THE GLOBAL BURDEN OF DISEASE:

GENERATING EVIDENCE, GUIDING POLICY

EUROPEAN UNION AND EUROPEAN FREE TRADE ASSOCIATION REGIONAL EDITION

INSTITUTE FOR HEALTH METRICS AND EVALUATION UNIVERSITY OF WASHINGTON



THE GLOBAL BURDEN OF DISEASE:

GENERATING EVIDENCE, GUIDING POLICY

EUROPEAN UNION AND EUROPEAN FREE TRADE ASSOCIATION REGIONAL EDITION

INSTITUTE FOR HEALTH METRICS AND EVALUATION UNIVERSITY OF WASHINGTON

This report was prepared by the Institute for Health Metrics and Evaluation (IHME) based on seven papers for the Global Burden of Disease Study 2010 (GBD 2010) published in *The Lancet* (2012 Dec 13; 380). GBD 2010 had 488 co-authors from 303 institutions in 50 countries. The work was made possible through core funding from the Bill & Melinda Gates Foundation. The views expressed are those of the authors.

The contents of this publication may be reproduced and redistributed in whole or in part, provided the intended use is for noncommercial purposes, the contents are not altered, and full acknowledgment is given to IHME. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License.

To view a copy of this license, please visit: http://creativecommons.org/licenses/by- nc-nd/3.0/.

For any usage that falls outside of these license restrictions, please contact IHME Communications at comms@healthmetricsandevaluation.org.

Citation: Institute for Health Metrics and Evaluation. The Global Burden of Disease: Generating Evidence, Guiding Policy – European Union and European Free Trade Association Regional Edition. Seattle, WA: IHME, 2013.

Institute for Health Metrics and Evaluation 2301 Fifth Ave., Suite 600 Seattle, WA 98121 USA www.healthmetricsandevaluation.org

Printed in the United States of America

ISBN 978-0-9894752-3-5 © 2013 Institute for Health Metrics and Evaluation

THE GLOBAL BURDEN OF DISEASE:

GENERATING EVIDENCE, GUIDING POLICY

EUROPEAN UNION AND EUROPEAN FREE TRADE ASSOCIATION REGIONAL EDITION

Introduction
The GBD approach to tracking health progress and challenges 1
Rapid health transitions: GBD 2010 results
Using GBD to assess countries' health progress
Country profiles
Conclusion
Annex

ABOUT IHME

The Institute for Health Metrics and Evaluation (IHME) is an independent global health research center at the University of Washington that provides rigorous and comparable measurement of the world's most important health problems and evaluates the strategies used to address them. IHME makes this information freely available so that policymakers have the evidence they need to make informed decisions about how to allocate resources to best improve population health.

To express interest in collaborating, participating in GBD training workshops, or receiving updates of GBD or copies of this publication, please contact IHME at:

Institute for Health Metrics and Evaluation 2301 Fifth Ave., Suite 600 Seattle, WA 98121 USA

Telephone: +1-206-897-2800 Fax: +1-206-897-2899 E-mail: comms@healthmetricsandevaluation.org www.healthmetricsandevaluation.org

ACKNOWLEDGMENTS

The Global Burden of Disease Study 2010 (GBD 2010) was implemented as a collaboration between seven institutions: the Institute for Health Metrics and Evaluation (IHME) as the coordinating center, the University of Queensland School of Population Health, Harvard School of Public Health, the Johns Hopkins Bloomberg School of Public Health, the University of Tokyo, Imperial College London, and the World Health Organization. This summary draws on seven GBD 2010 papers published in *The Lancet* (2012 Dec 13; 380) as well as papers on United Kingdom health performance published in *The Lancet* (2013 March 23; 381) and the state of United States health published in the *Journal of the American Medical Association* (2013 Aug 14; 310 (6)). GBD 2010 had 488 co-authors from 303 institutions in 50 countries.

We thank IHME's Board for their continued leadership. We are grateful to the report's writer Rhonda Stewart; Christopher Murray, Michael MacIntyre, Heidi Larson, Isabel de la Mata, Katherine Leach-Kemon, and William Heisel at IHME for content guidance; Ryan Barber for data analysis; Kyle Heuton for country profile analysis; Brittany Wurtz and Anne Bulchis for program coordination; Patricia Kiyono for production oversight; Kate Muller and Adrienne Chew for editing; Ryan Diaz for graphic design; and Brian Childress for editorial support. This report would not have been possible without the ongoing contributions of Global Burden of Disease collaborators around the world.

Finally, we would like to extend our gratitude to the Bill & Melinda Gates Foundation for generously funding IHME and for its consistent support of the Global Burden of Disease research.

GLOSSARY

Years of life lost (YLLs): Years of life lost due to premature mortality.

Years lived with disability (YLDs): Years of life lived with any short-term or long-term health loss, adjusted for severity.

Disability-adjusted life years (DALYs): The sum of years lost due to premature death (YLLs) and years lived with disability (YLDs). DALYs are also defined as years of healthy life lost.

Healthy life expectancy or health-adjusted life expectancy (HALE): The number of years that a person at a given age can expect to live in good health, taking into account mortality and disability.

Sequelae: Consequences of diseases and injuries.

Health states: Groupings of sequelae that reflect key differences in symptoms and functioning.

Disability weights: Number on a scale from 0 to 1 that represents the severity of health loss associated with a health state.

Risk factors: Potentially modifiable causes of disease and injury.

Uncertainty intervals: A range of values that is likely to include the correct estimate of health loss for a given cause. Narrow uncertainty intervals indicate that evidence is strong, while wide uncertainty intervals show that evidence is weaker.

The Global Burden of Disease (GBD) approach is a systematic, scientific effort to quantify the comparative magnitude of health loss due to diseases, injuries, and risk factors by age, sex, and geography for specific points in time. Box 1 describes the history of GBD. The latest iteration of that effort, the Global Burden of Diseases, Injuries, and Risk Factors Study 2010 (GBD 2010), was published in *The Lancet* in December 2012. The intent is to create a global public good that will be useful for informing the design of health systems and the creation of public health policy. It estimates premature death and disability due to 291 diseases and injuries, 1,160 sequelae (direct consequences of disease and injury), and 67 risk factors for 20 age groups and both sexes in 1990, 2005, and 2010. GBD 2010 produced estimates for 187 countries and 21 regions. In total, the study generated over 1 billion estimates of health outcomes.

GBD 2010 was a collaborative effort among 488 researchers from 50 countries and 303 institutions. The Institute for Health Metrics and Evaluation (IHME) acted as the coordinating center for the study. The collaboration strengthened both the data-gathering effort and the quantitative analysis by bringing together some of the foremost minds from a wide range of disciplines. Our intention is to build on this effort by enlarging the network in the years to come. Similarly, IHME and its collaborators hope to expand the list of diseases, injuries, and risk factors included in GBD and routinely update the GBD estimates. Continuous updates will ensure that the international community can have access to high-quality estimates in the timeliest fashion. Through sound measurement, we can provide the foundational evidence that will lead to improved population health.

Over the last two decades, the global health landscape has undergone rapid transformation. People around the world are living longer than ever before, and the population is getting older. The number of people in the world is growing. Many countries have made remarkable progress in preventing child deaths. As a result, disease burden is increasingly defined by disability instead of premature mortality. The leading causes of death and disability have changed from communicable diseases in children to non-communicable diseases in adults. Eating too much has overtaken hunger as a leading risk factor for illness. While there are clear trends at the global level, there is substantial variation across regions and countries.

The European Union (EU) and the European Free Trade Association (EFTA) encompass 32 countries in Western and Central Europe. They are Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

This report includes analysis of countries in the EU and EFTA regions with the exception of Liechtenstein. At the time of the latest update to the GBD, IHME produced estimates only for countries with populations over 50,000.

The EU and EFTA countries provide rich opportunities for GBD analysis, as health care is a cross-border issue and tremendous health improvements have been made over 20 years. The countries have diverse economies and population structures but are united in common priorities, as seen in the European Commission's (EC) most recent health strategy. These priorities include encouraging healthy aging, addressing pandemics and other threats to health, and supporting new technologies to improve health systems. The EC health strategy also argues that health policy "must be based on the best scientific evidence derived from sound data and information, and relevant research."

For EU and EFTA countries the rise in disabling conditions, the growing impact of potentially preventable risk factors, and the challenges posed by regional funding priorities present many possibilities for research. By drawing comparisons across countries and over time and measuring trends in diseases, injuries, risk factors, and mortality, GBD data allow policymakers to identify the most pressing health challenges and develop appropriate measures to address them.

In EU and EFTA countries, many of the leading causes of health loss were non-communicable diseases. Similar to global trends, communicable, maternal, nutritional, and newborn causes are becoming less important in poorer countries in the region as non-communicable diseases kill more people prematurely and cause increasing disability. The epidemiologic profile of these countries closely resembles that of countries such as the United States and Canada, with health loss from many non-communicable diseases, including diabetes, depression, and musculoskeletal disorders, increasing steadily over 20 years. Risk factors such as high blood pressure, poor diets, and smoking contributed to the rise of non-communicable diseases in these regions.

This publication summarizes findings for the EU and EFTA region. It also explores intraregional differences in diseases, injuries, and risk factors.

Box 1: History of the Global Burden of Disease and innovations in GBD 2010

The first GBD study was published as part of the World Development Report 1993. This original study generated estimates for 107 diseases, 483 sequelae (nonfatal health consequences), eight regions, and five age groups.

The authors' inspiration for the study came from the realization that policymakers lacked comprehensive and standardized data on diseases, injuries, and potentially preventable risk factors for decision-making. A second source of inspiration was the fact that disease-specific advocates' estimates of the number of deaths caused by their diseases of interest far exceeded the total number of global deaths in any given year. GBD authors chose to pursue a holistic approach to analyzing disease burden to produce scientifically sound estimates that were independent of the influence of advocates.

The GBD 1990 study had a profound impact on health policy as it exposed the hidden burden of mental illness around the world. It also shed light on neglected health areas such as the premature death and disability caused by road traffic injuries. Work from this study has been cited over 4,000 times since 1993.

The study also sparked substantial controversy. Many disease-specific advocates argued that the original GBD underestimated burden from the causes they cared about most. The use of age weighting and discounting also caused extensive debates. Age weighting assumed that a year of life increased in value until age 22 and then decreased steadily. Discounting counted years of healthy life saved in the present as more valuable than years of life saved in the future. Also controversial was the use of expert judgment to estimate disability weights (estimations of the severity of nonfatal conditions). As a result of this feedback and consultation with a network of philosophers, ethicists, and economists, GBD no longer uses age weighting and discounting. Also, GBD 2010 updated its methods for determining disability weights and used data gathered from thousands of respondents from different countries around the world.

GBD 2010 shares many of the founding principles of the original GBD 1990 study, such as using all available data on diseases, injuries, and risk factors; using comparable metrics to estimate the impact of death and disability on society; and ensuring that the science of disease burden estimation is not influenced by advocacy.

Despite these similarities, GBD 2010 is broader in scope and involved a larger number of collaborators than any previous GBD study. While the original study had the participation of 100 collaborators worldwide, GBD 2010 had 488 co-authors. Thanks to that network, the study includes vast amounts of data on health outcomes and risk factors. Researchers also made substantial improvements to the GBD methodology, summarized in Box 2 and described in detail in the Annex of this report and in the published studies. Among these improvements, highlights include using data collected via population surveys to estimate disability weights for the first time, greatly expanding the list of causes and risk factors analyzed in the study, detailed analysis of the effect of different components of diet on health outcomes, and reporting of uncertainty intervals for all metrics. GBD 2010 researchers reported uncertainty intervals to provide full transparency about the weaknesses and strengths of the analysis. Narrow uncertainty intervals indicate that evidence is strong.

MAIN FINDINGS GLOBALLY AND FOR THE EUROPEAN UNION AND EUROPEAN FREE TRADE ASSOCIATION REGION

A range of risk factors pose significant challenges to health in the region. Despite progress made in reducing health loss from ischemic heart disease and stroke, these remain among the top three causes of disease burden in the EU/EFTA region. There is enormous potential to reduce the impact of these diseases by addressing dietary risks, high blood pressure, and strengthening tobacco control efforts.

- Between 1990 and 2010, the EU and EFTA countries succeeded in decreasing premature death and disability from most communicable, newborn, nutritional, and maternal causes, especially in poorer countries such as Romania and Bulgaria. HIV/AIDS, lower respiratory infections, iron-deficiency anemia, and preterm birth complications were the only communicable, newborn, nutritional, and maternal causes found among the top 25 causes of health loss in any EU and EFTA country.
- In this 20-year period, the global disease burden from many non-communicable causes increased, especially ischemic heart disease, cirrhosis, diabetes, and musculoskeletal disorders including low back pain and neck pain. The same was generally true in EU and EFTA countries, with the exceptions of ischemic heart disease and cirrhosis; the disease burden associated with these two causes decreased over the 20-year period. Countries with some of the greatest declines in health loss from ischemic heart disease include the UK (50%), Denmark (48%), and Ireland (40%). In another global and regional difference, drug and alcohol use disorders caused more early death and disability in EU and EFTA countries in 2010 than two decades prior, but the health loss from those disorders increased at a slower rate in the region than the global pace. One notable exception is Finland, where the percentage of disability-adjusted life years (DALYs) from alcohol use disorders was up 87% in the same period.
- In EU and EFTA countries, a greater percentage of healthy years were lost from disability in 2010 compared to 1990. Low back pain, neck pain, and other musculoskeletal disorders, as well as mental disorders such as depression and anxiety were dominant causes of disability. In Iceland, the percentage of years lived with disability from low back pain, neck pain, and other musculoskeletal disorders was up by more than a third since 1990. In Switzerland, years lost from disability for major depressive disorder increased 54%. Early death and disability from falls is a notable source of injuries in the EU/EFTA region, up by almost 25%. Aging and changing demographics will continue to fuel the rise in disability in EU and EFTA countries, making it imperative for policymakers to determine how to manage these conditions in a cost-effective way.
- EU and EFTA countries, regionally, saw a 50% decrease in premature mortality from road injury between 1990 and 2010. But given that at least one key source of road safety funding has declined from 9.1 million euros in 2007 to 1 million euros in 2011, continued efforts are needed to sustain progress that has been made. Although the percentage of DALYs from road injury in the region has dropped by half since 1990, the declines in health loss have not been as great in some countries. In Belgium, Greece, and Poland, the DALYs from road injuries dropped by 28%, 19%, and 18%, respectively.

Box 2: Global Burden of Disease methodology

GBD uses thousands of data sources from around the world to estimate disease burden. As a first step, GBD researchers estimate child and adult mortality using data sources such as vital and sample registration systems, censuses, and household surveys. Years lost due to premature death from different causes are calculated using data from vital registration with medical certification of causes of death when available, and sources such as verbal autopsies in countries where medical certification of causes of death is lacking. Years lived with disability are estimated using sources such as cancer registries, data from outpatient and inpatient facilities, and direct measurements of hearing, vision, and lung function testing. Once they have estimated years lost due to premature death and years lived with disability, GBD researchers sum the two estimates to obtain disability-adjusted life years. Finally, researchers quantify the amount of premature death and disability attributable to different risk factors using data on exposure to, and the effects of, the different risk factors. For more information about the GBD methods, see the Annex of this report as well as the published papers. For decision-makers striving to create evidence-based policy, the GBD approach provides numerous advantages over other epidemiological studies. These key features are further explored in this report.

A CRITICAL RESOURCE FOR INFORMED POLICYMAKING

To ensure a health system is adequately aligned to a population's true health challenges, policymakers must be able to compare the effects of different diseases that kill people prematurely and cause ill health. The original GBD study's creators developed a single measurement, DALYs, to quantify the number of years of life lost as a result of both premature death and disability. One DALY equals one lost year of healthy life. DALYs will be referred to by their acronym, as "years of healthy life lost," and as "years lost due to premature death and disability" throughout this publication. Decision-makers can use DALYs to quickly compare the impact caused by conditions such as cancer and depression since the conditions are assessed using a comparable metric. Considering the number of DALYs instead of causes of death alone provides a more accurate picture of the main drivers of poor health. Thanks to the use of this public health monitoring tool, GBD 2010 researchers found that in most countries as mortality declines, disability becomes increasingly important. Information about changing disease patterns is a crucial input for decision-making, as it illustrates the challenges that individuals and health care providers are facing in different countries.

In addition to comparable information about the impact of fatal and nonfatal conditions, decision-makers need comprehensive data on the causes of ill health that are most relevant to their country. The hierarchical GBD cause list (available on IHME's website at http://ihmeuw.org/gbdcauselist) has been designed to include the diseases, injuries, and sequelae that are most relevant for public health policymaking. To create this list, researchers reviewed epidemiological and cause of death data to identify which diseases and injuries resulted in the most ill health. Inpatient and outpatient records were also reviewed to understand the conditions for which patients sought medical care. For example, researchers added chronic kidney disease to the GBD cause list after learning that this condition accounted for a large number of hospital visits and deaths.

GBD was created in part due to researchers' observation that deaths estimated by different disease-specific studies added up to more than 100% of total deaths when summed. The GBD approach ensures that deaths are counted only once. First, GBD counts the total number of deaths in a year. Next, researchers work to assign a single cause to each death using a variety of innovative methods (see Annex). Estimates of cause-specific mortality are then compared to estimates of deaths from all causes to ensure that the cause-specific numbers do not exceed the total number of deaths in a given year. Other components of the GBD estimation process are interconnected with similar built-in safeguards, such as for the estimation of impairments that are caused by more than one disease.

Beyond providing a comparable and comprehensive picture of causes of premature death and disability, GBD also estimates the disease burden attributable to different risk factors. The GBD approach goes beyond risk factor prevalence, such as the number of smokers or heavy drinkers in a population. With comparative risk assessment, GBD incorporates both the prevalence of a given risk factor as well as the relative harm caused by that risk factor. It counts premature death and disability attributable to high blood pressure, tobacco and alcohol use, lack of exercise, air pollution, poor diet, and other risk factors that lead to ill health. The flexible design of the GBD machinery allows for regular updates as new data are made available and epidemiological studies are published. Similar to the way in which a policymaker uses gross domestic product data to monitor a country's economic activity, GBD can be used at both the global and national levels to understand health trends over time.

Policymakers in Australia, Brazil, China, Colombia, Indonesia, Mexico, Norway, Saudi Arabia, Turkey, and the United Kingdom are in the process of adopting different aspects of the GBD approach. Since the release of GBD 2010 in December 2012, researchers in the US, UK, and Australia have collaborated with IHME on country-specific GBD estimates at the national level. New studies are underway in these countries to produce GBD estimates at the local level.

Box 3 contains decision-makers' and policy influencers' reflections about the value of using GBD tools and results to inform policy discussions.

For the first time in the history of GBD research, IHME has developed many free data visualization tools that allow individuals to explore health trends for different countries and regions. The tools, which can be found on the IHME website, allow users to interact with the results in a manner not seen in past versions of the study.

Users report that the visualization tools provide a unique, hands-on opportunity to learn about the health problems that different countries and regions face, allowing them to explore seemingly endless combinations of data. The following list illustrates the range of estimates that can be explored using the GBD data visualization tools:

- Changes between 1990 and 2010 in leading causes of death, premature death, disability, and DALYs as well as changes in the amount of health loss attributable to different risk factors across age groups, sexes, and locations.
- Rankings for 1990 and 2010 of the leading causes of death, premature death, disability, and DALYs attributable to risk factors across different countries and regions, age groups, and sexes.
- Changes in trends for 21 cause groups in 1990 and 2010 in different regions, sexes, and metrics of health loss.
- The percentage of deaths, premature deaths, disability, or DALYs in a country or region caused by myriad diseases and injuries for particular age groups, sexes, and time periods.
- The percentage of health loss by country or region attributable to specific risk factors by age group, sex, cause, and time period.

The visualization tools allow people to view GBD estimates through hundreds of different dimensions. Only a few examples are explored in the figures throughout this document. We encourage you to use the GBD data visualization tools and share them with others.

In addition to promoting understanding about the major findings of GBD, these visualization tools can help government officials build support for health policy changes, allow researchers to visualize data prior to analysis, and empower teachers to illustrate key lessons of global health in their classrooms.

Box 3: Views on the value of GBD for policymaking

"I want us to be up there with the best in Europe when it comes to tackling the leading causes of early death, starting with the five big killer diseases – cancer, stroke, heart, respiratory, and liver diseases. But the striking picture of our health outcomes across these major causes of early death published in *The Lancet* recently shows that we have a long way to go before we are confident that we can achieve this aspiration."

Jeremy Hunt Secretary of State for Health, United Kingdom

"The data from this report goes all the way down to the county level, which means that you'll be able to see which issues are affecting your communities the most... And once you have all this information, you'll be able to make more effective decisions to really focus your resources and programming to find solutions that fit the needs of your community."

Michelle Obama First Lady of the United States

"We think we know where the burdens are in our society, but I bet you when we have another look at it from this frame we'll find things we didn't know. And then we'll tackle them."

Jane Halton

Secretary, Australian Department of Health and Ageing

"The Global Burden of Disease Study 2010 (GBD 2010) in *The Lancet* represents an unprecedented effort to improve global and regional estimates of levels and trends in the burden of disease. Accurate assessment of the global, regional, and country health situations and trends is critical for evidence-based decision-making for public health."

Margaret Chan Director-General, World Health Organization

THE EGALITARIAN VALUES INHERENT IN GBD

When exploring the possibility of incorporating GBD measurement tools into their health information systems, policymakers should consider the egalitarian values on which this approach is founded.

The core principle at the heart of the GBD approach is that everyone should live a long life in full health. As a result, GBD researchers seek to measure the gap between this ideal and reality. Calculation of this gap requires estimation of two different components: years of life lost due to premature death (YLLs) and years lived with disability (YLDs).

To measure years lost to premature death, GBD researchers had to answer the question: "How long is a 'long' life?" For every death, researchers determined that the most egalitarian answer to this question was to use the highest life expectancy observed in the age group of the person who died. The Annex contains more information about the estimation of YLLs.

In order to estimate years lived with disability, researchers were confronted with yet another difficult question: "How do you rank the severity of different types of disability?" To determine the answer, researchers created disability weights based on individuals' perceptions of the impact on people's lives from a particular disability, everything from tooth decay to schizophrenia.

GBD REGIONAL CLASSIFICATIONS

GBD 2010 created regions based on two criteria: epidemiological similarity and geographic closeness. More information about GBD regional classifications can be found on the IHME website at www.ihmeuw.org/gbdfaq. For the purposes of this report, we focused on the countries in the EU and EFTA, with the exception of Liechtenstein.

Disease burden is evaluated by calculating DALYs, which are the sum of YLLs and YLDs. DALYs can also be defined as years of healthy life lost. While the trends in the EU and EFTA countries were largely consistent with global patterns, the region is unique in several ways.

In terms of disease burden at the global level, GBD 2010 found that in many parts of the world mortality rates are declining, healthy life expectancy is increasing, and the leading causes of premature death, or YLLs, have evolved dramatically over the past 20 years.





Note: Higher values indicate greater declines in mortality; lower values indicate smaller declines in mortality.

Figures 1 and 2 show declines in age-specific mortality rates between 1970 and 2010, where higher values indicate greater declines in mortality and lower values indicate smaller declines in mortality.

Figure 1 shows that global death rates in all age groups have declined, with the largest decrease among males and females aged 0 to 9. Mortality declines for females 15 and older were higher than for males in that same age group, and the largest gap between males and females occurs in the 15 to 54 age range.



Figure 2: Decline in age-specific mortality rate, EU and EFTA, 1970–2010

Note: Higher values indicate greater declines in mortality; lower values indicate smaller declines in mortality.

Figure 2 shows the trends in death rates in the EU/EFTA region. For males in most age groups up to 79, mortality declined by 40% or higher between 1970 and 2010. The reverse is true for males globally, where the declines in age-specific mortality rates for males are below 40% for almost all age groups. For 15- to 79-year-old females in the region, age-specific mortality declines range from just over 40% to almost as high as 60%. For 15- to 79-year-old females globally, the greatest declines are almost 50%.

Life expectancy incorporates mortality; health-adjusted life expectancy, or HALE, further incorporates years lived in less than ideal health. HALE grew by approximately three years in France, Germany, and Spain over the past 20 years. In 2010, Spaniards could expect to live 70.9 years in good health, the French 69.5 years, and Germans 69 years.

