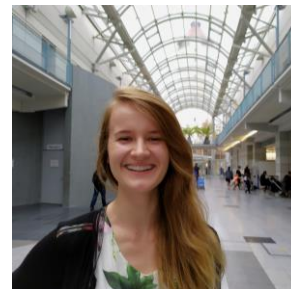




TARTU ÜLIKOOL



# Introduction to Global Health



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# Introduction

- “Global Health 101” runs in parallel in 2 universities- the Masaryk University and the University of Tartu.
- This course consists of 12 seminars and runs for 12 weeks
- The working language of the course is English
- As the title says, this course intends to give you all an overview of what we call “global health” and hopefully spark an interest to learn more later on in life.
- Consider this course as an eye-opener and these sessions as a safe place where to share ideas, brainstorm together and train your critical thinking about health in a more global context.

# The team

[insert pictures and names of lecturers]



## Today's agenda:

- A brief history of Global Health
- Burning global health issues
- Health inequities and determinants of health
- Sustainable development goals (SDGs)
- Universal Health Coverage
- Triple Billion Goals

# What is global health?

Table Comparison of global, international, and public health

	Global health	International health	Public health
Geographical reach	Focuses on issues that directly or indirectly affect health but that can transcend national boundaries	Focuses on health issues of countries other than one's own, especially those of low-income and middle-income	Focuses on issues that affect the health of the population of a particular community or country
Level of cooperation	Development and implementation of solutions often requires global cooperation	Development and implementation of solutions usually requires binational cooperation	Development and implementation of solutions does not usually require global cooperation
Individuals or populations	Embraces both prevention in populations and clinical care of individuals	Embraces both prevention in populations and clinical care of individuals	Mainly focused on prevention programmes for populations
Access to health	Health equity among nations and for all people is a major objective	Seeks to help people of other nations	Health equity within a nation or community is a major objective
Range of disciplines	Highly interdisciplinary and multidisciplinary within and beyond health sciences	Embraces a few disciplines but has not emphasised multidisciplinary	Encourages multidisciplinary approaches, particularly within health sciences and with social sciences

Figure 1. Comparison of global, international and public health (Koplan, JP, et al. 2009)

# The history of global health

- The „age of exploration“ (15th- 18th century)
- Tropical medicine (19th century)
- International Health (1850 -1950)
- Foundation of the World Health Organization

# The „age of exploration“ (15th- 18th century)

- Travelling and the start of colonialization (Columbus, Da Gama, Cortez etc.)
- “Virgin soil epidemics”- smallpox, influenza, measles, mumps and chickenpox
- Exchanging diseases between the Old and the New World

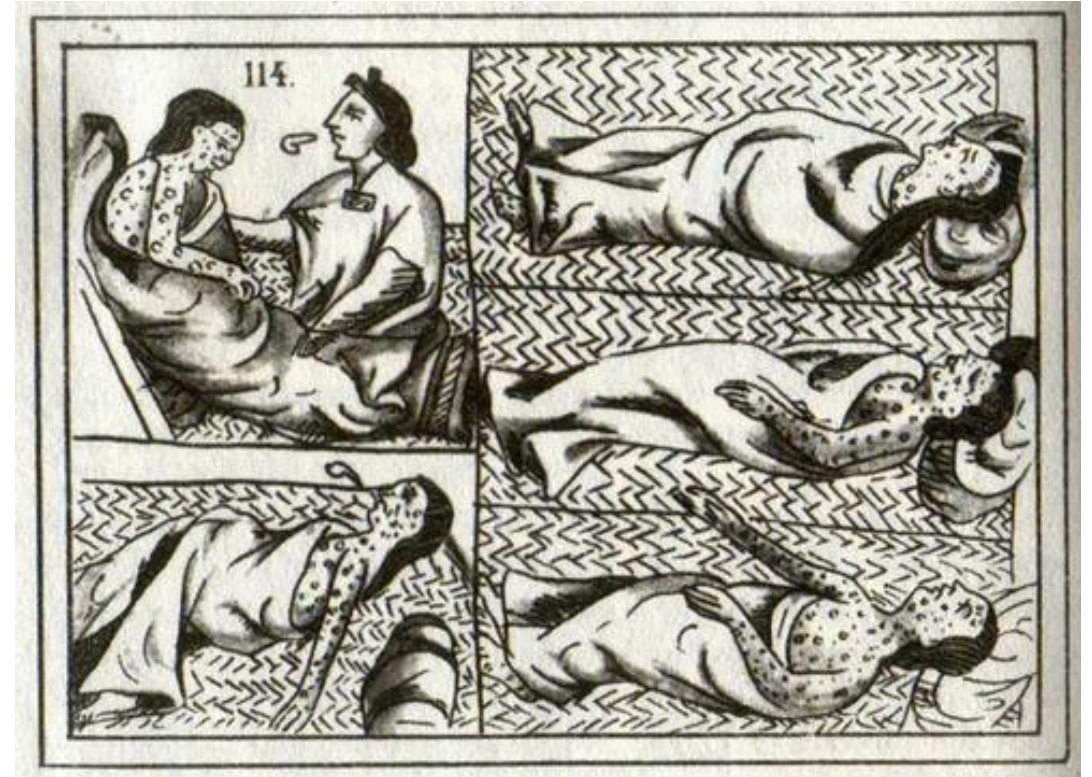


Figure 2. Indigenous people suffering from smallpox (Ward, 2020)

## Tropical medicine (19th century)

- The advent of the germ theory of disease
- „In both Britain and the United States, tropical medicine was a specialty ‘conceived out of the very specific needs of colonialism’.“ (Gibson, 2009)
- Tropical medicine produced optimism about controlling epidemic disease within European colonies and preventing them from reaching Europe (Bhattacharya, 2012)
- The start of medical missions (Palilonis)



Figure 3. Introduction of anti-cholera inoculation in Calcutta, in March 1894 (Wikimedia Commons)  
DR. W. J. R. SIMPSON,



# International Health (1850 -1950)

- 1851 International Sanitary Convention (Paris)- first time nations came together to create an international health policy.
- 1899 LSHTM was founded (Patrick Manson)
- 1902 Pan-American Sanitary Bureau was established.
- 1907: Office International d'Hygiene Publique (Paris)
- 1913: Rockefeller Foundation- the single largest funder of global health in the first half of the 20th century.



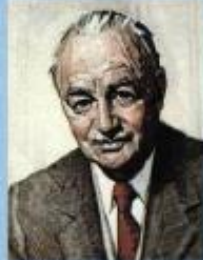
Figure 4. The establishment of the Pan-American Sanitary Bureau. (Alleyne 2016)



## The establishment of the World Health Organization (WHO) in 1948

- Definition of Health: „A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity“. (WHO, 1948)

**1948** 7 April: Constitution of WHO comes into being. Later, 1st World Health Assembly names Dr Brock Chisholm as first Director-General



**1949** 2nd Assembly confirms that Pan American Sanitary Bureau will act as WHO's regional office of the Americas

**1953** Dr Marcolino Candau succeeds Dr Chisholm as second Director-General

**1966** Opening of WHO's custom-built headquarters in Geneva, Switzerland



**1967** Start of intensified campaign for smallpox eradication

**1973** Dr Halfdan Mahler succeeds Dr Candau as third Director-General

**1977** 30th Assembly adopts as target **Health for all by the Year 2000**. Last ever case of endemic smallpox located in Somalia



