

Burden of Chronic Diseases

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*“Even if you are ambitious, you will not be able to achieve your ambitions because you are psychologically totally defeated.”
– An adolescent girl in Egypt*

Phase 3 lecture, 2023- 2024

academic year, spring semester

15th April 2024, Ankara – TURKIYE

www.ahmetsaltik.net

Learning objectives....

At the end of this lecture, students are expected to :

- ❑ **Define** the concepts of «Chronic Disease» and «Burden of Disease».
- ❑ **Realise** the proportional weight of Chronic Diseases in total Burden of Disease.
- ❑ **Gain** essential knowledge on major chronic diseases how to control and protect people.
- ❑ **Understand** the bill of chronic diseases with broad meaning on the health sector..
- ❑ **Conceive** the individual lifestyle and behaviors and community factors that play important roles in the development and management of chronic diseases.
- ❑ **Describe** the transition between infectious and non-communicable diseases occurred in the early 1900s as a result of **improved public health** and has persisted ever since.

Assessing the health of a population-1

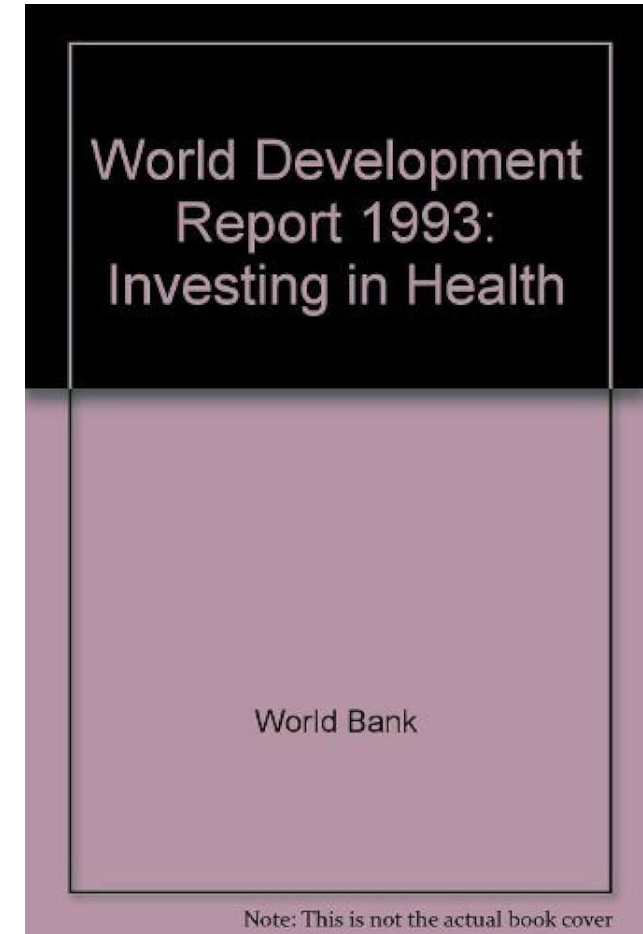
- To assess the health of a population, it's straightforward to focus on **mortality**, or concepts like life expectancy, which are based on mortality estimates.
- *But this does not take into account the suffering that diseases cause the people who live with them.*
- By looking at both mortality *and* **morbidity** (*the prevalent diseases*), we can have a more comprehensive understanding of health outcomes.
- ***The sum of mortality and morbidity is called the “burden of disease”*** by researchers, and can be measured by a metric called ***“Disability Adjusted Life Years” (DALYs)***.

<https://ourworldindata.org/burden-of-disease> 14.4.24

Assessing the health of a population-2

- DALYs are standardized units to measure **lost health**.
- They help compare the *burden of different diseases* in different countries, populations, and times.
- Conceptually, **one DALY represents one lost year of healthy life** – it is the equivalent of losing one year in good health because of either *premature death or disease or disability*.
- DALYs have been measured in **the Global Burden of Disease (GBD) study** by the Institute of Health Metrics and Evaluation (IHME) since 1990, and by the “*Disease Burden Unit*” which was created in 1998 at the World Health Organization (WHO).
- It was also prominently featured in the World Bank’s 1993 World Development Report.

<https://ourworldindata.org/burden-of-disease> 14.4.24



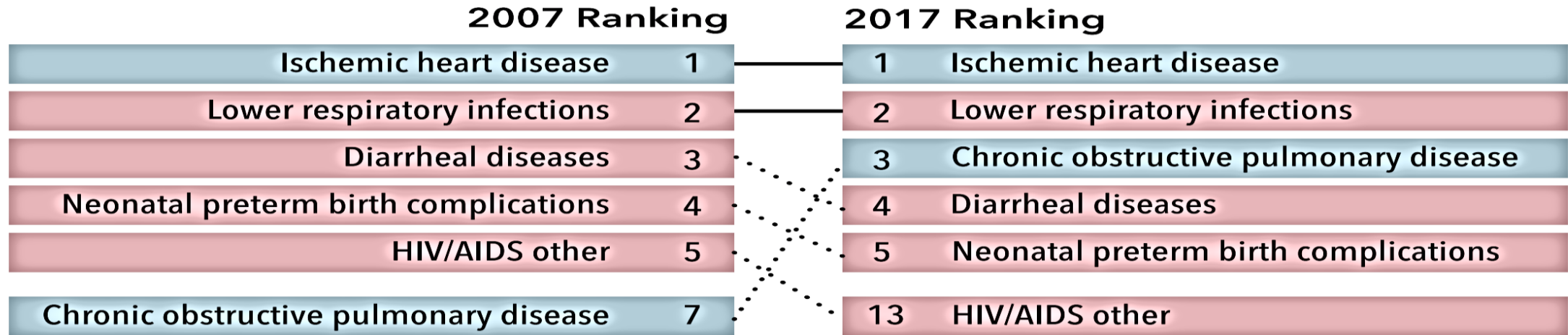
https://openknowledge.worldbank.org/bitstream/handle/10986/5976/9780195208900_fm.pdf 14.4.24

Death Causes, Worldwide

- ❑ **Cardiovascular diseases** are the leading cause of death globally.
The 2nd biggest cause are **cancers**.
- ❑ Causes of death vary significantly between countries: Non-communicable diseases dominate in rich countries, whereas **infectious diseases** remain high at lower income ones.
- ❑ *The world is making progress against infectious diseases.*
As a consequence, more people are dying from non-communicable diseases.
- ❑ Fewer people die at a young age. Almost half of all people who die are 70 years and older.
- ❑ **Leading risk factors for premature death** globally include high blood pressure, smoking, obesity, high blood sugar (DM) and *environmental risk factors* including *air pollution*.
- ❑ *There is a large difference between what people die from and which causes of death receive news coverage!*

Top 5 causes of early deaths & disability...

Top five causes of early death and disability globally, 2007 and 2017**



- Communicable, maternal, neonatal, and nutritional diseases
- Non-communicable diseases
- same or increase
- ... decrease

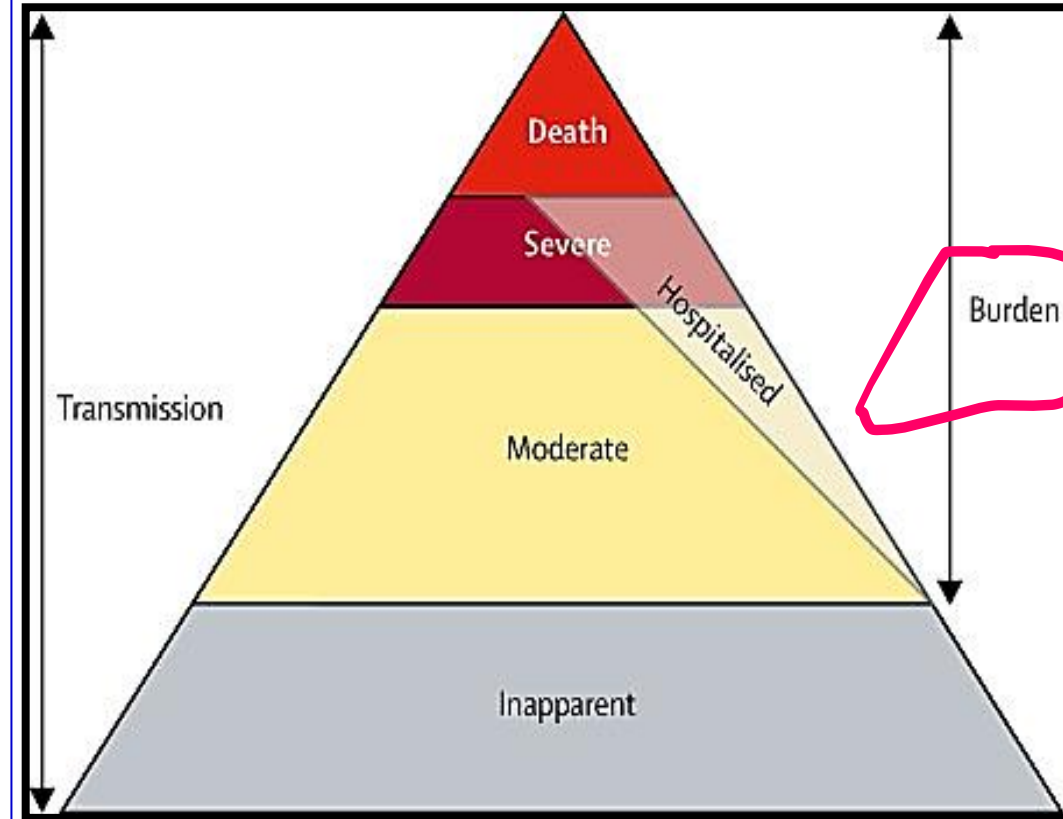
**This figure measures the top five causes of early death and disability globally by disability-adjusted life years, or DALYs. It shows that the burden from non-communicable diseases is increasing in importance globally, while the burden of communicable, maternal, neonatal, and nutritional disorders is decreasing.



What is the Global Burden of Disease (GBD)?

- ❑ Everyone, all over the world, deserves to live a long life in full health. One of the largest scientific collaborations in the world,
- ❑ *The GBD enterprise measures what prevents us from achieving that goal, putting knowledge and tools into the hands of people and groups around the world to make people healthier.*
- ❑ By identifying the biggest health problems, it is helping governments, scientists, and partners advocate for resources and answer questions such as:

https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf



Mortality, morbidity, and hospitalisations due to influenza lower respiratory tract infections, 2017: an analysis for the Global Burden of Disease Study 2017

<https://www.thelancet.com/journals/lanres/article/PIIS2213-2600%2818%2930496-X/fulltext>

What is the Global Burden of Disease (GBD)?

- ❑ What diseases, injuries, and risk factors cause the most **early death and disability** in a given country?
- ❑ *How does health performance differ across countries?*
- ❑ When designing an intervention to improve the health of young women, which health problems should be targeted to make the greatest impact?

<https://www.healthdata.org/sites/default/files/files/infographics/>

THE US NATIONAL INSTITUTES OF HEALTH (NIH)

used HBD findings in their 2016-2020 strategic plan, a decision that was further strengthened by the bipartisan 21st Century Cures Act. Enacted into law in December 2016, the Act mandates that **the NIH** incorporate **burden of disease** estimates into criteria for awarding its Eureka Prize and into its **strategic plan** every six years. The strategic plan indicates that **NIH** will consider **burden of disease** data when making funding decisions.

The Concept of «*Burden of disease*»-1

- ❖ The “**Burden of Disease**” refers to the impact of health problems on a population, measured by various indicators such as financial cost, mortality, morbidity, or other metrics.
- ❖ It is often quantified in terms of **Disability Adjusted Life Years (DALYs)** or **Quality Adjusted Life Years (QALYs)**.
- ❖ These metrics account for the years lost due to disability or disease, providing a comprehensive view of health outcomes beyond just mortality rates.
- ❖ For a concrete example, consider the burden of disease caused by **ischemic heart disease**, which is a leading cause of DALYs globally.
- ❖ In this case, the burden includes not only the number of deaths from heart disease but also the years of life affected by disability due to the condition.

<https://ourworldindata.org/burden-of-disease>

https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf

The Concept of «Burden of disease»-2

- ❑ This could mean that if a person suffers from ischemic heart disease, they may experience years of life with *reduced quality* due to symptoms like chest pain or shortness of breath, which is factored into the overall burden of the disease on society.
- ❑ In high-income countries, non-communicable diseases like **heart disease, diabetes, and cancer** often represent a larger share of the disease burden compared to low-income countries, where **communicable diseases**, maternal and neonatal health issues, and nutritional diseases are more prevalent.
- ❑ This reflects
 - *differences in lifestyle,*
 - *healthcare systems, and*
 - *socio-economic factors across regions.*

<https://ourworldindata.org/burden-of-disease>

https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf



The Concept of «*Burden of disease*»-3

- ✓ The “**Burden of Disease**” refers to the impact of health problems on a population, measured by various indicators such as **financial cost**, **mortality**, **morbidity**, **disability** or other metrics.
- ✓ It is often quantified in terms of **Disability Adjusted Life Years-DALYs** or **Quality Adjusted Life Years-QALYs**.
- ✓ These metrics account for the *years lost due to disability or disease*, providing a comprehensive view of health outcomes beyond just mortality rates.
- ✓ For a concrete example, consider the burden of disease caused by **ischemic heart disease**, which is a leading cause of DALYs globally.

<https://ourworldindata.org/burden-of-disease> 14.4.24

Burden of disease-1

- ❑ Chronic diseases like **diabetes, heart disease, stroke, & cancer** have been and continue to be some of the major causes of worldwide **morbidity and mortality**.
- ❑ A transition between infectious and non-communicable diseases occurred in the early 1900s as a result of **improved public health** and has persisted ever since.
- ❑ *Now, as individuals live longer, the prevalence and cost of chronic disease continue to grow.*
- ❑ The estimated cost of chronic disease is expected to reach \$47 trillion worldwide by 2030.
- ❑ *Individual lifestyle and behaviors and community factors play important roles in the development and management of chronic diseases.*

<https://pubmed.ncbi.nlm.nih.gov/38304166/> 13.4.24

Burden of disease-2

❑ Many of these conditions (*diabetes, heart disease, and respiratory diseases*) are **preventable**,

❑ and their leading risk factors are

- *physical inactivity,*
- *poor nutrition,*
- *tobacco use,*
- *and excessive alcohol.*

❑ Unfortunately, the investment in prevention remains small compared with treatment, both from a lifestyle perspective and a social determinants of health perspective.