	1990			2010		
Mean rank (95% UI)				Mean rank (95% UI)	Median % change	
1.0 (1 to 1)	1 Lower respiratory infections		1 Ischemic heart disease	1.1 (1 to 2)	28 (20 to 33)	
2.0 (2 to 2)	2 Diarrheal diseases		2 Lower respiratory infections	1.9 (1 to 3)	-45 (-49 to -40)	
3.3 (3 to 5)	3 Preterm birth complications	×	3 Stroke	3.1 (3 to 4)	19 (2 to 24)	
4.0 (3 to 5)	4 Ischemic heart disease		4 Diarrheal diseases	4.8 (4 to 7)	-54 (-60 to -47)	
5.1 (4 to 6)	5 Stroke		5 Malaria	5.5 (3 to 8)	17 (-11 to 63)	
6.9 (6 to 11)	6 Malaria		6 HIV/AIDS	5.6 (4 to 7)	370 (302 to 439)	
8.3 (6 to 11)	7 COPD	I 7	7 Preterm birth complications	6.3 (4 to 8)	-29 (-39 to -17)	
8.8 (6 to 12)	8 Protein-energy malnutrition		8 Road injury	7.9 (5 to 9)	34 (8 to 69)	
9.7 (7 to 12)	9 Tuberculosis	Fine the	9 COPD	9.8 (9 to 12)	-19 (-24 to -12)	
9.8 (6 to 13)	10 Neonatal encephalopathy		10 Neonatal encephalopathy	10.8 (9 to 14)	-20 (-33 to -2)	
11.2 (7 to 14)	11 Congenital anomalies	I. X I ···	11 Tuberculosis	11.2 (9 to 14)	-21 (-39 to -8)	
12.2 (3 to 25)	12 Measles	XX	12 Neonatal sepsis	11.3 (7 to 17)	-4 (-25 to 27)	
12.4 (6 to 18)	13 Neonatal sepsis	W A	13 Self-harm	13.4 (11 to 18)	24 (-1 to 42)	
12.7 (9 to 14)	14 Road injury	n In	14 Congenital anomalies	13.6 (11 to 17)	-31 (-46 to -11)	
14.7 (13 to 16)	15 Meningitis		15 Protein-energy malnutrition	15.5 (12 to 19)	-44 (-53 to -34)	
16.5 (14 to 20)	16 Self-harm	Kit /	16 Lung cancer	15.6 (12 to 19)	38 (18 to 47)	
16.9 (15 to 20)	17 Drowning	L VX	17 Cirrhosis	16.5 (14 to 19)	27 (19 to 36)	
18.8 (17 to 22)	18 Cirrhosis	HA .	18 Meningitis	18.3 (16 to 20)	-23 (-34 to -13)	
19.3 (16 to 23)	19 Lung cancer		19 Diabetes	18.7 (17 to 21)	72 (54 to 78)	
21.0 (15 to 29)	20 Tetanus		20 Interpersonal violence	19.9 (16 to 22)	28 (19 to 48)	
21.3 (19 to 25)	21 Maternal disorders	KV	21 Drowning	22.1 (20 to 25)	-33 (-40 to -6)	
23.2 (20 to 31)	22 Interpersonal violence	$H \times \chi$	22 Liver cancer	22.4 (20 to 25)	44 (32 to 68)	
23.5 (19 to 29)	23 Stomach cancer	\mathcal{K}	23 Fire	24.4 (21 to 32)	8 (-18 to 48)	
25.3 (21 to 30)	24 HIV/AIDS		24 Chronic kidney disease	24.5 (22 to 28)	51 (38 to 64)	
25.7 (18 to 38)	25 Syphilis	-//X	25 Stomach cancer	26.1 (21 to 32)	-11 (-18 to -4)	
25.8 (22 to 31)	26 Fire	MTAN	28 Maternal disorders	28.5 (24 to 33)	-29 (-37 to -4)	
26.7 (24 to 30)	27 Diabetes		37 Syphilis	38.1 (27 to 50)	-44 (-51 to -38)	
30.2 (27 to 35)	30 Liver cancer	Y/ N	38 Measles	38.1 (20 to 60)	-80 (-85 to -74)	
33.7 (31 to 38)	32 Chronic kidney disease	Y `	52 Tetanus	54.0 (43 to 72)	-80 (-84 to -67)	
Communical	Communicable, maternal, neonatal, and nutritional — Ascending order in rank					

Figure 3: Shifts in top 25 causes of global YLLs, 1990-2010

Communicable, maternal, neonatal, and nutrition Non-communicable Injuries Ascending order in rank

Note: Solid lines indicate a cause that has moved up in rank or stayed the same. Broken lines indicate a cause that has moved down in rank. The causes of YLLs are color coded, with blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes. COPD: Chronic obstructive pulmonary disease. To view an interactive version of this figure, visit IHME's website: ihmeuw.org/gbdarrowdiagram.

Figure 3 shows the changes in the leading global causes of YLLs in 1990 and 2010. Causes associated with ill health and death in adults, such as ischemic heart disease, stroke, and various cancers, increased in rank between 1990 and 2010, while causes that primarily affect children, such as lower respiratory infections, diarrhea, preterm birth complications, and protein-energy malnutrition, decreased in rank. Unlike most of the leading communicable causes, HIV/AIDS and malaria increased by 370% and 17%, respectively. Four main trends have driven changes in the leading causes of YLLs globally: aging populations, increases in non-communicable diseases, shifts toward disabling causes and away from fatal causes, and changes in risk factors.

To provide a closer look at the epidemiological changes occurring at the regional level, Figure 4 shows how the leading causes of premature death and YLLs have changed over time in EU and EFTA countries.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-30 (-32 to -21)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 2)	-32 (-35 to -19)
3.0 (3 to 3)	3 Lung cancer		3 Lung cancer	3.0 (3 to 3)	1 (-17 to 7)
4.1 (4 to 5)	4 Road injury		4 Colorectal cancer	4.2 (4 to 6)	8 (1 to 24)
5.2 (4 to 9)	5 Self-harm	-in-	5 Cirrhosis	5.5 (5 to 8)	-8 (-18 to -4)
7.0 (5 to 9)	6 Cirrhosis		6 Self-harm	5.7 (4 to 9)	-21 (-33 to -3)
7.1 (6 to 9)	7 COPD	<u> </u>	7 COPD	6.8 (5 to 8)	-14 (-18 to -12)
7.2 (5 to 9)	8 Lower respiratory infections		8 Lower respiratory infections	8.5 (7 to 11)	-26 (-34 to -21)
8.5 (6 to 10)	9 Colorectal cancer	r i	9 Breast cancer	8.9 (8 to 10)	-11 (-17 to -3)
10.1 (9 to 11)	10 Breast cancer	,	10 Road injury	9.7 (7 to 11)	-50 (-54 to -36)
11.6 (11 to 13)	11 Other cardio & circulatory		11 Other cardio & circulatory	10.7 (10 to 12)	-7 (-11 to -3)
12.1 (11 to 14)	12 Congenital anomalies		12 Diabetes	12.8 (12 to 15)	-7 (-12 to 3)
12.3 (9 to 14)	13 Stomach cancer	A	13 Pancreatic cancer	14.1 (12 to 18)	24 (6 to 32)
14.4 (13 to 16)	14 Diabetes	T. /	14 Alzheimer's disease	14.4 (12 to 20)	152 (52 to 192)
14.8 (14 to 16)	15 Preterm birth complications	\ Xd	15 Hypertensive heart disease	14.8 (12 to 18)	5 (-8 to 18)
16.4 (15 to 19)	16 Hypertensive heart disease	X I	16 Stomach cancer	15.4 (12 to 19)	-35 (-40 to -29)
17.6 (16 to 20)	17 Falls	$+\times+-$	17 Falls	18.5 (16 to 23)	-7 (-19 to 3)
17.8 (15 to 21)	18 Pancreatic cancer	$Y \setminus \langle \rangle$	18 Prostate cancer	18.8 (12 to 31)	24 (-3 to 49)
19.3 (17 to 22)	19 Leukemia		19 Brain cancer	19.2 (16 to 30)	12 (-20 to 24)
20.4 (16 to 28)	20 Brain cancer	1	20 Cardiomyopathy	20.4 (18 to 23)	17 (7 to 23)
22.1 (20 to 24)	21 Cardiomyopathy		21 Leukemia	21.2 (17 to 26)	-4 (-16 to 1)
22.3 (16 to 36)	22 Prostate cancer	$r / \sqrt{2}$	22 Liver cancer	21.3 (18 to 26)	26 (15 to 33)
23.2 (20 to 27)	23 Chronic kidney disease		23 Chronic kidney disease	23.0 (20 to 26)	10 (-3 to 16)
24.0 (22 to 27)	24 Rheumatic heart disease		24 Congenital anomalies	23.5 (18 to 26)	-58 (-61 to -45)
25.3 (22 to 30)	25 Liver cancer	M	25 Kidney cancers	25.1 (18 to 31)	30 (13 to 58)
32.1 (24 to 40)	31 Kidney cancers	Y ·····	30 Preterm birth complications	29.4 (25 to 32)	-57 (-66 to -45)
33.7 (22 to 39)	33 Alzheimer's disease		41 Rheumatic heart disease	40.7 (37 to 45)	-54 (-56 to -50)
Communical	ale meternel peepetel and putritional			A	anding order in real

Figure 4: Shifts in top 25 causes of YLLs, EU and EFTA, 1990-2010

Communicable, maternal, neonatal, and nutritional Non-communicable Ascending order in rank
----- Descending order in rank

Note: Solid lines indicate a cause that has moved up in rank or stayed the same. Broken lines indicate a cause that has moved down in rank. The causes of YLLs are color coded, with blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes. COPD: Chronic obstructive pulmonary disease. To view an interactive version of this figure, visit IHME's website: ihmeuw.org/gbdarrowdiagram.

Globally, from 1990 to 2010 there was a shift in premature death (YLLs) from predominantly communicable, maternal, neonatal, and nutritional causes to an increasing number of non-communicable causes and injuries.

For example, in Figure 3, ischemic heart disease ranked fourth as a cause of premature mortality in 1990 and first in 2010, and stroke ranked fifth in 1990 and third in 2010. Still, over half of the top 10 global causes of YLLs are due to communicable, maternal, neonatal, and nutritional causes. In contrast, at the EU and EFTA regional level, in 1990 and 2010, YLLs were dominated by non-communicable causes. Ischemic heart disease, stroke, and lung cancer remained in the first, second, and third ranks from 1990 to 2010 as the top causes of YLLs at these two time points. Additionally, in contrast to global trends, EU and EFTA countries, regionally, saw a decrease in premature death from road injuries, with a 50% decrease in EU and EFTA countries and a 34% increase globally.

LEADING CAUSES OF DISEASE BURDEN ARE NON-COMMUNICABLE DISEASES

In part because many people are living longer lives, the leading causes of death have changed. Worldwide, the number of people dying from non-communicable diseases, such as ischemic heart disease, has grown 30% since 1990. To a lesser extent, overall population growth also contributed to this increase in deaths from non-communicable diseases.

The rise in the total number of deaths from non-communicable diseases has increased the number of healthy years lost, or DALYs, from these conditions. In 2010, almost half of the top 25 causes of DALYs were non-communicable diseases, as seen in Figure 5. The figure shows global changes in the leading causes of DALYs between 1990 and 2010, ordered from highest- to lowest-ranking cause from top to bottom.



Figure 5: Global shifts in leading causes of DALYs, 1990-2010

Note: Non-communicable causes are shown in blue; communicable, maternal, neonatal, and nutritional causes in red; and injuries in green. Bars to the right of the vertical line show the percent by which DALYs have increased since 1990. Bars to the left show the percent by which DALYs have decreased. Pointed arrows indicate causes that have increased by a greater amount than shown on the x-axis.

In many countries, non-communicable diseases accounted for the majority of DALYs. In most countries outside of sub-Saharan Africa, non-communicable diseases caused 50% or more of all DALYs. In Australia, Japan, and richer countries in Western Europe and North America, the percentage was greater than 80%.

Figure 6 shows the percent change in the leading causes of total DALYs in the EU and EFTA region for the same period. In most EU and EFTA countries, loss of healthy life, or DALYs, from non-communicable diseases are rising, while DALYs from communicable, newborn, nutritional, and maternal causes are declining.



Figure 6: Shifts in leading causes of DALYs, EU and EFTA, 1990-2010

Note: Non-communicable causes are shown in blue; communicable, maternal, neonatal, and nutritional causes in red; and injuries in green. Bars to the right of the vertical line show the percent by which DALYs have increased since 1990. Bars to the left show the percent by which DALYs have decreased. Pointed arrows indicate causes that have increased by a greater amount than shown on the x-axis.

The same figure further shows that, among non-communicable diseases, osteoarthritis and chronic kidney disease caused some of the most significant increases in health loss in EU and EFTA countries between 1990 and 2010. Although health loss from ischemic heart disease and stroke ranked in the top three leading causes of health loss globally as well as in EU and EFTA countries, they are declining in these European regions while they are on the rise in other parts of the world.

Also, certain non-communicable diseases were much more prominent causes of premature death and disability in the region compared to the world as a whole. Depression ranked fourth in this region, for example, but ranked 11th globally as measured by DALYs. Lung cancer ranked fifth as a cause of premature death and disability in the region and ranked 22nd at the global level. Low back pain, ranked second, and falls, ranked sixth, took a greater toll in EU and EFTA countries than globally, where the corresponding rankings were seventh and 19th.

Despite the 10% increase in DALYs due to diabetes in the EU and EFTA region, the picture was vastly different in several countries. In 2010, the rise in the percentage of DALYs caused by diabetes was more than double in Croatia at 21%; it was even greater in Norway and Greece, at 26%, and in Austria, at 31%.

Health loss from stroke declined in several EU/EFTA countries, such as Portugal (47%), the Czech Republic (42%), and Hungary (41%), but stroke remained the region's third-leading cause of DALYs, highlighting the significant burden from stroke in the region. An important contributor to stroke is high blood pressure, the second biggest risk factor to health in 2010. While ischemic heart disease – reduced blood supply to the heart, usually due to coronary artery disease – was a leading cause of health loss in all EU and EFTA countries, several of these countries also suffered a dual burden of hypertensive heart disease, brought on by high blood pressure's impact on the heart. As a cause of YLLs, hypertensive heart disease was up by only 5% in the EU and EFTA region as a whole, but this condition posed a much more severe threat in individual countries, including Romania (up 52%) and Bulgaria (up 55%).

Four types of cancer, another major non-communicable disease, appear among the leading causes of DALYs in the EU and EFTA region. These include lung cancer, colorectal cancer, breast cancer, and stomach cancer. As seen in the DALYs arrow diagram visualization tool online, breast cancer and stomach cancer DALYs declined by 7% and 35%, respectively, while colorectal cancer increased by 10% and lung cancer by 1%.

Countries where the declines in breast cancer DALYs were greater include Belgium, Germany, Norway, Switzerland, and the UK. On colorectal cancer, several countries showed less progress than the region as a whole in reducing DALYs. There were only slight declines in some countries, but in Greece the disease burden for this cancer jumped by 61%, and it was up by 47% in Croatia, 40% in Poland, and 38% in the Netherlands. DALYs due to lung cancer climbed 27% in Greece, 25% in France, and 22% in Spain. The burden of stomach cancer decreased in many EU and EFTA countries.

DISABILITY INCREASES IN MIDDLE- AND HIGH-INCOME COUNTRIES

As people are living longer and experiencing more non-communicable disease, they are living with a greater range of disabilities as well. Most countries in the world have succeeded in reducing deaths early in life. To a growing extent, longer lives are redefining "old age" in many countries, and people in all age groups are dying at lower rates than in the past. Simply living longer, however, does not mean that people are healthier. Little progress has been made in reducing the prevalence of disability, so people are living to an older age but experiencing more ill health. Many people suffer from different forms of disability throughout their lives, such as mental and behavioral health problems starting in their teens and musculoskeletal disorders beginning in middle age.

Figure 7 tells a more detailed story about the different conditions that cause disability globally. It is important to keep in mind that these estimates reflect both how many individuals suffer from a particular condition as well as the severity of that condition.



Figure 7: Global disability patterns by broad cause group and age, 2010

Note: The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows YLDs by age group in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain. To view an interactive version of this figure, visit IHME's website: ihme.org/gbdcausepattern.

Mental and behavioral disorders, such as depression, anxiety, and drug use, were the primary drivers of disability worldwide and caused over 40 million years of disability in 20-to 29-year-olds. Musculoskeletal conditions, which include low back pain and neck pain, accounted for the next-largest number of years lived with disability. People aged 45 to 54 were most impacted by these conditions, as musculoskeletal disorders caused over 30 million years of disability combined in these age groups. These findings have far-reaching implications for health systems.



Figure 8: Disability patterns by broad cause group and age, EU and EFTA, 2010

Note: The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows YLDs by age group in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain. To view an interactive version of this figure, visit IHME's website: ihme.org/gbdcausepattern.

Figure 8 shows the causes of disability in EU and EFTA countries in 2010. Similar to global trends, mental and behavioral disorders had the greatest impact on young to middle-aged adults. Given the longer life expectancy of people living in the EU and EFTA region compared to the world as a whole, years lived with disability in the 80 and older age group were much more pronounced in this region compared to global patterns.

Low back pain was the primary cause of disability in most countries in the region. This condition can inhibit people's ability to perform different types of work both inside and outside the home and impair their mobility. In addition to low back pain, neck pain and other musculoskeletal disorders ranked in the top 10 causes of disability in most countries. Another musculoskeletal disorder, osteoarthritis, appeared in the top 20 causes of disability in every country.

Major depressive disorder is also an important cause of disability; it was one of the top three causes of disability in every EU and EFTA country, as seen in the country profiles section of this report showing the shift in top causes of DALYs. This condition can cause fatigue, decreased ability to work or attend school, and suicide. Dysthymia, a mild but chronic form of depression, ranked in the top 25 causes of disability in most of these countries. Anxiety, a different type of mental disorder, was the seventh cause of

disability globally and ranked higher in almost half of EU and EFTA countries. Additionally, schizophrenia was among the top 20 causes of disability in the region while bipolar disorder was in the top 20 for all EU and EFTA countries except France and Malta, where it ranked 21st.

Using GBD tools to identify leading causes of disability can help guide health system planning and medical education. Decision-makers can use GBD findings to ensure that health care systems are designed to address the primary drivers of disability in a cost-effective way.

RISK FACTOR TRANSITION IN EU/EFTA REGION

Data on potentially avoidable causes of health loss, or risk factors, can help policymakers and donors prioritize prevention strategies to achieve maximum health gains. GBD tools estimate the number of deaths, premature deaths, years lived with disability, and DALYs attributable to 67 risk factors worldwide. This study benefited from the availability of new data, such as newly available epidemiologic evidence about the health impacts of different risk factors; population, nutrition, health, and medical examination surveys; and highresolution satellite data on air pollution.

Figure 9 shows changes in the leading risk factors for premature death and disability, or DALYs, between 1990 and 2010 in the EU and EFTA region.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Dietary risks		1 Dietary risks	1.0 (1 to 1)	-23 (-25 to -17)
2.0 (2 to 2)	2 High blood pressure		2 High blood pressure	2.2 (2 to 3)	-30 (-34 to -23)
3.0 (3 to 3)	3 Smoking		3 Smoking	2.9 (2 to 4)	-22 (-29 to -19)
4.0 (4 to 4)	4 High body mass index]	4 High body mass index	4.0 (3 to 4)	6 (-1 to 14)
5.1 (5 to 6)	5 High total cholesterol		5 Physical inactivity	5.4 (5 to 7)	No estimate
6.1 (5 to 7)	6 Alcohol use	- · · · · ·	6 Alcohol use	5.8 (5 to 7)	-15 (-26 to -2)
7.0 (6 to 8)	7 Ambient PM pollution	he in	7 High fasting plasma glucose	6.9 (5 to 8)	-10 (-22 to 3)
7.8 (6 to 8)	8 High fasting plasma glucose		8 High total cholesterol	7.8 (7 to 8)	-42 (-50 to -32)
9.0 (9 to 9)	9 Occupational risks		9 Ambient PM pollution	9.0 (9 to 10)	-53 (-56 to -49)
10.1 (10 to 11)	10 Household air pollution		10 Occupational risks	10.0 (9 to 10)	-27 (-33 to -20)
10.9 (10 to 11)	11 Drug use	<u> </u>	11 Drug use	11.0 (11 to 11)	4 (-5 to 13)
12.1 (12 to 13)	12 Low bone mineral density		12 Lead	12.9 (12 to 15)	92 (80 to 107)
13.3 (12 to 14)	13 Iron deficiency		13 Household air pollution	13.1 (12 to 17)	-59 (-78 to -45)
13.6 (12 to 14)	14 Lead		14 Low bone mineral density	13.7 (12 to 15)	34 (13 to 61)
15.1 (15 to 16)	15 Ozone		15 Intimate partner violence	14.6 (12 to 16)	No estimate
16.1 (15 to 17)	16 Childhood underweight	King and	16 Childhood sexual abuse	16.5 (15 to 18)	No estimate
16.9 (16 to 19)	17 Zinc deficiency	13. N	17 Iron deficiency	16.9 (15 to 18)	-20 (-25 to -12)
18.6 (17 to 20)	18 Sanitation	1946	18 Radon	17.3 (15 to 18)	No estimate
19.1 (18 to 20)	19 Vitamin A deficiency	Sec. Sec.	19 Ozone	19.0 (19 to 19)	-46 (-56 to -38)
19.2 (18 to 20)	20 Unimproved water		20 Zinc deficiency	20.4 (20 to 21)	-50 (-67 to -23)
21.0 (21 to 21)	21 Suboptimal breastfeeding		21 Childhood underweight	20.5 (20 to 21)	-70 (-79 to -58)
			22 Sanitation	22.6 (22 to 24)	-60 (-69 to -49)
			23 Vitamin A deficiency	22.8 (22 to 24)	-51 (-71 to -16)
			24 Unimproved water	23.6 (23 to 24)	-67 (-79 to -48)
		`.	25 Suboptimal breastfeeding	25.0 (25 to 25)	No estimate

Figure 9: Shifts in DALYs attributable to leading risk factors, EU and EFTA, 1990-2010

Water & sanitation Air pollution Other environmental Undernutrition Smoking Alcohol & drug use Physiological risk factors Diet & physical inactivity Occupational risks Sexual abuse & violence Ascending order in rank

---- Descending order in rank

Note: Solid lines indicate a cause that has moved up in rank or stayed the same. Broken lines indicate a cause that has moved down in rank. To view an interactive version of this figure, visit IHME's website: ihmeuw.org/gbdarrowdiagram. As most risk factors for communicable diseases in children have declined, many risks associated with non-communicable diseases remain unchanged in their rankings. In 1990, dietary risks, high blood pressure, smoking, and high body mass index (BMI) were the top four risk factors in the EU and EFTA region, and the same was true in 2010. DALYs attributable to high BMI increased by 6% since 1990. High BMI is typically used as an indicator of overweight and obesity as well as a leading risk factor for cardiovascular and circulatory diseases and diabetes.





Note: Percentages less than zero reflect causes where alcohol use can reduce DALYs for certain risk factors.

Figure 10 shows the percent of DALYs attributable to various risk factors, with dietary risks as the leading contributor to cardiovascular and circulatory disease, cancer, and diabetes.

Dietary risks include components such as high sodium intake and lack of fruit, nuts and seeds, and whole grains in the diet. GBD found the diseases linked to poor diets and physical inactivity were primarily cardiovascular diseases as well as cancer and diabetes. While the focus of many public health messages about diet have stressed the importance of eating less saturated fat, GBD 2010's findings indicate that these messages should emphasize a broader range of dietary components.

GBD 2010 used the most recent data available on the effects of different dietary risk factors. It is important to note that these data are constantly evolving as new studies on diet are conducted. Compared to data on the negative health impacts of smoking, which have been well understood for decades, the scientific evidence surrounding dietary risk factors is much newer. Future updates of GBD will incorporate new data on risk factors as they emerge.

Looking at risk factors in a stacked bar chart illustrates how health loss from cardiovascular and circulatory diseases, cancer, chronic respiratory diseases, and diabetes can be attributed to the other leading risk factors beyond dietary risks, including high blood pressure, smoking, high body mass index, physical inactivity, high fasting plasma glucose, and high total cholesterol.