Photos WHO

**1978** Declaration of Alma-Ata, at WHO/UNICEF conference on primary health care

**1979** Independent commission confirms the global eradication of smallpox

**1986** Seventh report on the world health situation assesses progress made towards Health for All

**1988** WHO's 40th anniversary. World Health Day slogan chosen for this occasion:

**Health for all—all for health**

# Burning global health issues today (WHO):

Advancing health for all

Tackling health inequities

Strengthening primary health care

The COVID-19 pandemic

Combating drug resistance

Increasing vaccine uptake

Preventing & treating NCDs and mental health conditions

Revitalizing efforts to tackle communicable diseases

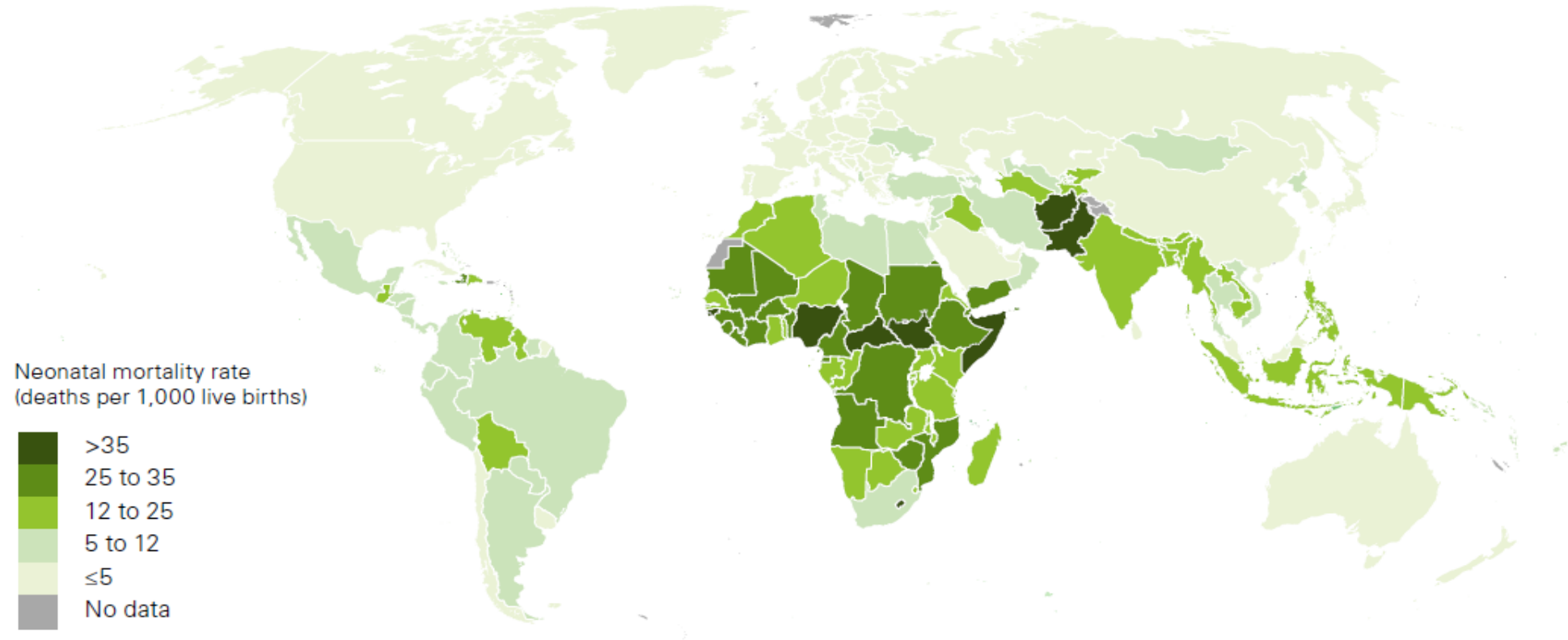
Fighting air pollution and climate change

# Inequities in health

# High neonatal mortality rates in low-income countries

MAP  
2

Neonatal mortality rate (deaths per 1,000 live births) by country, 2019



Note: The classification is based on unrounded numbers. This map does not reflect a position by UN IGME agencies on the legal status of any country or territory or the delimitation of any frontiers.

# Will saving poor children lead to overpopulation?



# The importance of increasing vaccine uptake

- In 2020 83% of all children had received all 3 required doses of DTP vaccine
- Due to the COVID-19 pandemic 23 million less children were vaccinated taking us to the vaccination coverage level of 2009

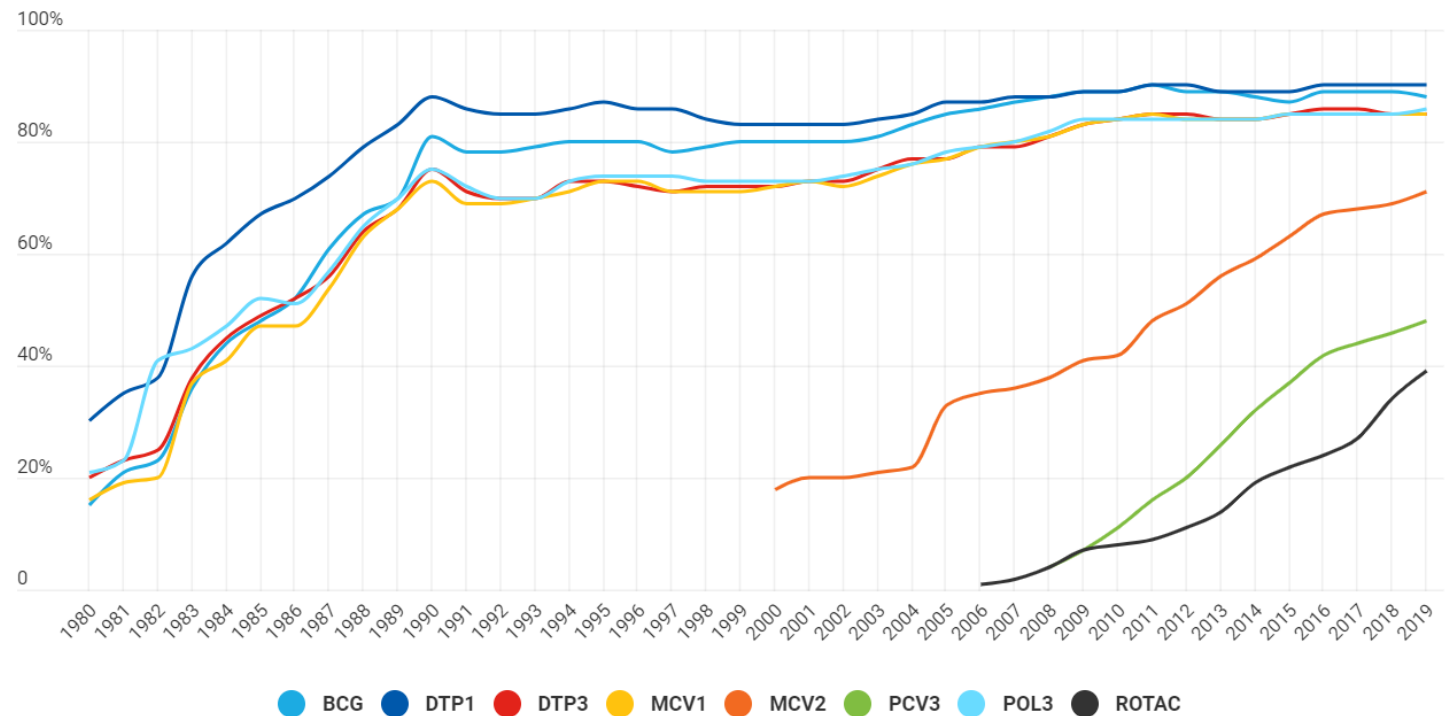


Figure 6. Global children's immunization coverage (UNICEF)

(*Immunization and vaccine-preventable communicable diseases, WHO*)

# Immunization

- Immunization helps prevent morbidity and mortality, especially under 5 mortality
- Prevents poverty as it decreases treatment costs
- GAVI- global vaccine alliance
- COVAX
- Global vaccination goals (WHO):
  - Eradicate polio
  - Reach global goals towards eliminating tetanus, measles, rubella
  - By the year 2020 reach 90% coverage goals for all vaccines in the national immunization plans
  - Decrease under 5 mortality



Figure 7. Oral polio vaccine (GPEI)