❑ Given the future trajectory of chronic disease, innovation in technology and pharmaceuticals with a concomitant investment in prevention will be required.

❑ *Our future depends on it.*



Burden of disease-3

- ❑ A focus on **mortality**, however, does not take into account that the *burden of diseases* is not only that they kill people, but that they *cause suffering of people* who live with them.
- ❑ *Assessing health outcomes by both mortality and morbidity (the prevalent diseases) provides a more encompassing view on health outcomes.*
- ❑ The sum of mortality and morbidity is referred to as the '**burden of disease**' and can be measured by a metric called 'Disability Adjusted Life Years' (DALYs).
- ❑ **DALYs** are measuring lost health and are a standardized metric that allow for direct comparisons of disease burdens of different diseases across countries, between different populations, and over time.
- ❑ Conceptually, one DALY is the equivalent of losing one year in good health because of either premature death or disease or disability.
- ❑ One DALY represents one lost year of healthy life.

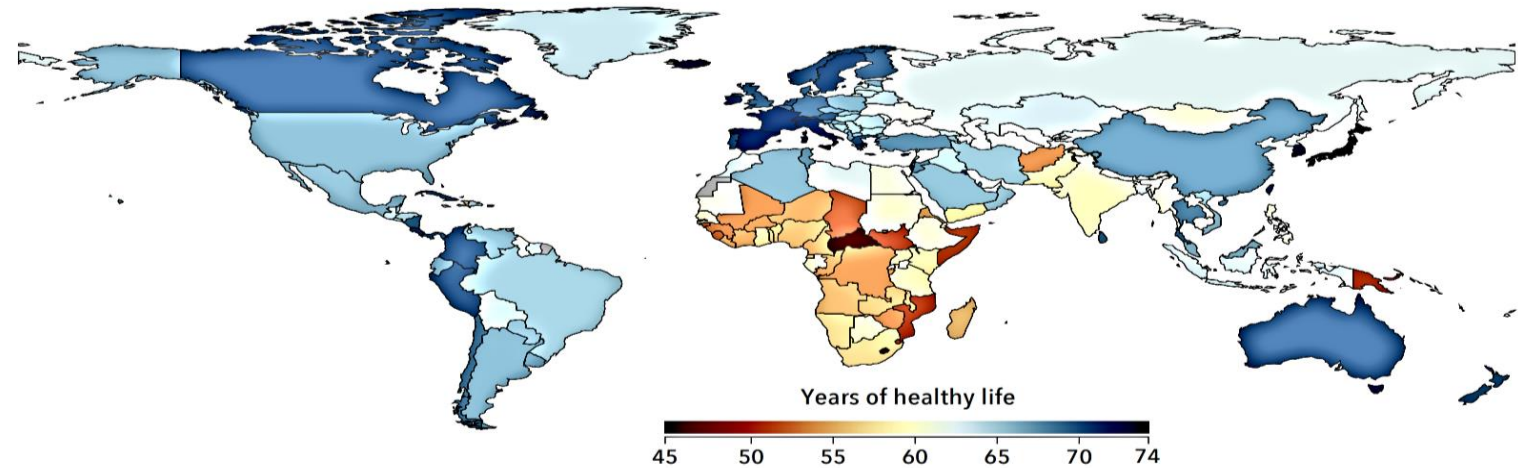
HEALTH LIFE EXPECTANCY (HALE) - 2017

The map view shows a comparison of **life expectancy** across countries. As you can see, although the **global disparity** in life expectancy has reduced substantially, there are still **huge differences** between countries.

In 2021, the life expectancy in several *sub-Saharan African* countries is less than 60 years, compared to more than 80 years in countries such as Japan.

<https://ourworldindata.org/health-meta> 14.4.24

Healthy life expectancy (HALE)*, 2017



*HALE summarizes the healthy years of life that a person in each country can expect to live. Data shown here represent HALE at birth.

GBD: an international collaboration

195
countries and
territories

100,000+
data sources

~450
diseases,
injuries, and
risk factors

3,200+
collaborators in
141+ countries
and territories

To join the collaboration, visit healthdata.org/gbd

~~DIS~~ABILITY



**Polio crippled children
due to non-vaccination
Just 2 drops!!**



IHME : *Institute of Health Metrics and Evaluation*

- ***The GBD-Global Burden of Disease*** enterprise also includes a range of research projects, such as
 - Future Health Scenarios, which forecasts a range of scenarios for ***life expectancy***,
 - 250 ***causes of death***,
 - and 79 ***risks*** in 195 countries and territories through 2040.
- By illuminating the potential to ***improve health*** by addressing key health drivers, these scenarios can help frame ***health planning*** locally, nationally, and globally.

Learn more at <http://www.healthdata.org/future-health-scenarios>

https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf 14.4.24

IHME : *Institute of Health Metrics and Evaluation*

- The enterprise also includes the ***Local Burden of Disease*** project, which aims to produce estimates at a very fine, local resolution – typically down to 5x5 km areas of select health outcomes and related measures, including ***child growth failure, vaccine coverage, malaria, HIV/ AIDS, tuberculosis, diarrhea, lower respiratory infections***, and the ***pandemic potential of five zoonotic infectious*** diseases, among others.
- **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** is recognized as one of the leading health metrics organizations in the World.

Learn more about the GBD enterprise and get involved at healthdata.org/gbd.

https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf 14.4.24

Case study in Ethiopia

- ❖ **The GBD** has been a valuable resource in the government's efforts to strengthen the *use of evidence in its decision-making*.
- ❖ The Ministry of Health used GBD data to help guide its five-year Health Sector Transformation Plan, a strategic document that sets Ethiopia's health-related priorities and objectives.
- ❖ Now, **IHME** is working with the **Ethiopian Public Health Institute** as it builds its National Data Management Center, which includes a **Burden of Disease Unit**, with the aim of providing ***comprehensive, timely, and actionable evidence*** (EBM once more!) on the nation's health.

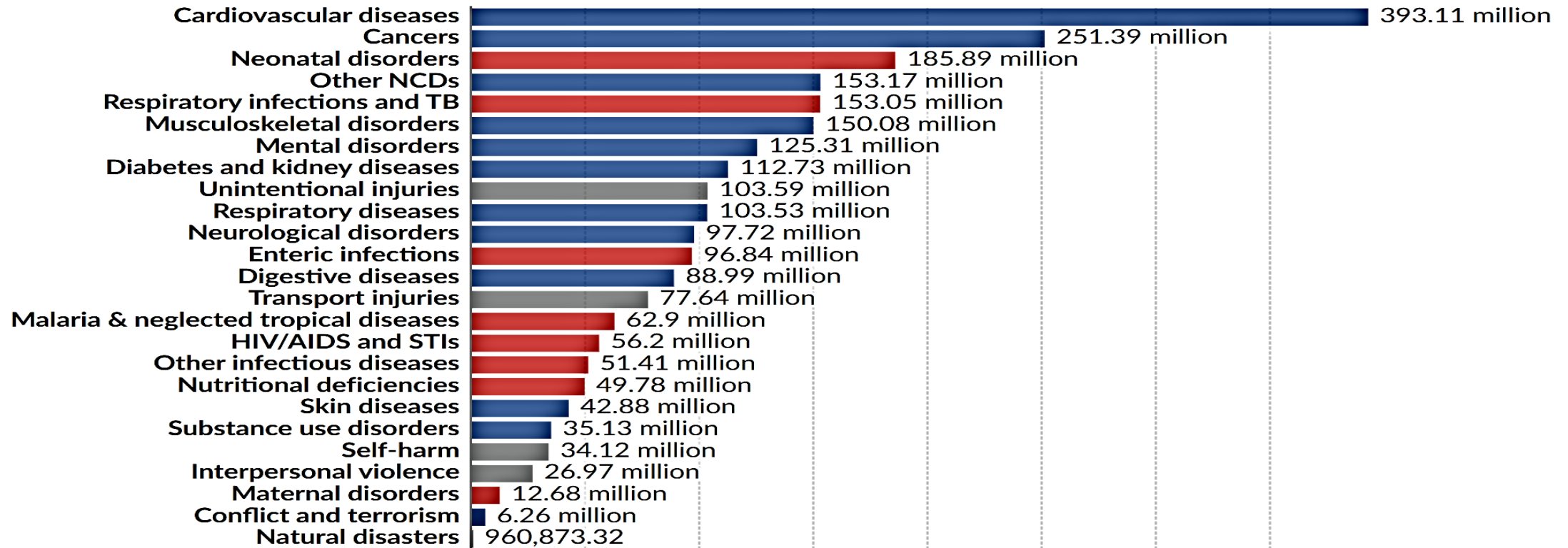
https://www.healthdata.org/sites/default/files/files/infographics/Infographic_What-is-GBD_01.04.19.pdf 14.4.24

Burden of disease by cause, World, 2019

Total disease burden, measured in Disability-Adjusted Life Years (DALYs) by sub-category of disease or injury. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table
 Chart

↔ Change country or region



1990 ● 2019

Data source: IHME, Global Burden of Disease (2019) – [Learn more about this data](#) OurWorldInData.org/burden-of-disease | CC BY

Note: Non-communicable diseases are shown in blue; communicable, maternal, neonatal and nutritional diseases in red; injuries in grey.

Share of total disease burden by cause, World, 2019

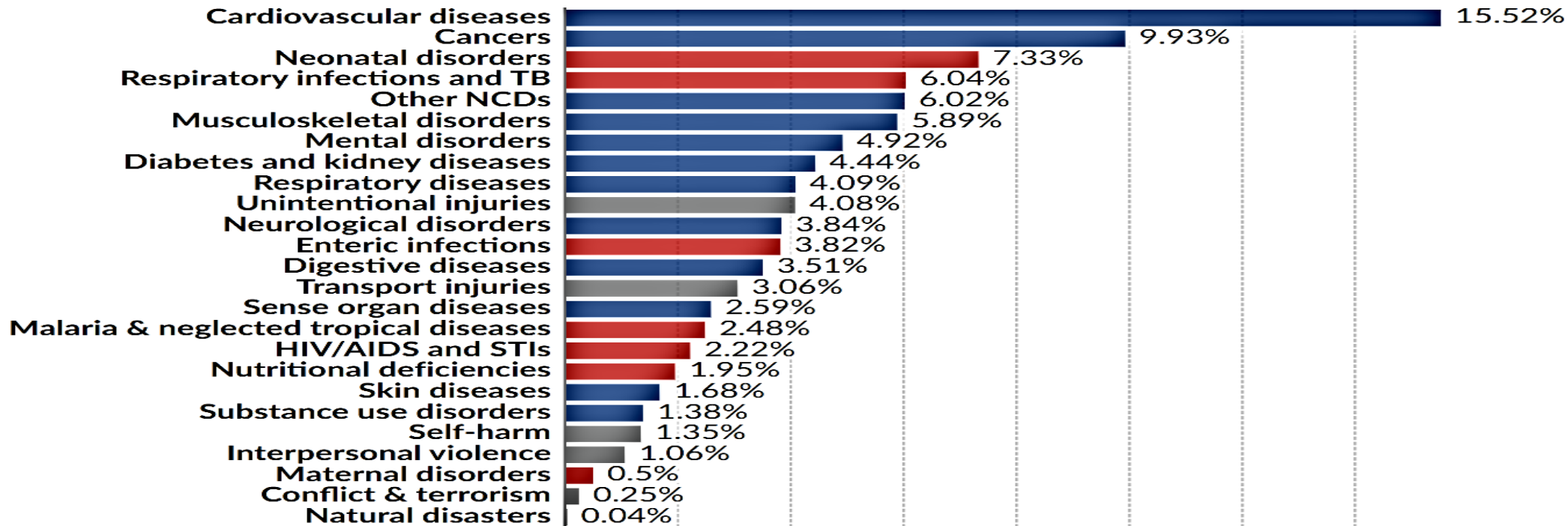
Our World in Data

Total disease burden, measured in Disability-Adjusted Life Years (DALYs) by sub-category of disease or injury.

DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

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Change country or region



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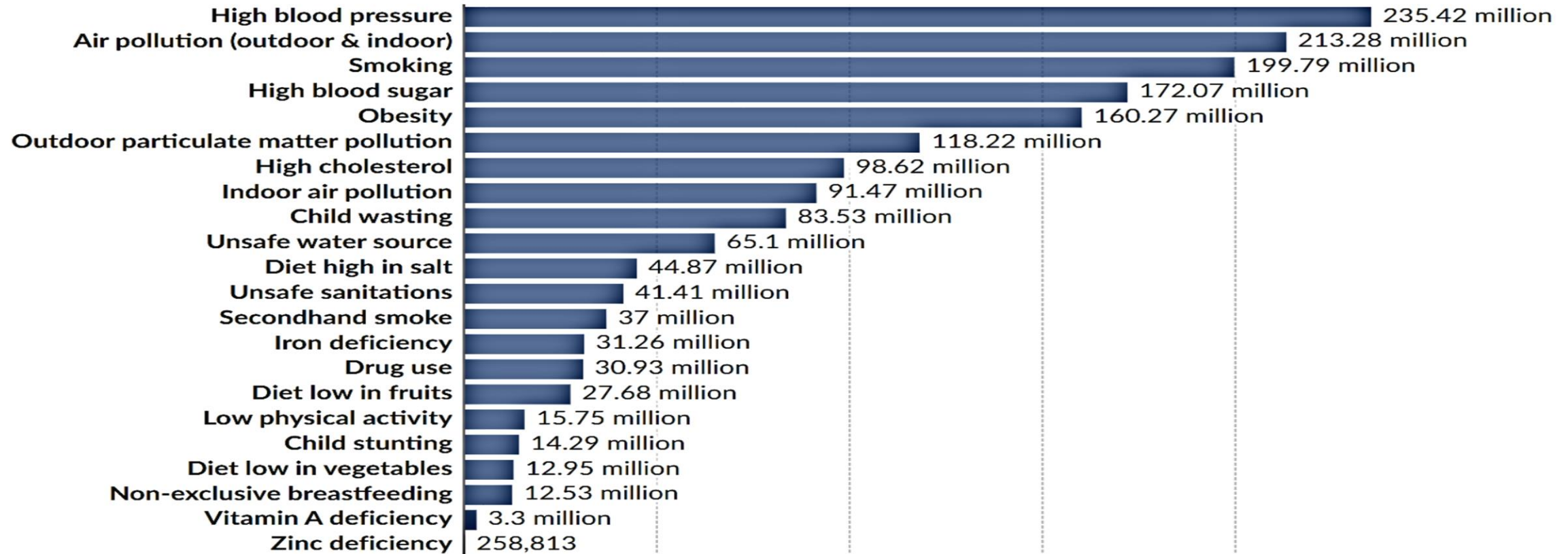


Disease burden by risk factor, World, 2019

Disease burden is measured as Disability-Adjusted Life Years (DALYs). One DALY is the equivalent of losing one year in good health because of either premature mortality or disability. One DALY represents one lost year of healthy life.

Table Chart

Change country or region



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)

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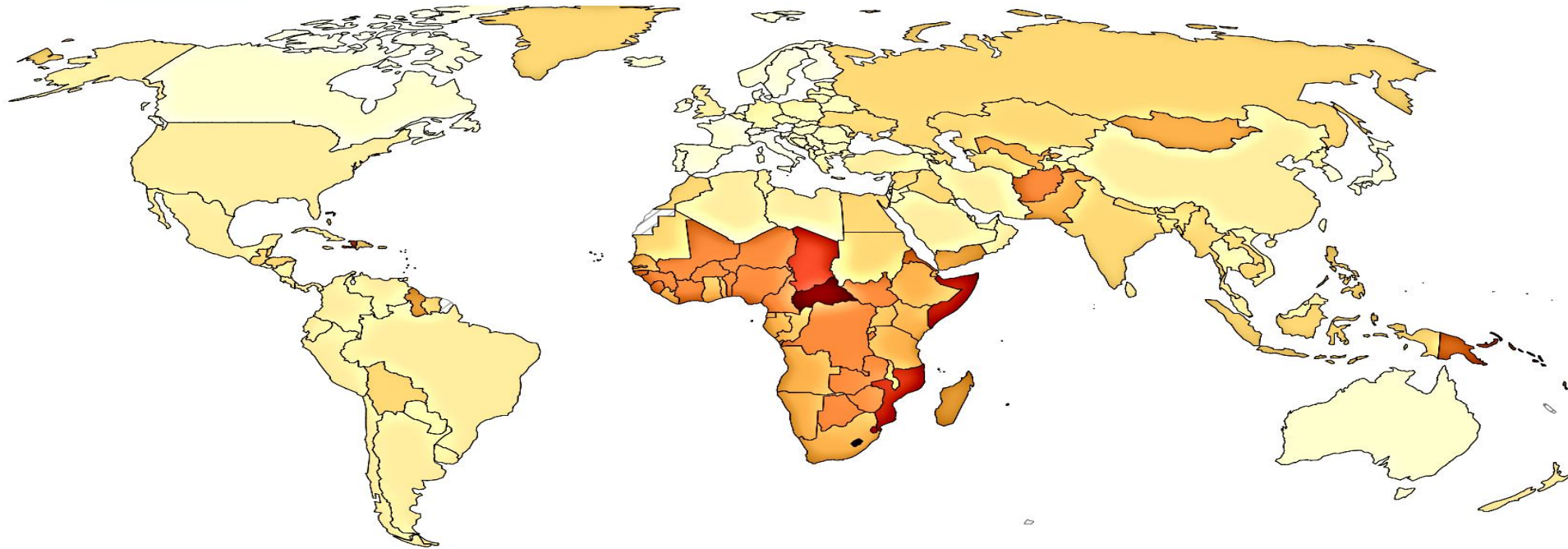
<https://ourworldindata.org/burden-of-disease#all-charts> 14.4.24

Burden of disease, 2019

Disability-Adjusted Life Years (DALYs) per 100,000 individuals from all causes. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table Map Chart

World



Data source: IHME, Global Burden of Disease (2019) – [Learn more about this data](#)

Note: To allow for comparisons between countries and over time, this metric is age-standardized.

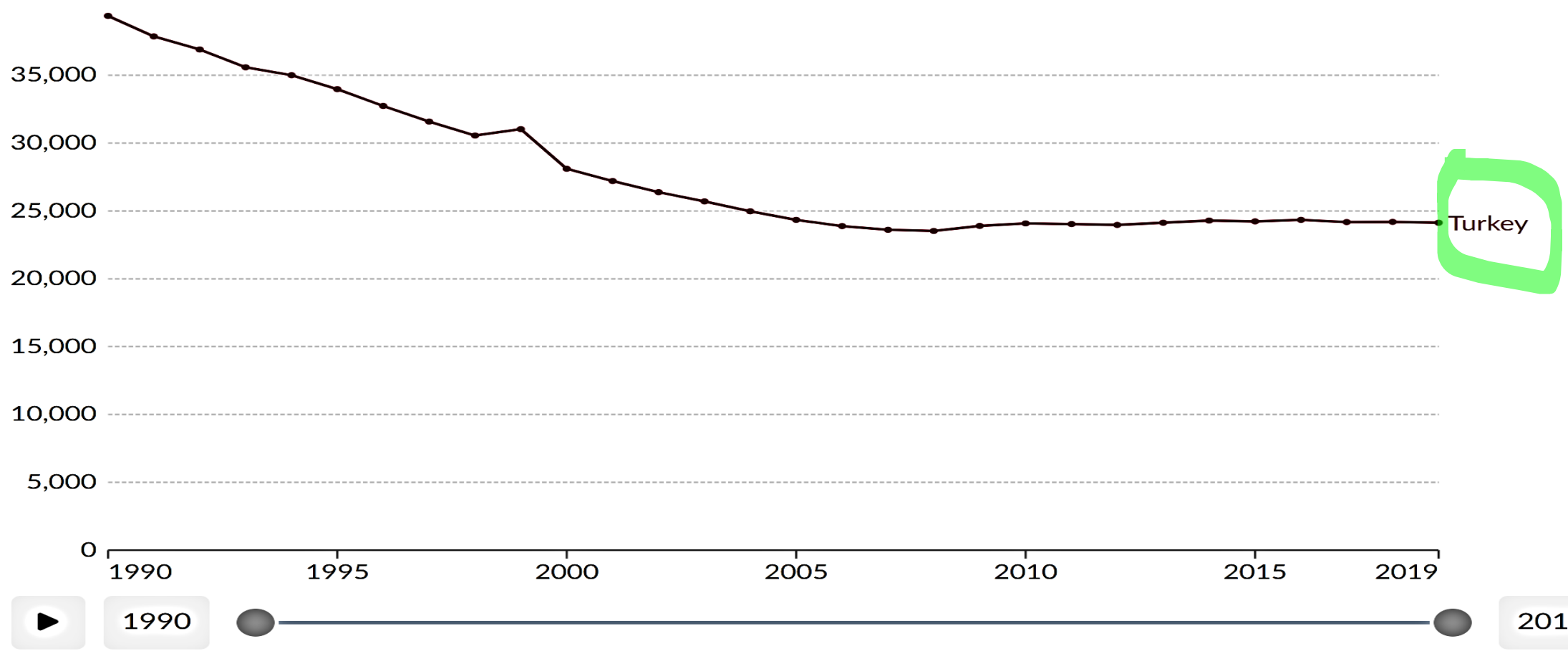
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Burden of disease, 1990 to 2019

Disability-Adjusted Life Years (DALYs) per 100,000 individuals from all causes. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table | Map | Chart Edit countries and regions



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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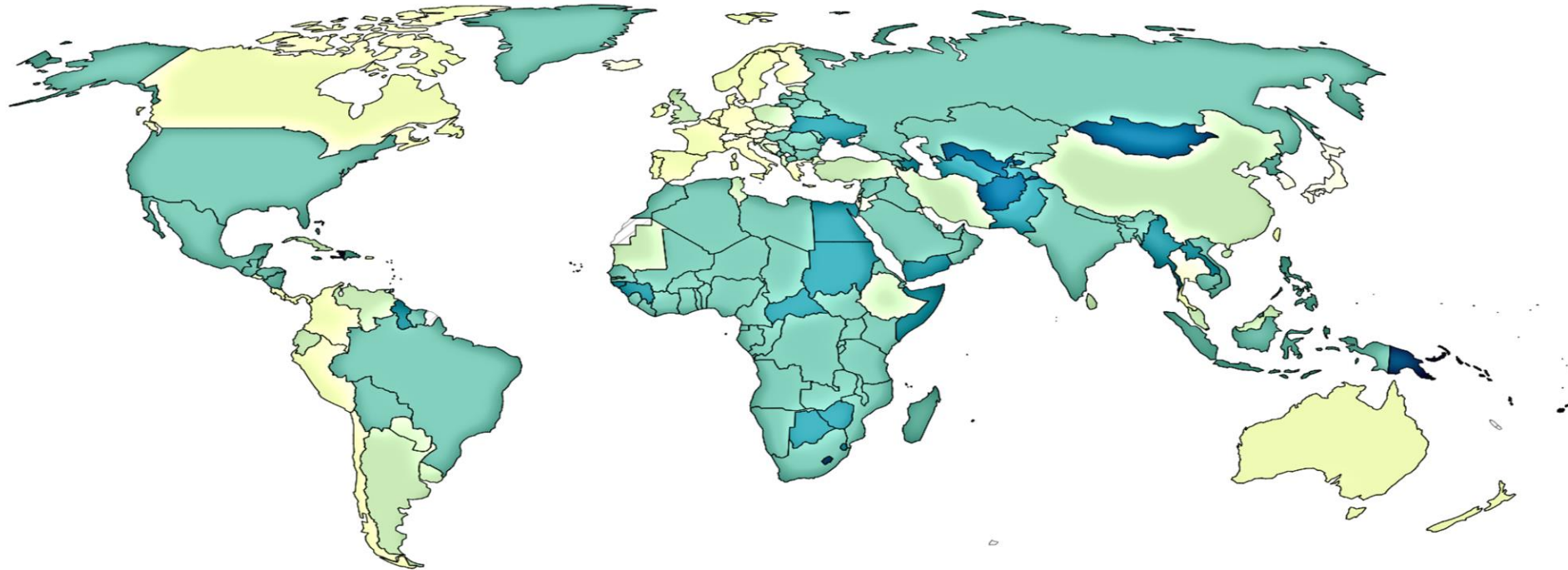
DALY rates from non-communicable diseases (NCDs), 2019

Our World
in Data

Age-standardized DALY (Disability-Adjusted Life Year) rates per 100,000 individuals from non-communicable diseases (NCDs). DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

Table Map Chart

World



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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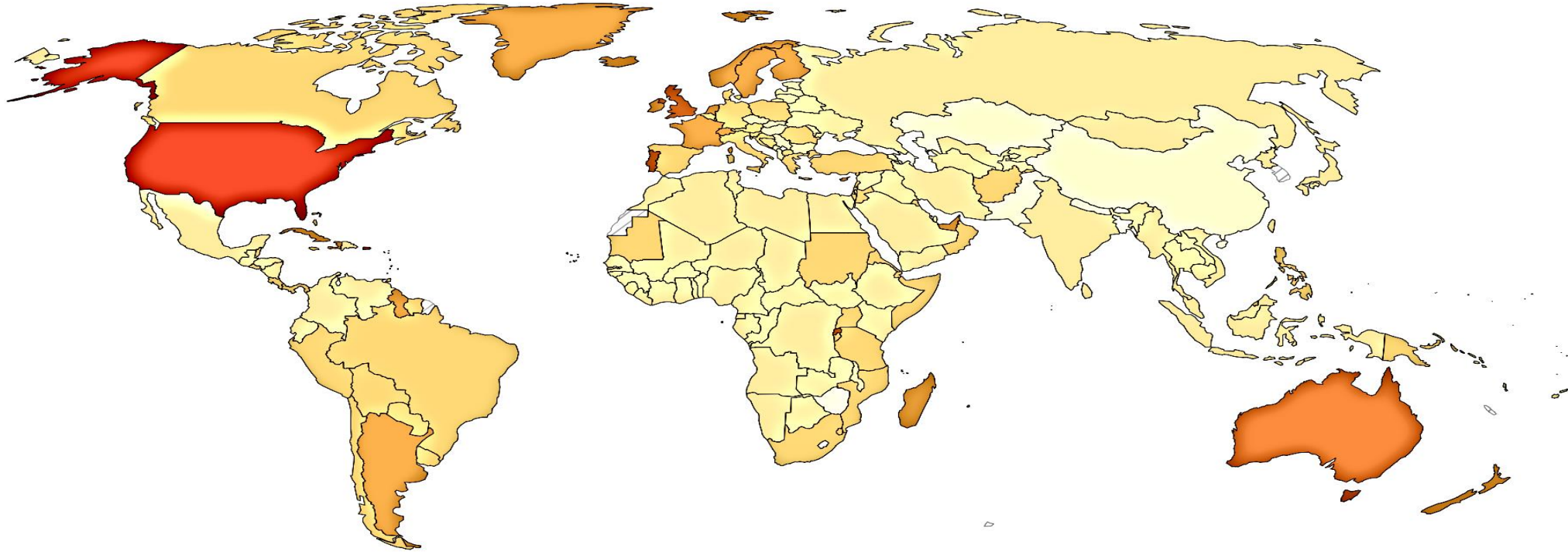
<https://ourworldindata.org/burden-of-disease#all-charts> 14.4.24

Asthma prevalence, 2019

The share of the population with asthma. Prevalence is age-standardized so accounts for changes in the age structure of a population over time and between countries.

