neck pain	Falls	Colorectal cancer	Major depressive disorder	Osteoarthritis	Diabetes	Liver cancer	Alzheimer's disease	Chronic kidney disease	COPD	Road injury	Cirrhosis	Pancreatic cancer	Other hearing loss	Anxiety disorders	Schizophrenia	Asthma
Austria	11	4	11	2	7	8	10	9	11	14	5	11	6	10	8	5	8	11	8	13	13	2	6	3	4
Sweden	13	2	7	3	6	3	9	1	4	6	6	6	11	6	2	12	1	7	2	2	10	5	10	10	13
Denmark	14	10	8	8	13	15	8	3	5	10	15	12	5	12	3	11	6	15	6	10	14	1	7	1	10
Belgium	7	8	9	9	10	14	13	6	12	13	14	4	8	7	4	14	5	12	11	7	9	4	4	6	5
United Kingdom	12	7	10	11	12	11	5	4	7	8	11	3	10	1	1	9	3	14	3	9	5	7	13	13	15
Germany	15	3	12	7	9	10	7	11	9	9	10	9	7	8	6	7	11	9	4	12	12	6	11	5	8
Finland	9	9	14	5	8	5	15	8	15	15	3	14	4	3	5	15	2	3	5	14	15	10	3	8	9
Japan	4	13	1	14	15	4	14	15	6	1	7	1	13	2	14	3	10	1	1	4	11	15	1	15	6
France	10	1	3	6	11	12	12	5	8	12	8	7	1	4	12	10	7	4	9	11	7	8	15	7	12
Taiwan	3	15	2	12	2	7	11	13	2	3	13	2	12	13	15	1	14	10	12	15	1	9	8	12	1
Italy	6	6	5	1	5	6	3	14	13	7	9	8	2	9	10	8	4	5	10	6	8	12	5	2	7
The Bahamas	1	12	6	15	3	1	2	7	3	4	2	13	14	14	13	4	13	2	15	5	2	3	9	14	14
Spain	2	5	4	4	14	9	4	10	10	5	12	5	9	11	9	13	12	6	7	8	3	11	2	9	3
Bahrain	5	11	13	13	1	2	6	2	1	2	1	15	15	15	11	2	15	13	14	1	4	14	14	11	11
Greece	8	14	15	10	4	13	1	12	14	11	4	10	3	5	7	6	9	8	13	3	6	13	12	4	2
Ranking Legend	1 - 3			4 - 7			8 - 11			12 - 15															