GBD PROFILE: IRELAND

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 Ireland, 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), ischemic heart disease showed the largest decrease, falling by 40% from 1990 to 2010.
- The leading risk factor in Ireland 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 females aged 5-9 years (56%). Males aged 15-19 years saw the smallest decrease in mortality rate (6%).

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

CAUSES OF PREMATURE DEATH

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

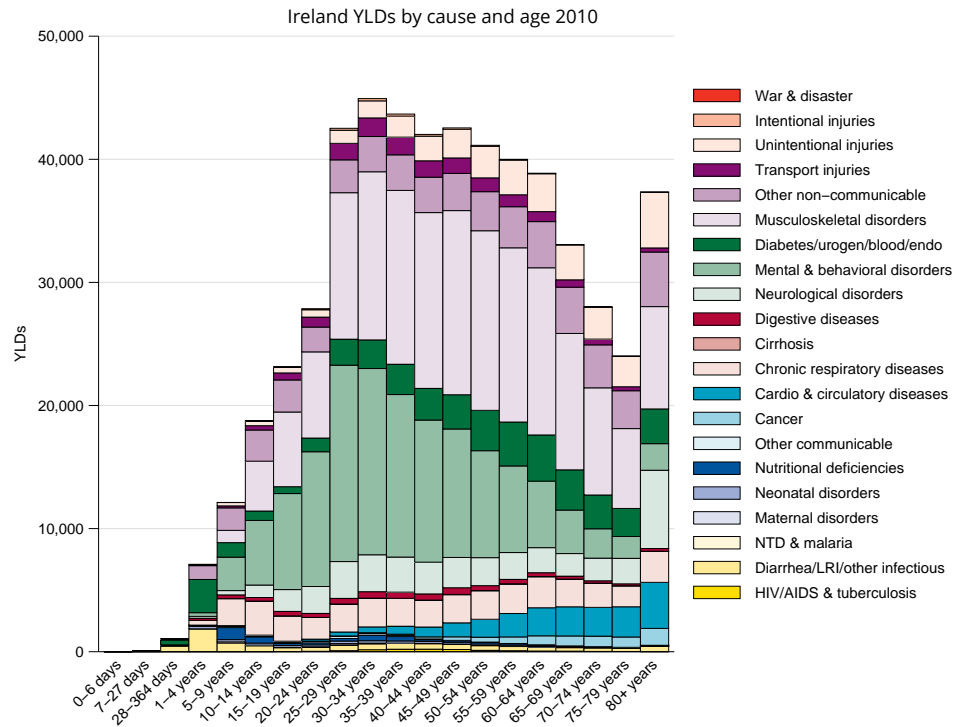Ranks for top 25 causes of YLLs 1990-2010, Ireland

# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
142 (25.1%)	1 Ischemic heart disease	1 Ischemic heart disease	81 (16.8%)	-44
44 (7.7%)	2 Stroke	2 Lung cancer	30 (6.3%)	6
29 (5.2%)	3 Lung cancer	3 Stroke	27 (5.7%)	-39
27 (4.8%)	4 COPD	4 Self-harm	22 (4.5%)	40
23 (4.1%)	5 Lower respiratory infections	5 Colorectal cancer	19 (3.9%)	4
22 (3.8%)	6 Road injury	6 COPD	18 (3.7%)	-34
18 (3.2%)	7 Colorectal cancer	7 Lower respiratory infections	17 (3.5%)	-27
17 (2.9%)	8 Congenital anomalies	8 Breast cancer	15 (3.2%)	3
16 (2.9%)	9 Self-harm	9 Road injury	13 (2.7%)	-45
15 (2.6%)	10 Breast cancer	10 Congenital anomalies	11 (2.2%)	-36
11 (2.0%)	11 Preterm birth complications	11 Pancreatic cancer	9 (1.8%)	23
9 (1.6%)	12 Other cardio & circulatory	12 Cirrhosis	9 (1.8%)	134
9 (1.6%)	13 Stomach cancer	13 Other cardio & circulatory	8 (1.7%)	-12
7 (1.2%)	14 Diabetes	14 Preterm birth complications	8 (1.7%)	-30
7 (1.2%)	15 Pancreatic cancer	15 Brain cancer	7 (1.5%)	16
6 (1.1%)	16 Brain cancer	16 Alzheimers disease	7 (1.5%)	164
6 (1.1%)	17 Prostate cancer	17 Drug use disorders	7 (1.5%)	870
6 (1.0%)	18 Chronic kidney disease	18 Prostate cancer	7 (1.4%)	15
5 (1.0%)	19 Leukemia	19 Diabetes	6 (1.3%)	-7
5 (0.9%)	20 Esophageal cancer	20 Stomach cancer	6 (1.3%)	-28
5 (0.8%)	21 Ovarian cancer	21 Esophageal cancer	6 (1.2%)	21
4 (0.8%)	22 Non-Hodgkin lymphoma	22 Falls	6 (1.2%)	38
4 (0.8%)	23 Falls	23 Leukemia	6 (1.2%)	2
4 (0.8%)	24 Cirrhosis	24 Ovarian cancer	5 (1.1%)	18
4 (0.7%)	25 SIDS	25 Non-Hodgkin lymphoma	5 (1.1%)	21
	34 Alzheimers disease	26 Chronic kidney disease		
	67 Drug use disorders	43 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 Ireland are low back pain, major depressive disorder, neck pain, other musculoskeletal disorders, 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.