Table Map Chart

World



1990 2019

Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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10
minutes



Burden of disease from injuries, by age, World, 1990 to 2019

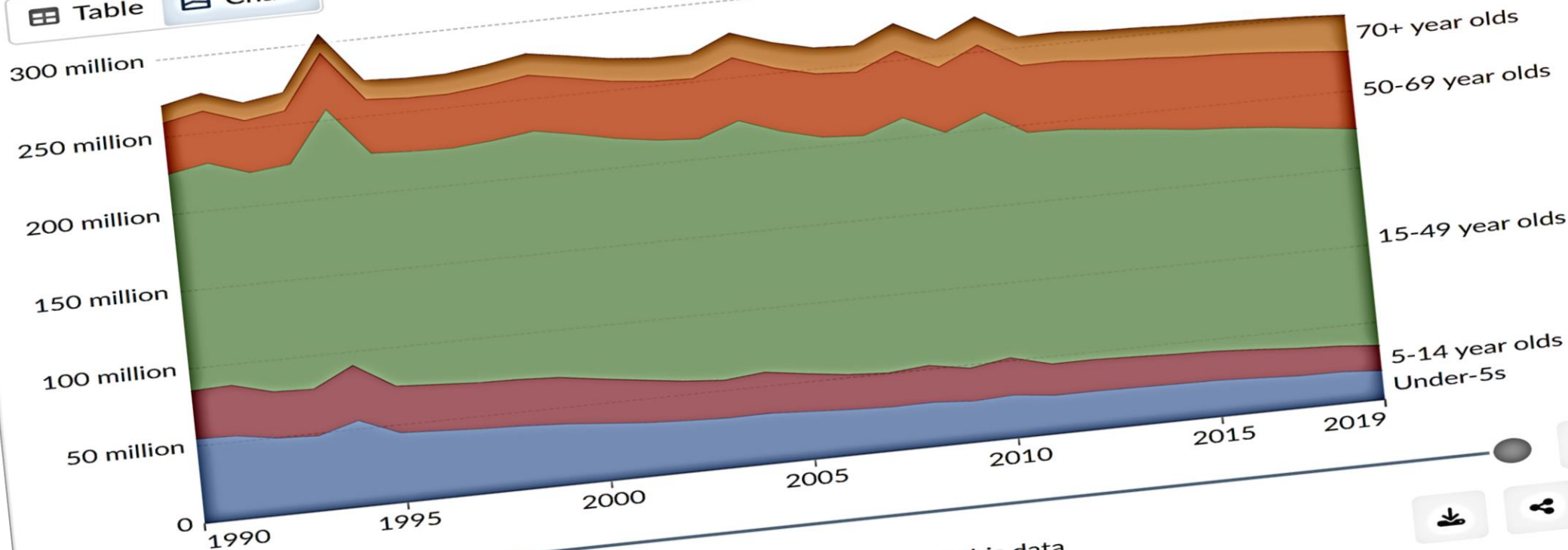
Disease burden from injuries by age. Disease burden is measured in DALYs (Disability-Adjusted Life Years). DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

Our World in Data

Edit countries and regions

Settings

Table Chart



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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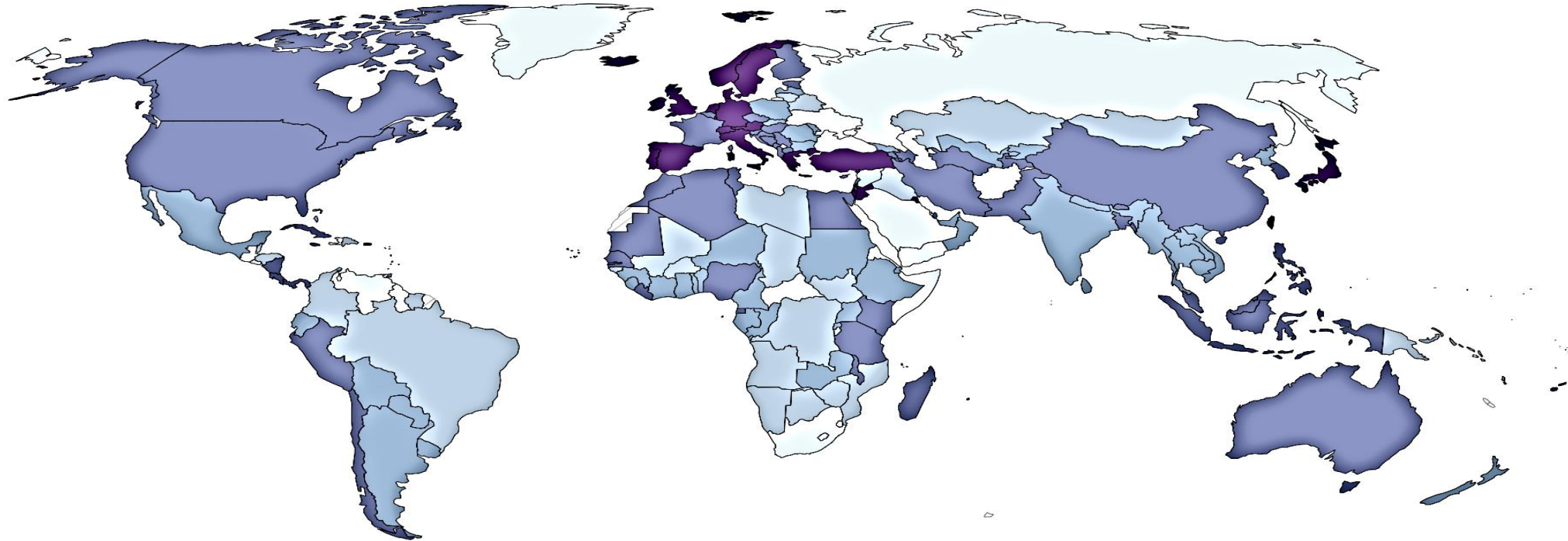
DALY rates from injuries, 2019

Our World
in Data

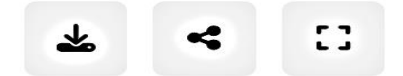
Age-standardized DALY (Disability-Adjusted Life Year) rates per 100,000 individuals from injuries (including violence, conflict, and self-harm). DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

Table Map Chart

World



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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Disease burden from injuries, World, 1990 to 2019

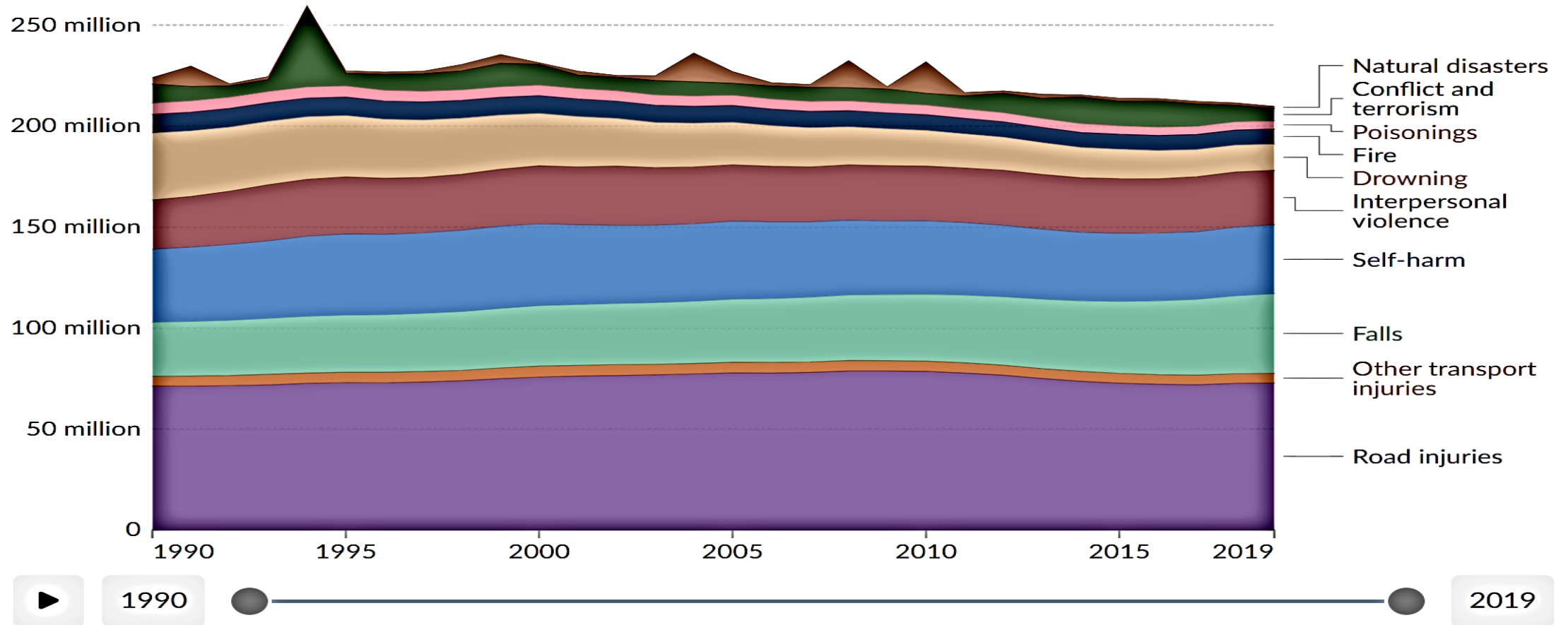
Disease burden from injuries. Disease burden is measured in DALYs (Disability-Adjusted Life Years). DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

Table

Chart

Edit countries and regions

Settings



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
OurWorldInData.org/burden-of-disease | CC BY



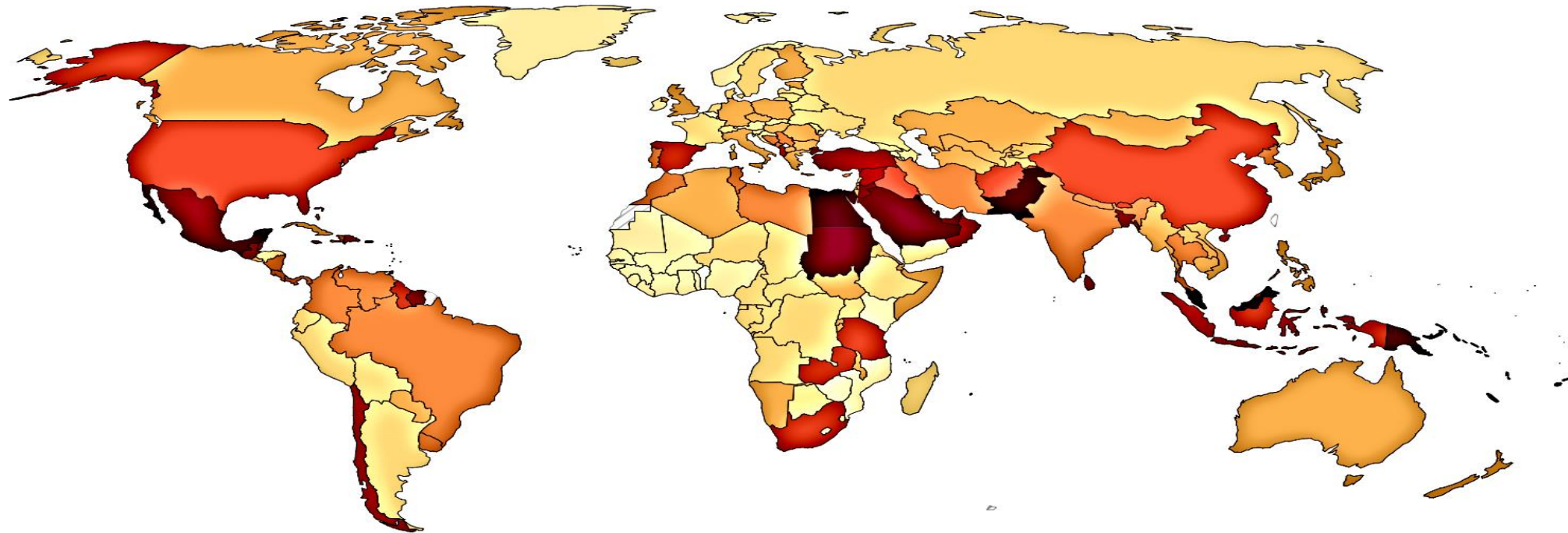
Diabetes prevalence, 2021

Our World
in Data

The share of people aged 20-79 who have diabetes. Diabetes is a risk factor for chronic complications, including cardiovascular disease, and premature death.

