

# GBD PROFILE: UNITED STATES

## 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.

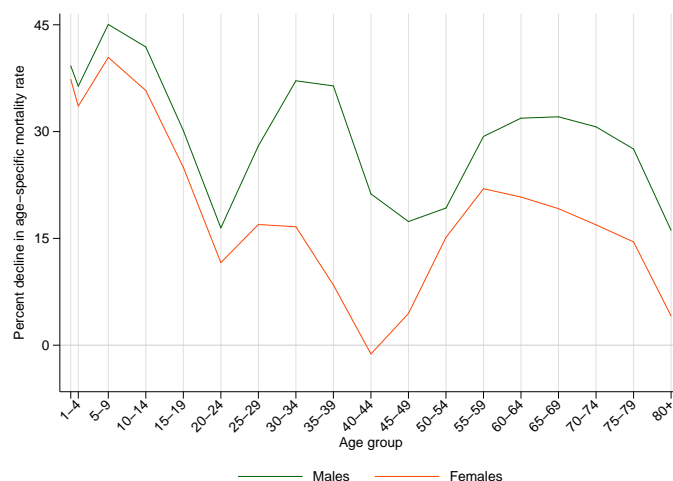
### PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in the United States, ischemic heart disease, trachea, bronchus, and lung cancers, and cerebrovascular disease were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), interpersonal violence showed the largest decrease, falling by 26% from 1990 to 2010.
- The leading risk factor in the United States is dietary risks.

### 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 5-9 years (45%). Females aged 40-44 years saw the largest increase in mortality rate (1%).

Percent decline in age-specific mortality rate by sex from 1990-2010 in the United States



### 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, United States

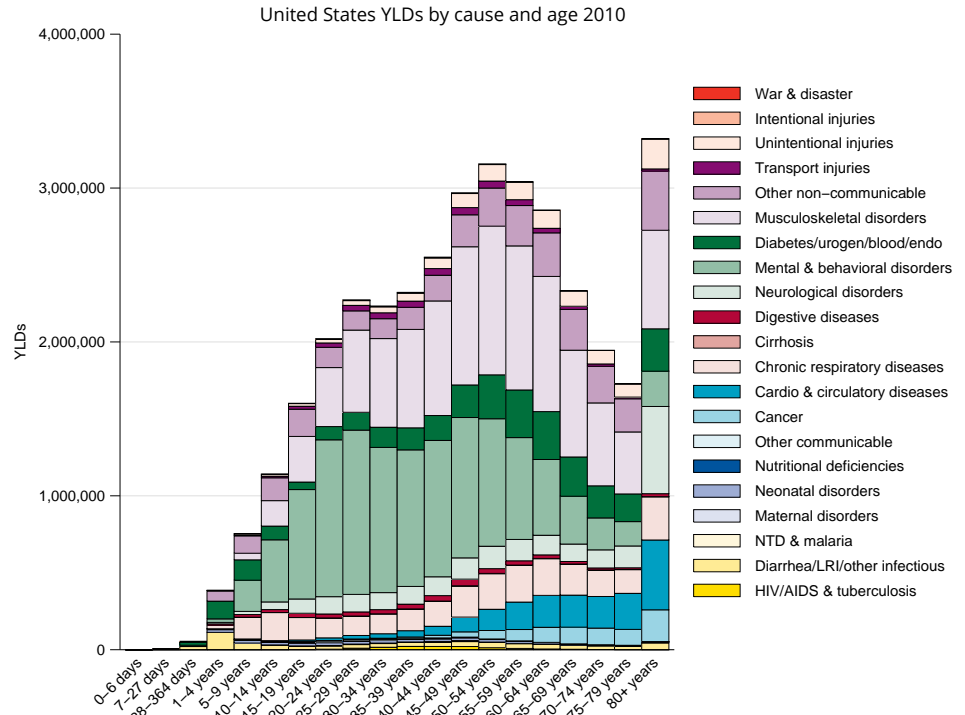
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
8,990 (20.7%)	1 Ischemic heart disease	1 Ischemic heart disease	7,165 (15.9%)	-21
2,872 (6.6%)	2 Lung cancer	2 Lung cancer	2,988 (6.6%)	4
2,336 (5.4%)	3 Road injury	3 Stroke	1,945 (4.3%)	-13
2,250 (5.2%)	4 Stroke	4 COPD	1,913 (4.2%)	35
1,416 (3.3%)	5 COPD	5 Road injury	1,873 (4.1%)	-20
1,394 (3.2%)	6 Self-harm	6 Self-harm	1,457 (3.2%)	6
1,351 (3.1%)	7 HIV/AIDS	7 Diabetes	1,392 (3.1%)	60
1,344 (3.1%)	8 Interpersonal violence	8 Cirrhosis	1,233 (2.7%)	38
1,213 (2.8%)	9 Preterm birth complications	9 Alzheimers disease	1,192 (2.6%)	392
1,186 (2.7%)	10 Lower respiratory infections	10 Colorectal cancer	1,074 (2.4%)	2
1,019 (2.3%)	11 Colorectal cancer	11 Lower respiratory infections	1,032 (2.3%)	-14
954 (2.2%)	12 Breast cancer	12 Interpersonal violence	1,019 (2.3%)	-26
937 (2.2%)	13 Congenital anomalies	13 Breast cancer	892 (2.0%)	-6
917 (2.1%)	14 Cirrhosis	14 Preterm birth complications	858 (1.9%)	-30
875 (2.0%)	15 Diabetes	15 Drug use disorders	841 (1.9%)	448
636 (1.5%)	16 Other cardio & circulatory	16 Chronic kidney disease	780 (1.7%)	86
626 (1.4%)	17 Hypertensive heart disease	17 Other cardio & circulatory	765 (1.7%)	20
623 (1.4%)	18 Cardiomyopathy	18 Pancreatic cancer	680 (1.5%)	34
509 (1.2%)	19 Pancreatic cancer	19 Congenital anomalies	661 (1.5%)	-31
458 (1.1%)	20 Leukemia	20 Cardiomyopathy	659 (1.5%)	3
425 (1.0%)	21 Chronic kidney disease	21 Hypertensive heart disease	642 (1.4%)	2
408 (0.9%)	22 Non-Hodgkin lymphoma	22 Leukemia	494 (1.1%)	8
418 (1.0%)	23 Prostate cancer	23 HIV/AIDS	479 (1.1%)	-64
383 (0.9%)	24 Brain cancer	24 Kidney cancers	476 (1.1%)	105
333 (0.8%)	25 SIDS	25 Non-Hodgkin lymphoma	452 (1.0%)	9
	32 Alzheimers disease	27 Prostate cancer		
	35 Kidney cancers	28 Brain cancer		
	44 Drug use disorders	49 SIDS		

