

GBD PROFILE: TAIWAN

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 Taiwan, cerebrovascular disease, ischemic heart disease, and liver cancer 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 32% from 1990 to 2010.
- The leading risk factor in Taiwan 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 males aged 5-9 years (69%). Males aged 40-44 years saw the smallest decrease in mortality rate (13%).

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



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, Taiwan

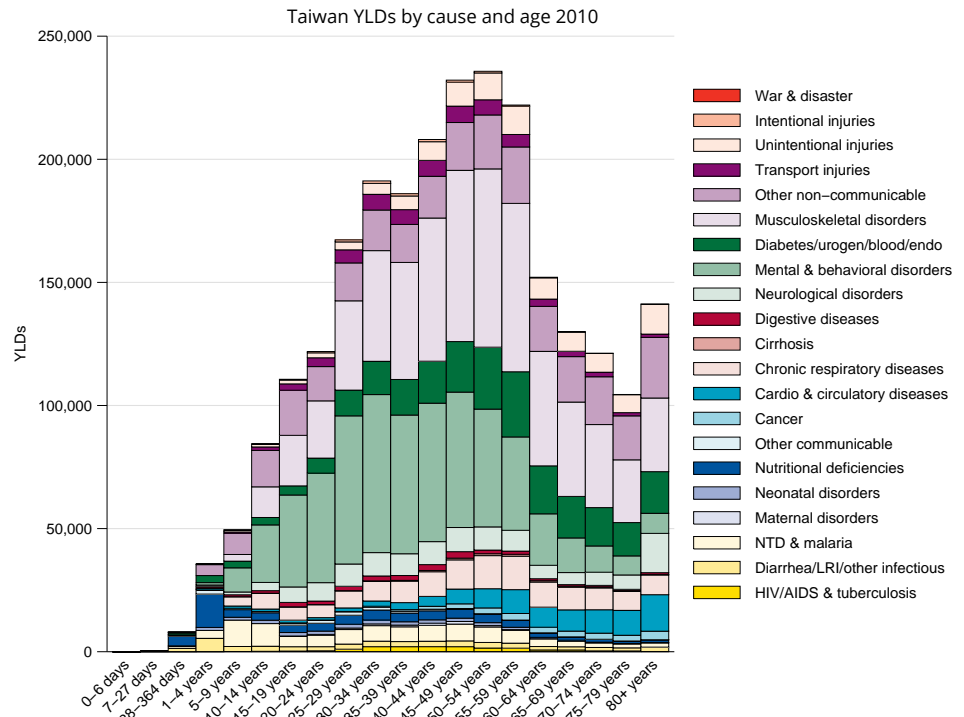
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
283 (9.9%)	1 Stroke	1 Stroke	278 (9.5%)	-2
247 (8.7%)	2 Road injury	2 Ischemic heart disease	210 (7.2%)	14
184 (6.5%)	3 Ischemic heart disease	3 Liver cancer	202 (6.9%)	83
168 (5.9%)	4 Self-harm	4 Self-harm	169 (5.8%)	1
154 (5.4%)	5 Diabetes	5 Diabetes	164 (5.6%)	7
141 (5.0%)	6 Cirrhosis	6 Lung cancer	153 (5.2%)	101
113 (4.0%)	7 Liver cancer	7 Cirrhosis	155 (5.3%)	10
108 (3.8%)	8 Lower respiratory infections	8 Road injury	149 (5.1%)	-41
83 (2.9%)	9 Lung cancer	9 Lower respiratory infections	103 (3.5%)	-6
75 (2.6%)	10 COPD	10 Colorectal cancer	92 (3.2%)	114
71 (2.5%)	11 Chronic kidney disease	11 COPD	78 (2.7%)	4
60 (2.1%)	12 Interpersonal violence	12 Chronic kidney disease	75 (2.6%)	6
56 (2.0%)	13 Congenital anomalies	13 Stomach cancer	47 (1.6%)	-4
53 (1.8%)	14 Drowning	14 Mouth cancer	45 (1.5%)	280
52 (1.8%)	15 Stomach cancer	15 Breast cancer	43 (1.5%)	164
49 (1.7%)	16 Preterm birth complications	16 Other cardio & circulatory	42 (1.4%)	9
45 (1.6%)	17 Colorectal cancer	17 Nasopharynx cancer	39 (1.3%)	8
39 (1.4%)	18 Other cardio & circulatory	18 Falls	38 (1.3%)	8
36 (1.3%)	19 Nasopharynx cancer	19 Hypertensive heart disease	38 (1.3%)	19
35 (1.2%)	20 Falls	20 Esophageal cancer	36 (1.2%)	144
32 (1.1%)	21 Hypertensive heart disease	21 Interpersonal violence	32 (1.1%)	-52
29 (1.0%)	22 Tuberculosis	22 Congenital anomalies	26 (0.9%)	-54
29 (1.0%)	23 Cervical cancer	23 Cervical cancer	26 (0.9%)	-12
26 (0.9%)	24 Peptic ulcer	24 Drowning	25 (0.8%)	-53
21 (0.8%)	25 Cardiomyopathy	25 Pancreatic cancer	24 (0.8%)	103
	29 Esophageal cancer	27 Peptic ulcer		
	32 Breast cancer	30 Preterm birth complications		
	34 Mouth cancer	31 Cardiomyopathy		
	36 Pancreatic cancer	35 Tuberculosis		