Table Map Chart

World



No data 0% 2% 4% 6% 8% 10% 12.5% 15% 17.5% 20%



2000

2021

Data source: International Diabetes Federation (via World Bank) - [Learn more about this data](#)

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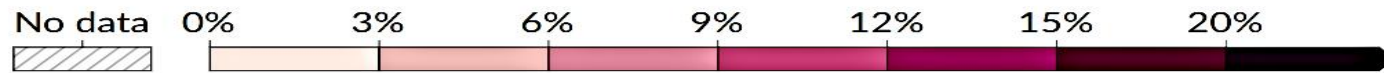
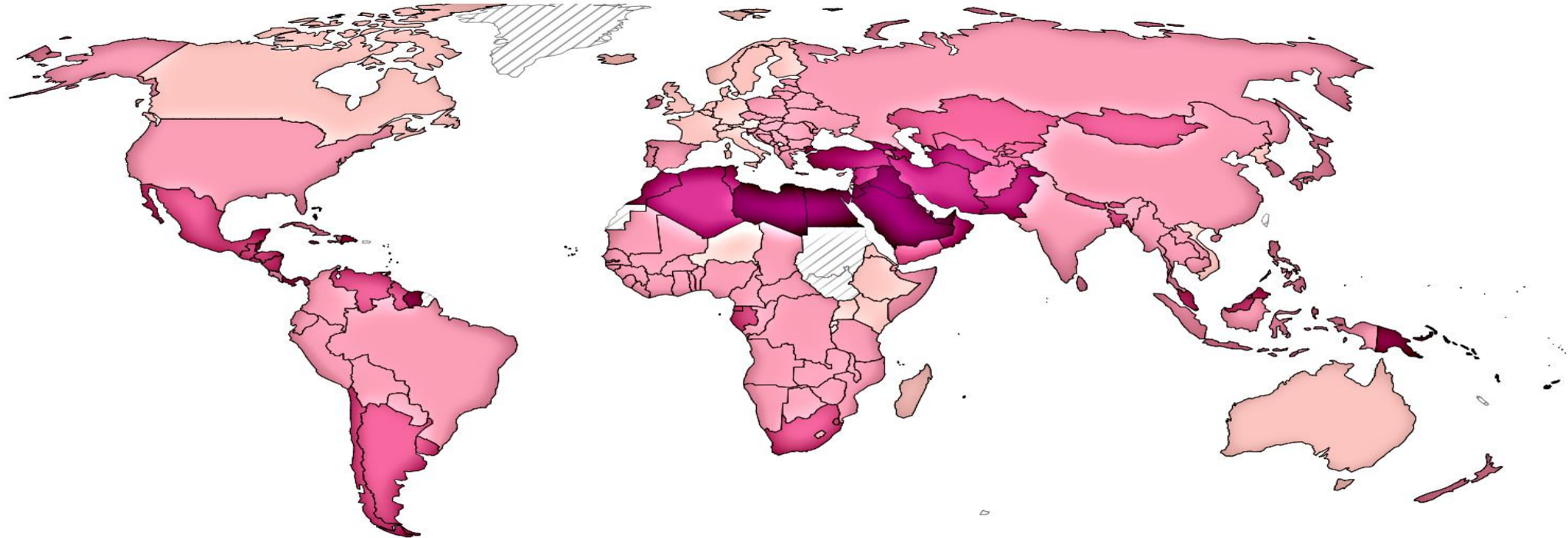


Prevalence rate of diabetes in adults, 2014

Estimated share of people with diabetes among those aged over 18, based on general population surveys and statistical modeling. Diabetes is a risk factor for chronic complications, including cardiovascular disease, and premature death.

Table Map Chart

World



Data source: WHO, Global Health Observatory (2022) - [Learn more about this data](#)

Note: To allow for comparisons between countries and over time, this metric is age-standardized.

[OurWorldInData.org/causes-of-death](https://ourworldindata.org/causes-of-death) | CC BY



<https://ourworldindata.org/burden-of-disease#all-charts> 14.4.24

Diabetes prevalence vs. GDP per capita, 2021

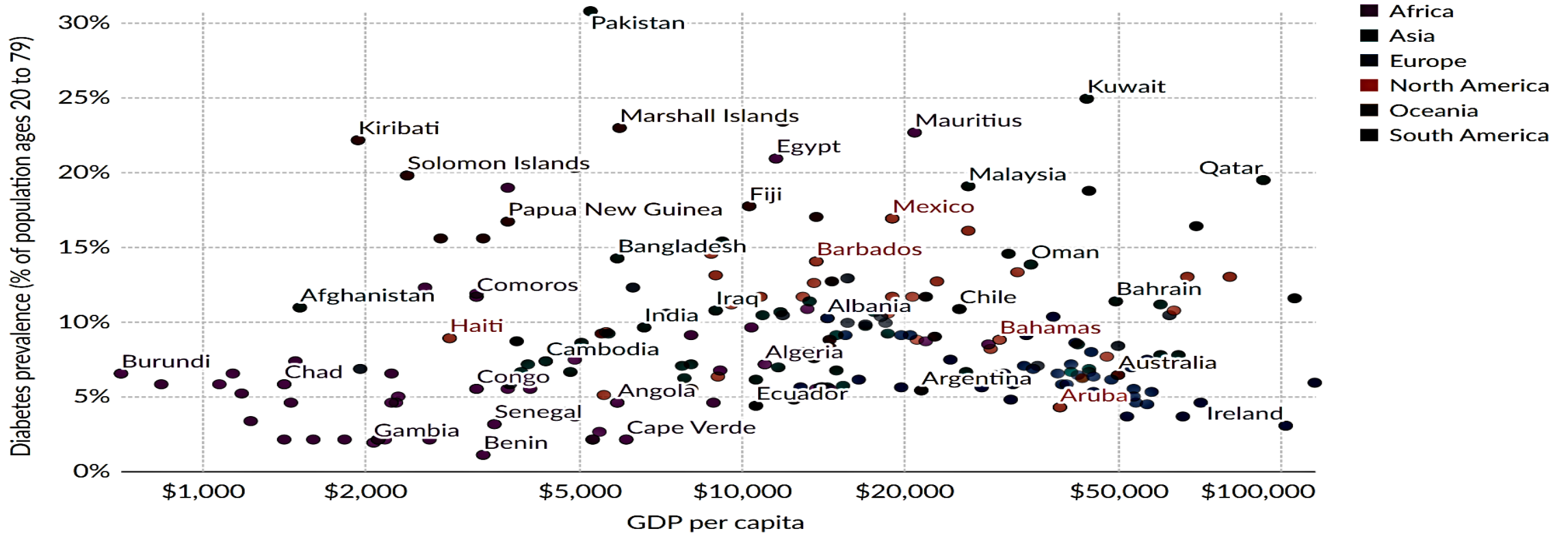
Our World in Data

Diabetes prevalence, measured as the percentage of the population aged 20-79 with type I or II diabetes versus gross domestic product (GDP) per capita, measured in constant international- $\$$.

Table | Map | Chart

Select countries and regions

Settings



2000 2021

Data source: International Diabetes Federation (via World Bank), Data compiled from multiple sources by World Bank - [Learn more about this data](#)
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Disease burden by age, World, 1990 to 2019

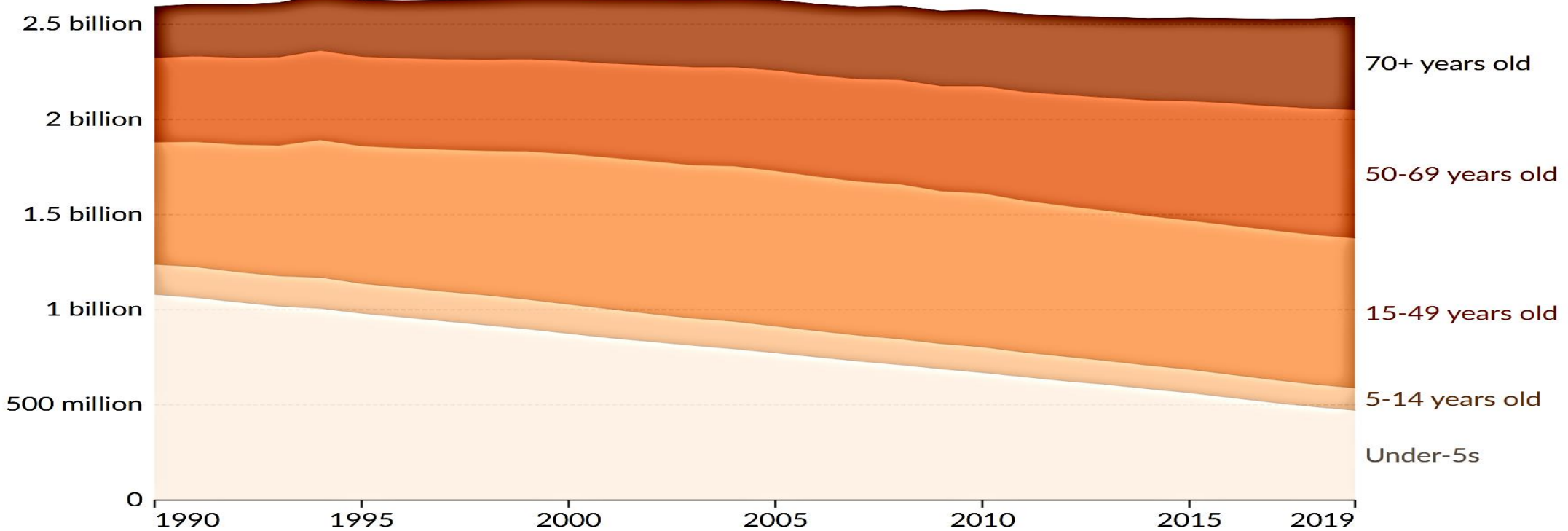
Our World
in Data

Total disease burden by age, measured in Disability-Adjusted Life Years (DALYs) from all causes. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table Chart

Edit countries and regions

Settings



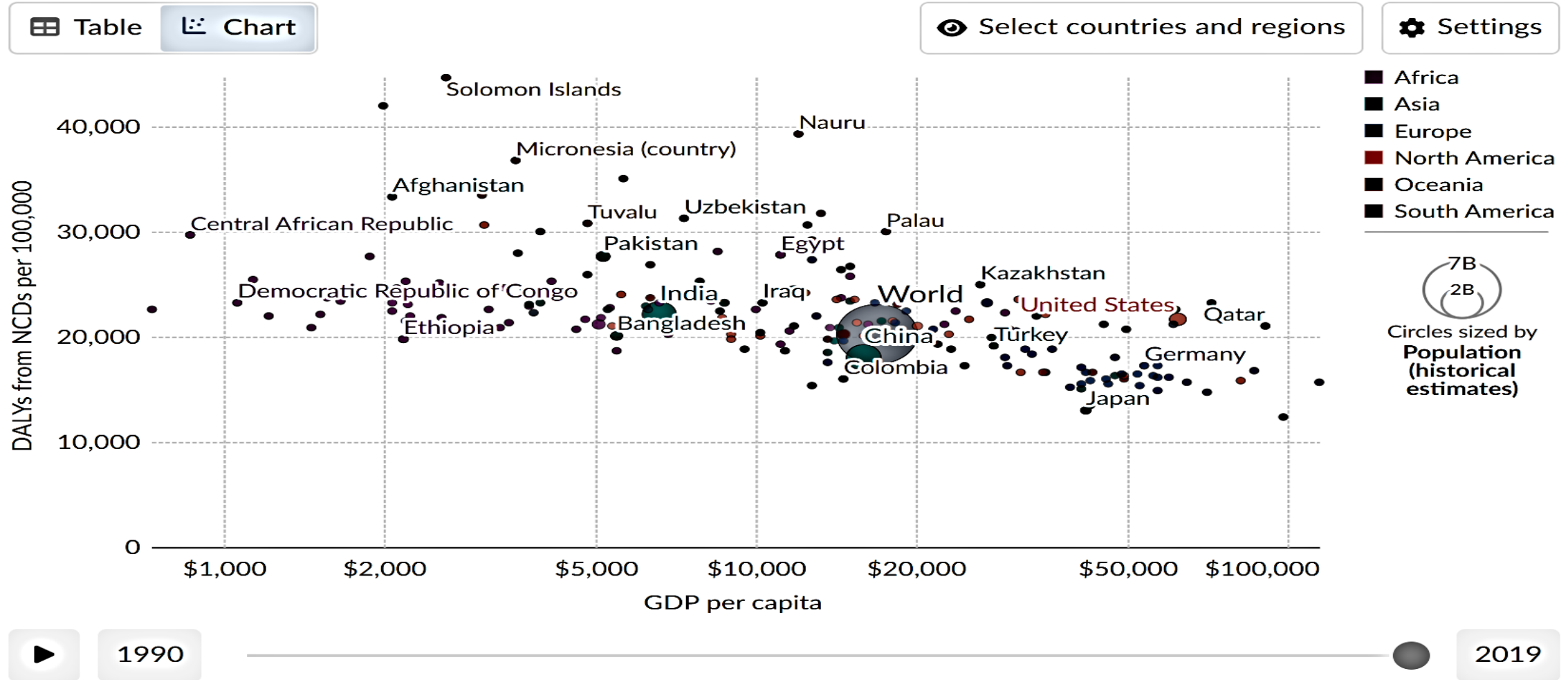
Data source: IHME, Global Burden of Disease (2019) – [Learn more about this data](#)
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Disease burden from non-communicable diseases vs. GDP per capita, 2019

Disease burden to non-communicable diseases (NCDs), measured in DALYs (Disability-Adjusted LifeYears) per 100,000 individuals versus gross domestic product (GDP) per capita, measured in constant international- $\$$.