GBD found that factors such as population growth, longer lives, and decreasing mortality are driving up DALYs from non-communicable diseases in many countries. Although non-communicable diseases are increasing relative to other health problems as a result of these demographic changes, GBD found that many countries are actually showing improvements in health as measured by age-standardized DALY rates.

The GBD approach affords countries a unique opportunity to explore their success in improving health outcomes over time. GBD can also be used to better understand how fast a country's health is improving relative to similar countries. This type of progress assessment is called benchmarking. Benchmarking is a tool that can help countries put their health achievements in context and identify areas for improvement. IHME invites countries interested in collaborating on benchmarking exercises to contact us.

USING GBD TO ASSESS COUNTRIES' HEALTH PROGRESS

Benchmarking is particularly useful in EU and EFTA countries to show regional comparisons as seen in Figure 11, where the columns across the top are ordered by YLLs in EU and EFTA countries relative to the regional average in 2010.

With respect to DALYs, ischemic heart disease and low back pain were the first- or secondleading causes in Denmark, Finland, Iceland, Norway, and Sweden. The number of years of healthy life lost from low back pain increased in all of these countries while it declined in all of the countries for ischemic heart disease.

For injuries – falls, road injury, and self-harm – only DALYs due to falls increased in these countries. The increase ranged from slight, 8% in Denmark; to moderate, between 24% and 31% in Norway, Sweden, and Finland; to significant, 56% in Iceland. Between 1990 and 2010, Denmark experienced some of the biggest declines in health loss from road injury, at 32%, and self-harm, at 51%. However, Denmark posted the smallest decline in lower respiratory infections, the only communicable, maternal, neonatal, or nutritional condition in the top 25 causes of disease burden in the Nordic subregion. Its 7% decrease was well below the range of 44% to 63% in the other four countries.

To further illustrate how benchmarking can be implemented at the country level, IHME launched a unique collaboration with public health experts in the UK to explore changes in population health over time and to compare its health performance to other countries with similar and higher levels of health spending.

In December 2012, GBD researchers presented their initial findings for disease burden in the UK to a group of policymakers and researchers from government agencies and universities. This presentation sparked an ongoing collaboration between GBD and UK researchers that has revealed new insights into the data. Working with decision-makers at the National Health Service and Public Health England, the UK benchmarking study examined the context in which health progress has occurred, such as the UK's provision of universal health coverage and its implementation of numerous public health interventions. The results of the study were published in March 2013 in *The Lancet*.

For the UK, GBD estimates of life expectancy and healthy life expectancy, years lost due to premature mortality (YLLs), years lived with disability (YLDs), and healthy life lost (DALYs) provided a detailed and comprehensive picture of changes in health outcomes over time.

Comparing GBD estimates across countries elucidated areas of health where the UK performs both better and worse than its peers. In addition, analysis of potentially modifiable risk factors can shed light on ways that public health policy could address major causes of ill health and premature death. The IHME-UK benchmarking study aims to identify key opportunities to speed up the pace of health improvements in the nation.

Researchers found that, although overall health in the UK improved significantly between 1990 and 2010, the UK performed worse than the 15 original members of the European Union, Australia, Canada, Norway, and the United States (EU15+) on certain key measures.

Looking just at age-specific mortality for nearly every age group, as shown in Figures 12a, 12b, and 12c, the UK's performance relative to its peer countries was worse in 2010 than in 1990. For example, in female 25- to 29-year-olds, the UK ranked fourth for mortality rates in 1990 and in 2010 ranked 16th. In male 25- to 29-year-olds, the UK ranked third for mortality rates in 1990, and in 2010 ranked 10th.



Figure 11: Leading causes of years of life lost, EU and EFTA countries relative to region average, 2010



28

Lower than mean (95% confidence)

Indistinguishable from mean (95% confidence)

Higher than mean (95% confidence)

Note: Countries are ordered from top to bottom in order of (least to greatest) all-cause age-standardized YLLs.



Figure 12a: Percent change in UK age-specific mortality by sex, 1990-2010

Figure 12b: UK rank in male age-specific mortality when compared with the 15 original members of the EU, Australia, Canada, the US, and Norway



Figure 12c: UK rank in female age-specific mortality when compared with the 15 original members of the EU, Australia, Canada, the US, and Norway



Note: Shaded areas indicate uncertainty intervals.

While life expectancy has increased in the UK, the country falls behind its peers with respect to premature mortality for both sexes aged 20 to 54, and the mortality rate for men aged 30 to 34 has shown virtually no improvement.

YLLs for diabetes, liver cancer, chronic kidney disease, and road injury were significantly lower in the UK than in the EU15+. Rates of age-standardized YLLs were higher in the UK than the EU15+ for ischemic heart disease, aortic aneurysm, breast cancer, esophageal cancer, chronic obstructive pulmonary disease (COPD), lower respiratory infections, other cardiovascular and circulatory disorders, preterm birth complications, and congenital anomalies.

At the same time, the rankings for the leading risk factors in the UK have stayed largely unchanged over 20 years. Dietary risks, smoking, high blood pressure, and high BMI remained in the top five. Alcohol and drug use both increased between 1990 and 2010, with drug use up 31% and alcohol use up 73%.

People in France, Italy, the Netherlands, Spain, and 17 other countries enjoy longer and healthier lives than Britons.

In response to the study's findings, which revealed that the UK was lagging behind other European countries for numerous causes of premature death, multiple policymakers in the country pledged action, including Kevin Fenton, Director of Health and Wellbeing at Public Health England, who stated, "This report is both a wakeup call and an opportunity for the UK.... The results from the study identify where we need to improve and where existing and future resources will need to be realigned to meet the needs of our demographically changing population."

Public Health England is working with IHME on a new collaboration to develop disease burden estimates for nine regions of England.

In addition to the benchmarking work being done in the UK, officials in several other countries, including the US and Australia, are also using GBD data to conduct their own subnational analysis.

In the US, First Lady Michelle Obama leads an initiative called Let's Move!, aimed at decreasing childhood obesity and increasing physical activity. White House advisors working with Mrs. Obama learned about GBD 2010 and, in February 2013, expressed interest in knowing how the GBD approach could be applied locally.

IHME researchers collected estimates at the county level for life expectancy, obesity, and physical activity. A study on the overall state of US health was published in July 2013 in the *Journal of the American Medical Association*. A study on life expectancy and a separate study on obesity and physical activity were published the same month as well in *Population Health Metrics*. Findings from all of the studies were presented at a White House event attended by local officials from around the US who are involved in the Let's Move! campaign.

The study on the state of US health found that while life expectancy and healthy life expectancy both increased between 1990 and 2010, all-cause death rates at all ages and age-specific rates of years lived with disability, or YLDs, remained stable during the same period. The study also found that despite increased life expectancy, the US is not keeping pace with health advances in 34 Organisation for Economic Co-operation and Development (OECD) countries.

Researchers found that the US rank declined to 27th or 28th between 1990 and 2010 in relation to the OECD countries. People living in countries with substantially lower gross domestic product and health expenditure per capita, such as Portugal and Slovenia, had lower mortality rates than those in the US in 2010.

The study on obesity and physical activity revealed another dimension of health challenges in the US. Although the percentage of physical activity reported by people in counties across the country has increased since 2001, that has not been enough to stem obesity rates. Obesity has increased in all US counties, and dietary risks, high blood pressure, and smoking are still among the leading causes of health loss.

Australia is also using its national-level GBD study as an opportunity to launch local studies. In May 2013, IHME, the University of Queensland, Australia, and the University of Melbourne School of Population Health hosted a national health symposium in Melbourne on the GBD 2010 findings for Australia.

Australians live more years in good health than people in most countries – men rank fifth in terms of healthy life expectancy and women rank 10th – and they enjoy more healthy years than Americans, Britons, and New Zealanders.

The top causes of disability for Australians were low back pain, major depressive disorders, other musculoskeletal problems, neck pain, falls, and anxiety. Ischemic heart disease was the top cause of Australian disease burden in 2010, and some of the top causes of disability were also among the top 10 causes of burden. Because mortality rates are improving at a faster pace than disability rates, these disabling conditions count for an increasing proportion of total health loss.

Participants at the May symposium discussed and debated the policy implications of the new results and participated in a training session on the methods, assumptions, and innovations of GBD 2010. Following the event, Secretary of the Department of Health and Ageing Jane Halton announced AUD \$5 million in funding for a new Australian GBD study that will estimate disease burden at the local level among all Australians and separately measure health disparities in Aboriginal Australians.

This new study will allow Australian policymakers to understand how much health progress has been made since the last Australian Burden of Disease estimates were published for the year 2003. Officials will use the updated estimates to gauge progress in addressing health disparities in the wake of policy initiatives launched after the 2003 study, including an AUD \$15 million grant to reduce the estimated 50% smoking prevalence among Australian Aboriginals.

COUNTRY PROFILES

The first annual update will be GBD 2013, which will be released in 2014 and is being undertaken in a strategic partnership with *The Lancet*. Subject to successful peer review, GBD 2013 results will be published in May 2014. More frequent updates will allow decision-makers to assess and act upon the most pressing health challenges in their countries in faster, more strategic, and cost-effective ways.

As seen in the country profiles that follow, health trends in EU and EFTA countries in 2010 mirrored the global picture in several respects. The leading causes of premature death – ischemic heart disease, stroke, and cancers – were similar, as were the top risk factors: dietary risks, tobacco smoking, high blood pressure, and high BMI.

Major depressive disorder, low back pain, and neck pain were among the leading causes of disability globally and in the EU and EFTA region, but the lists vary greatly after that. Causes affecting maternal and child health, such as preterm birth complications and congenital anomalies, that appeared in the top 25 causes of DALYs globally did not appear among the top 25 causes of years of healthy life lost in EU and EFTA countries as a region. Certain conditions affecting adults, however, such as alcohol use disorders, drug use disorders, chronic kidney disease, and osteoarthritis, appeared in the top 25 for DALYs in EU and EFTA countries as a whole but not globally.

Diabetes is the only leading condition that had a smaller increase in DALYs in EU and EFTA countries than globally, up 10% compared to 70%.

AUSTRIA

In terms of the number of years of life lost (YLLs) due to premature death in Austria, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Austria were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Austria, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and major depressive disorder. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes, neck pain, and other musculoskeletal disorders.

Of the 25 most important causes of burden, as measured by DALYs, cerebrovascular disease, or stroke, showed the largest decrease, falling by 46% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Austria were dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.3 (1 to 2)	-36 (-40 to -27)
2.5 (2 to 4)	2 Low back pain		2 Low back pain	1.8 (1 to 3)	20 (-48 to 155)
2.6 (2 to 3)	3 Stroke	/	3 Major depressive disorder	4.2 (2 to 9)	47 (-13 to 153)
4.4 (4 to 6)	4 Road injury	1	4 Stroke	4.7 (3 to 7)	-46 (-52 to -23)
6.6 (4 to 11)	5 Self-harm		5 Falls	5.4 (3 to 9)	20 (6 to 36)
7.1 (4 to 10)	6 Lung cancer	1:5	6 COPD	5.6 (3 to 9)	27 (15 to 42)
7.4 (5 to 11)	7 Falls	Min /	7 Diabetes	7.3 (3 to 12)	31 (-24 to 121)
8.2 (4 to 14)	8 Major depressive disorder	Y X. Z	8 Lung cancer	7.4 (5 to 11)	6 (-22 to 15)
8.6 (5 to 13)	9 COPD	\boldsymbol{Y}	9 Neck pain	9.5 (5 to 14)	16 (2 to 30)
9.8 (7 to 12)	10 Cirrhosis		10 Other musculoskeletal	9.7 (5 to 14)	16 (-22 to 79)
11.1 (4 to 16)	11 Diabetes	Y >	11 Road injury	11.3 (8 to 14)	-40 (-49 to -23)
11.9 (7 to 16)	12 Neck pain		12 Self-harm	11.7 (7 to 16)	-33 (-39 to -3)
12.3 (7 to 16)	13 Other musculoskeletal	Y `.	13 Cirrhosis	13.3 (10 to 16)	-25 (-30 to -15)
13.2 (11 to 16)	14 Colorectal cancer	}	14 Colorectal cancer	15.4 (11 to 18)	-18 (-24 to 25)
15.2 (13 to 17)	15 Breast cancer	l	15 Drug use disorders	16.0 (12 to 21)	18 (-10 to 48)
18.3 (14 to 25)	16 Stomach cancer		16 Alzheimer's disease	16.2 (10 to 22)	70 (5 to 152)
18.7 (15 to 25)	17 Drug use disorders	K. N. J	17 Alcohol use disorders	17.0 (11 to 23)	19 (-10 to 58)
19.2 (16 to 22)	18 Other cardio & circulatory		18 Other cardio & circulatory	18.6 (15 to 22)	6 (-9 to 28)
20.0 (5 to 37)	19 Anxiety disorders	$-\times$	19 Breast cancer	19.3 (16 to 22)	-20 (-28 to -13)
20.1 (15 to 26)	20 Alcohol use disorders	K	20 Migraine	20.0 (14 to 27)	6 (-14 to 34)
20.3 (16 to 26)	21 Hypertensive heart disease	1. 1.	21 Anxiety disorders	20.9 (8 to 39)	-7 (-67 to 195)
21.3 (15 to 30)	22 Migraine	F.Y.	22 Chronic kidney disease	21.7 (19 to 26)	56 (13 to 78)
23.0 (19 to 27)	23 Congenital anomalies		23 Pancreatic cancer	24.5 (20 to 31)	25 (3 to 39)
23.8 (19 to 28)	24 Preterm birth complications	\mathcal{A}	24 Hypertensive heart disease	24.6 (20 to 29)	-22 (-34 to -6)
25.2 (21 to 29)	25 Lower respiratory infections	Har /	25 Osteoarthritis	25.0 (15 to 38)	21 (-23 to 89)
	27 Alzheimer's disease		28 Stomach cancer]	
	28 Osteoarthritis		30 Lower respiratory infections]	
	29 Pancreatic cancer	Y/ N	33 Congenital anomalies]	
	30 Chronic kidney disease	Y `	39 Preterm birth complications]	
· · ·					

Shifts in top 25 causes of DALYs, Austria, 1990–2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Ascending order in rank
----- Descending order in rank

lnjuries

BELGIUM

In terms of the number of years of life lost (YLLs) due to premature death in Belgium, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Belgium were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Belgium, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was Alzheimer's disease and other dementias.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 28% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Belgium were dietary risks, tobacco smoking, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease]	1 Ischemic heart disease	1.1 (1 to 2)	-21 (-25 to -14)
2.2 (2 to 4)	2 Low back pain]	2 Low back pain	1.9 (1 to 2)	13 (-5 to 33)
2.8 (2 to 3)	3 Stroke		3 Stroke	4.1 (3 to 6)	-27 (-35 to -13)
4.1 (3 to 6)	4 Lung cancer		4 Lung cancer	4.2 (3 to 7)	-14 (-24 to -1)
5.7 (4 to 7)	5 COPD]	5 COPD	4.8 (3 to 7)	3 (-6 to 12)
5.8 (4 to 7)	6 Road injury		6 Falls	6.3 (3 to 9)	32 (14 to 48)
7.2 (5 to 11)	7 Major depressive disorder	\vdash	7 Major depressive disorder	7.5 (3 to 13)	-1 (-29 to 37)
8.4 (6 to 11)	8 Self-harm		8 Alzheimer's disease	8.9 (6 to 13)	70 (38 to 112)
9.1 (7 to 13)	9 Falls	Y	9 Self-harm	9.8 (6 to 13)	-3 (-20 to 9)
11.7 (7 to 17)	10 Neck pain	} /`	10 Road injury	10.1 (7 to 13)	-28 (-36 to -16)
12.0 (7 to 17)	11 Diabetes	1. 77	11 Neck pain	11.1 (6 to 17)	13 (0 to 27)
12.1 (10 to 15)	12 Breast cancer	1. 1.	12 Other musculoskeletal	11.3 (7 to 16)	19 (-21 to 78)
12.5 (10 to 16)	13 Colorectal cancer		13 Diabetes	12.0 (5 to 18)	8 (-41 to 96)
12.8 (8 to 17)	14 Other musculoskeletal	1	14 Colorectal cancer	13.9 (11 to 17)	-4 (-13 to 29)
14.3 (11 to 17)	15 Other cardio & circulatory] <i>∕</i> `、	15 Other cardio & circulatory	15.6 (12 to 18)	-2 (-14 to 12)
15.9 (13 to 18)	16 Alzheimer's disease	Y `	16 Breast cancer	16.0 (14 to 18)	-14 (-22 to -2)
17.2 (15 to 19)	17 Lower respiratory infections]	17 Lower respiratory infections	16.3 (13 to 20)	16 (-12 to 42)
19.5 (17 to 23)	18 Cirrhosis	h	18 Migraine	19.8 (10 to 31)	6 (-56 to 162)
20.3 (9 to 35)	19 Migraine		19 Anxiety disorders	20.3 (16 to 26)	7 (-12 to 31)
20.6 (16 to 28)	20 Anxiety disorders		20 Cirrhosis	20.4 (18 to 24)	-0 (-14 to 11)
22.4 (17 to 31)	21 Drug use disorders		21 Drug use disorders	20.7 (16 to 26)	14 (-23 to 67)
22.7 (18 to 31)	22 Asthma	ŀ	22 Alcohol use disorders	21.5 (17 to 26)	19 (-10 to 57)
23.5 (20 to 28)	23 Congenital anomalies		23 Chronic kidney disease	24.3 (21 to 28)	10 (-4 to 26)
24.2 (19 to 32)	24 Alcohol use disorders	$ \times $	24 Osteoarthritis	24.9 (17 to 36)	21 (-25 to 89)
25.9 (20 to 32)	25 Stomach cancer	//	25 Asthma	25.7 (19 to 35)	-14 (-27 to 0)
	27 Chronic kidney disease		33 Stomach cancer		
	28 Osteoarthritis	Y `	35 Congenital anomalies		
Communical	his maternal peopetal and putritional			A.	oonding order in rank

Shifts in top 25 causes of DALYs, Belgium, 1990-2010

ternal, neonatal, and nutritiona

Non-communicable

Injuries

BULGARIA

In terms of the number of years of life lost (YLLs) due to premature death in Bulgaria, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Bulgaria were low back pain, major depressive disorder, falls, other musculoskeletal disorders, and neck pain.

In Bulgaria, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were hypertensive heart disease and other cardiovascular and circulatory diseases.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 54% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Bulgaria were high blood pressure, dietary risks, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15 to 49 years were household air pollution from solid fuels and dietary risks, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease]	1 Ischemic heart disease	1.0 (1 to 1)	-8 (-13 to -3)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 2)	-16 (-21 to -2)
3.3 (3 to 6)	3 Low back pain		3 Low back pain	3.3 (3 to 7)	-2 (-54 to 118)
4.1 (3 to 6)	4 Lower respiratory infections		4 COPD	4.4 (3 to 7)	21 (-2 to 48)
6.6 (4 to 10)	5 COPD	i.	5 Lung cancer	6.9 (4 to 11)	-2 (-17 to 7)
6.9 (4 to 10)	6 Lung cancer		6 Hypertensive heart disease	7.0 (4 to 12)	55 (-6 to 114)
7.1 (5 to 10)	7 Road injury		7 Diabetes	7.1 (3 to 12)	-0 (-42 to 70)
7.4 (3 to 12)	8 Diabetes	h.	8 Major depressive disorder	7.6 (3 to 14)	16 (-34 to 98)
8.7 (5 to 12)	9 Falls		9 Falls	8.5 (5 to 12)	-1 (-13 to 13)
10.0 (4 to 20)	10 Major depressive disorder	1 i	10 Other cardio & circulatory	9.0 (6 to 11)	22 (8 to 36)
11.6 (10 to 14)	11 Other cardio & circulatory		11 Road injury	10.1 (7 to 12)	-19 (-29 to -9)
13.0 (9 to 18)	12 Hypertensive heart disease	Y ·	12 Lower respiratory infections	12.7 (8 to 16)	-54 (-60 to -32)
14.3 (10 to 20)	13 Self-harm	}, /	13 Colorectal cancer	13.5 (12 to 17)	14 (-5 to 23)
15.2 (12 to 20)	14 Congenital anomalies	$\sum_{i=1}^{n}$	14 Other musculoskeletal	15.1 (11 to 20)	-2 (-34 to 45)
15.4 (10 to 21)	15 Stomach cancer		15 Neck pain	15.7 (11 to 22)	-8 (-32 to 23)
16.3 (9 to 22)	16 Neck pain	H.	16 Cirrhosis	15.8 (13 to 19)	-8 (-25 to 1)
16.6 (12 to 20)	17 Cirrhosis	A.	17 Osteoarthritis	17.3 (12 to 23)	3 (-32 to 70)
16.8 (10 to 22)	18 Other musculoskeletal	\mathbf{Y}	18 Self-harm	18.7 (13 to 22)	-36 (-41 to -11)
18.5 (15 to 21)	19 Colorectal cancer		19 Cardiomyopathy	19.3 (17 to 24)	151 (30 to 180)
19.3 (7 to 33)	20 Migraine	$\vdash \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	20 Migraine	19.8 (10 to 35)	-15 (-66 to 108)
20.3 (12 to 28)	21 Osteoarthritis	Y it	21 Breast cancer	20.6 (18 to 23)	-2 (-11 to 8)
22.3 (20 to 25)	22 Breast cancer		22 Stomach cancer	21.2 (16 to 25)	-39 (-45 to -28)
23.4 (18 to 31)	23 Anxiety disorders	I. Li	23 Other hearing loss	24.5 (16 to 36)	-3 (-19 to 13)
26.0 (19 to 39)	24 Other hearing loss	-T.i	24 Chronic kidney disease	25.2 (22 to 30)	13 (-7 to 25)
26.0 (23 to 29)	25 Rheumatic heart disease		25 Anxiety disorders	25.9 (18 to 36)	-22 (-45 to 9)
	29 Chronic kidney disease	1	26 Congenital anomalies		
	44 Cardiomyopathy	γ	28 Rheumatic heart disease		

Shifts in top 25 causes of DALYs, Bulgaria, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

CROATIA

In terms of the number of years of life lost (YLLs) due to premature death in Croatia, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Croatia are low back pain, major depressive disorder, falls, other musculoskeletal disorders, and neck pain.

In Croatia, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, cerebrovascular disease, and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes and colon and rectum cancers.

Of the 25 most important causes of burden, as measured by DALYs, self-harm showed the largest decrease, falling by 43% from 1990 to 2010.

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

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-12 (-15 to -7)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 2)	-20 (-24 to -14)
3.6 (3 to 6)	3 Major depressive disorder		3 Low back pain	3.3 (3 to 5)	10 (-3 to 26)
3.9 (3 to 6)	4 Low back pain		4 Major depressive disorder	4.0 (3 to 6)	-14 (-43 to 39)
4.9 (3 to 6)	5 Road injury		5 Lung cancer	5.2 (4 to 8)	0 (-21 to 9)
6.0 (4 to 8)	6 Lung cancer	Li.	6 Falls	6.6 (5 to 9)	27 (8 to 45)
7.9 (6 to 10)	7 Cirrhosis		7 COPD	7.6 (5 to 11)	21 (-4 to 51)
7.9 (6 to 11)	8 Self-harm		8 Diabetes	8.3 (4 to 13)	21 (-33 to 117)
10.1 (8 to 13)	9 Falls		9 Road injury	8.4 (7 to 11)	-38 (-48 to -22)
10.4 (7 to 14)	10 COPD	\sim	10 Colorectal cancer	10.6 (8 to 14)	47 (8 to 59)
11.0 (7 to 17)	11 Diabetes	۲ `	11 Cirrhosis	11.0 (8 to 14)	-28 (-35 to -19)
13.5 (4 to 27)	12 Anxiety disorders	}. ∕`	12 Self-harm	13.3 (9 to 17)	-43 (-50 to -10)
13.8 (10 to 20)	13 Stomach cancer	N. / -	13 Other musculoskeletal	13.4 (9 to 18)	10 (-28 to 64)
15.4 (13 to 18)	14 Other cardio & circulatory		14 Neck pain	14.3 (9 to 20)	5 (-23 to 45)
15.7 (10 to 23)	15 Other musculoskeletal	H. A.	15 Osteoarthritis	16.1 (10 to 23)	22 (-24 to 94)
16.1 (10 to 24)	16 Neck pain	Mr. 1.	16 Anxiety disorders	16.5 (6 to 34)	-22 (-75 to 133)
16.3 (12 to 22)	17 Hypertensive heart disease		17 Hypertensive heart disease	17.0 (13 to 22)	-13 (-33 to 15)
16.7 (12 to 20)	18 Colorectal cancer	Y ` <u>X</u> `/	18 Breast cancer	18.1 (15 to 21)	3 (-9 to 15)
19.9 (16 to 23)	19 Lower respiratory infections	. Lite	19 Migraine	18.7 (14 to 26)	-2 (-10 to 6)
20.4 (14 to 27)	20 Migraine		20 Other cardio & circulatory	19.7 (17 to 23)	-26 (-32 to -19)
21.2 (13 to 28)	21 Alcohol use disorders	1-X \	21 Alzheimer's disease	22.0 (16 to 30)	102 (26 to 206)
21.4 (12 to 29)	22 Osteoarthritis		22 Alcohol use disorders	22.2 (15 to 30)	-14 (-42 to 24)
21.7 (18 to 24)	23 Breast cancer	Y X	23 Stomach cancer	22.4 (17 to 29)	-40 (-51 to -32)
21.9 (17 to 25)	24 Congenital anomalies	ŀ / `∙	24 Lower respiratory infections	25.2 (20 to 29)	-33 (-41 to -19)
25.4 (22 to 29)	25 Preterm birth complications		25 Other hearing loss	26.4 (16 to 38)	18 (0 to 39)
31.7 (23 to 47)	28 Other hearing loss	1	33 Congenital anomalies	33.9 (29 to 39)	-48 (-59 to -38)
41.1 (28 to 54)	42 Alzheimer's disease	Y	41 Preterm birth complications	43.3 (37 to 50)	-56 (-65 to -42)

Shifts in top 25 causes of DALYs, Croatia, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

Ascending order in rank

CYPRUS

In terms of the number of years of life lost (YLLs) due to premature death in Cyprus, ischemic heart disease; cerebrovascular disease, or stroke; and diabetes were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Cyprus were low back pain, major depressive disorder, neck pain, falls, and other musculoskeletal disorders.