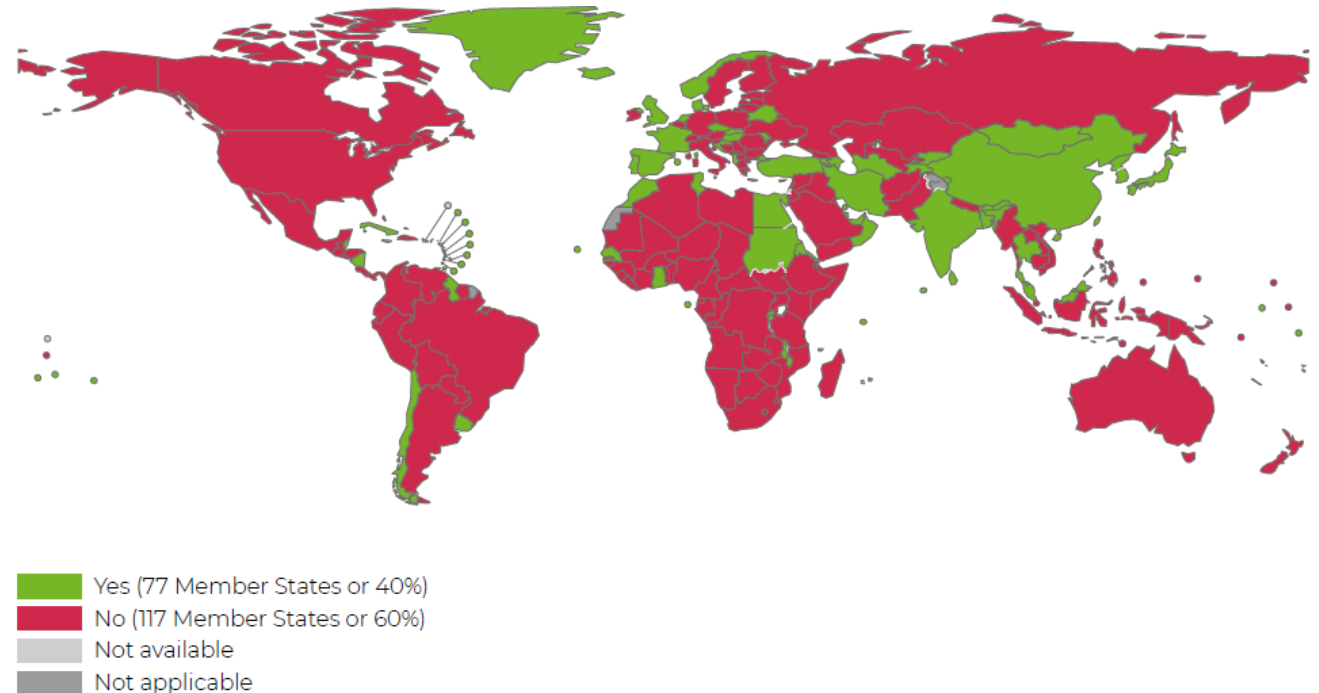


Figure 8. Country coverage of 90%+ infant immunization in 2019 (WHO)



# Vaccination saves lives

Disease	20th Century annual morbidity (2)	2016 Reported cases (3)	Percent decrease (%)
Smallpox	29,005	0	100
Diphtheria	21,053	0	100
Measles	530,217	69	>99
Mumps	162,344	5,311	97
Pertussis	200,752	15,737	92
Polio (paralytic)	16,316	0	100
Rubella	47,745	5	>99
Congenital rubella syndrome	152	1	99
Tetanus	580	33	94
<i>Haemophilus influenzae</i>	20,000	22*	>99

\**Haemophilus influenzae* type b (Hib) < 5 y of age.

Figure 9. Morbidity of various diseases in the 20th century and in 2016. (Orenstein, 2017)



# Hunger Map 2021

## CHRONIC HUNGER

Up to 811 million people – 1 in 10 of the global population – do not get enough to eat

<2,5%	2.5-4,9%	5-14,9%	15-24,9%	25-34,9%	>35%	DATA NOT AVAILABLE
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Undernourishment is defined as the condition in which an individual's habitual food consumption is insufficient to provide the amount of dietary energy needed to maintain a normal, active, healthy life. The indicator is reported as the prevalence of undernourishment (PoU), which is an estimate of the percentage of individuals in the total population that are in a condition of undernourishment. To reduce the influence of possible estimation errors in some of the underlying parameters, national estimates are reported as a three-year moving average. Source: FAO, IFAD, UNICEF, WFP and WHO, 2020. The State of Food Security and Nutrition in the World 2021. Transforming food systems for food security, improved nutrition and affordable healthy diets for all. Rome, FAO. Further information is available at <https://www.fao.org/state-of-food-security-nutrition>.

# How long do people live on average?

- 75 years (women)
- 70 years (men)
- „Life expectancy at birth is defined as how long, on average, a newborn can expect to live, if current death rates do not change.“ (OECD, 2021)
- How is life expectancy different per world region?
- Why do women live longer than men?
- The impacts of COVID-19 on global life expectancy

## Life expectancy of women vs life expectancy of men, 2020

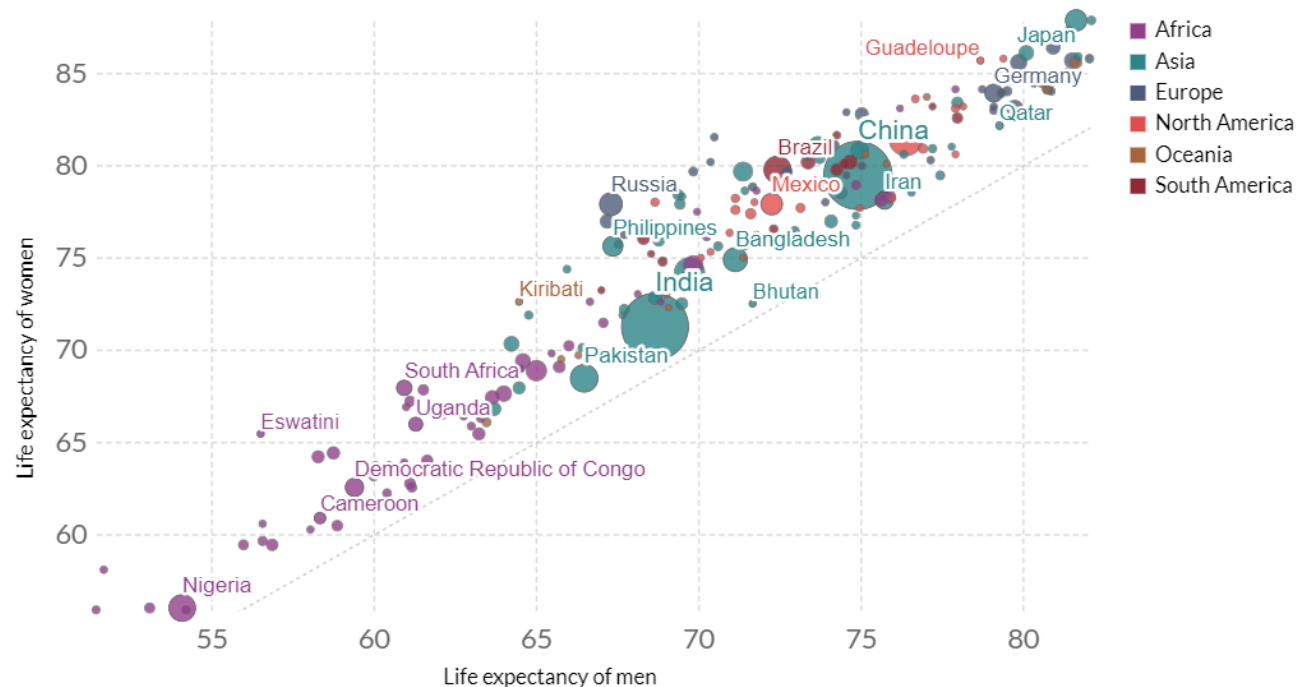
In countries that lie above the grey line the life expectancy of women is higher than for men.

Our World  
in Data

Select countries

Average annual change

Hide countries < 1 million people



Source: UN Population Division (2019 Revision)

Note: Shown is the period life expectancy at birth measured in years.