Ireland YLDs by cause and age 2010

Legend:
- War & disaster
- Intentional injuries
- Unintentional injuries
- Transport injuries
- Other non–communicable
- Musculoskeletal disorders
- Diabetes/urogen/blood/endo
- Mental & behavioral disorders
- Neurological disorders
- Digestive diseases
- Cirrhosis
- Chronic respiratory diseases
- Cardio & circulatory diseases
- Cancer
- Other communicable
- Nutritional deficiencies
- Neonatal disorders
- Maternal disorders
- NTD & malaria
- Diarrhea/LRI/other infectious
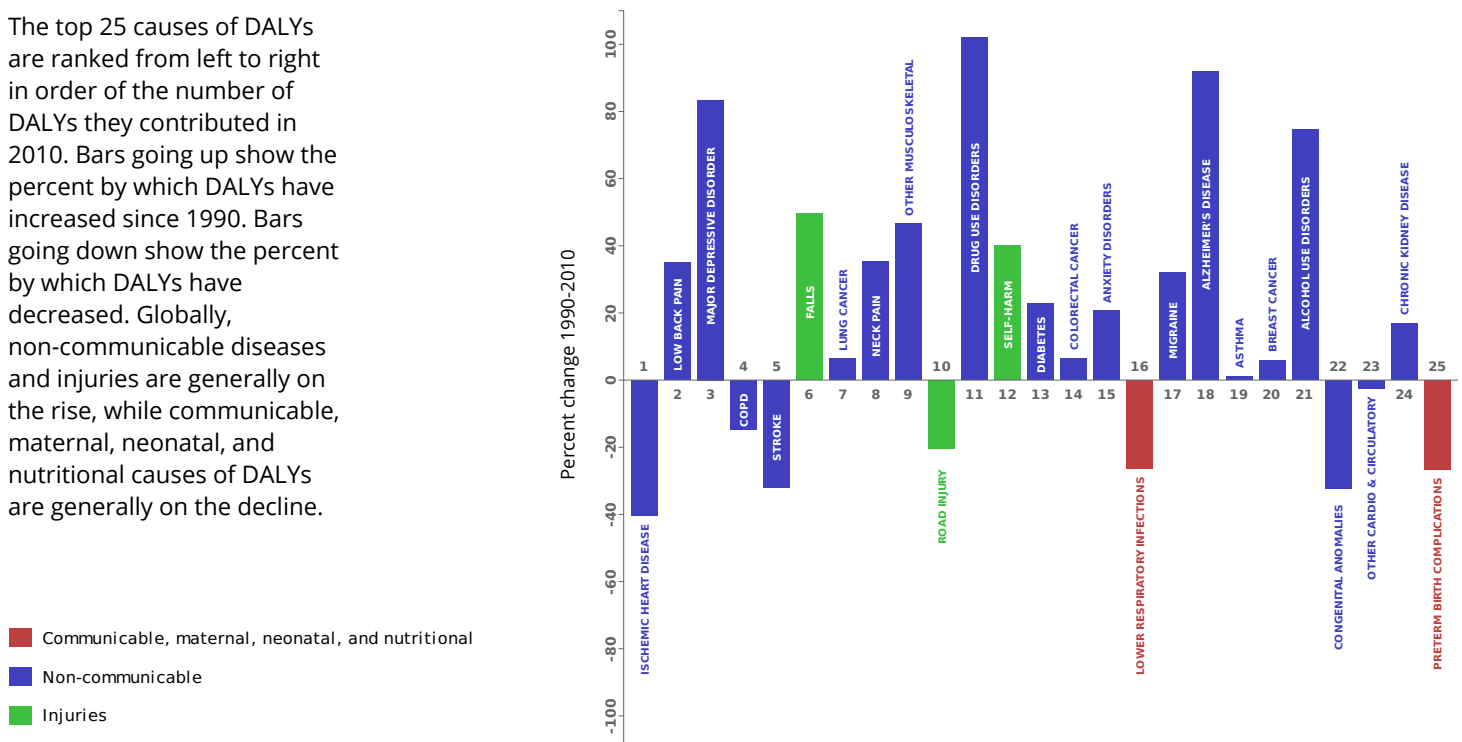- HIV/AIDS & tuberculosis