In Cyprus, the top three causes of disability-adjusted life years (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 diabetes.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 52% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Cyprus were dietary risks, high body mass index, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and dietary risks, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 2)	1 Ischemic heart disease		1 Ischemic heart disease	1.3 (1 to 2)	-1 (-10 to 15)
2.6 (1 to 5)	2 Low back pain		2 Low back pain	2.0 (1 to 4)	32 (-42 to 194)
3.1 (2 to 5)	3 Stroke	·	3 Major depressive disorder	3.4 (2 to 6)	16 (-33 to 104)
4.0 (2 to 6)	4 Major depressive disorder		4 Diabetes	4.0 (2 to 6)	207 (58 to 451)
4.4 (3 to 6)	5 Road injury	1	5 Stroke	4.7 (3 to 6)	-23 (-34 to 9)
8.5 (6 to 14)	6 Neck pain	h	6 Road injury	6.5 (5 to 8)	-22 (-33 to -6)
8.9 (6 to 13)	7 COPD		7 Falls	8.1 (5 to 12)	57 (31 to 83)
9.8 (6 to 16)	8 Lower respiratory infections	`	8 Neck pain	8.4 (5 to 12)	29 (-4 to 75)
10.2 (6 to 15)	9 Falls	1 /in	9 Other musculoskeletal	9.2 (6 to 13)	38 (-6 to 105)
10.2 (6 to 15)	10 Other musculoskeletal	H.T.	10 COPD	10.5 (7 to 14)	12 (-11 to 43)
11.0 (4 to 24)	11 Anxiety disorders	h-1/	11 Lung cancer	10.9 (8 to 14)	37 (16 to 57)
11.9 (7 to 16)	12 Congenital anomalies		12 Anxiety disorders	13.7 (4 to 27)	-2 (-71 to 247)
12.3 (8 to 15)	13 Lung cancer	T'	13 Alzheimer's disease	14.1 (11 to 20)	130 (49 to 242)
13.1 (6 to 19)	14 Diabetes		14 Migraine	14.8 (7 to 26)	22 (-49 to 178)
13.7 (6 to 24)	15 Asthma		15 Colorectal cancer	15.0 (12 to 18)	75 (42 to 101)
15.1 (6 to 29)	16 Migraine		16 Breast cancer	16.2 (13 to 19)	59 (35 to 82)
16.7 (14 to 20)	17 Other cardio & circulatory		17 Asthma	16.8 (7 to 30)	0 (-58 to 152)
20.4 (17 to 24)	18 Breast cancer	A-	18 Chronic kidney disease	18.0 (15 to 22)	133 (49 to 181)
20.4 (15 to 28)	19Thalassemia		19 Other cardio & circulatory	18.3 (15 to 21)	17 (-2 to 39)
21.3 (17 to 26)	20 Colorectal cancer	r./ A	20 Drug use disorders	19.2 (14 to 24)	55 (20 to 99)
22.6 (15 to 36)	21 Preterm birth complications	int	21 Lower respiratory infections	22.0 (16 to 26)	-52 (-66 to 6)
23.6 (17 to 33)	22 Drug use disorders	K	22 Alcohol use disorders	24.6 (15 to 37)	37 (-19 to 136)
26.4 (17 to 40)	23 Alzheimer's disease		23 Osteoarthritis	25.3 (15 to 40)	34 (-14 to 116)
26.7 (16 to 43)	24 Other hearing loss	- N/X.	24 Schizophrenia	26.2 (18 to 40)	35 (-8 to 96)
26.9 (18 to 44)	25 Brain cancer	- <i>AX-X</i>	25Thalassemia	27.9 (22 to 37)	-11 (-18 to -3)
	26 Alcohol use disorders	XXXXX	30 Other hearing loss		
	27 Osteoarthritis	YV N	34 Brain cancer		
	28 Schizophrenia		42 Congenital anomalies		
	31 Chronic kidney disease	Ý Č	44 Preterm birth complications		

Shifts in top 25 causes of DALYs, Cyprus, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

CZECH REPUBLIC

In terms of the number of years of life lost (YLLs) due to premature death in the Czech Republic, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in the Czech Republic were low back pain, falls, major depressive disorder, other musculoskeletal disorders, and neck pain.

In the Czech Republic, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was diabetes.

Of the 25 most important causes of burden, as measured by DALYs, cerebrovascular disease, or stroke, showed the largest decrease, falling by 42% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in the Czech Republic were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were iron deficiency and dietary risks, respectively, in 2010.

	1990	_		2010	
Mean rank (95% UI)		-		Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease]	1 Ischemic heart disease	1.0 (1 to 1)	-37 (-40 to -31)
2.0 (2 to 2)	2 Stroke]	2 Stroke	2.3 (2 to 3)	-42 (-46 to -29)
3.2 (3 to 4)	3 Low back pain]	3 Low back pain	2.7 (2 to 3)	15 (-1 to 31)
4.0 (3 to 5)	4 Lung cancer]	4 Lung cancer	4.5 (4 to 7)	-18 (-32 to -6)
6.4 (5 to 10)	5 Falls]	5 Falls	5.1 (4 to 7)	7 (-7 to 29)
6.5 (5 to 9)	6 Road injury	}	6 COPD	8.1 (5 to 13)	-5 (-24 to 19)
7.5 (4 to 13)	7 Major depressive disorder		7 Colorectal cancer	8.3 (6 to 11)	-6 (-17 to 20)
8.4 (5 to 12)	8 COPD		8 Road injury	8.4 (6 to 12)	-18 (-31 to -5)
8.6 (6 to 11)	9 Colorectal cancer		9 Diabetes	9.0 (6 to 13)	1 (-10 to 17)
9.9 (6 to 13)	10 Self-harm	}``	10 Major depressive disorder	9.5 (5 to 17)	-19 (-52 to 31)
10.3 (7 to 13)	11 Diabetes		11 Self-harm	12.7 (8 to 17)	-22 (-35 to 6)
13.2 (10 to 16)	12 Cirrhosis	}	12 Other musculoskeletal	13.2 (7 to 18)	16 (-24 to 76)
15.2 (12 to 18)	13 Lower respiratory infections		13 Neck pain	14.0 (7 to 20)	9 (-19 to 46)
15.5 (11 to 23)	14 Neck pain	Fin the second second	14 Other cardio & circulatory	14.1 (11 to 17)	35 (21 to 51)
15.6 (11 to 22)	15 Other musculoskeletal	YN, Z	15 Cirrhosis	14.4 (11 to 18)	2 (-31 to 13)
16.3 (5 to 31)	16 Anxiety disorders		16 Anxiety disorders	14.9 (4 to 29)	5 (-67 to 220)
17.7 (14 to 22)	17 Congenital anomalies		17 Osteoarthritis	16.4 (9 to 22)	25 (-23 to 96)
17.9 (15 to 21)	18 Breast cancer	Fill A	18 Migraine	17.2 (6 to 30)	2 (-55 to 144)
18.6 (8 to 32)	19 Migraine	Arril .	19 Lower respiratory infections	17.9 (15 to 22)	-6 (-39 to 9)
19.5 (16 to 23)	20 Other cardio & circulatory	Y / ``	20 Breast cancer	19.8 (17 to 22)	-17 (-25 to -7)
20.2 (14 to 24)	21 Stomach cancer	1/	21 Pancreatic cancer	20.8 (17 to 25)	18 (-9 to 34)
20.6 (13 to 28)	22 Osteoarthritis	$Y \sim V$	22 Alzheimer's disease	22.7 (18 to 28)	46 (-3 to 124)
21.8 (16 to 28)	23 Preterm birth complications		23 Iron-deficiency anemia	26.0 (20 to 38)	-7 (-21 to 8)
24.7 (20 to 30)	24 Pancreatic cancer		24 Kidney cancers	26.2 (20 to 34)	11 (-10 to 56)
26.3 (20 to 37)	25 Iron-deficiency anemia		25 Stomach cancer	26.6 (21 to 34)	-41 (-47 to -18)
	28 Kidney cancers	M	43 Congenital anomalies		
	31 Alzheimer's disease	γ `	46 Preterm birth complications		

Shifts in top 25 causes of DALYs, Czech Republic, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

DENMARK

In terms of the number of years of life lost (YLLs) due to premature death in Denmark, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Denmark were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Denmark, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, ischemic heart disease, and chronic obstructive pulmonary disease. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes, alcohol use disorders, and other musculoskeletal disorders.

Of the 25 most important causes of burden, as measured by DALYs, self-harm showed the largest decrease, falling by 51% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Denmark were tobacco smoking, dietary risks, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)		-		Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease	·	1 Low back pain	1.5 (1 to 2)	9 (-0 to 21)
2.0 (2 to 3)	2 Low back pain		2 Ischemic heart disease	1.5 (1 to 2)	-48 (-52 to -27)
3.0 (2 to 4)	3 Stroke	h	3 COPD	3.7 (3 to 6)	9 (-1 to 19)
4.5 (4 to 6)	4 COPD		4 Lung cancer	4.7 (3 to 7)	1 (-16 to 11)
4.6 (4 to 6)	5 Lung cancer	· · · ·	5 Stroke	4.8 (3 to 6)	-24 (-34 to -15)
7.1 (6 to 12)	6 Self-harm] /	6 Major depressive disorder	5.7 (3 to 10)	44 (-15 to 139)
8.0 (6 to 11)	7 Falls	<u>};</u>	7 Falls	7.6 (5 to 11)	8 (-6 to 28)
8.1 (6 to 10)	8 Road injury		8 Diabetes	8.7 (4 to 14)	28 (-27 to 125)
9.1 (5 to 16)	9 Major depressive disorder	KX /	9 Alcohol use disorders	9.8 (6 to 16)	39 (-11 to 118)
10.8 (8 to 14)	10 Colorectal cancer	}-X /	10 Other musculoskeletal	10.6 (7 to 15)	16 (-24 to 70)
11.7 (6 to 16)	11 Diabetes	1 27-	11 Colorectal cancer	11.1 (8 to 14)	-1 (-9 to 17)
12.6 (8 to 17)	12 Other musculoskeletal		12 Neck pain	11.6 (7 to 16)	9 (-3 to 23)
12.7 (10 to 15)	13 Breast cancer	I. Ti	13 Alzheimer's disease	11.7 (8 to 15)	62 (27 to 105)
12.7 (7 to 18)	14 Neck pain	1	14 Road injury	13.9 (11 to 16)	-32 (-41 to -18)
14.1 (8 to 20)	15 Alcohol use disorders		15 Breast cancer	15.4 (14 to 18)	-18 (-26 to -11)
17.6 (15 to 22)	16 Congenital anomalies] / `	16 Self-harm	15.8 (8 to 20)	-51 (-58 to -6)
18.2 (15 to 21)	17 Cirrhosis	ľ./	17 Cirrhosis	17.7 (15 to 22)	7 (-23 to 20)
19.0 (15 to 23)	18 Alzheimer's disease	r	18 Drug use disorders	19.4 (15 to 24)	-0 (-22 to 37)
19.1 (16 to 22)	19 Lower respiratory infections		19 Lower respiratory infections	19.9 (17 to 24)	-7 (-25 to 12)
19.7 (15 to 25)	20 Drug use disorders		20 Anxiety disorders	21.5 (9 to 40)	-5 (-71 to 194)
20.4 (6 to 37)	21 Anxiety disorders		21 Migraine	21.9 (16 to 29)	1 (-19 to 27)
22.2 (16 to 29)	22 Asthma		22 Asthma	22.7 (16 to 31)	-3 (-14 to 9)
22.3 (16 to 30)	23 Migraine		23 Other cardio & circulatory	23.1 (20 to 27)	6 (-7 to 22)
23.9 (22 to 27)	24 Other cardio & circulatory		24 Prostate cancer	23.3 (17 to 34)	20 (-11 to 46)
26.0 (19 to 37)	25 Prostate cancer		25 Pancreatic cancer	24.3 (19 to 30)	18 (-1 to 34)
	26 Pancreatic cancer	Ľ í	29 Congenital anomalies	1	

Shifts in top 25 causes of DALYs, Denmark, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank

Injuries

Non-communicable

ESTONIA

In terms of the number of years of life lost (YLLs) due to premature death in Estonia, ischemic heart disease; cerebrovascular disease, or stroke; and HIV/AIDS were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Estonia were major depressive disorder, low back pain, other musculoskeletal disorders, neck pain, and diabetes.

In Estonia, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and major depressive disorder. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were HIV/AIDS, diabetes, and falls.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 64% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Estonia were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were iron deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-36 (-40 to -24)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 3)	-45 (-51 to -26)
4.2 (3 to 7)	3 Road injury		3 Major depressive disorder	3.5 (2 to 5)	-1 (-30 to 43)
4.8 (3 to 8)	4 Major depressive disorder	-	4 Low back pain	3.7 (3 to 5)	-4 (-17 to 9)
5.0 (3 to 8)	5 Low back pain		5 HIV/AIDS	5.9 (4 to 9)	14329 (1,115 to 73,652)
5.7 (3 to 8)	6 Self-harm		6 Alcohol use disorders	6.2 (4 to 10)	-21 (-39 to 10)
6.6 (4 to 9)	7 Lung cancer		7 Lung cancer	7.2 (5 to 10)	-35 (-41 to -16)
7.4 (3 to 12)	8 Alcohol use disorders		8 Diabetes	9.1 (4 to 17)	24 (-38 to 144)
9.4 (8 to 12)	9 Congenital anomalies		9 Falls	10.5 (7 to 15)	-18 (-29 to -2)
10.3 (8 to 14)	10 Stomach cancer		10 Self-harm	11.8 (5 to 18)	-56 (-63 to -30)
11.2 (9 to 15)	11 Falls		11 Other musculoskeletal	12.4 (7 to 20)	-4 (-38 to 46)
14.4 (10 to 22)	12 Interpersonal violence		12 Hypertensive heart disease	12.5 (6 to 26)	108 (-24 to 415)
15.1 (11 to 24)	13 Drowning		13 Road injury	12.8 (9 to 18)	-64 (-72 to -44)
15.7 (10 to 23)	14 Other musculoskeletal	KX IL	14 Neck pain	14.6 (8 to 23)	-8 (-33 to 25)
15.9 (12 to 21)	15 Lower respiratory infections		15 Drug use disorders	14.9 (9 to 22)	71 (-6 to 161)
16.9 (9 to 26)	16 Diabetes		16 Cardiomyopathy	16.0 (12 to 20)	-11 (-32 to 6)
17.2 (10 to 26)	17 Neck pain	Minth.	17 Colorectal cancer	16.8 (13 to 21)	-8 (-23 to 6)
17.5 (12 to 22)	18 Cardiomyopathy	HILL	18 Osteoarthritis	18.5 (10 to 28)	6 (-33 to 65)
18.8 (14 to 24)	19 COPD	-XI. / X.	19 Cirrhosis	19.8 (13 to 32)	94 (-42 to 124)
19.1 (15 to 24)	20 Colorectal cancer	Y - Y- /	20 Stomach cancer	20.5 (14 to 26)	-53 (-58 to -46)
21.3 (13 to 29)	21 Iron-deficiency anemia	X.T.	21 COPD	21.4 (16 to 27)	-28 (-39 to -14)
22.6 (19 to 26)	22 Breast cancer	. King	22 Migraine	22.3 (8 to 40)	-13 (-62 to 101)
24.1 (11 to 45)	23 Migraine	AF	23 Iron-deficiency anemia	23.0 (14 to 31)	-25 (-32 to -18)
24.5 (15 to 36)	24 Osteoarthritis		24 Alzheimer's disease	23.7 (16 to 31)	34 (-16 to 101)
27.3 (22 to 33)	25 Fire		25 Breast cancer	25.0 (21 to 29)	-30 (-38 to -21)
	28 Hypertensive heart disease		26 Interpersonal violence		
	31 Drug use disorders		28 Lower respiratory infections		
	35 Cirrhosis		32 Congenital anomalies		
	37 Alzheimer's disease	Y N	34 Fire		
	137 HIV/AIDS		36 Drowning		

Shifts in top 25 causes of DALYs, Estonia, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank
----- Descending order in rank

Non-communicable

FINLAND

In terms of the number of years of life lost (YLLs) due to premature death in Finland, ischemic heart disease; cerebrovascular disease, or stroke; and Alzheimer's disease and other dementias were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Finland were low back pain, major depressive disorder, neck pain, falls, and other musculoskeletal disorders.

In Finland, the top three causes of disability-adjusted life years (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 alcohol use disorders.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 63% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Finland were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were childhood underweight and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-33 (-37 to -22)
2.2 (2 to 4)	2 Low back pain		2 Low back pain	2.0 (2 to 2)	15 (3 to 27)
2.8 (2 to 3)	3 Stroke	/	3 Major depressive disorder	3.5 (3 to 6)	29 (-1 to 64)
4.1 (3 to 5)	4 Self-harm		4 Stroke	4.4 (3 to 6)	-31 (-38 to -14)
5.1 (4 to 8)	5 Major depressive disorder		5 Alzheimer's disease	4.9 (3 to 7)	92 (39 to 155)
7.0 (5 to 10)	6 Falls	<u> </u>	6 Falls	5.6 (3 to 8)	31 (15 to 47)
7.7 (6 to 10)	7 Road injury]. /`>	7 Neck pain	8.0 (4 to 12)	13 (-1 to 28)
7.9 (6 to 11)	8 Lung cancer	F., .	8 Self-harm	8.4 (5 to 11)	-42 (-47 to -9)
8.2 (5 to 12)	9 Neck pain	1	9 Alcohol use disorders	9.3 (7 to 14)	110 (8 to 203)
11.1 (6 to 15)	10 Alzheimer's disease	Y N. 7.	10 Lung cancer	10.0 (7 to 12)	-8 (-23 to 8)
11.6 (9 to 15)	11 Lower respiratory infections	i i	11 Other musculoskeletal	10.0 (7 to 14)	21 (-19 to 84)
11.8 (7 to 16)	12 Other musculoskeletal	h i	12 COPD	13.0 (10 to 16)	1 (-9 to 16)
12.5 (10 to 15)	13 COPD	H.T.	13 Road injury	13.2 (10 to 16)	-31 (-41 to -13)
13.7 (10 to 16)	14 Diabetes		14 Cirrhosis	14.4 (11 to 24)	66 (-21 to 84)
17.0 (15 to 20)	15 Breast cancer		15 Diabetes	15.1 (12 to 19)	-5 (-19 to 13)
17.6 (11 to 26)	16 Alcohol use disorders	YX.	16 Colorectal cancer	17.6 (15 to 21)	18 (1 to 32)
18.6 (15 to 22)	17 Cirrhosis	Y iik	17 Migraine	18.7 (8 to 34)	6 (-58 to 161)
18.8 (9 to 36)	18 Migraine		18 Breast cancer	18.9 (16 to 22)	-1 (-11 to 7)
19.0 (16 to 23)	19 Congenital anomalies		19 Anxiety disorders	19.9 (14 to 27)	-1 (-24 to 31)
19.0 (14 to 26)	20 Anxiety disorders	in the	20 Drug use disorders	20.5 (15 to 31)	87 (-4 to 163)
20.6 (16 to 24)	21 Colorectal cancer	Y' if	21 Other cardio & circulatory	21.2 (16 to 25)	9 (-7 to 28)
22.4 (17 to 26)	22 Other cardio & circulatory		22 Pancreatic cancer	21.9 (16 to 28)	29 (6 to 43)
22.5 (17 to 28)	23 Stomach cancer		23 Asthma	22.8 (15 to 33)	3 (-10 to 20)
22.9 (15 to 32)	24 Asthma	HAN Y	24 Osteoarthritis	25.3 (16 to 38)	27 (-14 to 90)
26.5 (20 to 32)	25 Pancreatic cancer	Y / XXX	25 Lower respiratory infections	25.7 (14 to 33)	-63 (-69 to -6)
	27 Osteoarthritis		34 Stomach cancer		
	31 Drug use disorders	Ý `	36 Congenital anomalies		

Shifts in top 25 causes of DALYs, Finland, 1990-2010

Communicable, maternal, neonatal, and nutritional Non-communicable

Non-com

FRANCE

In terms of the number of years of life lost (YLLs) due to premature death in France, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in France were low back pain, major depressive disorder, falls, neck pain, and anxiety disorders.