CC BY

▶ 1950 ————— 2020

Figure 10. Life expectancy of women vs men in 2020 (Our World in Data)

# Healthy life expectancy (HALE) at birth (years)

ERS

Year

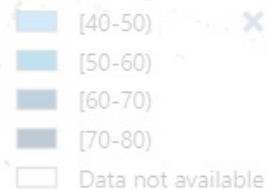
Latest

Sex

Both sexes



**Healthy life expectancy (HALE)** at birth adds up expectation of life for different health states, adjusted for severity distribution making it sensitive to changes over time or differences between countries in the severity distribution of health states. (Global Health Observatory)



• Figure 11. Healthy life expectancy (HALE), (WHO Global Health observatory)

# Income and life expectancy explained



**Worldbank: „Extreme poverty, defined as living on less than \$1.90 a day, is likely to affect between 9.1% and 9.4% of the world’s population in 2020“**

Let’s look at how people across the world live depending on their income:



# The impact of COVID-19 on poverty

Figure 1: Annual change in the number of extreme poor (in million), 1992-2020

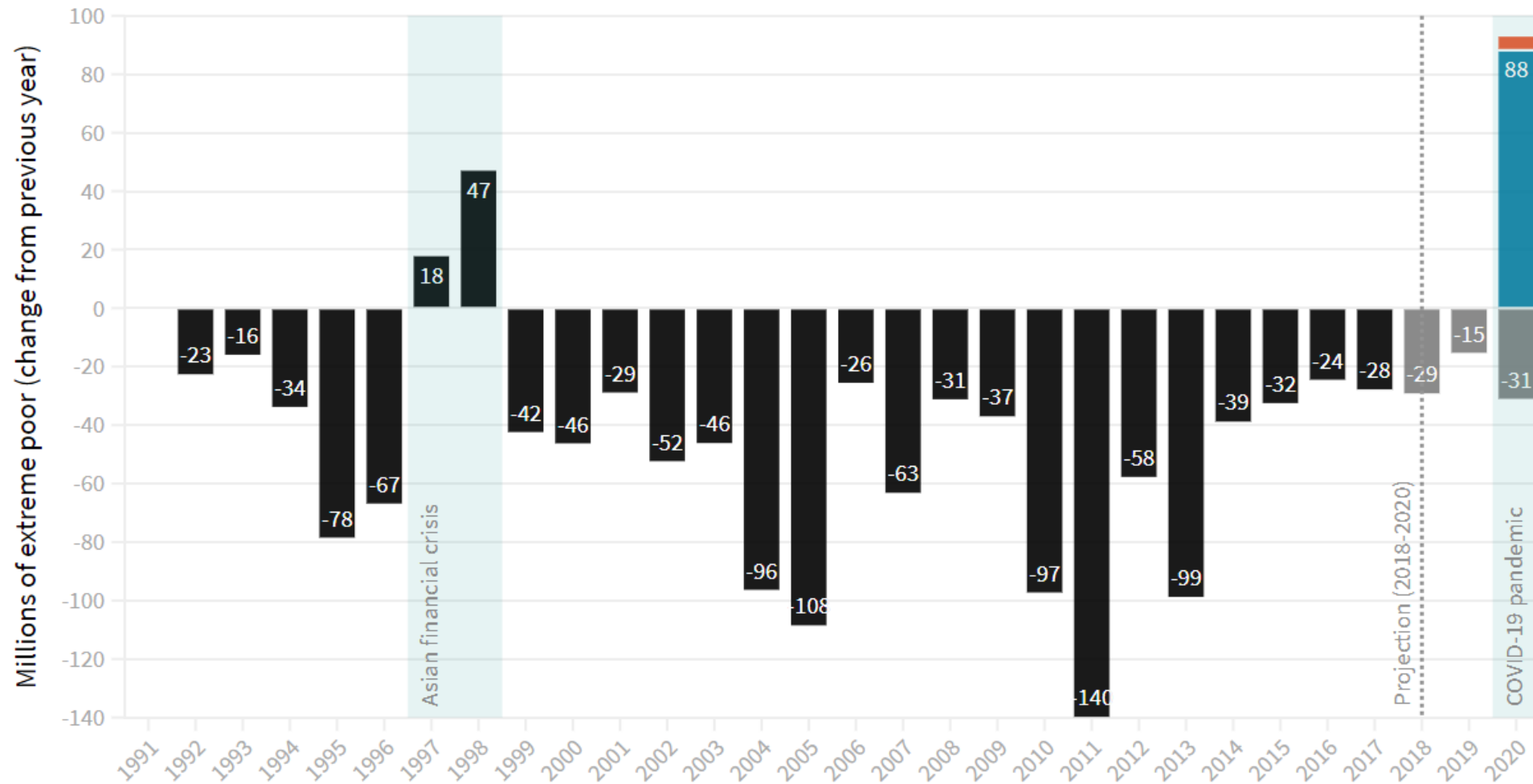
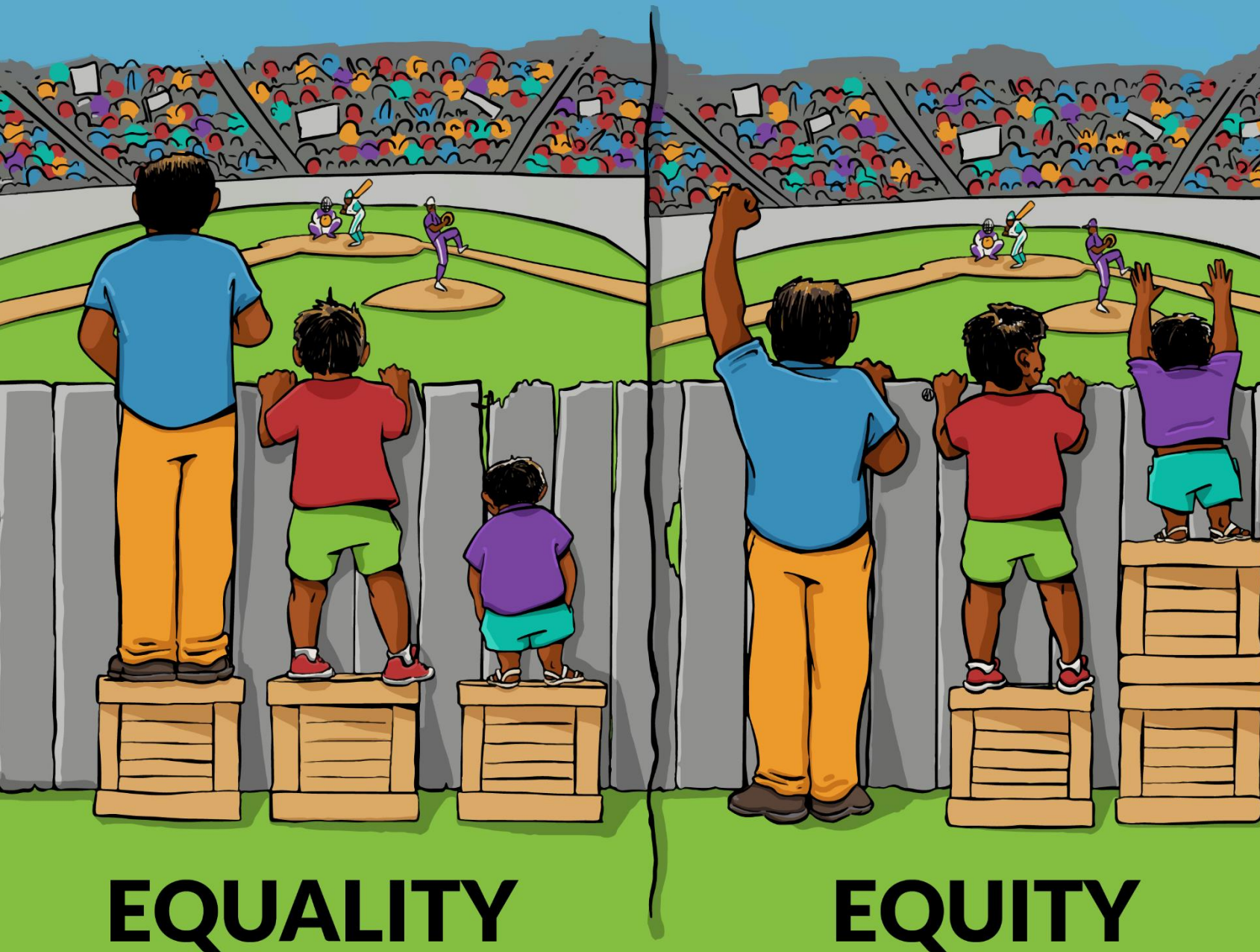