DISABILITY-ADJUSTED LIFE YEARS (DALYs)

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

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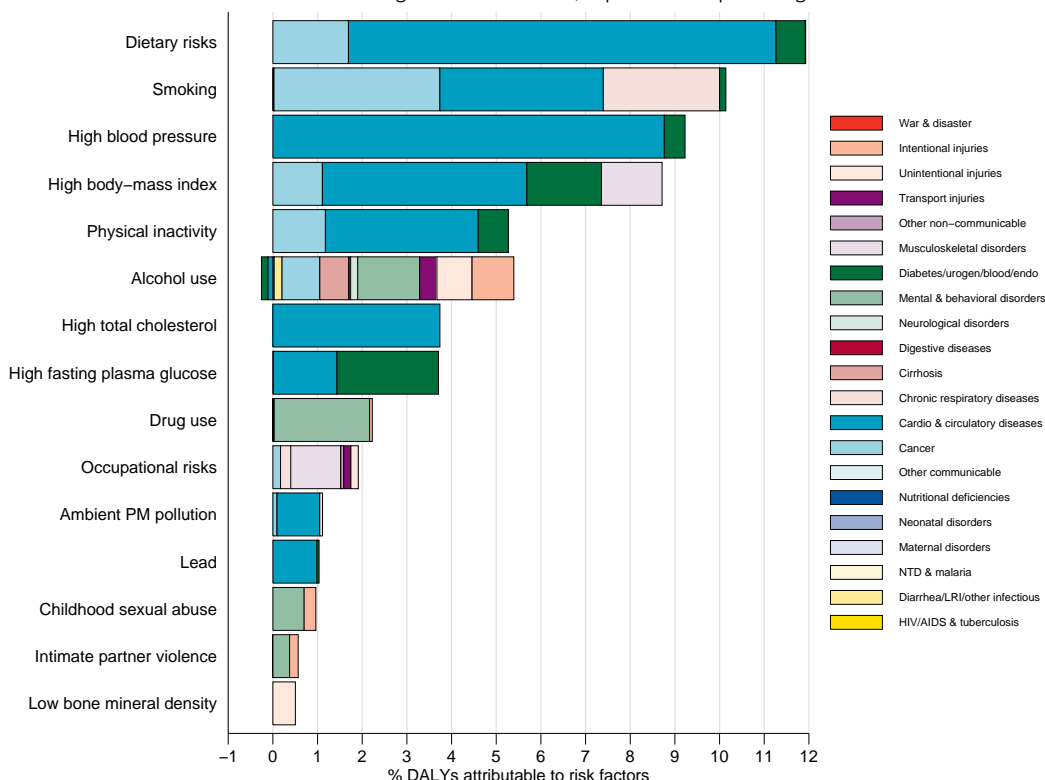- Non-communicable
- Injuries

RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Ireland are dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15-49 years were tobacco smoking and dietary risks, respectively, in 2010. Tobacco smoking as a risk factor for children is due to second-hand smoke exposure.