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 the United States are low back pain, major depressive disorder, other musculoskeletal disorders, neck pain, 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.

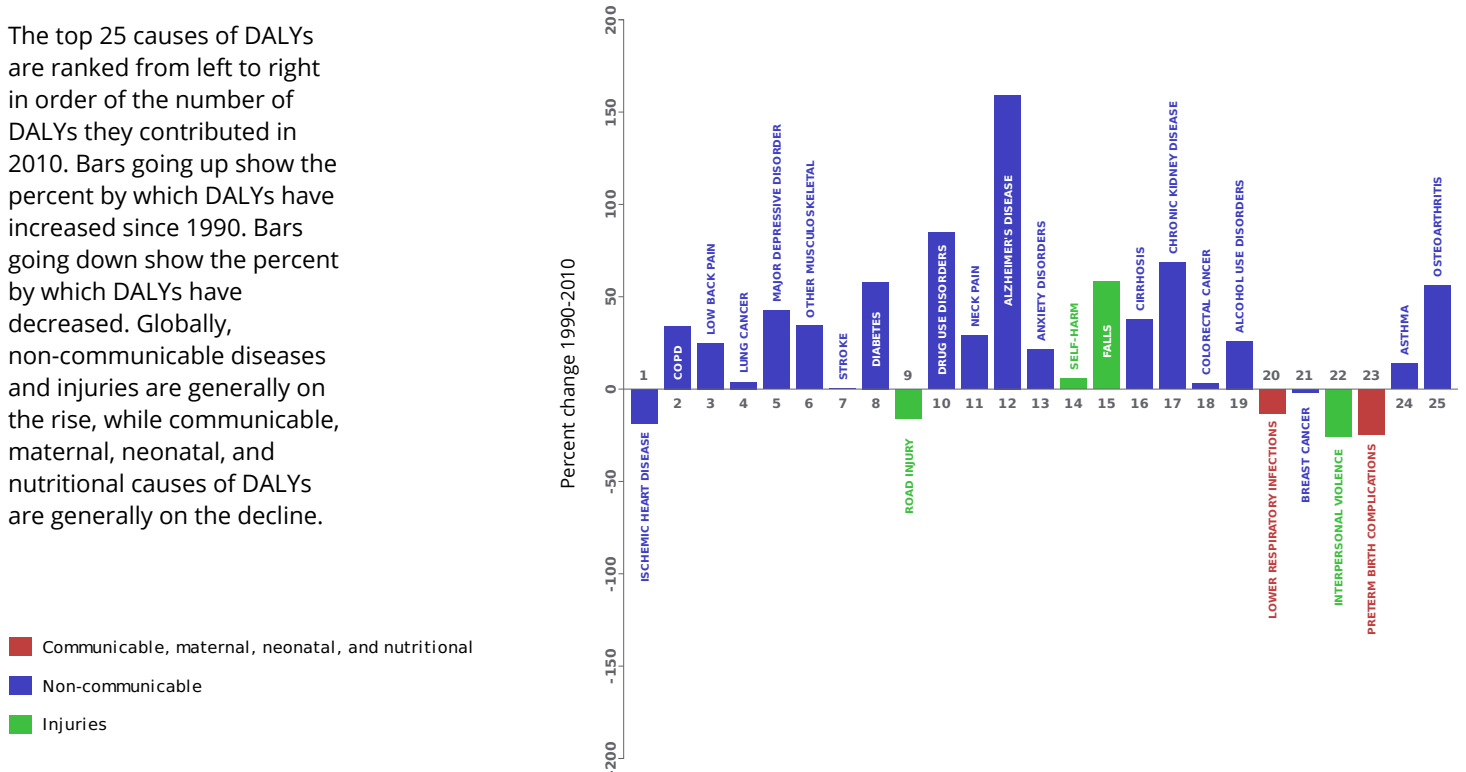


## DISABILITY-ADJUSTED LIFE YEARS (DALYs)

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