Figure 12. The impact of COVID-19 on the extreme poor. (Worldbank, 2020)



## Equality vs equity in global health

- CDC says, “Health equity is when everyone has the opportunity to be as healthy as possible.”
- Horizontal and vertical equity
  - Access to care
  - Financing
  - Sharing costs

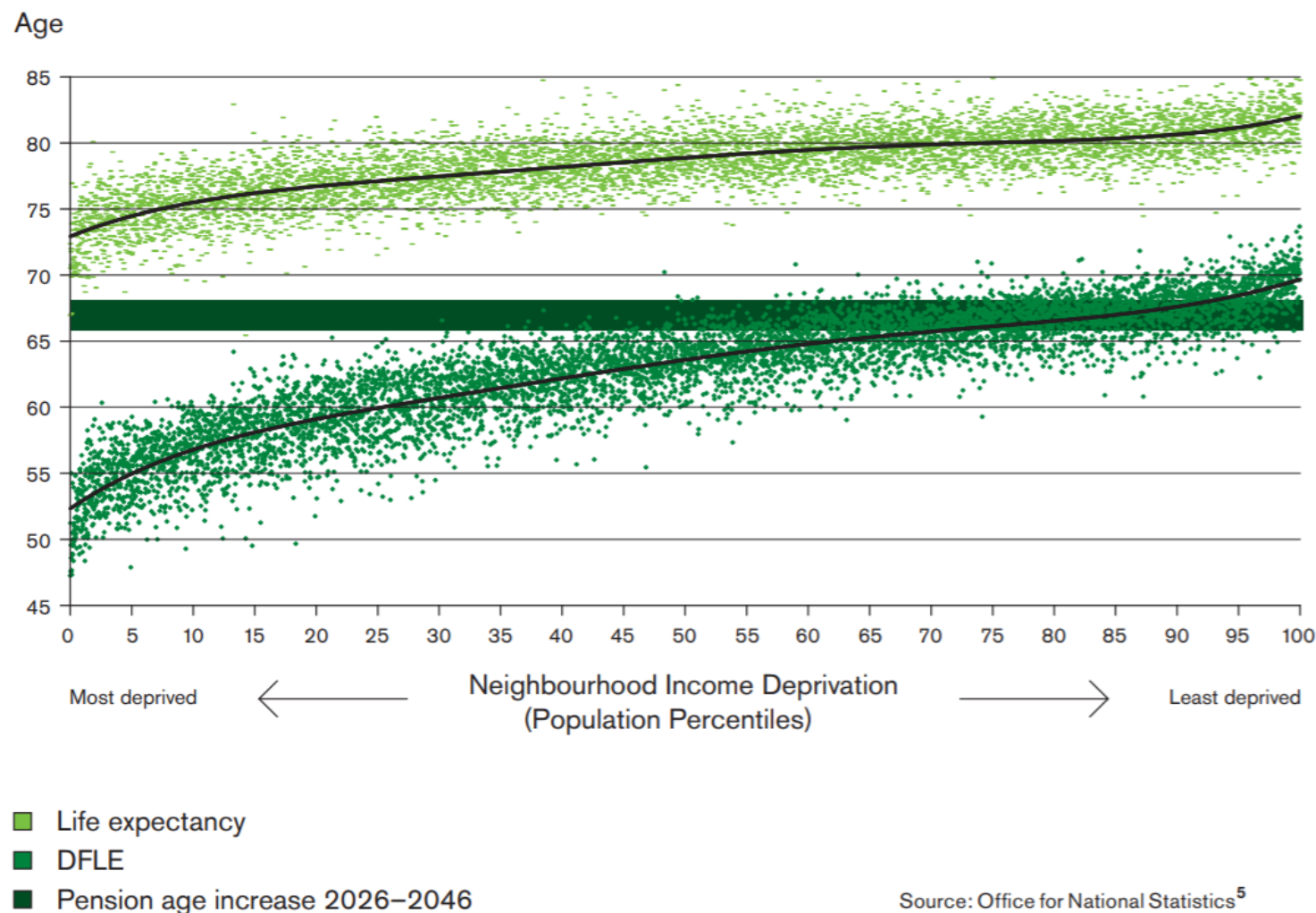
Figure 13. Equality and equity (Interaction Institute for Social Change, Artist: Angus Maguire.)



# Why investigate inequities in health?

- Poorer people have more diseases and a lower life expectancy compared to richer people
- The burden of disease falls disproportionately on people living in deprived conditions, and for some health conditions falls particularly heavily on certain ethnic groups. (Marmot, 2010)

Figure 1 Life expectancy and disability-free life expectancy (DFLE) at birth, persons by neighbourhood income level, England, 1999–2003



## The social determinants of health

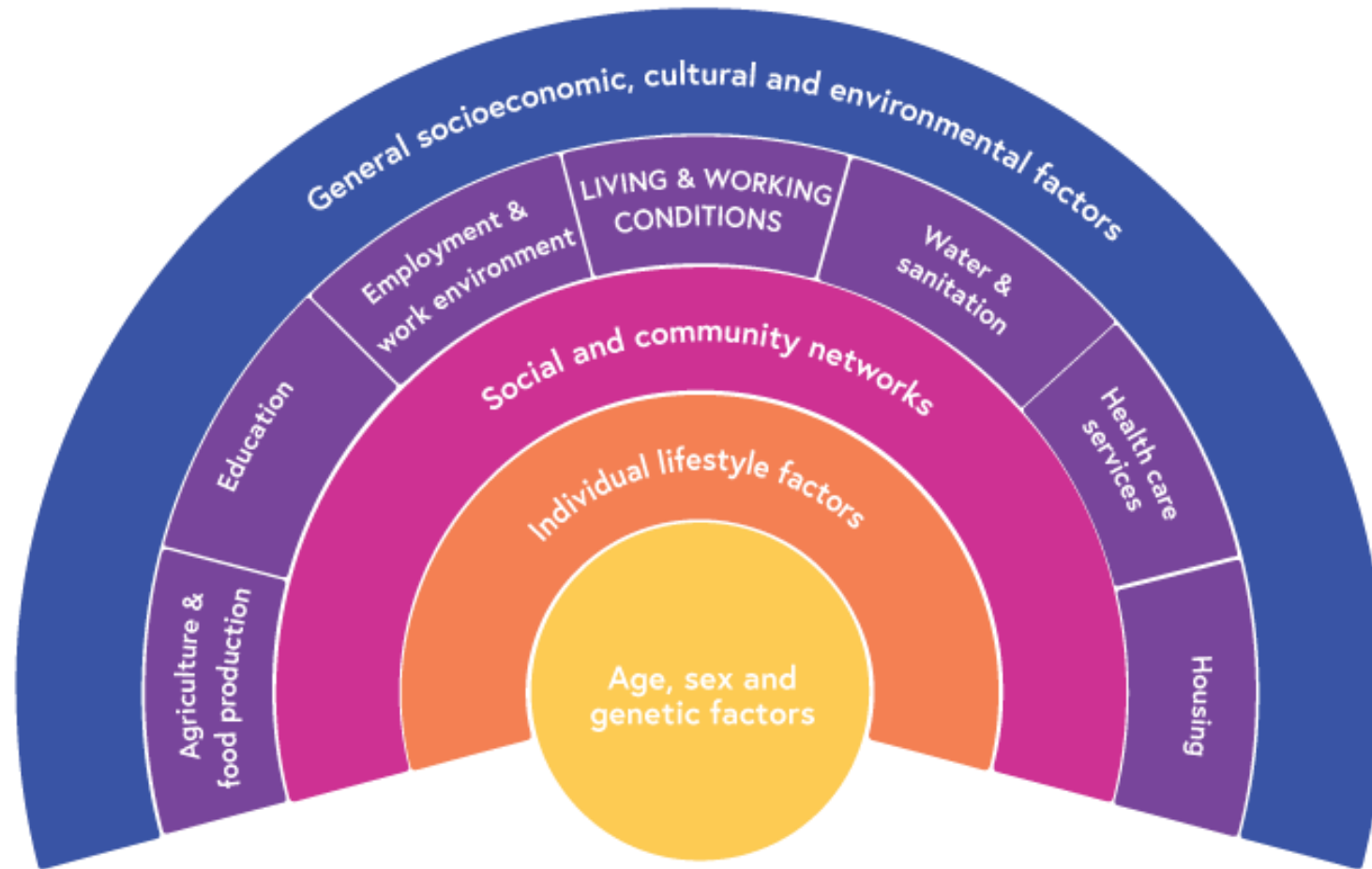


Diagram courtesy of the Institute for Future Studies, Stockholm

Figur 14. Social determinants of health (Futurelearn)