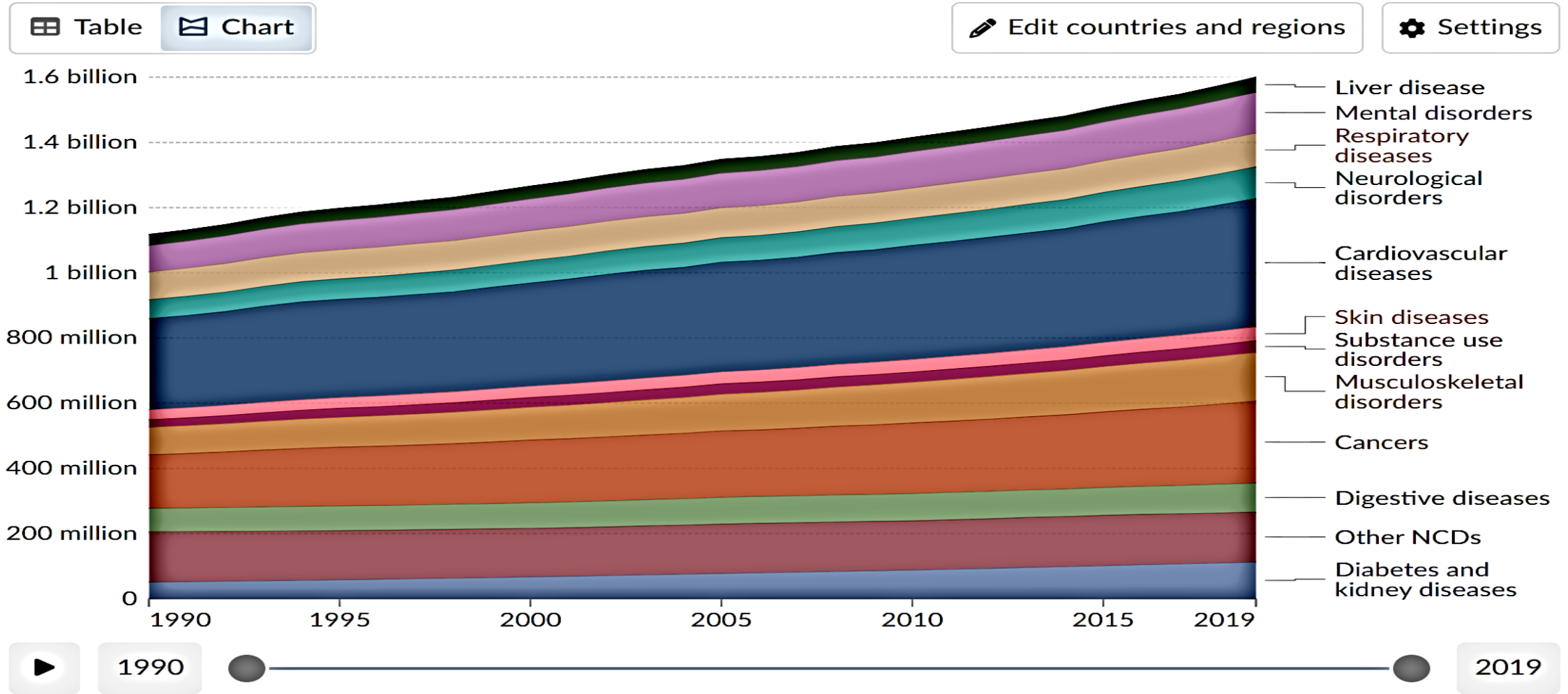


Data source: IHME, Global Burden of Disease (2019); Data compiled from multiple sources by World Bank - [Learn more about this data](#)
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Disease burden from non-communicable diseases, World, 1990 to 2019

Total disease burden from non-communicable diseases (NCDs), measured in DALYs (Disability-Adjusted Life Years) per year. DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

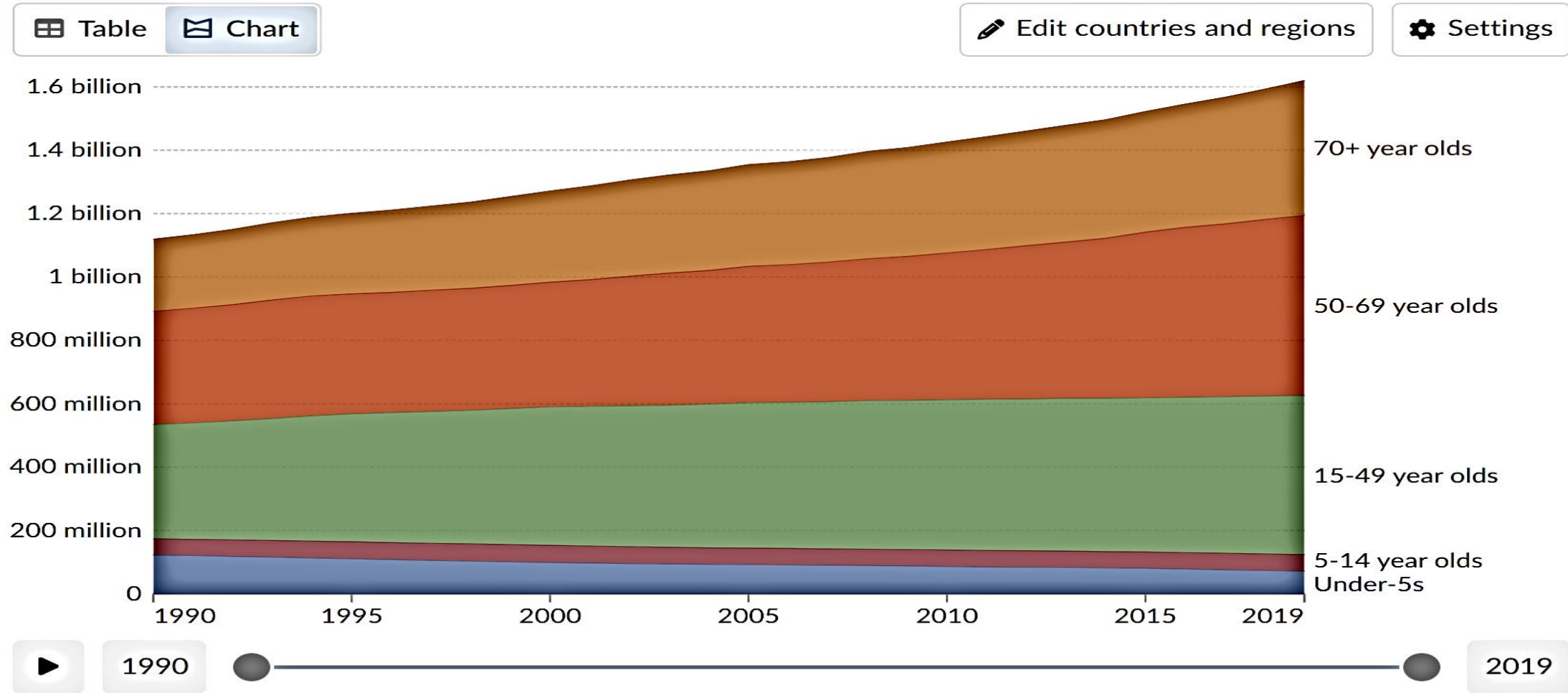


Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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Disease burden from non-communicable diseases by age, World, 1990 to 2019

Disease burden from non-communicable diseases (NCDs) by age. Disease burden is measured in DALYs (Disability-Adjusted Life Years). DALYs are used to measure total burden of disease - both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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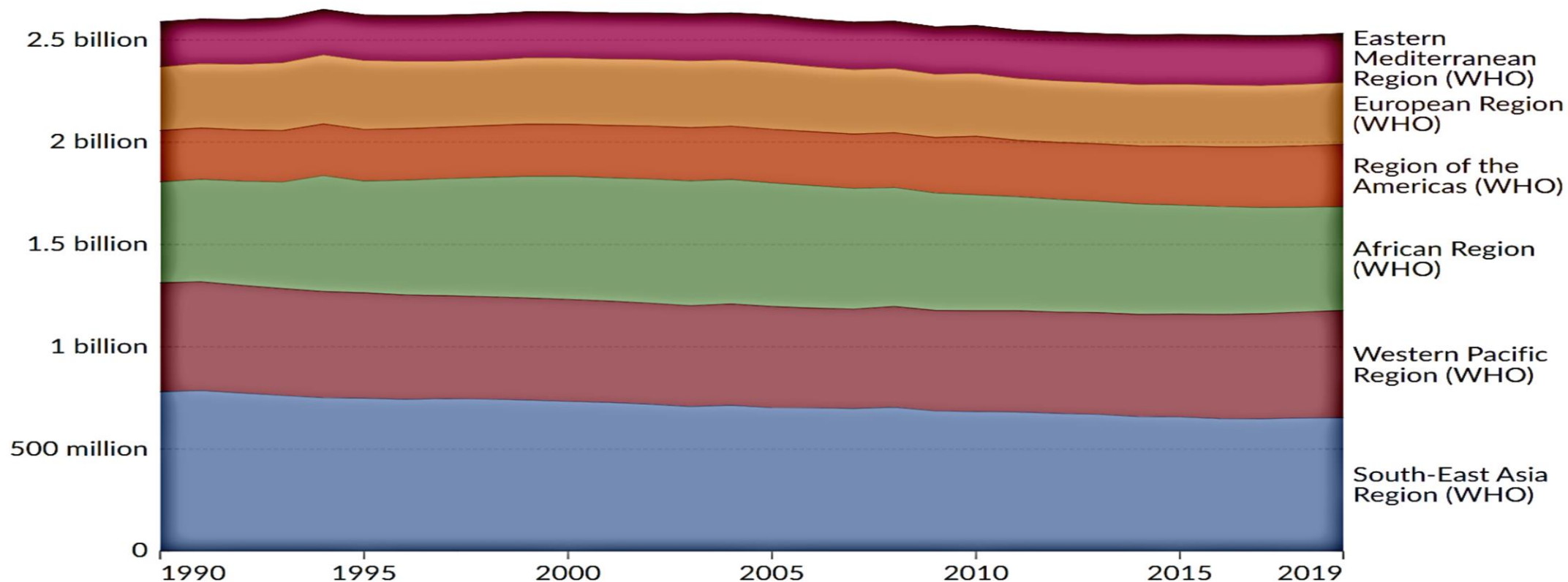


Global disease burden by region, 1990 to 2019

The total disease burden is measured as the number of Disability-Adjusted Life Years (DALYs) per year. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table Chart

Settings



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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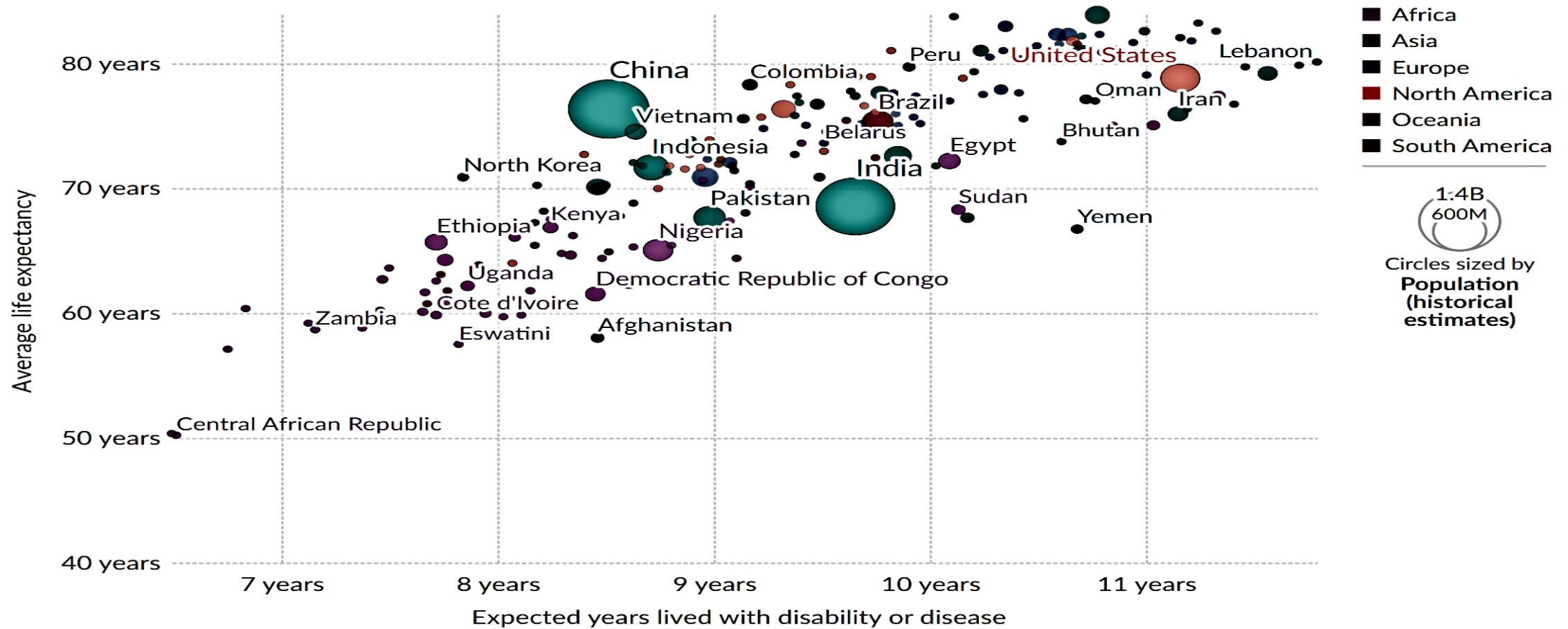
Life expectancy vs. expected years lived with disability or disease, 2016