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

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

Legend:
- War & disaster
- Intentional injuries
- Unintentional injuries
- Transport injuries
- Other non–communicable
- Musculoskeletal disorders
- Diabetes/urogen/blood/endo
- Mental & behavioral disorders
- Neurological disorders
- Digestive diseases
- Cirrhosis
- Chronic respiratory diseases
- Cardio & circulatory diseases
- Cancer
- Other communicable
- Nutritional deficiencies
- Neonatal disorders
- Maternal disorders
- NTD & malaria
- Diarrhea/LRI/other infectious
- HIV/AIDS & tuberculosis

Risk factors (top to bottom): Dietary risks, Smoking, High blood pressure, High body–mass index, Physical inactivity, Alcohol use, High total cholesterol, High fasting plasma glucose, Drug use, Occupational risks, Ambient PM pollution, Lead, Childhood sexual abuse, Intimate partner violence, Low bone mineral density

X-axis: % DALYs attributable to risk factors

COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Ireland against other comparator countries provides key insight into public health successes and areas where Ireland might be falling behind. The table identifies Ireland'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, Ireland ranked 8th for health-adjusted life expectancy and 9th 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
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	7	14,747	12	8,192	6	10,079	1	9,827	1	75.3	10	81	5	66.4	5	71.1	1
United Arab Emirates	795	15	615	15	18,366	15	13,157	15	12,272	15	11,951	15	72.7	15	76.3	15	62.2	15	65.1	15
Kuwait	489	1	511	12	11,796	3	12,133	14	12,022	14	11,867	14	77.8	1	77.4	13	66.1	7	65.9	14
United States	639	10	516	13	15,130	13	11,447	12	10,503	2	10,509	3	75.2	11	78.2	12	65.6	10	67.9	11
Switzerland	532	2	369	2	11,825	4	7,071	2	10,663	3	10,807	4	77.5	4	82.2	2	67.5	1	70.8	2
Netherlands	572	7	426	8	11,847	5	7,988	5	11,355	12	11,492	13	77	6	80.6	8	66.5	4	69.1	7
Ireland	**692**	**13**	**453**	**9**	**14,298**	**10**	**8,764**	**9**	**11,024**	**7**	**11,138**	**9**	**74.8**	**13**	**79.9**	**9**	**65.2**	**13**	**68.9**	**8**
Iceland	548	4	365	1	11,310	2	6,675	1	10,763	5	11,108	8	77.6	2	82.2	1	65.5	11	68.4	10
Australia	568	6	389	3	12,381	7	7,722	4	11,153	10	10,979	7	76.9	7	81.5	3	66.4	6	70.1	3
Canada	558	5	422	6	12,079	6	8,546	8	10,806	6	10,845	5	77.2	5	80.6	6	67	2	69.6	5
Austria	622	9	418	5	13,732	9	8,401	7	11,052	8	11,381	11	75.7	9	80.6	7	65.8	8	69.1	6
Sweden	539	3	403	4	11,196	1	7,296	3	11,378	13	11,250	10	77.6	3	81.4	4	66.8	3	69.6	4
Denmark	656	11	504	11	14,383	11	9,592	11	11,209	11	11,456	12	75.2	12	78.9	11	65.3	12	67.9	12
Belgium	615	8	460	10	13,458	8	9,381	10	11,119	9	10,933	6	75.9	8	79.5	10	65.7	9	68.5	9