# What determines a person's health?

- 36 % individual behavior
- 24% social circumstances
- 22% genetics & biology
- 11% medical care
- 7% physical environment

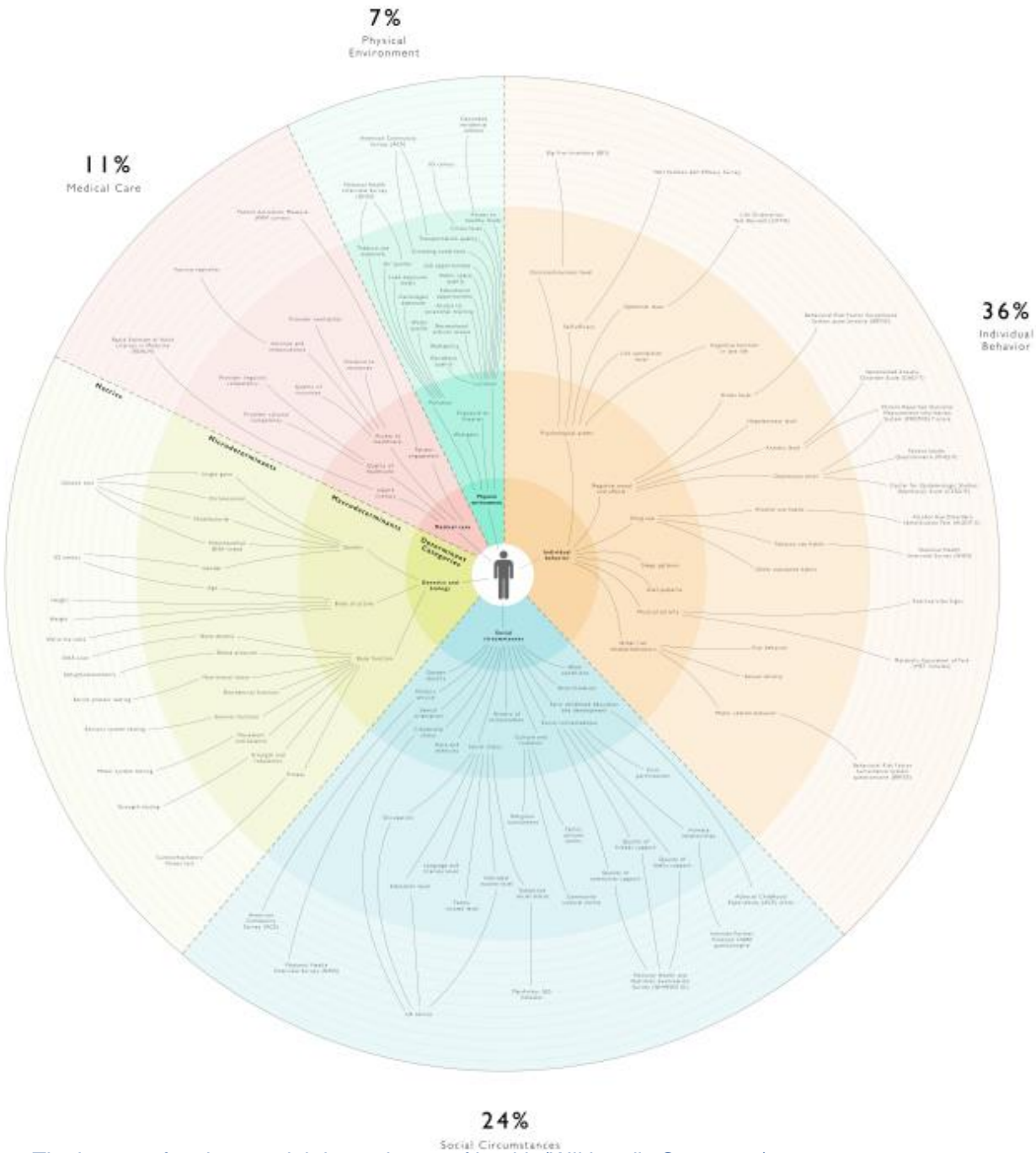
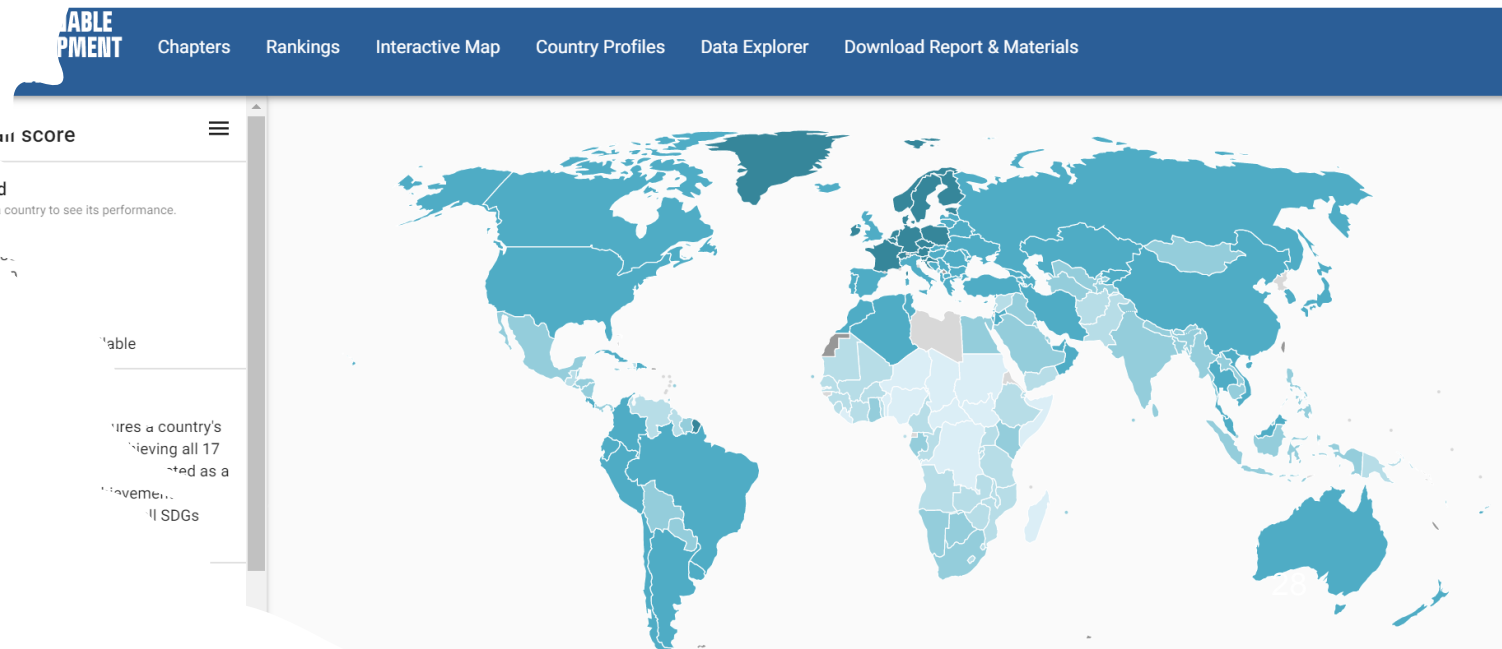


Figure 15. The impact of various social determinants of health (Wikimedia Commons)