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 the United States

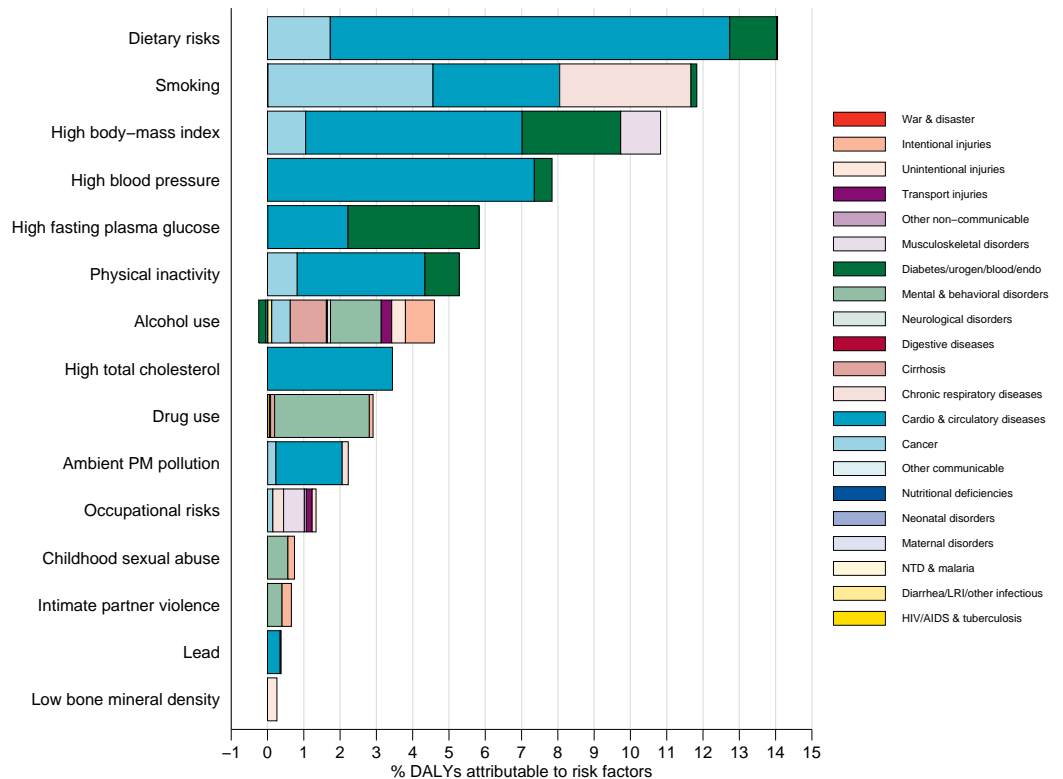


## RISK FACTORS

Overall, the three risk factors that account for the most disease burden in the United States are dietary risks, tobacco smoking, and high body-mass index. The leading risk factors for children under 5 and adults aged 15-49 years were zinc deficiency and alcohol use, respectively, in 2010.