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Ireland 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 Ireland 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	Low back pain	Stroke	COPD	Road injury	Lung cancer	Lower respiratory infections	Major depressive disorder	Neck pain	Falls	Other musculoskeletal	Colorectal cancer	Congenital anomalies	Diabetes	Asthma	Self-harm	Breast cancer	Anxiety disorders	Migraine	Preterm birth complications	Other cardio & circulatory	Drug use disorders	Chronic kidney disease	Stomach cancer	Alzheimer's disease
Brunei	3	5	14	13	10	4	13	8	5	11	11	3	14	15	14	3	3	10	4	6	8	6	15	13	4
Singapore	9	1	13	6	1	10	15	12	7	3	12	14	9	12	6	10	4	11	1	4	7	3	14	15	1
United Arab Emirates	15	4	15	15	15	2	14	15	1	9	1	2	10	13	13	2	1	9	2	15	15	15	9	8	3
Kuwait	12	3	11	2	13	1	11	14	2	4	2	1	15	14	9	1	2	14	3	13	9	2	13	1	2
United States	13	2	3	11	11	14	9	7	15	1	15	7	5	11	8	6	7	15	5	14	10	13	12	2	9
Switzerland	1	6	4	10	8	5	4	10	13	15	6	6	11	7	5	15	10	5	13	1	5	8	3	7	13
Netherlands	4	9	7	7	3	12	3	13	9	5	10	9	8	5	1	4	13	13	8	7	13	1	5	10	6
Ireland	14	13	10	14	5	9	12	1	12	10	9	13	12	4	11	5	11	7	10	10	12	5	11	11	7
Iceland	7	11	2	3	4	8	10	4	14	8	5	4	1	1	3	8	12	2	11	5	2	9	4	12	8
Australia	6	7	5	9	9	7	1	2	6	6	13	12	3	2	15	7	6	12	15	11	3	14	7	4	11
Canada	5	10	1	5	6	11	6	3	8	2	14	8	4	8	10	9	8	3	7	8	1	10	10	3	14
Austria	10	12	12	4	12	6	2	6	11	14	7	10	7	9	2	13	9	6	9	12	11	12	6	14	5
Sweden	8	14	6	1	2	3	8	11	3	7	4	5	6	3	12	12	5	8	14	2	6	4	2	5	10
Denmark	11	15	9	12	7	13	5	5	4	13	8	15	13	10	7	14	15	4	6	3	4	11	1	6	12
Belgium	2	8	8	8	14	15	7	9	10	12	3	11	2	6	4	11	14	1	12	9	14	7	8	9	15

Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010

Country	Ischemic heart disease	Low back pain	Major depressive disorder	COPD	Stroke	Falls	Lung cancer	Neck pain	Other musculoskeletal	Road injury	Drug use disorders	Self-harm	Diabetes	Colorectal cancer	Anxiety disorders	Lower respiratory infections	Migraine	Alzheimer's disease	Asthma	Breast cancer	Alcohol use disorders	Congenital anomalies	Other cardio & circulatory	Chronic kidney disease	Preterm birth complications
Brunei	13	5	5	11	14	4	5	5	13	11	3	3	15	5	9	14	5	4	9	2	4	14	3	14	10
Singapore	11	1	11	1	12	3	7	6	11	1	1	6	12	10	10	15	1	2	1	4	2	3	1	11	2
United Arab Emirates	15	4	15	13	15	5	2	1	1	15	14	2	13	2	7	12	2	3	6	1	1	13	15	15	13
Kuwait	14	3	13	4	13	7	1	2	2	14	6	1	14	1	13	13	3	1	11	3	3	15	10	15	15
United States	12	2	6	15	9	2	12	15	15	12	15	9	11	6	15	10	4	15	10	9	12	10	12	12	14
Switzerland	2	6	12	12	3	15	6	14	3	6	4	14	7	4	5	3	12	6	8	10	8	11	2	2	4
Netherlands	1	10	14	9	7	9	14	8	8	4	2	4	2	14	11	8	8	9	3	14	6	6	13	4	6
Ireland	10	12	3	8	8	12	10	12	9	7	10	10	4	13	6	11	11	7	12	12	10	12	9	8	8
Iceland	4	11	7	2	1	8	8	13	4	2	8	5	1	3	14	4	10	14	5	5	9	1	5	3	3
Australia	3	7	1	6	2	6	4	7	12	10	13	7	3	12	12	2	15	8	15	8	5	5	6	5	9
Canada	7	8	4	5	4	1	11	11	14	5	12	11	9	9	1	6	7	13	13	11	7	9	4	10	11
Austria	9	13	9	7	6	14	9	9	6	9	11	13	8	7	3	1	9	5	2	7	13	8	11	9	12
Sweden	5	14	8	3	5	10	3	3	5	3	5	12	5	8	8	5	14	11	14	6	14	2	7	1	1
Denmark	6	15	10	14	11	11	15	4	10	8	9	8	10	15	4	7	6	10	7	13	15	7	8	7	5
Belgium	8	9	2	10	10	13	13	10	7	13	7	15	6	11	2	9	13	12	4	15	11	4	14	6	7

Ranking Legend		1 - 3		4 - 7		8 - 11		12 - 15