In France, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, ischemic heart disease, and major depressive disorder. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were Alzheimer's disease and other dementias, other musculoskeletal disorders, and neck pain.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 37% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in France were dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.4 (1 to 2)	1 Low back pain		1 Low back pain	1.0 (1 to 1)	17 (-4 to 43)
1.6 (1 to 2)	2 Ischemic heart disease		2 Ischemic heart disease	2.0 (2 to 2)	-19 (-26 to -9)
3.2 (3 to 4)	3 Stroke	·	3 Major depressive disorder	3.9 (3 to 7)	6 (-17 to 35)
4.5 (3 to 8)	4 Major depressive disorder	L.	4 Lung cancer	4.8 (3 to 11)	25 (-10 to 38)
4.8 (4 to 6)	5 Road injury		5 Falls	5.0 (3 to 8)	37 (19 to 53)
6.1 (4 to 9)	6 Self-harm		6 Stroke	5.4 (3 to 8)	-23 (-32 to -4)
7.0 (5 to 9)	7 Lung cancer		7 Self-harm	9.1 (5 to 13)	-22 (-28 to 6)
8.7 (6 to 12)	8 Falls		8 Alzheimer's disease	9.1 (6 to 14)	84 (40 to 127)
10.6 (6 to 16)	9 Anxiety disorders	`· /	9 Other musculoskeletal	9.5 (5 to 16)	22 (-18 to 87)
10.6 (8 to 14)	10 COPD	1A	10 Neck pain	9.8 (5 to 16)	16 (3 to 30)
11.1 (7 to 17)	11 Neck pain		11 Anxiety disorders	9.8 (5 to 16)	12 (-6 to 32)
11.7 (9 to 14)	12 Other cardio & circulatory	./ 7.	12 Road injury	11.4 (8 to 15)	-37 (-45 to -20)
11.9 (8 to 17)	13 Other musculoskeletal	(N, / N)	13 COPD	13.6 (9 to 18)	-8 (-17 to 3)
14.1 (11 to 17)	14 Cirrhosis	l. 'X	14 Colorectal cancer	14.5 (11 to 18)	11 (2 to 35)
15.1 (12 to 17)	15 Colorectal cancer	H.T.	15 Diabetes	14.8 (11 to 19)	50 (23 to 70)
15.3 (9 to 21)	16 Alcohol use disorders	\vdash	16 Alcohol use disorders	15.2 (8 to 20)	11 (-28 to 72)
17.6 (16 to 20)	17 Breast cancer	ŀ-/X.``	17 Other cardio & circulatory	16.3 (13 to 19)	-14 (-23 to -1)
18.0 (12 to 24)	18 Asthma	H. / 155	18 Breast cancer	17.8 (15 to 20)	12 (2 to 22)
18.4 (14 to 21)	19 Alzheimer's disease	/``	19 Cirrhosis	18.5 (14 to 20)	-14 (-22 to 2)
19.6 (16 to 22)	20 Diabetes	γ	20 Asthma	19.7 (12 to 28)	-3 (-15 to 12)
20.3 (17 to 23)	21 Lower respiratory infections		21 Lower respiratory infections	21.8 (20 to 25)	-7 (-22 to 12)
24.1 (22 to 28)	22 Congenital anomalies		22 Migraine	23.9 (20 to 32)	7 (-7 to 25)
24.2 (19 to 34)	23 Migraine		23 Drug use disorders	24.4 (20 to 30)	6 (-17 to 35)
24.4 (21 to 32)	24 Drug use disorders		24 Chronic kidney disease	24.6 (21 to 29)	20 (5 to 36)
26.1 (23 to 30)	25 HIV/AIDS		25 Liver cancer	27.4 (23 to 34)	41 (16 to 59)
	27 Chronic kidney disease		33 Congenital anomalies		
	36 Liver cancer		61 HIV/AIDS		

Shifts in top 25 causes of DALYs, France, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

Ascending order in rank

GERMANY

In terms of the number of years of life lost (YLLs) due to premature death in Germany, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Germany were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Germany, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were other musculoskeletal disorders and neck pain.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 43% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Germany were dietary risks, high body mass index, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were zinc deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease]	1 lschemic heart disease	1.2 (1 to 2)	-33 (-37 to -24)
2.0 (2 to 3)	2 Low back pain		2 Low back pain	1.8 (1 to 2)	11 (-0 to 24)
3.0 (2 to 3)	3 Stroke		3 Stroke	3.9 (3 to 6)	-35 (-38 to -22)
4.9 (4 to 7)	4 Lung cancer		4 Major depressive disorder	4.2 (3 to 8)	8 (-16 to 38)
5.0 (4 to 9)	5 Major depressive disorder	J	5 Lung cancer	5.1 (3 to 8)	7 (-18 to 15)
6.1 (4 to 8)	6 Road injury		6 Falls	5.7 (3 to 9)	22 (8 to 37)
7.3 (5 to 10)	7 COPD	Ľ.	7 COPD	7.2 (5 to 9)	1 (-6 to 9)
8.3 (5 to 13)	8 Falls		8 Diabetes	8.5 (6 to 11)	4 (-7 to 20)
9.8 (7 to 14)	9 Diabetes		9 Other musculoskeletal	9.3 (6 to 15)	16 (-22 to 70)
11.0 (8 to 14)	10 Colorectal cancer	/	10 Neck pain	9.5 (5 to 15)	11 (-2 to 25)
11.1 (7 to 16)	11 Self-harm		11 Colorectal cancer	11.3 (7 to 14)	-14 (-20 to 23)
12.1 (6 to 18)	12 Neck pain	\mathbf{K}	12 Alzheimer's disease	13.1 (9 to 18)	75 (42 to 102)
12.3 (8 to 15)	13 Cirrhosis	-/-:_ `·/	13 Other cardio & circulatory	14.2 (11 to 18)	-1 (-13 to 15)
12.7 (7 to 18)	14 Other musculoskeletal	Y	14 Cirrhosis	14.4 (11 to 18)	-20 (-28 to -14)
15.8 (13 to 18)	15 Other cardio & circulatory		15 Road injury	14.4 (11 to 18)	-43 (-51 to -29)
16.1 (14 to 18)	16 Breast cancer	h. Li	16 Anxiety disorders	14.9 (10 to 21)	0 (-14 to 17)
16.2 (11 to 21)	17 Anxiety disorders		17 Self-harm	16.9 (11 to 22)	-33 (-43 to -8)
17.9 (13 to 22)	18 Alcohol use disorders	} <i>[</i>	18 Breast cancer	17.6 (15 to 20)	-12 (-21 to -5)
20.0 (15 to 24)	19 Stomach cancer	/	19 Alcohol use disorders	18.6 (12 to 23)	-8 (-25 to 19)
20.2 (16 to 26)	20 Asthma	E./ /	20 Chronic kidney disease	20.7 (18 to 25)	37 (7 to 56)
20.5 (17 to 23)	21 Lower respiratory infections	<u><u>`}</u>,</u>	21 Lower respiratory infections	21.7 (18 to 25)	-5 (-28 to 11)
22.5 (19 to 28)	22 Drug use disorders	<u>}/ ``;_ /</u>	22 Drug use disorders	24.0 (20 to 29)	-8 (-21 to 7)
24.4 (20 to 30)	23 Alzheimer's disease	ľΧ	23 Migraine	24.0 (18 to 33)	1 (-16 to 21)
24.6 (19 to 33)	24 Migraine	H	24 Pancreatic cancer	25.0 (20 to 31)	29 (1 to 46)
25.4 (22 to 30)	25 Congenital anomalies	V X	25 Osteoarthritis	25.4 (15 to 36)	19 (-23 to 89)
	27 Chronic kidney disease		26 Asthma		
	29 Osteoarthritis		27 Stomach cancer		
	30 Pancreatic cancer	Y ``	42 Congenital anomalies		

Shifts in top 25 causes of DALYs, Germany, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

GREECE

In terms of the number of years of life lost (YLLs) due to premature death in Greece, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Greece were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Greece, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 19% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Greece were dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and occupational risks, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)		-		Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 lschemic heart disease]	1 Ischemic heart disease	1.0 (1 to 1)	9 (1 to 17)
2.2 (2 to 3)	2 Stroke	}	2 Low back pain	2.5 (2 to 3)	21 (-5 to 49)
2.9 (2 to 4)	3 Low back pain		3 Stroke	2.5 (2 to 3)	-6 (-12 to 9)
4.6 (4 to 6)	4 Road injury	}	4 Lung cancer	4.8 (4 to 8)	27 (-0 to 37)
5.0 (4 to 8)	5 Major depressive disorder	\vdash	5 Major depressive disorder	5.1 (4 to 9)	9 (-28 to 71)
5.8 (4 to 7)	6 Lung cancer		6 Falls	6.9 (4 to 10)	38 (22 to 56)
8.1 (6 to 11)	7 Falls		7 Road injury	7.1 (5 to 9)	-19 (-27 to -1)
8.7 (6 to 12)	8 Neck pain	}	8 COPD	7.9 (5 to 11)	44 (12 to 80)
9.3 (7 to 12)	9 COPD]	9 Neck pain	9.4 (5 to 13)	19 (-10 to 62)
9.7 (7 to 13)	10 Other musculoskeletal]	10 Other musculoskeletal	9.9 (6 to 13)	26 (-20 to 91)
12.2 (7 to 19)	11 Diabetes]	11 Diabetes	11.8 (6 to 18)	26 (-31 to 135)
13.3 (11 to 18)	12 Congenital anomalies] /	12 Lower respiratory infections	12.3 (9 to 19)	108 (-7 to 161)
14.2 (5 to 31)	13 Anxiety disorders	Fr /	13 Alzheimer's disease	14.5 (10 to 20)	83 (21 to 165)
14.5 (12 to 19)	14 Chronic kidney disease	N. 77	14 Anxiety disorders	14.8 (5 to 31)	12 (-64 to 252)
14.8 (10 to 25)	15 Migraine	P.S. / / /	15 Colorectal cancer	15.4 (13 to 19)	61 (38 to 74)
15.1 (12 to 18)	16 Other cardio & circulatory	1. Staff	16 Breast cancer	15.8 (13 to 19)	24 (13 to 37)
17.1 (14 to 20)	17 Breast cancer	Fr. K.	17 Migraine	15.9 (11 to 23)	12 (-17 to 48)
18.0 (14 to 22)	18 Preterm birth complications		18 Chronic kidney disease	17.2 (13 to 20)	2 (-9 to 36)
18.2 (12 to 23)	19 Lower respiratory infections	Y. //. `.	19 Other cardio & circulatory	18.1 (15 to 21)	3 (-11 to 17)
20.6 (13 to 26)	20 Stomach cancer	1.1	20 Drug use disorders	19.6 (15 to 24)	78 (25 to 136)
22.9 (19 to 26)	21 Colorectal cancer	Y K STY	21 Stomach cancer	23.6 (19 to 32)	-6 (-19 to 4)
23.2 (20 to 28)	22 Cirrhosis		22 Pancreatic cancer	25.1 (20 to 34)	44 (22 to 67)
23.3 (15 to 32)	23 Alzheimer's disease	$\sim \lambda / \lambda$	23 Osteoarthritis	25.7 (18 to 38)	23 (2 to 53)
23.4 (19 to 37)	24 Liver cancer	I. YA	24 HIV/AIDS	26.1 (21 to 33)	30 (-8 to 56)
26.7 (15 to 40)	25 Other hearing loss		25 Brain cancer	26.1 (20 to 38)	23 (-6 to 44)
	26 Osteoarthritis		26 Cirrhosis		
	27 Brain cancer		27 Other hearing loss		
	28 Drug use disorders		35 Congenital anomalies		
	29 HIV/AIDS	Y/	37 Liver cancer		
	32 Pancreatic cancer	ľ	40 Preterm birth complications		
· · ·					

Shifts in top 25 causes of DALYs, Greece, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

HUNGARY

In terms of the number of years of life lost (YLLs) due to premature death in Hungary, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Hungary were low back pain, major depressive disorder, falls, diabetes, and other musculoskeletal disorders.

In Hungary, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes and colon and rectum cancers.

Of the 25 most important causes of burden, as measured by DALYs, self-harm showed the largest decrease, falling by 42% from 1990 to 2010.

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

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 lschemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-19 (-23 to -16)
2.0 (2 to 2)	2 Stroke]	2 Stroke	2.3 (2 to 3)	-41 (-45 to -26)
3.3 (3 to 5)	3 Low back pain]	3 Low back pain	2.8 (2 to 4)	6 (-7 to 19)
4.0 (3 to 5)	4 Cirrhosis		4 Lung cancer	4.2 (3 to 7)	4 (-26 to 14)
4.9 (3 to 6)	5 Lung cancer		5 Cirrhosis	5.3 (4 to 7)	-23 (-31 to -16)
6.2 (4 to 9)	6 Self-harm	l	6 COPD	6.3 (4 to 8)	-2 (-18 to 18)
7.5 (5 to 10)	7 COPD	h.	7 Falls	7.3 (5 to 10)	-9 (-21 to 12)
8.0 (6 to 10)	8 Road injury		8 Diabetes	8.1 (5 to 12)	21 (-31 to 102)
8.4 (6 to 10)	9 Falls		9 Colorectal cancer	9.4 (7 to 12)	11 (-4 to 20)
11.6 (10 to 15)	10 Preterm birth complications		10 Self-harm	9.9 (5 to 13)	-42 (-48 to -10)
11.9 (7 to 18)	11 Diabetes	· · · ·	11 Road injury	10.9 (9 to 13)	-33 (-41 to -16)
12.1 (10 to 14)	12 Colorectal cancer	<u> </u>	12 Major depressive disorder	12.2 (7 to 18)	-9 (-34 to 27)
12.3 (9 to 19)	13 Major depressive disorder		13 Hypertensive heart disease	14.5 (12 to 18)	-12 (-24 to 0)
14.3 (11 to 18)	14 Hypertensive heart disease		14 Other musculoskeletal	14.6 (10 to 20)	10 (-28 to 64)
15.6 (13 to 18)	15 Other cardio & circulatory		15 Anxiety disorders	15.8 (11 to 21)	-1 (-29 to 34)
18.3 (11 to 25)	16 Anxiety disorders	- Fr.	16 Neck pain	16.3 (11 to 22)	1 (-24 to 37)
18.5 (15 to 23)	17 Congenital anomalies		17 Other cardio & circulatory	16.7 (13 to 20)	-19 (-27 to -6)
18.7 (13 to 24)	18 Other musculoskeletal	K X	18 Osteoarthritis	18.4 (12 to 26)	14 (-29 to 83)
18.8 (13 to 24)	19 Stomach cancer		19 Breast cancer	19.4 (17 to 22)	-11 (-20 to -2)
19.4 (12 to 25)	20 Neck pain		20 Alzheimer's disease	20.1 (15 to 27)	88 (16 to 180)
20.8 (15 to 27)	21 Alcohol use disorders	-X/	21 Migraine	20.3 (10 to 36)	-1 (-61 to 134)
21.0 (18 to 24)	22 Breast cancer	L'ANS I	22 Cardiomyopathy	23.2 (20 to 29)	79 (4 to 97)
22.5 (10 to 37)	23 Migraine		23 Alcohol use disorders	23.2 (16 to 29)	-31 (-49 to 6)
23.6 (15 to 30)	24 Osteoarthritis	$Y = / \langle \rangle$	24 Stomach cancer	24.1 (18 to 28)	-40 (-47 to -31)
23.9 (21 to 26)	25 Lower respiratory infections	1.//iii	25 Eczema	24.8 (16 to 40)	-4 (-29 to 28)
	26 Eczema	HT	29 Preterm birth complications		
	34 Alzheimer's disease	Y	33 Lower respiratory infections		
	40 Cardiomyopathy	Ý	35 Congenital anomalies		

Shifts in top 25 causes of DALYs, Hungary, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

ICELAND

In terms of the number of years of life lost (YLLs) due to premature death in Iceland, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Iceland were low back pain, major depressive disorder, neck pain, falls, and other musculoskeletal disorders.

In Iceland, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, ischemic heart disease, and major depressive disorder. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were Alzheimer's disease and other dementias and chronic obstructive pulmonary disease.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 56% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Iceland were dietary risks, high body mass index, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and occupational risks, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Low back pain	1.2 (1 to 2)	36 (6 to 73)
2.0 (2 to 2)	2 Low back pain	J	2 Ischemic heart disease	1.8 (1 to 2)	-32 (-37 to -15)
3.2 (3 to 4)	3 Stroke	}. ∠	3 Major depressive disorder	3.3 (3 to 6)	77 (15 to 174)
5.1 (3 to 8)	4 Lung cancer	1-20	4 Falls	6.0 (3 to 10)	56 (35 to 77)
5.5 (4 to 8)	5 Road injury	1	5 Lung cancer	6.3 (4 to 11)	13 (-15 to 28)
6.0 (3 to 12)	6 Major depressive disorder	K. K.	6 Neck pain	7.0 (3 to 13)	36 (2 to 82)
8.1 (5 to 12)	7 Self-harm		7 Stroke	7.6 (5 to 11)	-17 (-27 to -4)
8.5 (4 to 15)	8 Neck pain		8 Other musculoskeletal	8.5 (4 to 14)	40 (-4 to 109)
9.6 (6 to 14)	9 Falls		9 Alzheimer's disease	8.7 (4 to 14)	197 (67 to 338)
10.5 (6 to 15)	10 Other musculoskeletal	- i i i	10 COPD	9.3 (5 to 13)	43 (30 to 60)
10.7 (7 to 16)	11 Lower respiratory infections		11 Anxiety disorders	10.4 (3 to 23)	89 (-38 to 544)
11.7 (8 to 15)	12 COPD		12 Road injury	12.8 (9 to 16)	-24 (-36 to -9)
13.5 (11 to 16)	13 Breast cancer	L'Air	13 Drug use disorders	13.8 (9 to 18)	38 (-9 to 109)
16.1 (10 to 22)	14 Drug use disorders	in The	14 Self-harm	13.9 (10 to 20)	-14 (-40 to 5)
16.3 (5 to 30)	15 Migraine		15 Migraine	15.0 (4 to 27)	28 (-46 to 210)
17.6 (14 to 21)	16 Congenital anomalies		16 Diabetes	15.9 (7 to 24)	76 (-17 to 249)
17.9 (4 to 39)	17 Anxiety disorders	K. K.	17 Colorectal cancer	17.5 (14 to 21)	18 (6 to 43)
18.2 (15 to 22)	18 Colorectal cancer	H.T.Y	18 Alcohol use disorders	18.9 (12 to 28)	11 (-35 to 108)
18.5 (11 to 29)	19 Alcohol use disorders	- Xi	19 Asthma	19.8 (12 to 32)	13 (-15 to 51)
19.6 (12 to 28)	20 Asthma	HTY	20 Breast cancer	20.0 (17 to 24)	-23 (-31 to -11)
21.4 (16 to 28)	21 Preterm birth complications		21 Osteoarthritis	21.1 (14 to 31)	51 (10 to 107)
21.6 (17 to 30)	22 Stomach cancer		22 Prostate cancer	22.3 (15 to 34)	37 (6 to 85)
23.3 (16 to 32)	23 Alzheimer's disease		23 Lower respiratory infections	24.6 (15 to 32)	-56 (-65 to 13)
23.4 (12 to 36)	24 Diabetes		24 Schizophrenia	24.9 (17 to 36)	42 (-2 to 101)
26.5 (18 to 40)	25 Prostate cancer		25 Other cardio & circulatory	26.7 (22 to 32)	22 (4 to 45)
	26 Osteoarthritis		35 Congenital anomalies		
	27 Other cardio & circulatory		37 Preterm birth complications		
	28 Schizophrenia	Y `	43 Stomach cancer		

Shifts in top 25 causes of DALYs, Iceland, 1990-2010

Communicable, maternal, neonatal, and nutritional

Injuries

Non-communicable

IRELAND

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, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Ireland were low back pain, major depressive disorder, neck pain, other musculoskeletal disorders, and falls.

In Ireland, the top three causes of disability-adjusted life years (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.

Of the 25 most important causes of burden, as measured by DALYs, ischemic heart disease showed the largest decrease, falling by 40% from 1990 to 2010.

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

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease	<u> </u>	1 Ischemic heart disease	1.5 (1 to 2)	-40 (-45 to -27)
2.3 (2 to 4)	2 Low back pain		2 Low back pain	1.6 (1 to 2)	35 (-37 to 203)
2.9 (2 to 4)	3 Stroke		3 Major depressive disorder	3.8 (3 to 8)	83 (36 to 146)
3.9 (3 to 5)	4 COPD		4 COPD	5.1 (3 to 9)	-15 (-24 to -3)
5.5 (5 to 7)	5 Road injury	l. /```	5 Stroke	6.0 (3 to 9)	-32 (-39 to -21)
5.8 (4 to 8)	6 Lung cancer	1 / ·	6 Falls	6.5 (3 to 10)	50 (32 to 70)
8.0 (6 to 11)	7 Lower respiratory infections	1.7-	7 Lung cancer	6.8 (4 to 12)	6 (-22 to 16)
9.8 (6 to 17)	8 Major depressive disorder	× ×	8 Neck pain	7.8 (3 to 14)	35 (2 to 82)
10.0 (5 to 17)	9 Neck pain	The states of th	9 Other musculoskeletal	8.6 (4 to 14)	47 (-3 to 114)
10.3 (7 to 16)	10 Falls		10 Road injury	10.7 (7 to 15)	-20 (-34 to 5)
12.2 (7 to 18)	11 Other musculoskeletal		11 Drug use disorders	12.4 (8 to 17)	102 (62 to 147)
12.4 (9 to 16)	12 Colorectal cancer	· /	12 Self-harm	12.5 (9 to 20)	40 (-6 to 54)
13.2 (10 to 18)	13 Congenital anomalies	1 ···· A	13 Diabetes	13.8 (5 to 21)	23 (-35 to 135)
14.8 (7 to 21)	14 Diabetes		14 Colorectal cancer	14.4 (11 to 18)	7 (-3 to 33)
15.0 (8 to 22)	15 Asthma		15 Anxiety disorders	15.9 (9 to 22)	21 (-20 to 81)
15.2 (9 to 19)	16 Self-harm		16 Lower respiratory infections	16.6 (12 to 20)	-26 (-37 to -13)
16.0 (13 to 19)	17 Breast cancer	. 1. /	17 Migraine	16.7 (4 to 28)	32 (-44 to 200)
16.4 (9 to 22)	18 Anxiety disorders	L'ANNI	18 Alzheimer's disease	17.3 (12 to 22)	92 (32 to 175)
18.6 (7 to 30)	19 Migraine		19 Asthma	17.5 (10 to 27)	1 (-17 to 24)
19.7 (17 to 24)	20 Preterm birth complications	./ X [*]	20 Breast cancer	17.7 (15 to 20)	6 (-4 to 15)
21.3 (19 to 24)	21 Other cardio & circulatory	1. 1.	21 Alcohol use disorders	20.4 (14 to 28)	75 (1 to 196)
21.5 (18 to 26)	22 Drug use disorders	***	22 Congenital anomalies	21.9 (19 to 25)	-32 (-40 to -12)
24.5 (22 to 27)	23 Chronic kidney disease		23 Other cardio & circulatory	24.4 (21 to 28)	-2 (-16 to 16)
24.9 (20 to 29)	24 Stomach cancer	1. /	24 Chronic kidney disease	24.7 (22 to 28)	17 (5 to 32)
25.0 (20 to 30)	25 Alzheimer's disease	7	25 Preterm birth complications	27.9 (22 to 34)	-27 (-43 to 6)
	26 Alcohol use disorders	Y	35 Stomach cancer]	

Shifts in top 25 causes of DALYs, Ireland, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank
----- Descending order in rank

Injuries

Non-communicable

ITALY

In terms of the number of years of life lost (YLLs) due to premature death in Italy, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Italy were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Italy, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was other musculoskeletal disorders.

Of the 25 most important causes of burden, as measured by DALYs, cirrhosis of the liver showed the largest decrease, falling by 38% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Italy were dietary risks, high blood pressure, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease	}	1 Ischemic heart disease	1.2 (1 to 2)	-21 (-27 to -10)
2.4 (2 to 3)	2 Stroke	·	2 Low back pain	1.8 (1 to 3)	14 (-11 to 44)
2.6 (2 to 3)	3 Low back pain	·····	3 Stroke	3.1 (3 to 4)	-26 (-32 to -7)
4.5 (4 to 6)	4 Lung cancer	ŀ., _	4 Major depressive disorder	4.4 (3 to 7)	12 (-16 to 52)
5.3 (4 to 6)	5 Road injury		5 Falls	5.5 (4 to 9)	31 (15 to 48)
5.5 (4 to 9)	6 Major depressive disorder	× ×.	6 Lung cancer	5.9 (4 to 10)	-13 (-28 to -5)
7.4 (6 to 10)	7 Diabetes	\rightarrow	7 Diabetes	7.0 (5 to 10)	8 (-5 to 22)
8.7 (6 to 13)	8 Falls		8 Neck pain	9.3 (5 to 13)	11 (-1 to 25)
9.1 (7 to 12)	9 COPD		9 Other musculoskeletal	9.3 (7 to 12)	20 (10 to 31)
10.2 (6 to 15)	10 Neck pain	·	10 COPD	9.6 (6 to 13)	3 (-5 to 12)
10.7 (8 to 13)	11 Cirrhosis		11 Alzheimer's disease	10.8 (8 to 14)	120 (71 to 165)
11.4 (9 to 14)	12 Other musculoskeletal	Y. /	12 Road injury	11.3 (8 to 14)	-36 (-44 to -23)
13.9 (12 to 16)	13 Colorectal cancer	\vdash	13 Colorectal cancer	12.4 (10 to 14)	20 (3 to 32)
14.8 (10 to 20)	14 Migraine		14 Migraine	14.8 (11 to 22)	0 (-20 to 26)
15.4 (13 to 18)	15 Breast cancer	<u>├─────────────────────────────────</u>	15 Breast cancer	15.6 (14 to 18)	-5 (-14 to 6)
15.6 (11 to 19)	16 Stomach cancer	$1 \sim 1$	16 Other cardio & circulatory	17.0 (14 to 21)	24 (4 to 46)
15.6 (11 to 20)	17 Drug use disorders	Fin-L.	17 Cirrhosis	17.6 (14 to 21)	-38 (-43 to -20)
19.0 (16 to 23)	18 Hypertensive heart disease		18 Drug use disorders	18.4 (14 to 24)	-16 (-32 to 2)
19.2 (14 to 26)	19 Anxiety disorders	-K-S	19 Hypertensive heart disease	18.8 (15 to 23)	2 (-13 to 19)
20.4 (17 to 25)	20 Other cardio & circulatory	1	20 Anxiety disorders	19.0 (14 to 26)	2 (-16 to 23)
22.4 (19 to 29)	21 Alzheimer's disease	Ý `	21 Chronic kidney disease	22.6 (20 to 26)	18 (3 to 31)
23.4 (18 to 29)	22 Self-harm	k /	22 Stomach cancer	22.7 (17 to 28)	-34 (-43 to -26)
23.7 (20 to 28)	23 Congenital anomalies	X /	23 Pancreatic cancer	24.7 (19 to 32)	27 (6 to 41)
24.0 (17 to 34)	24 Asthma	X //	24 Liver cancer	25.3 (21 to 30)	6 (-8 to 32)
25.1 (20 to 31)	25 Preterm birth complications	_`X-`	25 Asthma	26.7 (18 to 41)	-11 (-23 to 3)
	26 Chronic kidney disease		28 Self-harm		
	27 Liver cancer	Y/	35 Congenital anomalies		
	29 Pancreatic cancer	Y `	45 Preterm birth complications]	

Shifts in top 25 causes of DALYs, Italy, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

LATVIA

In terms of the number of years of life lost (YLLs) due to premature death in Latvia, ischemic heart disease; cerebrovascular disease, or stroke; and cardiomyopathy and myocarditis were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Latvia were low back pain, major depressive disorder, other musculoskeletal disorders, neck pain, and diabetes.