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 Taiwan are low back pain, major depressive disorder, neck pain, anxiety disorders, and other musculoskeletal 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.

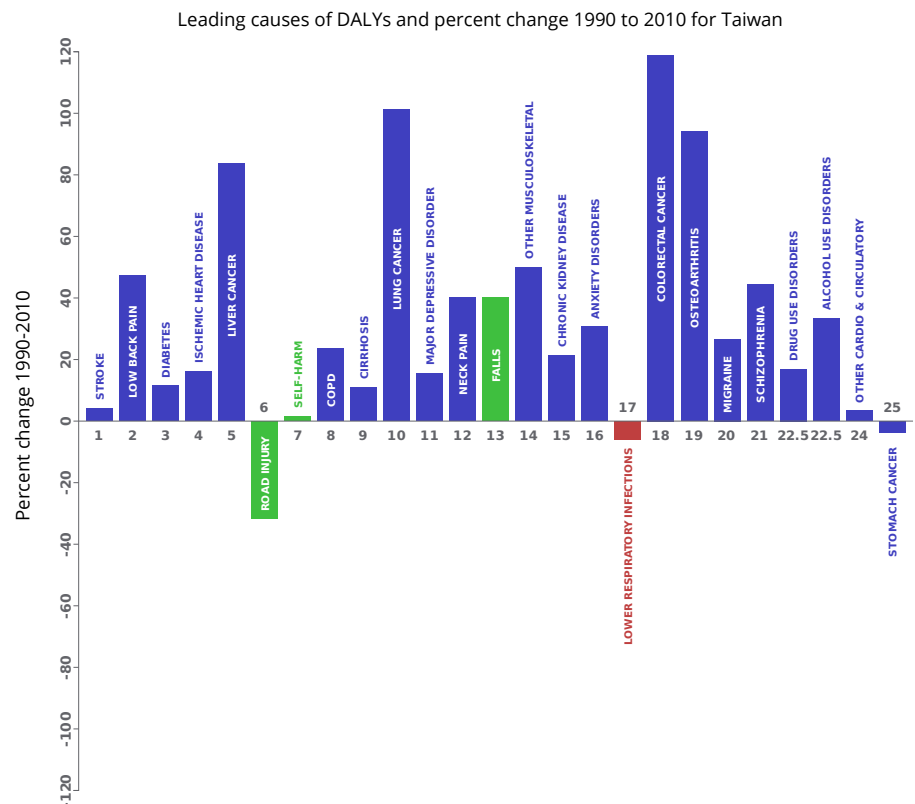


DISABILITY-ADJUSTED LIFE YEARS (DALYs)