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

The graph shows the top 15 risk factors for the United States. 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 the United States against other comparator countries provides key insight into public health successes and areas where the United States might be falling behind. The table identifies the United States' 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, the United States ranked 3rd for age-standardized YLD rate and 13th for age-standardized death 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
Luxembourg	641	11	432	10	14,255	10	8,484	9	11,370	11	11,683	11	75.3	10	80.2	10	65.2	12	68.4	9
Andorra	443	1	369	2	9,206	1	6,832	2	11,769	12	11,724	12	80.3	1	82.6	1	68.7	1	70.3	3
Norway	580	8	422	7	12,291	7	7,904	5	12,365	15	12,329	15	76.8	8	80.8	6	65.2	13	68	11
Brunei	705	14	576	14	15,283	14	11,525	13	10,711	4	10,502	2	74.4	14	77.2	14	64.9	14	67.3	13
Singapore	665	12	425	8	14,747	12	8,192	7	10,079	1	9,827	1	75.3	11	81	5	66.4	5	71.1	1
United Arab Emirates	795	15	615	15	18,366	15	13,157	15	12,272	14	11,951	14	72.7	15	76.3	15	62.2	15	65.1	15
Kuwait	489	2	511	12	11,796	3	12,133	14	12,022	13	11,867	13	77.8	2	77.4	13	66.1	7	65.9	14
<b>United States</b>	<b>639</b>	<b>10</b>	<b>516</b>	<b>13</b>	<b>15,130</b>	<b>13</b>	<b>11,447</b>	<b>12</b>	<b>10,503</b>	<b>2</b>	<b>10,509</b>	<b>3</b>	<b>75.2</b>	<b>12</b>	<b>78.2</b>	<b>12</b>	<b>65.6</b>	<b>9</b>	<b>67.9</b>	<b>12</b>
Switzerland	532	3	369	3	11,825	4	7,071	3	10,663	3	10,807	4	77.5	4	82.2	3	67.5	2	70.8	2
Netherlands	572	7	426	9	11,847	5	7,988	6	11,355	10	11,492	10	77	6	80.6	9	66.5	4	69.1	7
Ireland	692	13	453	11	14,298	11	8,764	11	11,024	7	11,138	8	74.8	13	79.9	11	65.2	11	68.9	8
Iceland	548	4	365	1	11,310	2	6,675	1	10,763	5	11,108	7	77.6	3	82.2	2	65.5	10	68.4	10
Australia	568	6	389	4	12,381	8	7,722	4	11,153	9	10,979	6	76.9	7	81.5	4	66.4	6	70.1	4
Canada	558	5	422	6	12,079	6	8,546	10	10,806	6	10,845	5	77.2	5	80.6	7	67	3	69.6	5
Austria	622	9	418	5	13,732	9	8,401	8	11,052	8	11,381	9	75.7	9	80.6	8	65.8	8	69.1	6

## COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of the United States 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 the United States 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	Lung cancer	COPD	Road injury	Stroke	Low back pain	Major depressive disorder	Other musculoskeletal	Diabetes	Neck pain	HIV/AIDS	Anxiety disorders	Interpersonal violence	Self-harm	Preterm birth complications	Lower respiratory infections	Drug use disorders	Colorectal cancer	Breast cancer	Congenital anomalies	Cirrhosis	Alcohol use disorders	Asthma	Falls	Alzheimer's disease		
Luxembourg	4	12	7	14	12	13	9	4	6	10	12	7	9	13	2	2	10	12	12	2	14	14	2	13	15		
Andorra	1	3	4	2	7	12	12	5	3	13	1	14	2	4	6	3	6	5	5	3	6	9	7	10	9		
Norway	11	5	3	4	8	15	10	7	11	8	7	15	4	12	3	9	11	11	6	7	4	15	10	12	11		
Brunei	3	4	13	10	14	5	7	11	15	3	6	8	13	3	7	13	5	3	3	14	9	4	14	11	4		
Singapore	9	11	8	1	13	1	11	12	12	5	10	9	10	11	4	15	3	15	4	10	8	3	6	3	1		
United Arab Emirates	15	2	15	15	15	4	15	1	13	1	3	6	14	2	15	14	15	2	1	11	13	2	13	8	3		
Kuwait	12	1	1	13	10	3	14	2	14	2	2	12	8	1	13	11	2	1	2	15	3	1	9	4	2		
<b>United States</b>	<b>13</b>	<b>15</b>	<b>12</b>	<b>11</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>15</b>	<b>10</b>	<b>15</b>	<b>15</b>	<b>13</b>	<b>15</b>	<b>7</b>	<b>14</b>	<b>8</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>12</b>	<b>12</b>	<b>8</b>	<b>1</b>	<b>10</b>		
Switzerland	2	6	11	8	4	6	8	6	7	12	14	3	7	15	1	6	7	6	11	12	11	10	5	15	13		
Netherlands	5	14	9	3	6	8	13	10	5	7	9	11	5	5	8	5	1	9	15	9	5	5	1	5	6		
Ireland	14	10	14	6	9	14	1	9	4	11	5	5	1	6	10	12	4	14	13	13	2	6	12	9	7		
Iceland	8	9	2	5	2	10	4	3	1	14	4	1	3	9	5	10	8	4	14	1	1	11	4	7	8		
Australia	7	8	10	9	5	7	2	13	2	4	11	10	11	8	11	1	14	13	7	4	7	7	15	6	12		
Canada	6	13	6	7	1	9	3	14	8	6	13	2	12	10	9	7	9	8	9	5	10	8	11	2	14		
Austria	10	7	5	12	11	11	5	8	9	9	8	4	6	14	12	4	12	10	10	8	15	13	3	14	5		
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																											
Country	Ischemic heart disease	COPD	Low back pain	Lung cancer	Major depressive disorder	Other musculoskeletal	Stroke	Diabetes	Road injury	Drug use disorders	Neck pain	Alzheimer's disease	Anxiety disorders	Self-harm	Falls	Cirrhosis	Chronic kidney disease	Colorectal cancer	Alcohol use disorders	Lower respiratory infections	Breast cancer	Interpersonal violence	Preterm birth complications	Asthma	Osteoarthritis		
Luxembourg	6	6	13	12	12	6	10	3	10	10	13	9	12	6	13	13	6	11	14	5	10	10	3	2	6		
Andorra	9	4	11	3	11	8	11	6	3	6	11	8	11	4	10	4	10	10	7	6	5	1	4	12	4		
Norway	5	7	15	8	9	5	5	10	5	12	8	12	15	10	12	3	1	14	15	8	7	4	1	8	1		
Brunei	13	12	5	5	4	13	14	15	12	3	3	4	6	3	4	7	14	5	4	14	2	11	10	9	12		
Singapore	11	1	1	7	8	11	12	12	1	1	4	2	7	8	3	2	11	9	2	15	4	3	2	1	13		
United Arab Emirates	15	14	4	2	15	1	15	13	15	14	1	3	5	2	5	12	13	2	1	12	1	14	13	6	15		
Kuwait	14	3	3	1	13	2	13	14	14	5	2	1	10	1	7	11	15	1	3	13	3	13	15	11	14		
<b>United States</b>	<b>12</b>	<b>15</b>	<b>2</b>	<b>14</b>	<b>5</b>	<b>15</b>	<b>9</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>11</b>	<b>2</b>	<b>14</b>	<b>12</b>	<b>6</b>	<b>12</b>	<b>10</b>	<b>11</b>	<b>15</b>	<b>14</b>	<b>10</b>	<b>10</b>		
Switzerland	2	13	6	6	10	3	3	7	7	4	14	6	3	15	15	8	2	4	9	3	12	5	6	7	8		
Netherlands	1	11	9	15	14	9	7	2	4	2	6	11	8	5	9	5	4	15	6	9	15	7	7	4	2		
Ireland	10	10	12	11	2	10	8	5	8	8	10	7	4	12	11	10	7	13	11	11	14	6	8	13	5		
Iceland	4	2	10	9	6	4	1	1	2	7	12	14	13	7	8	1	3	3	10	4	6	8	5	5	9		
Australia	3	8	7	4	1	12	2	4	11	13	5	10	9	9	6	6	5	12	5	2	9	9	9	15	3		
Canada	7	5	8	13	3	14	4	9	6	11	9	13	1	13	1	9	9	8	8	7	13	12	11	14	11		
Austria	8	9	14	10	7	7	6	8	9	9	7	5	2	14	14	15	8	7	13	1	8	2	12	3	7		
Ranking Legend	1 - 3			4 - 7			8 - 11			12 - 15																	