In Latvia, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were cardiomyopathy and myocarditis, HIV/AIDS, and diabetes.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 62% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Latvia were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were iron deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-23 (-26 to -14)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 2)	-26 (-29 to -20)
3.5 (3 to 5)	3 Road injury	ŀ	3 Low back pain	3.5 (3 to 7)	-8 (-57 to 115)
4.5 (3 to 10)	4 Low back pain	i.	4 Major depressive disorder	4.1 (3 to 8)	-7 (-44 to 58)
5.5 (3 to 10)	5 Major depressive disorder		5 Cardiomyopathy	5.5 (4 to 9)	38 (-5 to 62)
5.7 (4 to 8)	6 Self-harm	h. it	6 Lung cancer	7.5 (5 to 11)	-30 (-36 to -9)
7.0 (5 to 11)	7 Lung cancer	hin the	7 Alcohol use disorders	8.3 (4 to 14)	-23 (-45 to 13)
8.2 (5 to 15)	8 Alcohol use disorders	-	8 Road injury	8.8 (5 to 12)	-62 (-69 to -42)
9.8 (8 to 15)	9 Congenital anomalies	l X.	9 HIV/AIDS	9.2 (5 to 14)	5,305 (740 to 29210)
10.7 (8 to 15)	10 Falls	k. / `. !	10 Diabetes	9.7 (4 to 16)	13 (-41 to 108)
11.6 (7 to 16)	11 Stomach cancer	1: 71	11 Self-harm	9.7 (5 to 14)	-44 (-51 to -21)
12.9 (8 to 18)	12 COPD	FS/ / [*	12 Falls	11.0 (7 to 15)	-19 (-29 to -5)
13.1 (9 to 17)	13 Drowning		13 Other musculoskeletal	13.9 (8 to 20)	-7 (-38 to 41)
13.8 (9 to 18)	14 Cardiomyopathy	MANNA /	14 Colorectal cancer	15.2 (12 to 19)	2 (-9 to 15)
15.8 (8 to 25)	15 Diabetes	rxxh	15 Neck pain	15.7 (9 to 24)	-9 (-32 to 23)
16.8 (10 to 23)	16 Rheumatic heart disease	XX	16 COPD	16.4 (11 to 23)	-35 (-50 to -16)
17.3 (11 to 24)	17 Other musculoskeletal	K.X.	17 Osteoarthritis	19.4 (12 to 30)	1 (-37 to 63)
18.9 (11 to 27)	18 Neck pain	$K \times K$	18 Cirrhosis	19.8 (14 to 32)	84 (-29 to 109)
19.3 (15 to 27)	19 Interpersonal violence	I. X ¥ //	19 Stomach cancer	19.9 (14 to 28)	-48 (-56 to -38)
19.6 (15 to 24)	20 Lower respiratory infections		20 Lower respiratory infections	21.7 (16 to 30)	-24 (-51 to -7)
21.0 (17 to 25)	21 Colorectal cancer	Y `//	21 Breast cancer	21.9 (18 to 26)	-15 (-24 to -4)
24.0 (16 to 32)	22 Iron-deficiency anemia	- J.	22 Drug use disorders	22.9 (13 to 31)	-6 (-33 to 41)
24.3 (21 to 28)	23 Breast cancer	1-1-1	23 Migraine	23.4 (9 to 42)	-9 (-63 to 116)
25.4 (20 to 31)	24 Neonatal encephalopathy		24 Iron-deficiency anemia	25.3 (16 to 35)	-26 (-32 to -18)
25.6 (16 to 36)	25 Osteoarthritis		25 Interpersonal violence	25.4 (18 to 33)	-40 (-50 to -24)
	27 Migraine		26 Drowning		
	28 Drug use disorders		28 Rheumatic heart disease		
	35 Cirrhosis		31 Congenital anomalies		
	123 HIV/AIDS	y `	47 Neonatal encephalopathy		

Shifts in top 25 causes of DALYs, Latvia, 1990–2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

LITHUANIA

In terms of the number of years of life lost (YLLs) due to premature death in Lithuania, ischemic heart disease; cerebrovascular disease, or stroke; and self-harm were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Lithuania were low back pain, major depressive disorder, other musculoskeletal disorders, neck pain, and diabetes.

In Lithuania, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke, and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were cirrhosis of the liver and falls.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 44% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Lithuania were dietary risks, high blood pressure, and alcohol use. The leading risk factors for children under 5 and adults aged 15 to 49 years were iron deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-13 (-16 to -2)
2.1 (2 to 3)	2 Stroke		2 Stroke	2.2 (2 to 3)	-1 (-22 to 8)
3.9 (3 to 6)	3 Road injury	l	3 Low back pain	3.5 (2 to 7)	4 (-51 to 122)
4.7 (2 to 10)	4 Low back pain	1.	4 Self-harm	4.0 (3 to 6)	-6 (-25 to 6)
5.0 (3 to 7)	5 Self-harm		5 Alcohol use disorders	6.3 (3 to 10)	-22 (-46 to 56)
6.0 (3 to 10)	6 Major depressive disorder	<u> </u>	6 Major depressive disorder	6.3 (3 to 12)	-20 (-53 to 32)
6.8 (4 to 12)	7 Alcohol use disorders		7 Road injury	6.8 (5 to 9)	-44 (-53 to -25)
7.9 (6 to 10)	8 COPD	}	8 Cirrhosis	9.0 (5 to 19)	215 (-8 to 260)
8.4 (6 to 11)	9 Lung cancer	<u> </u>	9 Lung cancer	9.2 (5 to 12)	-23 (-31 to 7)
10.1 (8 to 12)	10 Congenital anomalies	1 int	10 Falls	9.3 (6 to 12)	3 (-11 to 20)
11.2 (9 to 14)	11 Falls	F. I.	11 COPD	11.0 (7 to 14)	-35 (-46 to -21)
12.4 (8 to 16)	12 Stomach cancer		12 Diabetes	13.7 (6 to 24)	11 (-45 to 124)
13.3 (11 to 16)	13 Drowning	Kii K	13 Other musculoskeletal	13.8 (10 to 21)	2 (-34 to 53)
15.4 (11 to 21)	14 Other musculoskeletal		14 Cardiomyopathy	14.7 (11 to 19)	65 (20 to 93)
16.1 (11 to 24)	15 Neck pain	+X + +	15 Neck pain	15.3 (10 to 24)	-1 (-28 to 34)
16.6 (10 to 27)	16 Diabetes	Y N/L	16 Colorectal cancer	16.2 (13 to 21)	17 (5 to 30)
19.3 (14 to 28)	17 Iron-deficiency anemia		17 Osteoarthritis	20.1 (11 to 30)	12 (-30 to 88)
19.4 (15 to 26)	18 Interpersonal violence		18 Interpersonal violence	20.3 (14 to 28)	-2 (-27 to 19)
19.9 (16 to 24)	19 Colorectal cancer	$(\langle \langle \rangle \rangle \rangle \rangle \langle \langle \rangle \rangle \rangle$	19 Drug use disorders	20.7 (13 to 28)	44 (-14 to 113)
20.9 (18 to 24)	20 Breast cancer		20 Drowning	21.0 (15 to 26)	-40 (-47 to -25)
21.3 (16 to 26)	21 Lower respiratory infections		21 Lower respiratory infections	21.1 (15 to 30)	18 (-42 to 39)
23.4 (11 to 46)	22 Migraine		22 Stomach cancer	21.3 (15 to 29)	-43 (-55 to -34)
23.5 (15 to 38)	23 Osteoarthritis	Y 11-7-52	23 Other cardio & circulatory	22.3 (16 to 28)	75 (36 to 115)
24.6 (21 to 30)	24 Rheumatic heart disease		24 Migraine	22.7 (10 to 39)	-4 (-60 to 140)
26.7 (19 to 35)	25 Preterm birth complications	M-1 / N	25 Breast cancer	23.6 (18 to 28)	-10 (-19 to 6)
	26 Cardiomyopathy	××× *	26 Iron-deficiency anemia]	
	27 Cirrhosis		32 Congenital anomalies]	
	30 Drug use disorders		45 Rheumatic heart disease]	
	39 Other cardio & circulatory	Y `	54 Preterm birth complications		

Shifts in top 25 causes of DALYs, Lithuania, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

LUXEMBOURG

In terms of the number of years of life lost (YLLs) due to premature death in Luxembourg, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Luxembourg were low back pain, major depressive disorder, neck pain, falls, and other musculoskeletal disorders.

In Luxembourg, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, ischemic heart disease, and major depressive disorder. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were neck pain and other musculoskeletal disorders.

Of the 25 most important causes of burden, as measured by DALYs, cerebrovascular disease, or stroke, showed the largest decrease, falling by 38% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Luxembourg were dietary risks, tobacco smoking, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.1 (1 to 2)	1 Ischemic heart disease	/	1 Low back pain	1.7 (1 to 3)	33 (-42 to 180)
2.5 (2 to 3)	2 Stroke		2 Ischemic heart disease	1.7 (1 to 3)	-24 (-30 to -16)
2.6 (1 to 6)	3 Low back pain	L	3 Major depressive disorder	2.9 (1 to 6)	55 (-6 to 157)
5.0 (3 to 8)	4 Major depressive disorder	· · · ·	4 Stroke	4.3 (3 to 6)	-38 (-45 to -16)
5.0 (4 to 6)	5 Road injury	ŀ. /	5 Falls	6.2 (4 to 9)	43 (22 to 64)
5.2 (4 to 7)	6 Lung cancer	\vdash	6 Lung cancer	6.4 (4 to 11)	-4 (-25 to 13)
7.4 (6 to 10)	7 COPD	\vdash	7 COPD	7.1 (4 to 10)	15 (-4 to 43)
9.1 (6 to 14)	8 Falls		8 Neck pain	9.0 (4 to 16)	35 (2 to 80)
10.1 (7 to 17)	9 Self-harm		9 Other musculoskeletal	9.8 (6 to 15)	33 (-10 to 102)
11.1 (9 to 14)	10 Other cardio & circulatory		10 Road injury	10.2 (7 to 14)	-32 (-43 to -15)
11.9 (7 to 18)	11 Neck pain		11 Anxiety disorders	13.1 (3 to 27)	61 (-54 to 403)
12.9 (8 to 18)	12 Other musculoskeletal	\sim	12 Alzheimer's disease	13.2 (8 to 19)	71 (23 to 139)
13.1 (10 to 17)	13 Cirrhosis	I. XA	13 Colorectal cancer	13.7 (10 to 18)	5 (-10 to 37)
13.4 (10 to 17)	14 Colorectal cancer	Fr. M.	14 Other cardio & circulatory	14.1 (10 to 18)	-6 (-17 to 9)
14.3 (7 to 20)	15 Diabetes	ŀ-¥_X∠	15 Drug use disorders	14.8 (10 to 20)	52 (22 to 92)
15.7 (13 to 18)	16 Breast cancer	1.1.	16 Diabetes	16.1 (7 to 24)	1 (-46 to 97)
18.2 (6 to 34)	17 Anxiety disorders	r: A. S	17 Alcohol use disorders	16.9 (9 to 23)	41 (-12 to 117)
19.1 (16 to 23)	18 Drug use disorders	Y/XXX	18 Self-harm	17.3 (12 to 22)	-26 (-38 to 11)
19.4 (13 to 26)	19 Alcohol use disorders	H ij	19 Migraine	18.5 (7 to 31)	28 (-46 to 214)
19.5 (16 to 24)	20 Alzheimer's disease		20 Cirrhosis	18.6 (15 to 22)	-17 (-26 to -7)
19.9 (9 to 33)	21 Migraine		21 Breast cancer	19.8 (16 to 23)	-11 (-24 to 6)
23.8 (20 to 28)	22 Lower respiratory infections	ŀ /	22 Pancreatic cancer	24.8 (20 to 31)	36 (12 to 67)
24.5 (19 to 31)	23 Asthma	1	23 Chronic kidney disease	25.0 (22 to 29)	30 (15 to 49)
24.9 (21 to 33)	24 Congenital anomalies		24 Lower respiratory infections	25.2 (21 to 32)	21 (-26 to 52)
25.9 (21 to 33)	25 Stomach cancer	N. K	25 Brain cancer	26.4 (10 to 36)	19 (-52 to 118)
	26 Brain cancer	Mr.	28 Asthma		
	27 Chronic kidney disease	Y/ - N	39 Stomach cancer		
	28 Pancreatic cancer	Ý `	52 Congenital anomalies		
Communical	ble maternal neonatal and nutritional			Asi	ending order in rank

Shifts in top 25 causes of DALYs, Luxembourg, 1990-2010

Communicable, maternal, neonatal, and nutritional

51

Injuries

⁻⁻⁻⁻⁻ Descending order in rank

MALTA

In terms of the number of years of life lost (YLLs) due to premature death in Malta, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Malta were low back pain, major depressive disorder, neck pain, falls, and other musculoskeletal disorders.

In Malta, the top three causes of disability-adjusted life years (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.

Of the 25 most important causes of burden, as measured by DALYs, congenital anomalies showed the largest decrease, falling by 44% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Malta were dietary risks, high body mass index, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and dietary risks, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 2)	1 Ischemic heart disease		1 Ischemic heart disease	1.3 (1 to 2)	-8 (-14 to 8)
2.2 (1 to 4)	2 Low back pain		2 Low back pain	2.0 (1 to 3)	29 (-41 to 185)
3.5 (2 to 4)	3 Stroke		3 Major depressive disorder	3.0 (2 to 5)	43 (-15 to 135)
3.5 (2 to 5)	4 Major depressive disorder	····	4 Stroke	4.2 (3 to 6)	-3 (-11 to 19)
5.7 (5 to 9)	5 Diabetes	} /	5 Falls	6.5 (4 to 10)	62 (41 to 84)
8.0 (5 to 14)	6 Neck pain	l	6 Diabetes	7.0 (5 to 10)	22 (5 to 48)
8.9 (5 to 14)	7 COPD		7 Lung cancer	8.2 (5 to 12)	45 (22 to 63)
9.2 (6 to 12)	8 Congenital anomalies		8 COPD	8.2 (5 to 12)	38 (10 to 74)
9.3 (6 to 14)	9 Falls	K.	9 Neck pain	8.5 (4 to 14)	26 (-5 to 68)
9.5 (6 to 15)	10 Lung cancer		10 Other musculoskeletal	9.1 (5 to 13)	35 (-11 to 108)
9.6 (5 to 15)	11 Other musculoskeletal	L'	11 Anxiety disorders	12.0 (4 to 25)	41 (-55 to 326)
13.0 (10 to 16)	12 Breast cancer		12 Colorectal cancer	12.1 (10 to 16)	91 (64 to 111)
13.7 (10 to 17)	13 Preterm birth complications	175-	13 Alzheimer's disease	13.9 (10 to 20)	193 (75 to 344)
13.9 (4 to 28)	14 Anxiety disorders	K \ 7-1	14 Breast cancer	14.8 (12 to 18)	5 (-4 to 16)
14.2 (10 to 17)	15 Road injury	$\rightarrow \rightarrow $	15 Road injury	15.6 (12 to 19)	9 (-7 to 28)
15.8 (5 to 30)	16 Migraine	$ \land \land$	16 Drug use disorders	16.8 (13 to 21)	35 (6 to 70)
17.9 (11 to 22)	17 Chronic kidney disease	1.11.1	17 Lower respiratory infections	16.9 (13 to 22)	43 (-4 to 78)
18.3 (14 to 23)	18 Drug use disorders		18 Migraine	16.9 (7 to 30)	12 (-50 to 168)
18.9 (16 to 22)	19 Lower respiratory infections		19 Chronic kidney disease	16.9 (9 to 21)	27 (-20 to 127)
19.0 (16 to 22)	20 Colorectal cancer	Y V	20 Congenital anomalies	21.8 (18 to 25)	-44 (-52 to -32)
19.6 (13 to 27)	21 Asthma	FK .	21 Pancreatic cancer	22.2 (18 to 28)	70 (46 to 97)
23.3 (20 to 27)	22 Other cardio & circulatory	ŀ / \`-≁	22 Asthma	22.5 (15 to 33)	2 (-15 to 26)
24.7 (16 to 36)	23 Alcohol use disorders	1.7-1/	23 Osteoarthritis	23.7 (15 to 37)	54 (-3 to 145)
25.9 (21 to 32)	24 Stomach cancer	1.1.17	24 Other cardio & circulatory	26.2 (22 to 31)	3 (-12 to 26)
26.1 (17 to 36)	25 Other hearing loss	File Kin	25 Schizophrenia	27.1 (19 to 40)	24 (-12 to 81)
	26 Schizophrenia	HAR	26 Alcohol use disorders		
	28 Osteoarthritis	M/\sim	28 Other hearing loss		
	29 Alzheimer's disease		30 Preterm birth complications		
	30 Pancreatic cancer	Ý `	33 Stomach cancer		

Shifts in top 25 causes of DALYs, Malta, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank
----- Descending order in rank

52

Non-communicable

NETHERLANDS

In terms of the number of years of life lost (YLLs) due to premature death in the Netherlands, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in the Netherlands were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In the Netherlands, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, major depressive disorder, and ischemic heart disease. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was colon and rectum cancers.

Of the 25 most important causes of burden, as measured by DALYs, ischemic heart disease showed the largest decrease, falling by 43% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in the Netherlands were tobacco smoking, dietary risks, and high blood pressure. The leading risk factor for both children under 5 and adults aged 15 to 49 years was tobacco smoking in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease	·	1 Low back pain	1.4 (1 to 3)	18 (2 to 37)
2.2 (2 to 3)	2 Low back pain		2 Major depressive disorder	2.1 (1 to 3)	31 (2 to 71)
3.1 (2 to 5)	3 Major depressive disorder	· · · ·	3 Ischemic heart disease	2.5 (1 to 3)	-43 (-47 to -22)
4.1 (3 to 5)	4 Stroke	h.,	4 Lung cancer	4.2 (4 to 6)	14 (-10 to 25)
4.8 (3 to 6)	5 Lung cancer		5 COPD	5.3 (4 to 7)	14 (6 to 23)
6.0 (5 to 7)	6 COPD	· · · ·	6 Stroke	6.1 (4 to 8)	-20 (-28 to -7)
7.6 (7 to 9)	7 Road injury		7 Falls	7.0 (4 to 10)	46 (27 to 66)
9.4 (7 to 15)	8 Neck pain	È.	8 Neck pain	9.1 (6 to 14)	17 (5 to 29)
9.6 (7 to 14)	9 Falls		9 Other musculoskeletal	9.3 (6 to 14)	19 (-20 to 81)
10.0 (7 to 15)	10 Other musculoskeletal		10 Colorectal cancer	9.7 (8 to 12)	38 (12 to 49)
11.4 (9 to 15)	11 Diabetes	`. / I	11 Alzheimer's disease	10.5 (8 to 16)	147 (54 to 212)
11.9 (9 to 14)	12 Breast cancer	- Kit	12 Anxiety disorders	13.1 (9 to 18)	5 (-10 to 24)
12.4 (8 to 17)	13 Anxiety disorders	1.1.	13 Diabetes	13.1 (11 to 16)	-2 (-13 to 18)
13.0 (10 to 15)	14 Colorectal cancer		14 Breast cancer	13.8 (11 to 16)	-2 (-11 to 9)
14.2 (9 to 17)	15 Self-harm		15 Road injury	14.5 (11 to 18)	-29 (-39 to -16)
16.9 (15 to 20)	16 Congenital anomalies	·/	16 Other cardio & circulatory	15.6 (12 to 18)	20 (7 to 35)
17.0 (15 to 19)	17 Other cardio & circulatory	t. T.	17 Lower respiratory infections	17.5 (14 to 21)	39 (-10 to 68)
18.2 (13 to 25)	18 Migraine		18 Self-harm	18.0 (14 to 21)	-16 (-31 to 1)
19.5 (16 to 23)	19 Lower respiratory infections	1	19 Migraine	18.5 (13 to 26)	6 (-14 to 28)
21.7 (18 to 28)	20 Drug use disorders		20 Alcohol use disorders	22.6 (18 to 31)	16 (-13 to 51)
22.1 (18 to 27)	21 Alzheimer's disease	· · · ·	21 Drug use disorders	22.9 (19 to 31)	-1 (-21 to 23)
22.6 (18 to 29)	22 Stomach cancer		22 Pancreatic cancer	24.1 (19 to 33)	39 (15 to 56)
24.6 (18 to 33)	23 Alcohol use disorders		23 Chronic kidney disease	24.5 (21 to 29)	35 (17 to 53)
24.9 (20 to 30)	24 Preterm birth complications	· · · /	24 Asthma	26.1 (19 to 40)	3 (-11 to 20)
25.1 (18 to 38)	25 Asthma	H.	25 Prostate cancer	26.1 (19 to 43)	39 (-2 to 69)
	27 Chronic kidney disease		28 Congenital anomalies		
	28 Pancreatic cancer		32 Stomach cancer		
	32 Prostate cancer	r `	45 Preterm birth complications		

Shifts in top 25 causes of DALYs, Netherlands, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

____ Injuries

NORWAY

In terms of the number of years of life lost (YLLs) due to premature death in Norway, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Norway are low back pain, major depressive disorder, anxiety disorders, neck pain, and falls.

In Norway, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain, ischemic heart disease, and major depressive disorder. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were chronic obstructive pulmonary disease and neck pain.