Our World in Data

Table Chart

Select countries and regions

Settings



1990

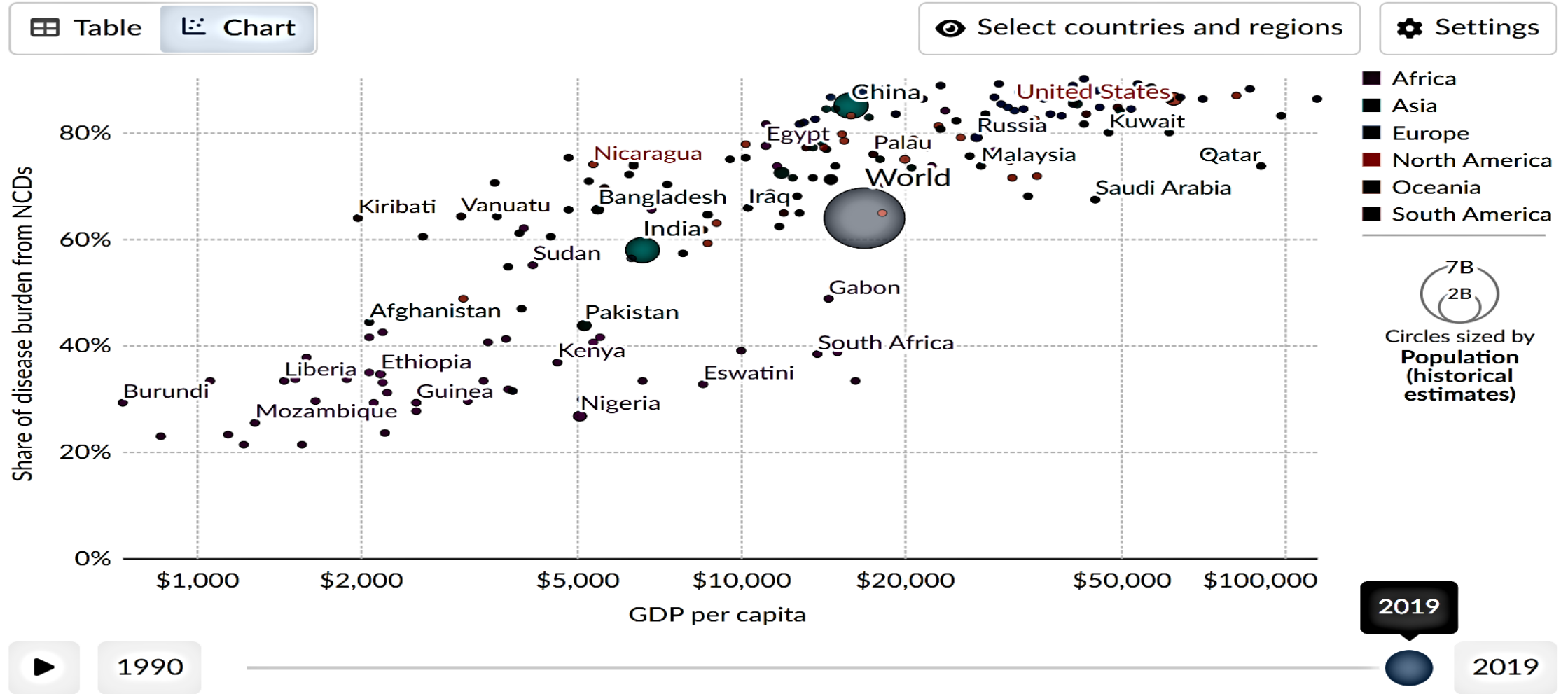
2016

Data source: IHME, Global Burden of Disease (2017) - [Learn more about this data](#)
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Share of disease burden from NCDs vs. GDP per capita, 2019

Share of total disease burden from non-communicable diseases (NCDs) versus gross domestic product (GDP) per capita, measured in constant international-\$. Disease burden is measured based on Disability-Adjusted Life Years (DALYs).



Data source: IHME, Global Burden of Disease (2019); Data compiled from multiple sources by World Bank - [Learn more about this data](#)

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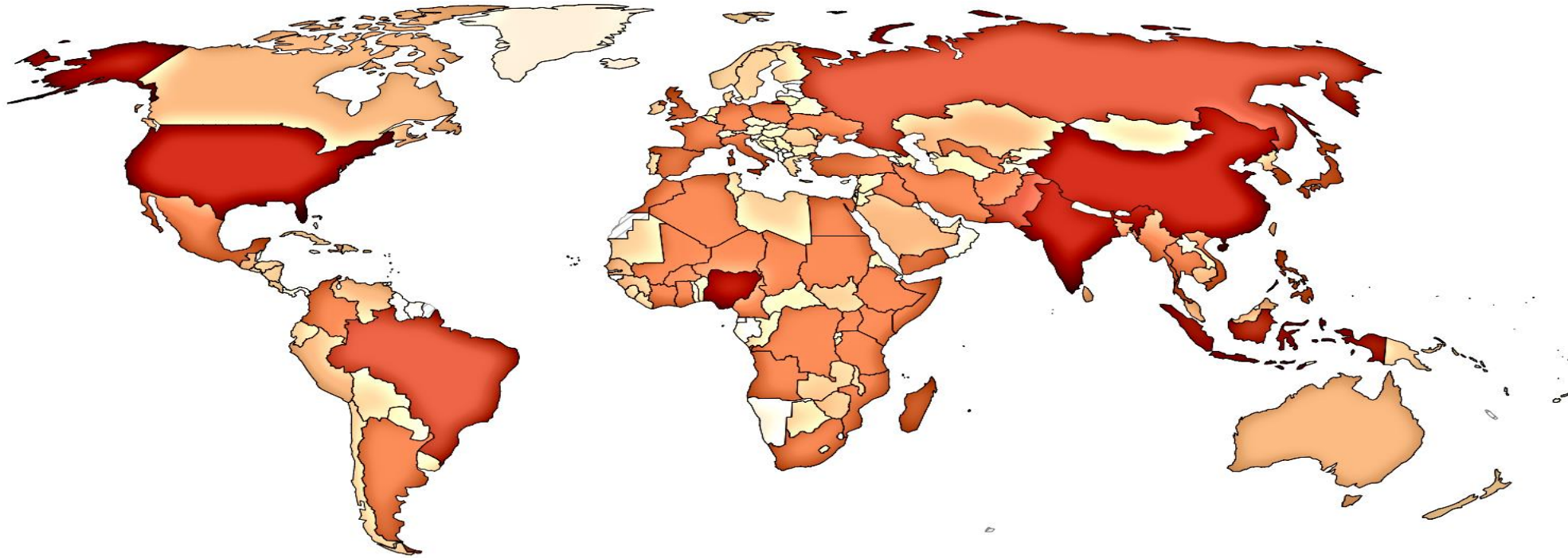


Total disease burden, 2019

The total disease burden is measured as the number of Disability-Adjusted Life Years (DALYs) per year. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table Map Chart

World



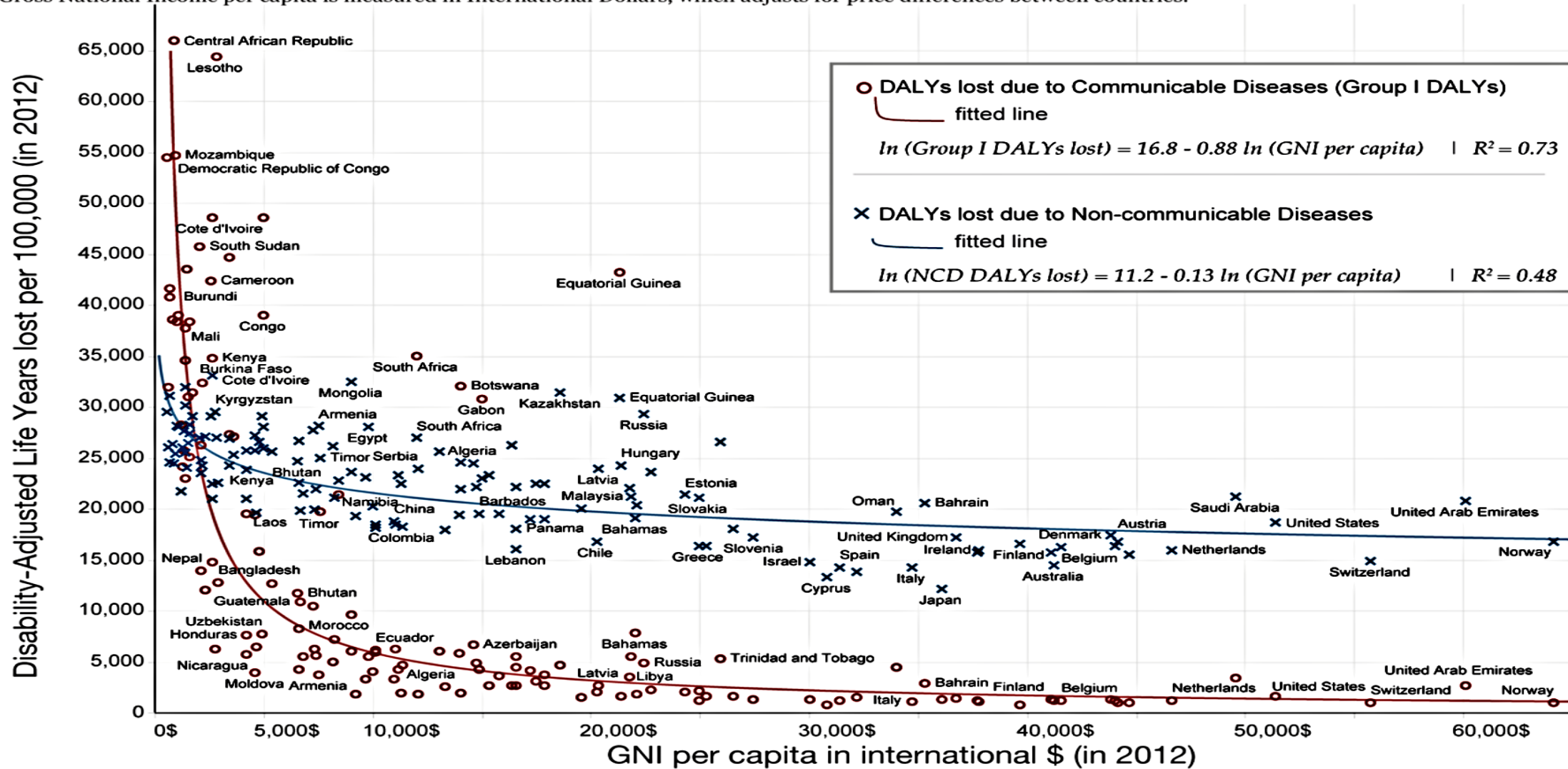
Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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GNI per capita vs DALYs lost due to communicable and non-communicable diseases

Disability-Adjusted Life Years (DALYs) measure the number of years lost due to ill-health and early death. This is called the Burden of Disease. Gross National Income per capita is measured in International Dollars, which adjusts for price differences between countries.



Data source: Sterck, O., Roser, M., Ncube, M., Thewissen, S. 2017 – Allocation of development assistance for health: Is the predominance of national income justified? (forthcoming in Health Policy and Planning) This data visualization is available at OurWorldinData.org where you find more research and visualizations on this topic. Licensed under CC-BY-SA by the author Max Roser.

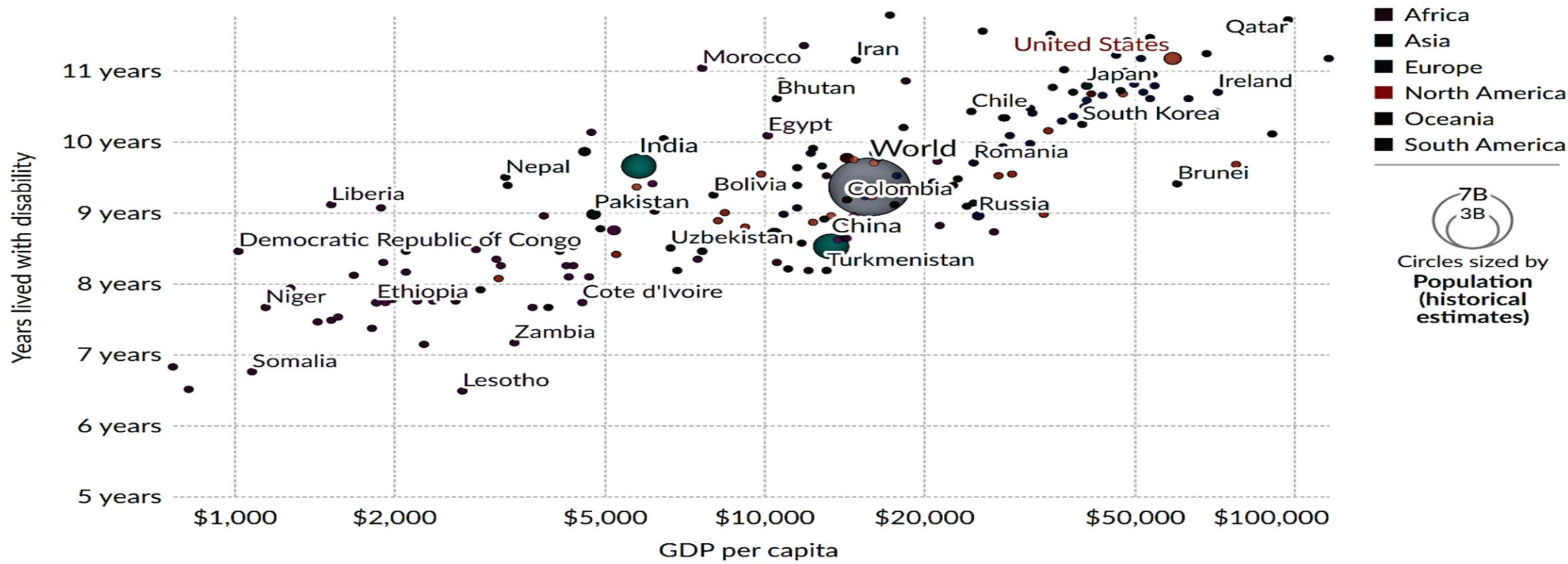
Years lived with disease or disability vs. GDP per capita, 2016

Expected years living with disability or disease versus gross domestic product (GDP) per capita, measured in constant international-\$ which correct for inflation and cross-country price differences.