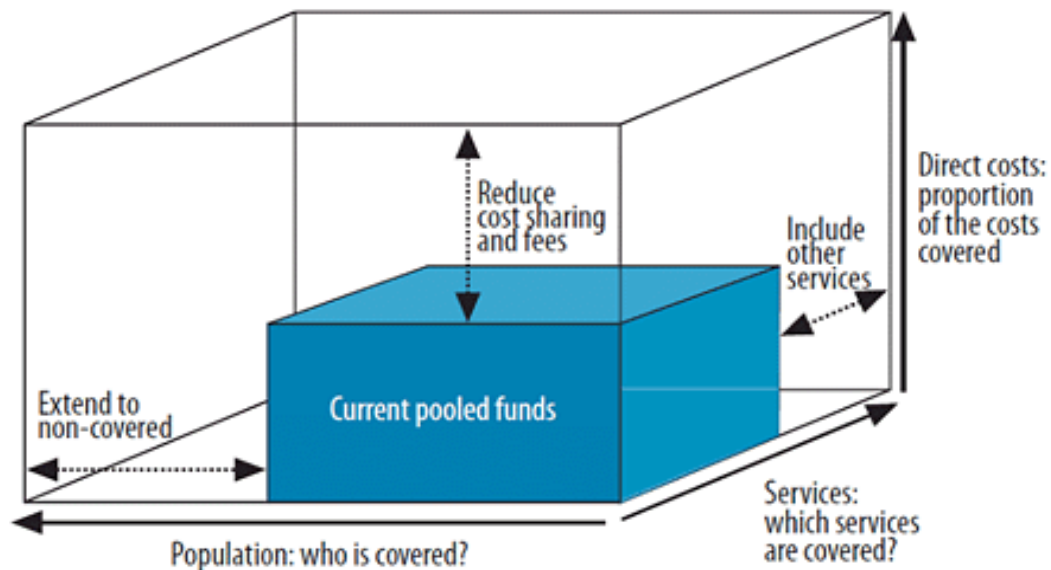
# The United Nations Sustainable Development Goals

- Part of the 2030 Agenda for Sustainable Development adopted in 2015- an urgent call for action by all countries - developed and developing - in a global partnership.
- None of the countries in the world are on track with achieving the SDGs (Moyer, 2020)
- Globally the greatest challenges are to enable WASH services globally, ensuring all children go to middle school and malnourished children (Moyer, 2020)
- Where are Estonia and the Czechia in achieving the SDGs?



# SDG 3.8- Universal Health Coverage

- Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.



Three dimensions to consider when moving towards universal coverage

Figure 16. Three dimensions of UHC (Cotlear, Daniel & Rosemberg, Nicolas. (2018).

3 GOOD HEALTH AND WELL-BEING ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

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### THE PANDEMIC

HAS HALTED OR REVERSED PROGRESS

IN HEALTH AND SHORTENED LIFE EXPECTANCY

90% OF COUNTRIES ARE STILL REPORTING ONE OR MORE DISRUPTIONS TO ESSENTIAL HEALTH SERVICES

### A DECADE OF PROGRESS

IN

REPRODUCTIVE HEALTH

MATERNAL HEALTH

CHILD HEALTH

COULD BE STALLED OR REVERSED

BY COVID-19

---

### A LACK OF DATA

HINDERS UNDERSTANDING OF THE TRUE IMPACT OF COVID-19

COUNTRIES WITH DEATH REGISTRATION SYSTEM AT LEAST 75% COMPLETE

62% WORLD	~20% SUB-SAHARAN AFRICA
(2015-2019)	

### HEALTH WORKERS

— IN SHORT SUPPLY IN MANY REGIONS —  
HAVE BEEN STRETCHED TO THEIR LIMITS BY THE PANDEMIC

NURSES AND MIDWIVES

150 PER 10,000 PEOPLE	10 PER 10,000 PEOPLE
NORTHERN AMERICA	SUB-SAHARAN AFRICA
(2013-2019)	

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SCALING UP INVESTMENT IN UNIVERSAL HEALTH COVERAGE IS ESSENTIAL

Figure 11. SDG 3: Health. (UNSDG)



# Primary health care(PHC) as an enabler of Universal Health coverage (UHC)



# The Alma-Ata Declaration of 1978 on Primary Health Care

- A major milestone of the 20th century in the field of public health identifying primary health care as the key to the attainment of the goal of Health for All.

*The International Conference on Primary Health Care calls for urgent and effective national and international action to develop and implement primary health care throughout the world and particularly in developing countries in a spirit of technical cooperation and in keeping with a New International Economic Order. It urges governments, WHO and UNICEF, and other international organizations, as well as multilateral and bilateral agencies, nongovernmental organizations, funding agencies, all health workers and the whole world community to support national and international commitment to primary health care and to channel increased technical and financial support to it, particularly in developing countries. ((Declaration of Alma-Ata International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978)*



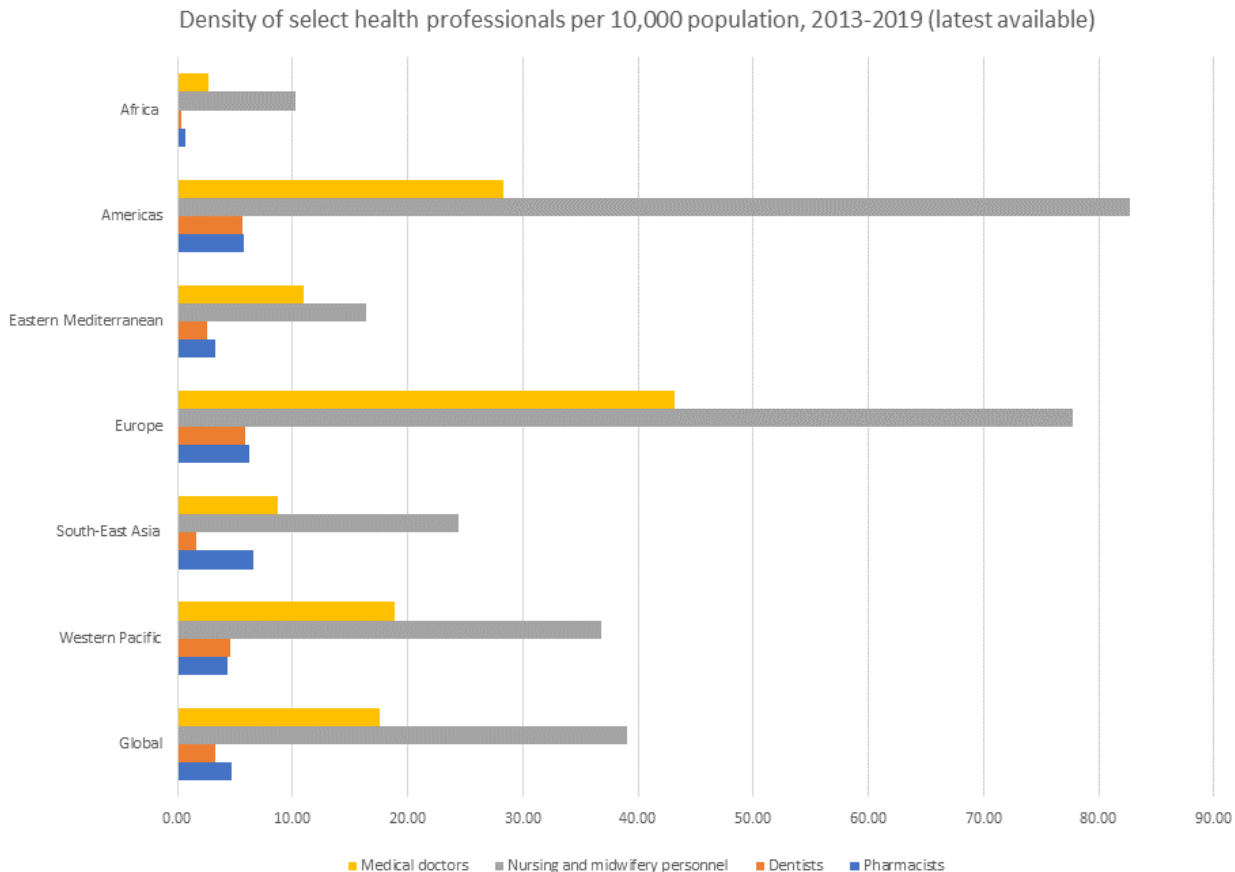


# Translating PHC policy into action in Thailand



# Health and care workers

## Density of select health workforce per 10 000 population



- Achieving health for all will depend on there being sufficient numbers of well-trained and educated, regulated and well supported health workers.
- Currently the regional distribution of health workers is inequal and negatively impacts LMICs the most
- 90% of countries report disruptions to essential health services since the COVID-19 pandemic.(WHO, 2021)

Figure 18. Regional density of health workers (Global Health Observatory)

# Community health workers (CHW) as a means to support the lack of health workers

- Training CHWs has been for the past 50 years a means of combating insufficiencies in health worker coverage especially in LMICs
- CHWs are members of a community who are trained to perform health education and check-up activities
- CHWs are often unpaid and overburdened with work



# WHO Triple Billion Goals



Universal Health Coverage ▾



Health Emergencies Protection ▾



Healthier Populations ▾

Country Overview

Indicators

## Tracking the Triple Billion targets



### Universal Health Coverage

One billion more people benefiting from Universal Health Coverage, monitored on two dimensions (coverage of essential health services and financial hardship) and tracked via 15 indicators.