Of the 25 most important causes of burden, as measured by DALYs, ischemic heart disease showed the largest decrease, falling by 51% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Norway were dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and occupational risks, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Low back pain	1.0 (1 to 1)	17 (-2 to 39)
2.0 (2 to 2)	2 Low back pain		2 Ischemic heart disease	2.0 (2 to 2)	-51 (-54 to -36)
3.0 (3 to 4)	3 Stroke		3 Major depressive disorder	3.1 (3 to 5)	21 (-15 to 77)
4.1 (3 to 6)	4 Major depressive disorder	·····	4 Stroke	4.9 (3 to 8)	-37 (-44 to -26)
7.2 (5 to 13)	5 Falls	}	5 Falls	6.2 (4 to 10)	24 (10 to 41)
8.7 (5 to 15)	6 Diabetes	} /	6 COPD	6.3 (4 to 10)	46 (32 to 72)
8.9 (5 to 13)	7 Lung cancer		7 Diabetes	6.9 (4 to 11)	26 (3 to 53)
9.2 (5 to 14)	8 Road injury	1. 7	8 Lung cancer	8.6 (5 to 15)	27 (-23 to 38)
9.3 (4 to 16)	9 Anxiety disorders	ŀ <u>、</u> _/	9 Anxiety disorders	9.3 (4 to 15)	11 (-21 to 51)
9.6 (5 to 15)	10 Lower respiratory infections		10 Neck pain	10.4 (5 to 16)	19 (5 to 33)
11.4 (5 to 18)	11 Alcohol use disorders	$(X \times Z)$	11 Alzheimer's disease	10.9 (8 to 15)	82 (42 to 122)
11.7 (6 to 16)	12 COPD	YNX /	12 Other musculoskeletal	11.2 (6 to 16)	18 (-20 to 78)
11.7 (6 to 16)	13 Self-harm	\	13 Colorectal cancer	13.4 (10 to 16)	5 (-6 to 14)
11.8 (5 to 17)	14 Neck pain		14 Alcohol use disorders	13.6 (8 to 18)	-7 (-37 to 41)
12.9 (5 to 17)	15 Other musculoskeletal		15 Drug use disorders	13.8 (9 to 18)	58 (7 to 126)
14.0 (9 to 16)	16 Colorectal cancer	Y X	16 Road injury	15.9 (13 to 18)	-26 (-36 to -12)
18.8 (17 to 21)	17 Breast cancer	H. / N	17 Self-harm	16.3 (12 to 19)	-22 (-31 to -0)
18.9 (16 to 22)	18 Alzheimer's disease	Y	18 Lower respiratory infections	18.3 (15 to 21)	-44 (-53 to -8)
19.4 (15 to 25)	19 Asthma		19 Breast cancer	20.3 (18 to 23)	-12 (-20 to -4)
19.5 (14 to 25)	20 Drug use disorders	Y	20 Asthma	20.4 (15 to 28)	-8 (-27 to 18)
19.7 (17 to 22)	21 Congenital anomalies		21 Prostate cancer	21.6 (17 to 30)	9 (-20 to 34)
22.4 (20 to 24)	22 Other cardio & circulatory		22 Other cardio & circulatory	22.1 (20 to 25)	-2 (-14 to 12)
23.2 (17 to 32)	23 Prostate cancer	L.	23 Migraine	22.7 (18 to 30)	12 (-5 to 32)
24.9 (19 to 33)	24 Migraine		24 Pancreatic cancer	25.1 (20 to 31)	14 (-3 to 27)
25.0 (21 to 29)	25 Stomach cancer	۱. <u> </u>	25 Chronic kidney disease	26.8 (23 to 31)	27 (11 to 43)
	27 Pancreatic cancer		30 Congenital anomalies		
	28 Chronic kidney disease		43 Stomach cancer		

Shifts in top 25 causes of DALYs, Norway, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

Ascending order in rank

POLAND

In terms of the number of years of life lost (YLLs) due to premature death in Poland, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Poland were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Poland, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was self-harm.

Of the 25 most important causes of burden, as measured by DALYs, stomach cancer showed the largest decrease, falling by 34% from 1990 to 2010.

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

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	-23 (-28 to -11)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.2 (2 to 3)	-31 (-35 to -14)
3.7 (3 to 9)	3 Low back pain		3 Low back pain	3.0 (2 to 6)	17 (-43 to 150)
4.3 (3 to 7)	4 Lung cancer	}	4 Lung cancer	4.0 (3 to 6)	6 (-9 to 15)
4.9 (3 to 7)	5 Road injury	}	5 Road injury	6.1 (5 to 8)	-18 (-29 to -1)
6.4 (4 to 9)	6 COPD	ŀ /	6 Falls	6.7 (4 to 10)	19 (5 to 38)
7.7 (3 to 14)	7 Major depressive disorder		7 Major depressive disorder	7.7 (4 to 14)	-4 (-41 to 60)
9.3 (7 to 12)	8 Congenital anomalies		8 COPD	8.1 (5 to 12)	-17 (-28 to -1)
9.3 (6 to 13)	9 Falls	K	9 Diabetes	9.6 (4 to 15)	0 (-44 to 74)
9.8 (4 to 15)	10 Diabetes	Hin -	10 Self-harm	9.7 (7 to 14)	9 (-30 to 22)
10.7 (6 to 14)	11 Self-harm		11 Alcohol use disorders	11.7 (7 to 18)	27 (-10 to 72)
11.7 (8 to 16)	12 Preterm birth complications		12 Other musculoskeletal	13.6 (9 to 18)	22 (-23 to 86)
14.3 (11 to 17)	13 Lower respiratory infections		13 Neck pain	14.2 (8 to 20)	12 (-17 to 55)
16.0 (10 to 23)	14 Alcohol use disorders		14 Cirrhosis	14.5 (11 to 20)	52 (-10 to 69)
16.9 (5 to 34)	15 Anxiety disorders		15 Colorectal cancer	14.7 (12 to 18)	40 (13 to 51)
17.1 (11 to 25)	16 Neck pain	Y	16 Anxiety disorders	15.1 (4 to 32)	4 (-63 to 214)
17.2 (14 to 21)	17 Other cardio & circulatory	\mathcal{M}	17 Osteoarthritis	17.3 (11 to 26)	33 (-17 to 116)
17.9 (12 to 26)	18 Other musculoskeletal		18 Migraine	17.6 (6 to 32)	8 (-57 to 166)
19.2 (14 to 25)	19 Stomach cancer	. Art	19 Lower respiratory infections	18.1 (15 to 22)	-23 (-41 to -10)
20.3 (8 to 35)	20 Migraine		20 Other cardio & circulatory	18.9 (16 to 21)	-16 (-27 to -4)
20.5 (14 to 27)	21 Asthma		21 Breast cancer	21.3 (19 to 24)	-0 (-10 to 10)
21.7 (18 to 25)	22 Colorectal cancer		22 Hypertensive heart disease	23.0 (19 to 29)	8 (-9 to 26)
21.8 (15 to 26)	23 Cirrhosis		23 Drug use disorders	24.7 (18 to 35)	20 (-13 to 64)
23.0 (15 to 30)	24 Iron-deficiency anemia		24 Stomach cancer	25.6 (20 to 34)	-34 (-41 to -26)
24.4 (21 to 27)	25 Breast cancer	Y - / X.	25 Cardiomyopathy	25.8 (22 to 30)	14 (-8 to 38)
	26 Osteoarthritis		27 Asthma]	
	27 Hypertensive heart disease		29 Iron-deficiency anemia]	
	29 Cardiomyopathy		31 Congenital anomalies]	
	30 Drug use disorders	Y	35 Preterm birth complications]	

Shifts in top 25 causes of DALYs, Poland, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank
----- Descending order in rank

Injuries

Non-communicable

PORTUGAL

In terms of the number of years of life lost (YLLs) due to premature death in Portugal, cerebrovascular disease, or stroke; ischemic heart disease; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Portugal were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Portugal, the top three causes of disability-adjusted life years (DALYs) in 2010 were low back pain; cerebrovascular disease, or stroke; and ischemic heart disease. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were trachea, bronchus, and lung cancers; neck pain; and colon and rectum cancers.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 51% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Portugal were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Stroke		1 Low back pain	1.7 (1 to 4)	23 (-42 to 147)
2.2 (2 to 3)	2 Ischemic heart disease		2 Stroke	2.0 (1 to 3)	-47 (-51 to -17)
3.2 (2 to 5)	3 Low back pain		3 lschemic heart disease	2.3 (1 to 3)	-26 (-36 to -16)
3.9 (3 to 5)	4 Road injury		4 Diabetes	5.1 (4 to 9)	19 (-28 to 93)
5.2 (3 to 8)	5 Major depressive disorder	\rightarrow	5 Major depressive disorder		-11 (-49 to 48)
6.8 (5 to 12)	6 Diabetes	· · · _	6 Falls	6.3 (4 to 11)	22 (7 to 39)
7.9 (6 to 12)	7 Cirrhosis		7 Road injury		-51 (-58 to -35)
8.9 (6 to 15)	8 Falls	K,	8 Lung cancer	9.6 (6 to 19)	42 (-10 to 57)
10.0 (7 to 14)	9 COPD	N. L	9 Neck pain	9.7 (4 to 17)	16 (-16 to 56)
10.8 (6 to 15)	10 Stomach cancer	1. Start	10 Colorectal cancer	9.9 (7 to 14)	54 (23 to 69)
11.7 (6 to 18)	11 Neck pain	K X.L	11 Other musculoskeletal	9.9 (5 to 16)	25 (-17 to 90)
12.3 (8 to 16)	12 Lower respiratory infections	X.	12 COPD	11.7 (8 to 15)	-3 (-11 to 5)
12.8 (8 to 18)	13 Self-harm		13 Lower respiratory infections	11.9 (7 to 18)	10 (-25 to 30)
13.6 (7 to 19)	14 Other musculoskeletal	1-1.	14 Cirrhosis	14.8 (10 to 18)	-29 (-37 to -7)
14.8 (8 to 18)	15 Lung cancer	$\langle \rangle$	15 Alzheimer's disease	16.6 (10 to 24)	103 (33 to 201)
15.3 (7 to 21)	16 Asthma	1. 7.	16 Self-harm		-18 (-35 to 4)
17.1 (14 to 19)	17 Colorectal cancer	r / ·	17 Stomach cancer	17.4 (12 to 23)	-25 (-34 to -16)
18.7 (16 to 21)	18 Congenital anomalies	it.	18 Anxiety disorders		12 (-66 to 271)
18.8 (6 to 34)	19 Anxiety disorders	i · · ·	19 Asthma	18.9 (10 to 27)	-12 (-24 to 2)
19.7 (17 to 22)	20 Breast cancer		20 Other cardio & circulatory	20.0 (17 to 23)	58 (36 to 75)
20.9 (8 to 34)	21 Migraine		21 Chronic kidney disease	20.4 (16 to 24)	42 (13 to 58)
22.7 (20 to 25)	22 Chronic kidney disease	17:50	22 Migraine	21.3 (8 to 34)	8 (-57 to 149)
22.8 (20 to 29)	23 Preterm birth complications		23 Breast cancer	21.4 (18 to 24)	6 (-6 to 16)
24.8 (22 to 28)	24 Other cardio & circulatory		24 HIV/AIDS	21.9 (18 to 25)	268 (208 to 338)
27.0 (21 to 35)	25 Alzheimer's disease		25 Osteoarthritis	27.0 (18 to 37)	27 (-20 to 100)
	30 Osteoarthritis		42 Congenital anomalies		
	50 HIV/AIDS	Υ``	55 Preterm birth complications		

Shifts in top 25 causes of DALYs, Portugal, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

ROMANIA

In terms of the number of years of life lost (YLLs) due to premature death in Romania, ischemic heart disease; cerebrovascular disease, or stroke; and cirrhosis of the liver were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Romania were low back pain, major depressive disorder, falls, other musculoskeletal disorders, and neck pain.

In Romania, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were trachea, bronchus, and lung cancers and hypertensive heart disease.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 64% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Romania were dietary risks, high blood pressure, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15 to 49 years were household air pollution from solid fuels and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 1)	5 (0 to 11)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.0 (2 to 2)	-3 (-6 to 7)
3.1 (3 to 4)	3 Lower respiratory infections		3 Low back pain	3.3 (3 to 7)	6 (-50 to 138)
4.6 (3 to 9)	4 Low back pain	i.	4 Cirrhosis	4.1 (3 to 6)	21 (-6 to 32)
4.8 (4 to 6)	5 COPD		5 Lung cancer	6.5 (4 to 11)	12 (-11 to 21)
6.4 (5 to 8)	6 Road injury	Fix L	6 Major depressive disorder	7.4 (4 to 13)	-9 (-44 to 55)
7.4 (6 to 9)	7 Cirrhosis		7 Falls	7.6 (4 to 12)	3 (-12 to 21)
8.2 (5 to 13)	8 Major depressive disorder		8 Road injury	8.2 (5 to 11)	-24 (-32 to -12)
9.5 (7 to 12)	9 Congenital anomalies		9 Lower respiratory infections	8.6 (6 to 11)	-64 (-69 to -59)
10.1 (7 to 13)	10 Falls	K/ `>	10 Hypertensive heart disease	9.2 (5 to 13)	52 (7 to 97)
10.2 (7 to 13)	11 Lung cancer		11 COPD	9.3 (5 to 13)	-43 (-53 to -29)
11.4 (9 to 13)	12 Other cardio & circulatory	1-1-	12 Diabetes	13.4 (6 to 19)	6 (-42 to 93)
15.2 (13 to 19)	13 Hypertensive heart disease		13 Other cardio & circulatory	14.1 (12 to 17)	-32 (-40 to -21)
15.6 (9 to 22)	14 Diabetes		14 Other musculoskeletal	14.6 (11 to 19)	9 (-28 to 66)
16.4 (12 to 23)	15 Neck pain		15 Neck pain	14.8 (10 to 20)	1 (-24 to 38)
17.2 (13 to 24)	16 Preterm birth complications		16 Colorectal cancer	16.8 (14 to 21)	59 (10 to 71)
17.3 (13 to 24)	17 Other musculoskeletal	K i f	17 Self-harm	17.2 (13 to 22)	3 (-26 to 13)
18.2 (13 to 24)	18 Stomach cancer		18 Osteoarthritis	17.8 (12 to 26)	16 (-27 to 91)
18.6 (13 to 23)	19 Self-harm	File	19 Migraine	18.2 (7 to 35)	-1 (-62 to 134)
19.9 (9 to 38)	20 Migraine	H.	20 Breast cancer	21.1 (18 to 25)	6 (-3 to 14)
20.7 (14 to 29)	21 Iron-deficiency anemia		21 Stomach cancer	22.1 (18 to 30)	-29 (-39 to -21)
23.4 (14 to 36)	22 Osteoarthritis	K.XA	22 Alcohol use disorders	23.4 (15 to 33)	-12 (-42 to 42)
23.9 (16 to 35)	23 Alcohol use disorders	HTX !	23 Cardiomyopathy	24.6 (21 to 29)	16 (2 to 33)
24.2 (20 to 30)	24 Drowning). // \`-X/	24 Other hearing loss	25.5 (16 to 39)	11 (-8 to 31)
26.3 (20 to 30)	25 Tuberculosis		25 Iron-deficiency anemia	26.1 (19 to 37)	-31 (-35 to -27)
	26 Breast cancer		26 Congenital anomalies		
	28 Colorectal cancer		27Tuberculosis		
	31 Other hearing loss	Y/ ``	37 Drowning		
	33 Cardiomyopathy	Y	44 Preterm birth complications		
· · ·					

Shifts in top 25 causes of DALYs, Romania, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

SLOVAKIA

In terms of the number of years of life lost (YLLs) due to premature death in Slovakia, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Slovakia were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Slovakia, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease; cerebrovascular disease, or stroke; and low back pain. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were colon and rectum cancers and diabetes.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 43% from 1990 to 2010.

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

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 lschemic heart disease	1.0 (1 to 1)	-12 (-15 to -7)
2.0 (2 to 2)	2 Stroke		2 Stroke	2.4 (2 to 3)	-21 (-26 to -14)
3.5 (3 to 6)	3 Low back pain		3 Low back pain	2.6 (2 to 3)	20 (5 to 38)
5.1 (3 to 10)	4 Major depressive disorder	l	4 Lung cancer	5.8 (4 to 9)	-23 (-31 to -2)
5.6 (4 to 9)	5 Lung cancer		5 Road injury	6.6 (4 to 10)	-23 (-33 to -8)
5.8 (4 to 8)	6 Lower respiratory infections		6 Falls	6.8 (4 to 12)	-0 (-18 to 31)
6.0 (4 to 8)	7 Road injury	K X	7 Cirrhosis	6.9 (4 to 10)	-5 (-19 to 6)
8.6 (6 to 11)	8 Cirrhosis	······································	8 Major depressive disorder	7.7 (4 to 16)	-34 (-61 to 11)
9.1 (7 to 12)	9 Falls		9 Colorectal cancer	10.4 (7 to 14)	26 (3 to 38)
11.4 (8 to 16)	10 Self-harm		10 Diabetes	10.5 (4 to 17)	6 (-41 to 95)
12.1 (7 to 19)	11 Diabetes	·····	11 COPD	11.5 (5 to 17)	22 (-9 to 60)
13.3 (3 to 26)	12 Anxiety disorders		12 Lower respiratory infections	11.8 (9 to 16)	-43 (-50 to -30)
14.0 (11 to 18)	13 Congenital anomalies	$\langle \times \rangle^{\sim}$	13 Self-harm	13.6 (9 to 18)	-11 (-32 to 9)
14.5 (11 to 18)	14 Colorectal cancer	KX. –	14 Neck pain	14.2 (7 to 20)	17 (-14 to 58)
15.2 (10 to 22)	15 COPD		15 Other musculoskeletal	14.2 (8 to 19)	25 (-16 to 92)
16.1 (12 to 21)	16 Preterm birth complications	$\langle \mathbf{y} \rangle \langle \mathbf{y} \rangle$	16 Other cardio & circulatory	16.6 (14 to 19)	
17.5 (11 to 25)	17 Neck pain		17 Migraine	16.8 (5 to 32)	8 (-53 to 159)
18.3 (15 to 22)	18 Other cardio & circulatory		18 Anxiety disorders	17.0 (4 to 35)	-24 (-77 to 126)
18.6 (12 to 24)	19 Other musculoskeletal		19 Osteoarthritis	17.7 (11 to 24)	33 (-14 to 109)
19.5 (9 to 31)	20 Migraine		20 Alcohol use disorders	19.9 (16 to 25)	-9 (-33 to 27)
19.6 (12 to 24)	21 Stomach cancer		21 Breast cancer	20.6 (18 to 23)	4 (-6 to 15)
20.8 (14 to 26)	22 Alcohol use disorders		22 Pancreatic cancer	25.9 (20 to 35)	21 (3 to 41)
23.6 (21 to 27)	23 Chronic kidney disease	/ / . / .	23 Stomach cancer	26.0 (20 to 35)	-38 (-48 to -29)
24.2 (17 to 31)	24 Iron-deficiency anemia	1. 175-	24 Chronic kidney disease	26.7 (20 to 33)	-25 (-35 to 5)
24.3 (15 to 31)	25 Osteoarthritis	1-1-14	25 Hypertensive heart disease	27.5 (21 to 34)	11 (-13 to 34)
	26 Breast cancer		26 Iron-deficiency anemia]	
	28 Hypertensive heart disease		27 Congenital anomalies		
	29 Pancreatic cancer	Y '	29 Preterm birth complications		

Shifts in top 25 causes of DALYs, Slovakia, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

SLOVENIA

In terms of the number of years of life lost (YLLs) due to premature death in Slovenia, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Slovenia were low back pain, major depressive disorder, falls, other musculoskeletal disorders, and neck pain.

In Slovenia, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke.

Of the 25 most important causes of burden, as measured by DALYs, road injury and selfharm showed the largest decrease, falling by 41% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Slovenia were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were iron deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)		-		Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease]	1 Ischemic heart disease	1.2 (1 to 2)	-29 (-33 to -21)
2.0 (2 to 2)	2 Stroke		2 Low back pain	2.0 (1 to 3)	19 (2 to 38)
3.5 (3 to 6)	3 Low back pain	·····	3 Stroke	2.9 (2 to 4)	-36 (-41 to -25)
4.2 (3 to 6)	4 Road injury	}. /	4 Falls	4.8 (4 to 7)	26 (10 to 44)
5.0 (3 to 8)	5 Self-harm	k / /	5 Lung cancer	5.8 (4 to 10)	0 (-27 to 11)
6.7 (5 to 9)	6 Cirrhosis		6 Major depressive disorder	6.1 (3 to 13)	-3 (-44 to 59)
7.0 (3 to 11)	7 Major depressive disorder	1	7 Road injury	8.4 (6 to 12)	-41 (-51 to -22)
7.4 (4 to 10)	8 Lung cancer	\mathbf{V}	8 Self-harm	8.7 (4 to 13)	-41 (-47 to -5)
9.0 (7 to 11)	9 Falls	r i	9 COPD	9.1 (5 to 14)	-1 (-20 to 31)
10.0 (7 to 12)	10 COPD	· · ·	10 Cirrhosis	10.1 (7 to 14)	-32 (-41 to -23)
12.9 (8 to 21)	11 Diabetes]	11 Diabetes	10.5 (5 to 16)	19 (-37 to 122)
14.0 (11 to 18)	12 Colorectal cancer]	12 Colorectal cancer	12.2 (10 to 15)	28 (1 to 43)
15.5 (11 to 22)	13 Stomach cancer		13 Other musculoskeletal	13.1 (8 to 17)	20 (-18 to 77)
15.7 (11 to 23)	14 Other musculoskeletal	<u> </u>	14 Neck pain	14.0 (8 to 19)	12 (-19 to 53)
15.9 (11 to 24)	15 Neck pain	H.	15 Osteoarthritis	15.8 (9 to 23)	39 (-15 to 119)
16.2 (12 to 20)	16 Lower respiratory infections		16 Other cardio & circulatory	17.4 (15 to 21)	-9 (-19 to 3)
17.1 (6 to 31)	17 Anxiety disorders	hi /	17 Migraine	17.6 (7 to 30)	1 (-56 to 146)
17.1 (13 to 21)	18 Other cardio & circulatory		18 Breast cancer	18.4 (16 to 22)	-11 (-22 to 1)
18.4 (15 to 21)	19 Breast cancer		19 Anxiety disorders	19.0 (6 to 37)	-15 (-74 to 163)
18.9 (9 to 30)	20 Migraine	Y /	20 Lower respiratory infections	20.4 (17 to 24)	-25 (-35 to -11)
20.7 (14 to 25)	21 Hypertensive heart disease	}/- `~	21 Alcohol use disorders	20.5 (14 to 27)	-0 (-34 to 43)
21.1 (18 to 24)	22 Congenital anomalies		22 Hypertensive heart disease	21.1 (17 to 26)	-14 (-27 to 1)
22.4 (13 to 28)	23 Alcohol use disorders	K i	23 Alzheimer's disease	23.6 (17 to 32)	44 (-3 to 132)
22.5 (13 to 30)	24 Osteoarthritis	Y `. /	24 Stomach cancer	23.9 (19 to 32)	-38 (-56 to -28)
24.3 (21 to 28)	25 Cardiomyopathy	}- <u>/</u> /	25 Pancreatic cancer	26.6 (21 to 34)	38 (6 to 61)
	29 Alzheimer's disease		26 Cardiomyopathy		
	33 Pancreatic cancer		38 Congenital anomalies		

Shifts in top 25 causes of DALYs, Slovenia, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

Injuries

SPAIN

In terms of the number of years of life lost (YLLs) due to premature death in Spain, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Spain were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Spain, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were falls and Alzheimer's disease and other dementias.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 43% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Spain were dietary risks, high body mass index, and tobacco smoking. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 lschemic heart disease	1.0 (1 to 1)	-13 (-17 to -6)
2.0 (2 to 3)	2 Stroke	/	2 Low back pain	2.3 (2 to 5)	26 (12 to 41)
3.6 (3 to 5)	3 Road injury		3 Stroke	3.5 (2 to 6)	-30 (-35 to -6)
3.6 (2 to 6)	4 Low back pain		4 Major depressive disorder	4.4 (2 to 10)	34 (2 to 78)
5.9 (4 to 9)	5 Diabetes	L'	5 Diabetes	5.9 (3 to 10)	13 (-2 to 35)
6.6 (4 to 11)	6 Major depressive disorder		6 Falls	6.9 (3 to 11)	54 (31 to 77)
7.1 (5 to 10)	7 Lung cancer		7 Lung cancer	7.0 (4 to 13)	22 (-13 to 33)
7.5 (5 to 10)	8 COPD		8 Alzheimer's disease	7.8 (4 to 11)	145 (104 to 194)
9.9 (5 to 14)	9 Neck pain	his it	9 Other musculoskeletal	8.6 (4 to 13)	33 (-11 to 101)
10.3 (6 to 14)	10 Other musculoskeletal	Hit.	10 Neck pain	9.3 (4 to 14)	23 (9 to 39)
10.5 (6 to 14)	11 Falls	K / 💱	11 COPD	10.5 (8 to 13)	-4 (-10 to 4)
11.0 (9 to 13)	12 Cirrhosis	k. / `	12 Road injury	11.7 (9 to 14)	-43 (-50 to -29)
14.1 (11 to 19)	13 Drug use disorders	his /	13 Colorectal cancer	13.0 (11 to 15)	47 (28 to 60)
14.6 (12 to 17)	14 Other cardio & circulatory	. 1-2	14 Drug use disorders	14.7 (12 to 18)	
14.6 (10 to 24)	15 Migraine		15 Migraine	14.8 (10 to 21)	14 (-16 to 50)
15.5 (13 to 18)	16 Colorectal cancer		16 Cirrhosis	16.5 (14 to 19)	
17.8 (16 to 21)	17 Breast cancer	H. ``	17 Other cardio & circulatory	16.7 (14 to 20)	-1 (-12 to 10)
19.3 (15 to 24)	18 Alzheimer's disease	· · · · · · /	18 Chronic kidney disease	18.2 (15 to 21)	
19.3 (14 to 26)	19 Stomach cancer		19 Breast cancer	19.6 (18 to 22)	-2 (-9 to 8)
20.2 (16 to 24)	20 Lower respiratory infections		20 Osteoarthritis	20.8 (15 to 30)	34 (14 to 57)
20.5 (16 to 25)	21 Chronic kidney disease	133-1	21 Anxiety disorders	21.7 (16 to 28)	10 (-8 to 30)
22.5 (19 to 27)	22 Congenital anomalies		22 Lower respiratory infections	22.0 (19 to 25)	-9 (-20 to 6)
23.4 (15 to 28)	23 Self-harm	\rightarrow	23 Self-harm	24.1 (20 to 35)	-4 (-37 to 10)
23.6 (16 to 29)	24 Anxiety disorders		24 Stomach cancer	26.7 (21 to 35)	-31 (-38 to -20)
24.3 (21 to 27)	25 HIV/AIDS	1/2 2	25 Schizophrenia	27.1 (18 to 42)	38 (-6 to 107)
	26 Osteoarthritis	Y	35 Congenital anomalies]	
	32 Schizophrenia		43 HIV/AIDS		

Shifts in top 25 causes of DALYs, Spain, 1990-2010

Communicable, maternal, neonatal, and nutritional

Non-communicable

lnjuries

Ascending order in rank

SWEDEN

In terms of the number of years of life lost (YLLs) due to premature death in Sweden, ischemic heart disease; cerebrovascular disease, or stroke; and trachea, bronchus, and lung cancers were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Sweden were low back pain, major depressive disorder, falls, neck pain, and other musculoskeletal disorders.