Table Chart

Select countries and regions

Settings



1990 2016

Data source: Institute for Health Metrics and Evaluation, Data compiled from multiple sources by World Bank - Learn more about this data
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Total disease burden by cause, 1990 to 2019

Total disease burden measured as Disability-Adjusted Life Years (DALYs) per year. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

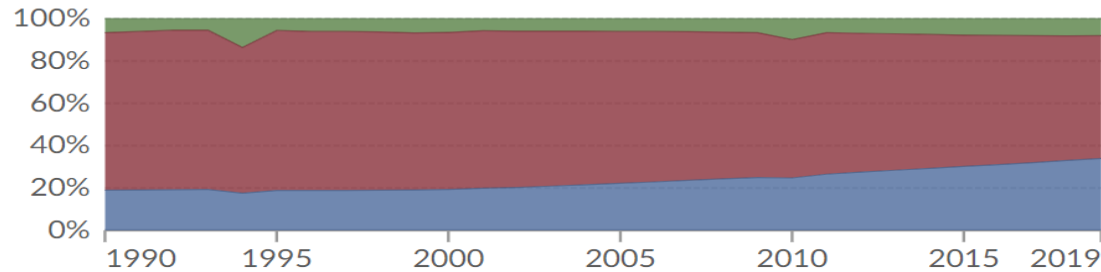
Table Chart

Edit countries and regions

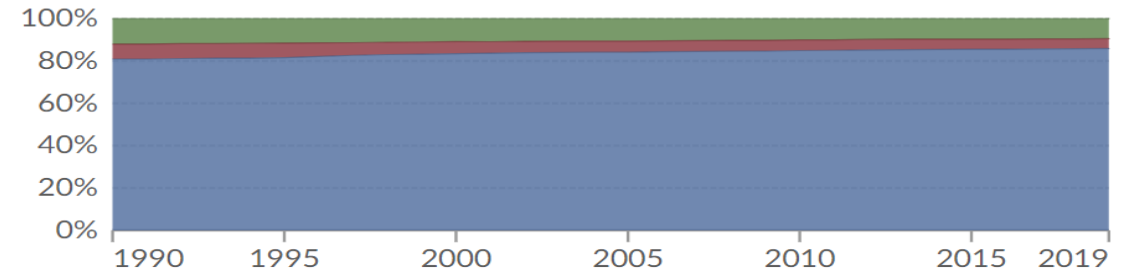
Settings

Injuries Communicable, maternal, neonatal, and nutritional diseases Non-communicable diseases (NCDs)

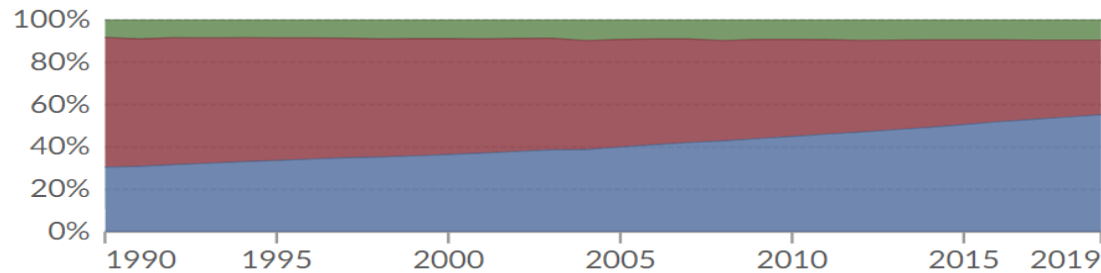
World Bank Low Income



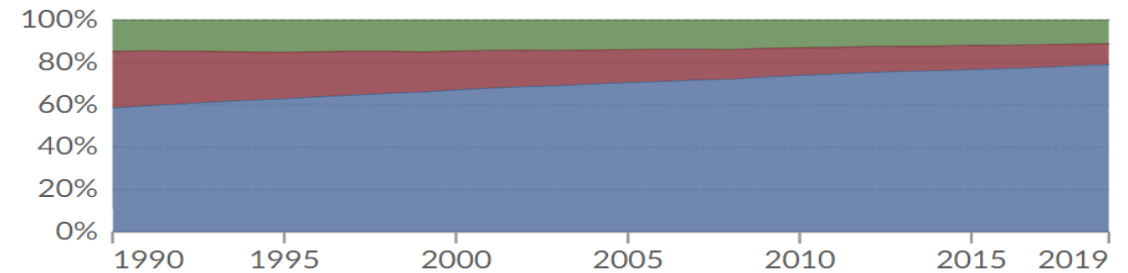
World Bank High Income



World Bank Lower Middle Income



World Bank Upper Middle Income



Data source: IHME, Global Burden of Disease (2019) – [Learn more about this data](#)

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Total disease burden by cause, World, 1990 to 2019

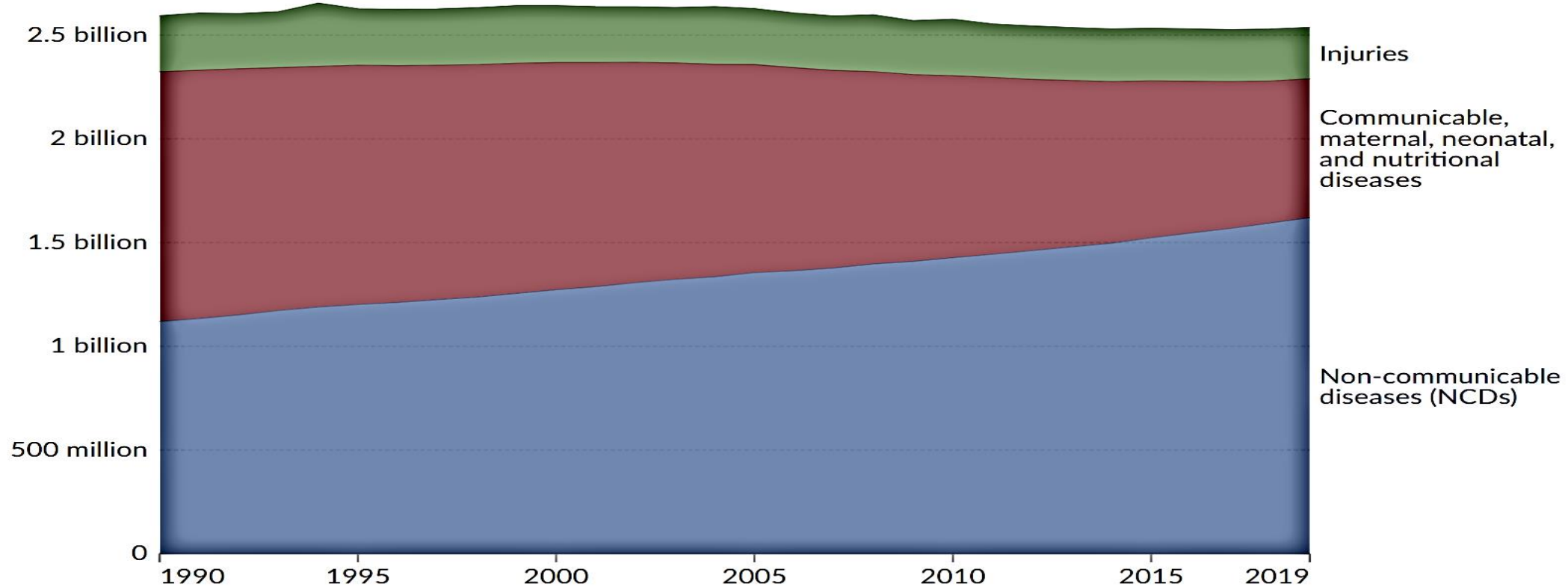
Our World
in Data

Total disease burden measured as Disability-Adjusted Life Years (DALYs) per year. DALYs measure the total burden of disease – both from years of life lost due to premature death and years lived with a disability. One DALY equals one lost year of healthy life.

Table Chart

Edit countries and regions

Settings



Data source: IHME, Global Burden of Disease (2019) - [Learn more about this data](#)
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Keep in mind : *Quick Reminders-1*

- ❑ In this lecture we reviewed an overview of the Burden of Chronic Diseases.
- ❑ NCDs constitute a higher *share* of disease burden at higher incomes. This is because communicable diseases decline more greatly with income than non-communicable diseases do.
- ❑ **Epidemiologists** break the disease burden down into 3 categories of disability or disease:
 - **Non-communicable** diseases (NCDs);
 - **Communicable**, maternal, neonatal, and nutritional diseases; and
 - **Injuries**.
- ❑ At a global level, the majority of the burden of disease results from non-communicable diseases (NCDs). Communicable, maternal, neonatal, and nutritional diseases are the next most common, and finally injuries.

Keep in mind : *Quick Reminders-2*

- ❑ In high-income nations, non-communicable diseases account for a large share of the overall burden of disease. In contrast, communicable diseases tend to make a small share.
- ❑ *At a global level, the largest disease burden in 2019 comes from cardiovascular diseases. This is followed by cancers, neonatal disorders, musculoskeletal disorders, respiratory infections, and mental and substance use disorders.*
- ❑ In **low-income countries**, communicable and neonatal diseases tend to rank much higher. This starkly contrasts with high-income countries, where communicable diseases may not be in the top ten, and instead, cardiovascular disease and cancers tend to contribute the largest burden.

Keep in mind : *Quick Reminders-3*

- ❖ Overall we see a continued decline in burden of disease in children under five years old. This is also reflected in the relative share of burden of disease in children under five years old.
- ❖ *At a global level, collective rates across all ages have steadily declined. This shows that global health has improved considerably since then.*
- ❖ The correlation between **Income and disease burden** is apparent: Both **DALY** loss rates and the total share from communicable diseases tend to decline with increasing incomes.
- ❖ *The 1st of these other factors is individual poverty. The 2nd factor is the epidemiological surrounding of a country which captures the health status of neighbouring countries. And the 3rd important factor is institutional capacity.*

Conclusion - 1

- 1. Chronic diseases** are the leading cause of **death** and **disability** worldwide, significantly impacting the quality of life.
- 2. The global burden of chronic diseases is measured in Disability Adjusted Life Years (**DALYs**), which combine years of life lost due to **premature mortality** and years lived with **disability**.*
3. Non-communicable diseases (NCDs), such as **cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes**, represent the majority of the disease burden.

Conclusion - 2

4. **Many chronic conditions are preventable** through *lifestyle changes, such as reducing smoking, alcohol use, obesity, and increasing physical activity.*
5. The **sociodemographic index** plays a role in the burden of chronic diseases, with varying impacts across different regions and populations.
6. **Smoking**, *pollution from ambient particulate matter, and occupational exposure are significant contributors to the burden of like COPD.*
7. Advances in medical technology and healthcare systems can help manage and reduce the burden of chronic diseases.

Conclusion - 3

8. **Public health** policies and **education** are crucial in addressing the risk factors associated with chronic diseases.

9. *There is a need for **global collaboration** to share knowledge, resources, and strategies to tackle the burden of chronic diseases effectively.*

10. The future of **managing chronic diseases** lies in *personalized medicine* and **preventive healthcare** strategies tailored to individual risk profiles.

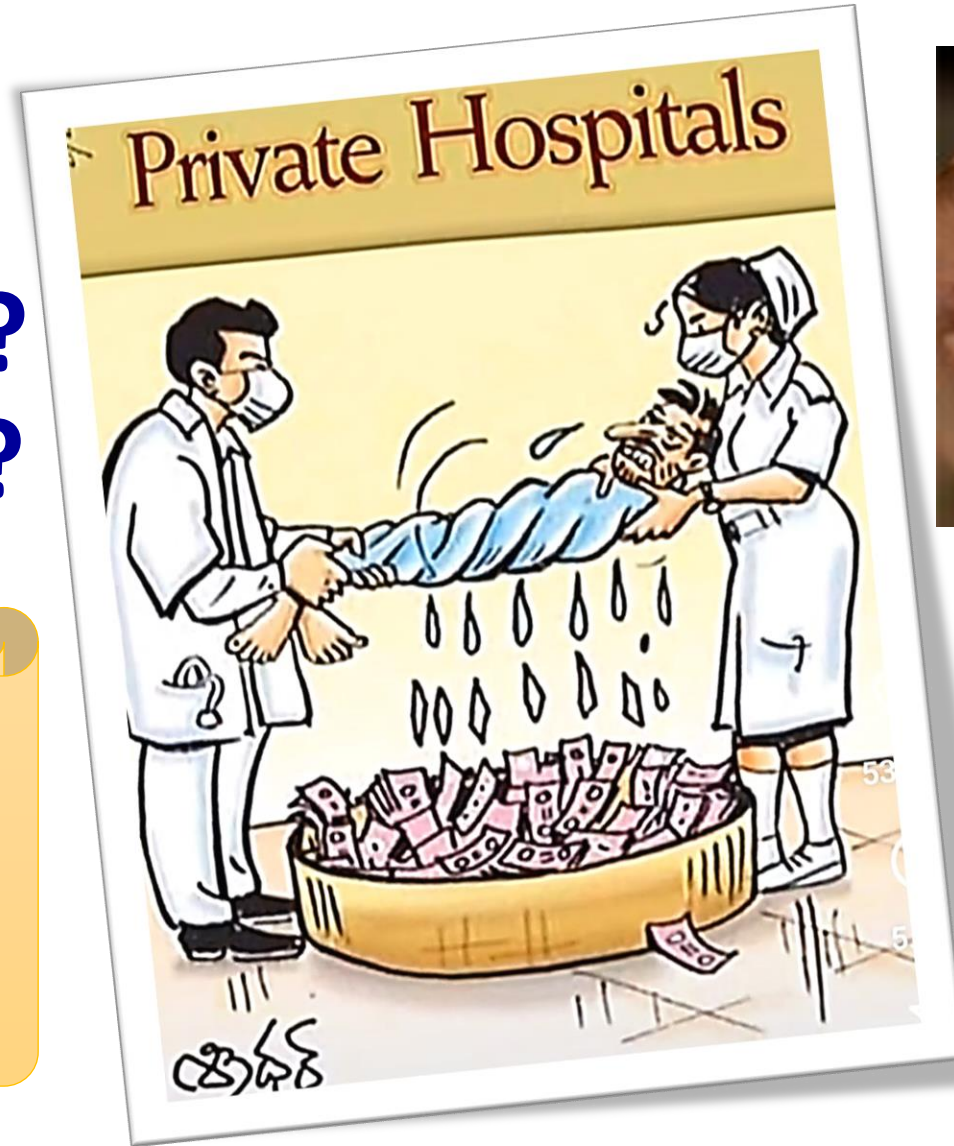
*These points can serve as a comprehensive wrap-up of the lecture, emphasizing the significance of **chronic diseases** and the multifaceted approach required to address them.*

References

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**Any QUESTIONS?
or COMMENTS??**

***Thank you
for joining..***



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