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

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

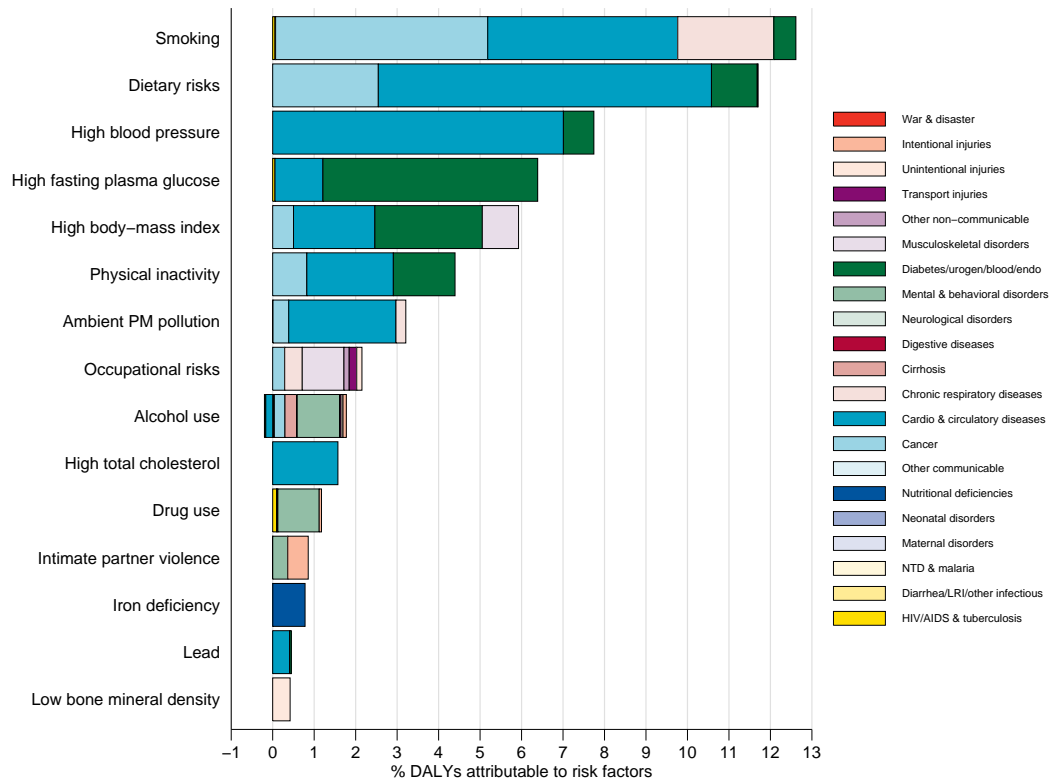


RISK FACTORS

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

The graph shows the top 15 risk factors for Taiwan. 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 Taiwan DALYs



COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Taiwan against other comparator countries provides key insight into public health successes and areas where Taiwan might be falling behind. The table identifies Taiwan'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, Taiwan ranked 2nd for age-standardized YLD rate and 13th for life expectancy.

Country	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																			
	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
Denmark	656	12	504	13	14,383	10	9,592	12	11,209	10	11,456	13	75.2	11	78.9	12	65.3	10	67.9	12
Belgium	615	7	460	10	13,458	8	9,381	11	11,119	8	10,933	7	75.9	7	79.5	11	65.7	7	68.5	11
United Kingdom	638	9	455	9	13,452	7	8,949	9	11,453	13	11,435	12	75.7	8	79.9	9	65.4	8	68.6	10
Germany	644	10	433	7	14,032	9	8,512	5	11,165	9	11,015	8	75.4	9	80.2	7	65.3	9	69	8
Finland	655	11	437	8	14,467	11	9,050	10	11,092	7	11,248	11	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	2	408	5	12,717	5	8,666	7	11,358	12	11,194	10	77.1	2	80.9	5	66.5	4	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	4	389	2	12,202	3	7,485	2	11,038	5	10,907	6	77	3	81.5	2	66.7	3	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	3	393	3	12,630	4	7,694	4	10,136	2	10,068	3	76.9	5	81.4	3	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	5	465	11	12,011	2	8,806	8	11,040	6	10,809	5	76.9	4	79.6	10	66.5	5	68.7	9
New Zealand	637	8	413	6	14,523	12	8,611	6	11,247	11	11,067	9	75.3	10	80.7	6	64.9	11	69.2	7
Israel	584	6	406	4	12,760	6	7,682	3	10,877	4	10,792	4	76.4	6	81.1	4	66.2	6	69.7	4

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

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