In Sweden, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and cerebrovascular disease, or stroke. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were Alzheimer's disease and other dementias and diabetes.

Of the 25 most important causes of burden, as measured by DALYs, lower respiratory infections showed the largest decrease, falling by 49% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Sweden were dietary risks, high blood pressure, and high body mass index. The leading risk factors for children under 5 and adults aged 15 to 49 years were zinc deficiency and alcohol use, respectively, in 2010.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease	}	1 Ischemic heart disease	1.4 (1 to 2)	-44 (-46 to -32)
2.0 (2 to 3)	2 Low back pain		2 Low back pain	1.6 (1 to 2)	11 (-3 to 26)
3.0 (2 to 4)	3 Stroke		3 Stroke	3.6 (3 to 5)	-29 (-36 to -19)
4.2 (3 to 7)	4 Major depressive disorder		4 Major depressive disorder	4.3 (3 to 9)	-1 (-39 to 65)
5.8 (4 to 10)	5 Self-harm		5 Falls	5.1 (3 to 8)	28 (11 to 47)
6.6 (4 to 12)	6 Falls	i i	6 Alzheimer's disease	6.8 (5 to 10)	83 (25 to 129)
8.1 (6 to 12)	7 Road injury		7 COPD	7.2 (5 to 10)	30 (19 to 42)
10.1 (5 to 14)	8 Lung cancer	in int	8 Other musculoskeletal	9.0 (5 to 14)	14 (-23 to 72)
10.1 (5 to 17)	9 Other musculoskeletal		9 Diabetes	9.7 (6 to 13)	14 (-1 to 32)
10.3 (6 to 16)	10 COPD	L' L'	10 Lung cancer	9.9 (6 to 16)	17 (-21 to 26)
10.7 (5 to 17)	11 Neck pain	$ \rightarrow $	11 Neck pain	10.0 (5 to 15)	11 (-1 to 25)
11.0 (7 to 15)	12 Diabetes	\mathbf{F}	12 Self-harm	13.0 (8 to 17)	-34 (-39 to -8)
12.2 (8 to 18)	13 Lower respiratory infections	1/i	13 Colorectal cancer	14.3 (11 to 18)	6 (-5 to 15)
15.4 (12 to 19)	14 Colorectal cancer	it it	14 Alcohol use disorders	14.9 (9 to 20)	4 (-20 to 36)
15.8 (9 to 22)	15 Alcohol use disorders	1	15 Road injury	15.2 (11 to 19)	-30 (-42 to -10)
16.0 (9 to 20)	16 Alzheimer's disease		16 Anxiety disorders	16.7 (4 to 32)	16 (-68 to 267)
17.4 (9 to 25)	17 Asthma		17 Migraine	17.2 (12 to 25)	6 (-10 to 24)
18.7 (13 to 26)	18 Migraine		18 Asthma	17.9 (11 to 27)	-4 (-16 to 9)
18.8 (16 to 21)	19 Breast cancer		19 Osteoarthritis	19.4 (12 to 27)	13 (-13 to 47)
19.2 (5 to 38)	20 Anxiety disorders	× × · ·	20 Breast cancer	20.4 (17 to 23)	-12 (-19 to -5)
20.7 (17 to 25)	21 Congenital anomalies		21 Prostate cancer	20.4 (13 to 30)	10 (-15 to 31)
22.1 (14 to 30)	22 Osteoarthritis	K	22 Drug use disorders	21.5 (15 to 27)	24 (-22 to 93)
22.6 (14 to 30)	23 Prostate cancer		23 Other cardio & circulatory	21.7 (18 to 25)	0 (-13 to 15)
22.7 (20 to 25)	24 Other cardio & circulatory		24 Lower respiratory infections	22.9 (16 to 28)	-49 (-59 to -5)
25.5 (18 to 33)	25 Drug use disorders	r in	25 Pancreatic cancer	24.7 (19 to 30)	9 (-9 to 23)
	26 Pancreatic cancer	· · ·	34 Congenital anomalies	1	

Shifts in top 25 causes of DALYs, Sweden, 1990-2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank
----- Descending order in rank

____ Injuries

Non-communicable

61

SWITZERLAND

In terms of the number of years of life lost (YLLs) due to premature death in Switzerland, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in Switzerland were major depressive disorder, low back pain, chronic obstructive pulmonary disease, falls, and neck pain.

In Switzerland, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and major depressive disorder. Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes and other musculoskeletal disorders.

Of the 25 most important causes of burden, as measured by DALYs, road injury showed the largest decrease, falling by 39% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in Switzerland were dietary risks, tobacco smoking, and high blood pressure. The leading risk factors for children under 5 and adults aged 15 to 49 years were tobacco smoking and alcohol use, respectively, in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 Ischemic heart disease		1 Ischemic heart disease	1.0 (1 to 2)	-24 (-30 to -16)
2.6 (2 to 4)	2 Stroke		2 Low back pain	2.8 (2 to 5)	19 (2 to 38)
3.2 (2 to 7)	3 Low back pain	i.	3 Major depressive disorder	2.8 (1 to 6)	54 (-5 to 151)
5.4 (3 to 10)	4 COPD	\rightarrow	4 COPD	4.5 (3 to 8)	14 (0 to 31)
5.9 (2 to 11)	5 Major depressive disorder		5 Falls	4.8 (3 to 7)	23 (9 to 38)
6.2 (4 to 9)	6 Road injury		6 Stroke	6.2 (4 to 9)	-28 (-37 to -10)
6.3 (3 to 9)	7 Self-harm		7 Lung cancer	8.0 (6 to 12)	1 (-20 to 15)
7.3 (4 to 10)	8 Falls		8 Neck pain	8.9 (5 to 14)	21 (-12 to 62)
8.4 (4 to 11)	9 Lung cancer		9 Diabetes	9.3 (4 to 14)	17 (-33 to 104)
11.0 (6 to 15)	10 Neck pain	- it's	10 Other musculoskeletal	9.6 (6 to 14)	21 (-22 to 81)
11.1 (5 to 15)	11 Diabetes	· · ·	11 Self-harm	10.6 (7 to 14)	-29 (-42 to -12)
11.7 (8 to 16)	12 Other musculoskeletal		12 Alzheimer's disease	11.7 (9 to 15)	58 (30 to 93)
12.9 (11 to 15)	13 Breast cancer	h. /	13 Road injury	12.8 (10 to 15)	-39 (-48 to -25)
14.8 (13 to 17)	14 Colorectal cancer		14 Colorectal cancer	15.4 (13 to 18)	-0 (-11 to 16)
17.3 (14 to 21)	15 Alzheimer's disease		15 Breast cancer	15.7 (14 to 18)	-15 (-22 to -2)
17.3 (15 to 22)	16 Congenital anomalies		16 Migraine	17.0 (8 to 30)	9 (-53 to 178)
18.4 (10 to 32)	17 Migraine	-	17 Anxiety disorders	18.0 (6 to 37)	6 (-70 to 246)
18.7 (5 to 35)	18 Anxiety disorders	HT -	18 Drug use disorders	19.8 (15 to 28)	-3 (-37 to 55)
19.0 (16 to 23)	19 Lower respiratory infections	· · ·	19 Asthma	20.3 (14 to 31)	7 (-18 to 43)
20.0 (13 to 28)	20 Drug use disorders	- i	20 Alcohol use disorders	21.2 (16 to 30)	3 (-24 to 41)
21.9 (14 to 31)	21 Asthma		21 Osteoarthritis	21.9 (15 to 34)	28 (-17 to 105)
22.2 (18 to 26)	22 Other cardio & circulatory		22 Lower respiratory infections	22.6 (18 to 29)	-21 (-35 to -2)
22.5 (16 to 30)	23 Alcohol use disorders	··· · /	23 Prostate cancer	23.5 (16 to 35)	4 (-19 to 43)
24.0 (19 to 28)	24 Cirrhosis		24 Other cardio & circulatory	23.9 (18 to 30)	-9 (-28 to 14)
24.8 (17 to 35)	25 Prostate cancer	1	25 Chronic kidney disease	25.8 (20 to 32)	43 (22 to 61)
	27 Osteoarthritis		27 Cirrhosis		
	32 Chronic kidney disease	ľ '	29 Congenital anomalies		

Shifts in top 25 causes of DALYs, Switzerland, 1990–2010

Communicable, maternal, neonatal, and nutritional

Ascending order in rank

Non-communicable

Injuries

UNITED KINGDOM

In terms of the number of years of life lost (YLLs) due to premature death in the United Kingdom, ischemic heart disease; trachea, bronchus, and lung cancers; and cerebrovascular disease, or stroke, were the highest-ranking causes in 2010.

The top five leading causes of years lived with disability (YLDs) in the United Kingdom were low back pain, falls, major depressive disorder, neck pain, and other musculoskeletal disorders.

In the United Kingdom, the top three causes of disability-adjusted life years (DALYs) in 2010 were ischemic heart disease, low back pain, and chronic obstructive pulmonary disease. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were other musculoskeletal disorders, neck pain, and Alzheimer's disease and other dementias.

Of the 25 most important causes of burden, as measured by DALYs, ischemic heart disease showed the largest decrease, falling by 50% from 1990 to 2010.

Overall, the three risk factors that accounted for the most disease burden in the United Kingdom were dietary risks, tobacco smoking, and high blood pressure. The leading risk factor for both children under 5 and adults aged 15 to 49 years was tobacco smoking in 2010. Tobacco smoking as a risk factor for children was due to secondhand smoke exposure.

	1990			2010	
Mean rank (95% UI)				Mean rank (95% UI)	Median % change
1.0 (1 to 1)	1 lschemic heart disease		1 Ischemic heart disease	1.4 (1 to 2)	-50 (-52 to -36)
2.2 (2 to 3)	2 Low back pain		2 Low back pain	1.6 (1 to 2)	12 (2 to 23)
2.9 (2 to 3)	3 Stroke	/	3 COPD	3.6 (3 to 6)	-1 (-10 to 9)
4.1 (3 to 5)	4 Lung cancer		4 Stroke	3.9 (3 to 5)	-37 (-43 to -26)
4.9 (4 to 5)	5 COPD		5 Lung cancer	4.9 (3 to 7)	-24 (-34 to -14)
6.4 (6 to 8)	6 Lower respiratory infections		6 Falls	6.3 (3 to 10)	26 (12 to 41)
8.7 (6 to 14)	7 Falls	Li,	7 Major depressive disorder	8.9 (6 to 15)	9 (-11 to 33)
9.5 (7 to 13)	8 Road injury		8 Other musculoskeletal	9.2 (6 to 15)	21 (-19 to 82)
9.8 (6 to 15)	9 Major depressive disorder	K. N/	9 Neck pain	9.3 (5 to 15)	12 (2 to 26)
10.6 (8 to 13)	10 Breast cancer		10 Alzheimer's disease	10.7 (7 to 15)	80 (24 to 131)
10.8 (6 to 16)	11 Neck pain	KX Y	11 Lower respiratory infections	10.9 (7 to 15)	-23 (-32 to -11)
11.8 (8 to 15)	12 Colorectal cancer		12 Drug use disorders	10.9 (7 to 16)	35 (9 to 64)
12.0 (7 to 18)	13 Other musculoskeletal	1 mile	13 Anxiety disorders	12.8 (7 to 18)	5 (-14 to 31)
13.1 (7 to 18)	14 Anxiety disorders		14 Colorectal cancer	14.2 (10 to 17)	-11 (-19 to 10)
15.9 (11 to 21)	15 Drug use disorders	$Y / \dot{\chi}$	15 Road injury	15.2 (11 to 18)	-22 (-32 to -8)
16.6 (8 to 25)	16 Asthma	$ \longrightarrow$	16 Asthma	15.8 (8 to 24)	11 (-3 to 23)
17.3 (14 to 21)	17 Self-harm). / ``	17 Breast cancer	16.3 (14 to 19)	-21 (-27 to -15)
17.3 (12 to 24)	18 Migraine	ŀ ` ≁───	18 Migraine	17.2 (11 to 24)	7 (-11 to 27)
18.3 (15 to 21)	19 Diabetes	$M \sim 10$	19 Alcohol use disorders	20.7 (15 to 25)	56 (16 to 117)
20.3 (15 to 25)	20 Alzheimer's disease	n l	20 Other cardio & circulatory	20.9 (18 to 24)	20 (2 to 41)
22.2 (19 to 27)	21 Congenital anomalies		21 Cirrhosis	21.2 (17 to 29)	87 (-14 to 106)
23.2 (17 to 33)	22 Preterm birth complications		22 Osteoarthritis	21.6 (16 to 29)	15 (-4 to 41)
23.4 (20 to 27)	23 Other cardio & circulatory		23 Self-harm	21.7 (16 to 25)	-18 (-25 to 8)
23.6 (16 to 34)	24 Osteoarthritis		24 Diabetes	22.2 (19 to 25)	-15 (-24 to 3)
23.6 (18 to 29)	25 Stomach cancer		25 Chronic kidney disease	28.3 (25 to 33)	8 (-3 to 22)
	26 Alcohol use disorders	Y/~_/``	29 Preterm birth complications		
	27 Cirrhosis		30 Congenital anomalies		
	29 Chronic kidney disease	Y `	42 Stomach cancer		

Shifts in top 25 causes of DALYs, United Kingdom, 1990-2010

Communicable, maternal, neonatal, and nutritional

63

Injuries

Ascending order in rank
----- Descending order in rank

The Global Burden of Disease provides detailed data on diseases, injuries, and risk factors that are essential inputs for evidence-based policymaking. This collaborative project shows that the world's health is undergoing rapid change: non-communicable diseases and disability caused a greater share of health loss in 2010 compared to 1990 in most regions of the world.

In EU and EFTA countries, as in much of the world, non-communicable diseases pose a growing threat. Disabling conditions such as low back pain, neck pain, and other musculoskeletal disorders accounted for a greater number of healthy years lost in 2010 than in 1990 in EU and EFTA countries.

As disease burden caused by self-harm, interpersonal violence, and road injuries all increased at the global level, the reverse was true for EU and EFTA countries as a region.

While GBD 2010 provides key information about health trends at the global and regional levels, its tools also allow users to view data specific to 187 countries. Similar to the ways in which governments use financial data to monitor economic trends and make necessary adjustments to ensure continued growth, decision-makers can use GBD data to inform health policy. Continuous updates of GBD will incorporate the most recent data on disease patterns as well as the latest science about the effects of different risk factors on health.

Future updates of GBD will be enriched by widening the network of collaborators. Expanded collaboration between researchers, staff of ministries of health, and IHME on national and subnational burden of disease studies will ensure that GBD tools are used to understand causes of premature death and disability at the community level. Despite similarities of epidemiological trends in most regions, GBD illustrates the unique patterns of diseases, injuries, and risk factors that exist in different countries. Local epidemiological assessment is crucial for informing local priorities. The GBD approach to health measurement can help guide the design of public health interventions to ensure they are tailored to countries' specific needs.

IHME is seeking partners interested in conducting in-depth studies of the burden of disease in countries. Through such partnerships, IHME is helping governments and donors gain insights into localized health trends to inform planning and policymaking. IHME is committed to building capacity for GBD analyses in countries around the world and will be conducting a variety of training workshops. Information on these trainings can be found at http://www.healthmetricsandevaluation.org/gbd/gbd-dissemination.

GBD data visualization tools can display global, regional, and national data from burden of disease studies. These user-friendly tools are helpful for planning, presentations, and educational purposes. Also, IHME has designed a variety of data visualization tools to compare trends between various raw data sources at the national level. By visualizing all available data, ministry of health officials and researchers can quickly identify unexpected trends in the data that they may wish to flag for further investigation.

Currently, IHME is working to expand GBD to track expenditure for particular diseases and injuries. Also, IHME is estimating utilization of outpatient and inpatient facilities and other health services for specific diseases and injuries. Side-to-side comparisons of these estimates to the number of DALYs from myriad causes will allow decision-makers to evaluate health system priorities. Data on disease-specific expenditure and disease burden are essential for policymakers facing difficult decisions about how to allocate limited resources.

METHODS

The analytical strategy of GBD

The GBD approach contains 18 distinct components, as outlined in Figure A1. The components of GBD are interconnected. For example, when new data are incorporated into the age-specific mortality rates analysis (component 2), other dependent components must also be updated, such as rescaling deaths for each cause (component 5); healthy life expectancy, or HALE (component 12); YLLs, or years of life lost (component 13); and estimation of YLLs attributable to each risk factor (component 18). The inner workings of key components are briefly described in this publication, and more detailed descriptions of each component are included in the published articles.



Figure A1: The 18 components of GBD and their interrelations

Estimating age- and sex-specific mortality

Researchers identified sources of under-5 and adult mortality data from vital and sample registration systems as well as from surveys that ask mothers about live births and deaths of their children and ask people about siblings and their survival. Researchers processed that data to address biases and estimated the probability of death between ages 0 and 5 and ages 15 and 60 using statistical models. Finally, researchers used these probability estimates as well as a model life table system to estimate age-specific mortality rates by sex between 1970 and 2010.

Estimating years lost due to premature death

Researchers compiled all available data on causes of death from 187 countries. Information about causes of death was derived from vital registration systems, mortality surveillance systems, censuses, surveys, hospital records, police records, mortuaries, and verbal autopsies. Verbal autopsies are surveys that collect information from individuals familiar with the deceased about the signs and symptoms the person had prior to death. GBD 2010 researchers closely examined the completeness of the data. For those countries where cause of death data were incomplete, researchers used statistical techniques to

compensate for the inherent biases. They also standardized causes of death across different data sources by mapping different versions of the International Classification of Diseases (ICD) coding system to the GBD cause list.

Next, researchers examined the accuracy of the data, scouring rows and rows of data for "garbage codes." Garbage codes are misclassifications of death in the data, and researchers identified thousands of them. Some garbage codes are instances where we know the cause listed cannot possibly lead to death. Examples found in records include "abdominal rigidity," "senility," and "yellow nail syndrome." To correct these, researchers drew on evidence from medical literature, expert judgment, and statistical techniques to reassign each of these to more probable causes of death.

After addressing data-quality issues, researchers used a variety of statistical models to determine the number of deaths from each cause. This approach, named CODEm (for Cause of Death Ensemble modeling), was designed based on statistical techniques called "ensemble modeling." Ensemble modeling was made famous by the recipients of the Netflix Prize in 2009, BellKor's Pragmatic Chaos, who engineered the best algorithm to predict how much a person would like a film, taking into account their movie preferences.

To ensure that the number of deaths from each cause did not exceed the total number of deaths estimated in a separate GBD demographic analysis, researchers applied a correction technique named CoDCorrect. This technique makes certain that estimates of the number of deaths from each cause do not add up to more than 100% of deaths in a given year.

After producing estimates of the number of deaths from each of the 235 fatal outcomes included in the GBD cause list, researchers then calculated years of life lost to premature death, or YLLs. For every death from a particular cause, researchers estimated the number of years lost based on the highest life expectancy in the deceased's age group. For example, if a 20-year-old male died in a car accident in South Africa in 2010, he has 66 years of life lost, that is, the highest remaining life expectancy in 20-year-olds, as experienced by 20-year-old females in Japan.

When comparing rankings of the leading causes of death versus YLLs, YLLs place more weight on the causes of death that occur in younger age groups. For example, malaria represents a greater percentage of total YLLs than total deaths since it is a leading killer of children under age 5 globally. Ischemic heart disease, by contrast, accounts for a smaller percentage of total YLLs than total deaths as it primarily kills older people.

Estimating years lived with disability

Researchers estimated the prevalence of each sequela using different sources of data, including government reports of cases of infectious diseases, data from population-based disease registries for conditions such as cancers and chronic kidney diseases, antenatal clinic data, hospital discharge data, data from outpatient facilities, interview questions, and direct measurements of hearing, vision, and lung function testing from surveys and other sources.

Confronted with the challenge of data gaps in many regions and for numerous types of sequelae, they developed a statistical modeling tool named DisMod-MR (for Disease Modeling – Metaregression) to estimate prevalence using available data on incidence, prevalence, remission, duration, and extra risk of mortality due to the disease.

Researchers estimated disability weights using data collected from almost 14,000 respondents via household surveys in Bangladesh, Indonesia, Peru, Tanzania, and the United States. Disability weights measure the severity of different sequelae that result from disease and injury. Data were also used from an Internet survey of more than 16,000 people worldwide. GBD researchers presented different lay definitions of sequelae grouped into 220 unique health states to survey respondents, and respondents were then asked to rate the severity of the different health states. The results were similar across all surveys despite cultural and socioeconomic differences. Respondents consistently placed health states such as mild hearing loss and long-term treated fractures at the low end of the severity scale, while they ranked acute schizophrenia and severe multiple sclerosis as very severe.

Finally, years lived with disability, or YLDs, are calculated as prevalence of a sequela multiplied by the disability weight for that sequela. The number of years lived with disability for a specific disease or injury is calculated as the sum of the YLDs from each sequela arising from that cause.

Estimating disability-adjusted life years

Disability-adjusted life years (DALYs) were calculated by adding together YLLs and YLDs. DALYs are a powerful tool for priority setting as they measure disease burden from nonfatal as well as fatal conditions. Yet another reason why top causes of DALYs differ from leading causes of death is that DALYs give more weight to death in younger ages, as illustrated by the case of neonatal encephalopathy. In contrast, stroke causes a larger percentage of total deaths than DALYs, as it primarily impacts older people.

Estimating DALYs attributable to risk factors

To estimate the number of healthy years lost, or DALYs, attributable to potentially modifiable risk factors, researchers collected detailed data on exposure to different risk factors. The study used data from sources such as satellite data on air pollution, breastfeeding data from population surveys, and blood and bone lead levels from medical examination surveys and epidemiological surveys. Researchers then collected data on the effects of risk factors on disease outcomes through systematic reviews of epidemiological studies.

All risk factors analyzed met common criteria in four areas:

- 1. The likely importance of a risk factor for policymaking or disease burden.
- 2. Availability of sufficient data to estimate exposure to a particular risk factor.
- 3. Rigorous scientific evidence that specific risk factors cause certain diseases and injuries.
- 4. Scientific findings about the effects of different risk factors that are relevant for the general population.

To calculate the number of DALYs attributable to different risk factors, researchers compared the disease burden in a group exposed to a risk factor to the disease burden in a group that had zero exposure to that risk factor. When subjects with zero exposure were impossible to find, as in the case of high blood pressure, for example, researchers established a level of minimum exposure that leads to the best health outcomes.



Institute for Health Metrics and Evaluation 2301 5th Avenue, Suite 600 Seattle, WA 98121 USA

Telephone: +1-206-897-2800 Fax: +1-206-897-2899 E-mail: comms@healthmetricsandevaluation.org

www.healthmetricsandevaluation.org