Country progress

Scenario Tool



### Health Emergencies Protection

One billion more people better protected from health emergencies, tracked via six indicators.

Country progress

Scenario Tool



**Healthier Populations**

One billion more people enjoying better health and well-being, tracked via 16 SDG indicators.

Country progress

Scenario Tool

# Exercise: <https://portal.who.int/triplebillions>



Universal Health Coverage ▾



Health Emergencies Protection ▾



Healthier Populations ▾

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Scenario Tool



Universal Health Coverage



Health Emergencies Protection



Healthier Populations

Country Overview

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# UNIVERSAL HEALTH COVERAGE COUNTRY SCENARIO TOOL

Country progress

Scenario Tool

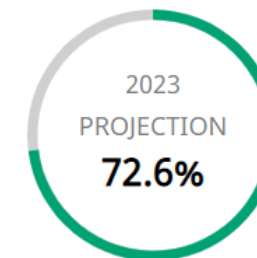
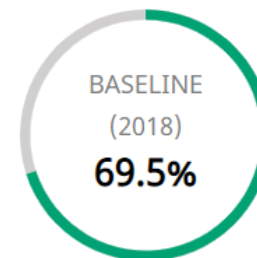
## Estonia

INSTRUCTIONS: Default values reflect those in the Triple Billion dashboard and are preliminary projections, subject to change. Change the baseline (2018) and 2023 projection values by entering values in the input boxes, and then click the 'CALCULATE' button after making changes to view the contribution to the overall Billion. Values are scaled to a 0-100 scale in the chart. Click the 'RESET' button to restore values to the default versions.

CALCULATE

RESET

### UNIVERSAL HEALTH COVERAGE SINGLE MEASURE



### INDICATORS

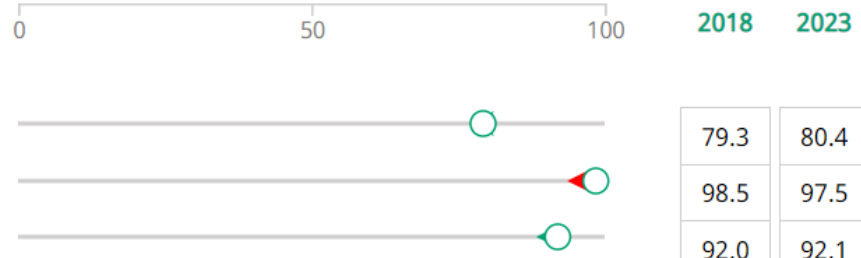
○ 2018 estimated baseline    ▲ 2023 projection  
 ... Negative change    — Positive change

#### Reproductive, maternal, newborn and child health (RMNCH)

Family planning (%)

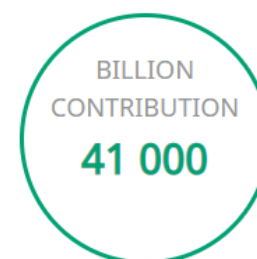
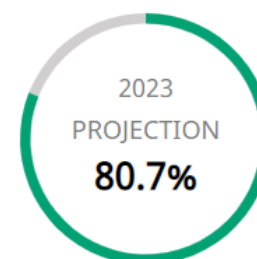
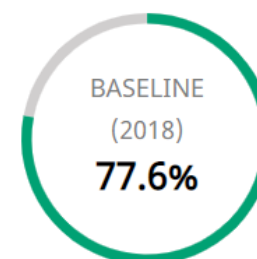
Antenatal care 4+ visits (%)

DTP3 immunization (%)



### CONTRIBUTION TO BILLION

Average service coverage



# What to do:

- Form pairs
- One person does the exercise with the country you live in- Estonia or Czechia
- The other person takes a low-income country and performs the exercise
- Compare results

## UHC

Edit (increase/decrease) the projections for 2023 and see how your country's „Billion contribution“ changes for the following indicators:

- DTP3 immunization (%)
- Antenatal care 4+ visits (%)
- Mean fasting blood glucose (ml/l)
- + 1 indicator of interest

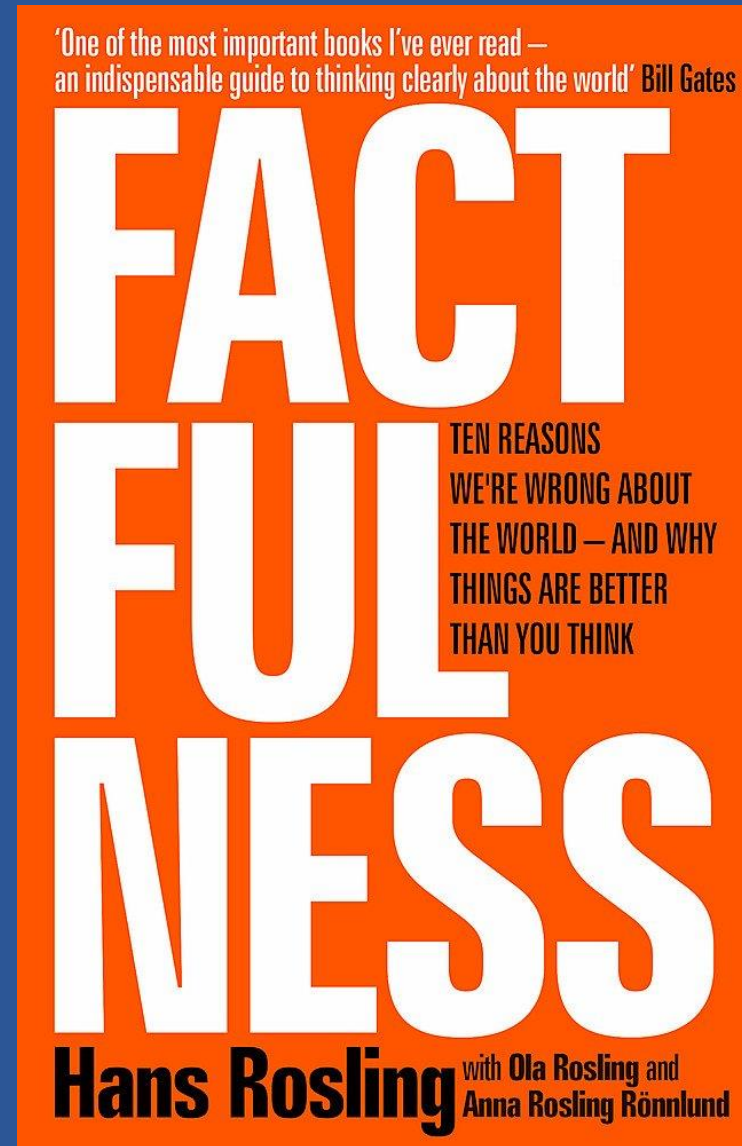
## Health emergencies

- Edit (increase/decrease) the projections for 2023 and see how your country's „Billion contribution“ changes for the following indicators:
  - IHR core capacity index
  - Measles (MCV1) coverage (%)

## Healthier populations

- Edit (increase/decrease) the projections for 2023 and see how your country's „Billion contribution“ changes for the following indicators:
  - WHA 66.10 Child obesity (5-19 years) (%)
  - SDG 6.1.1 Safely managed water (%)
  - SDG 2.2.1 Childhood stunting under 5 (%)
  - + 1 indicator of interest

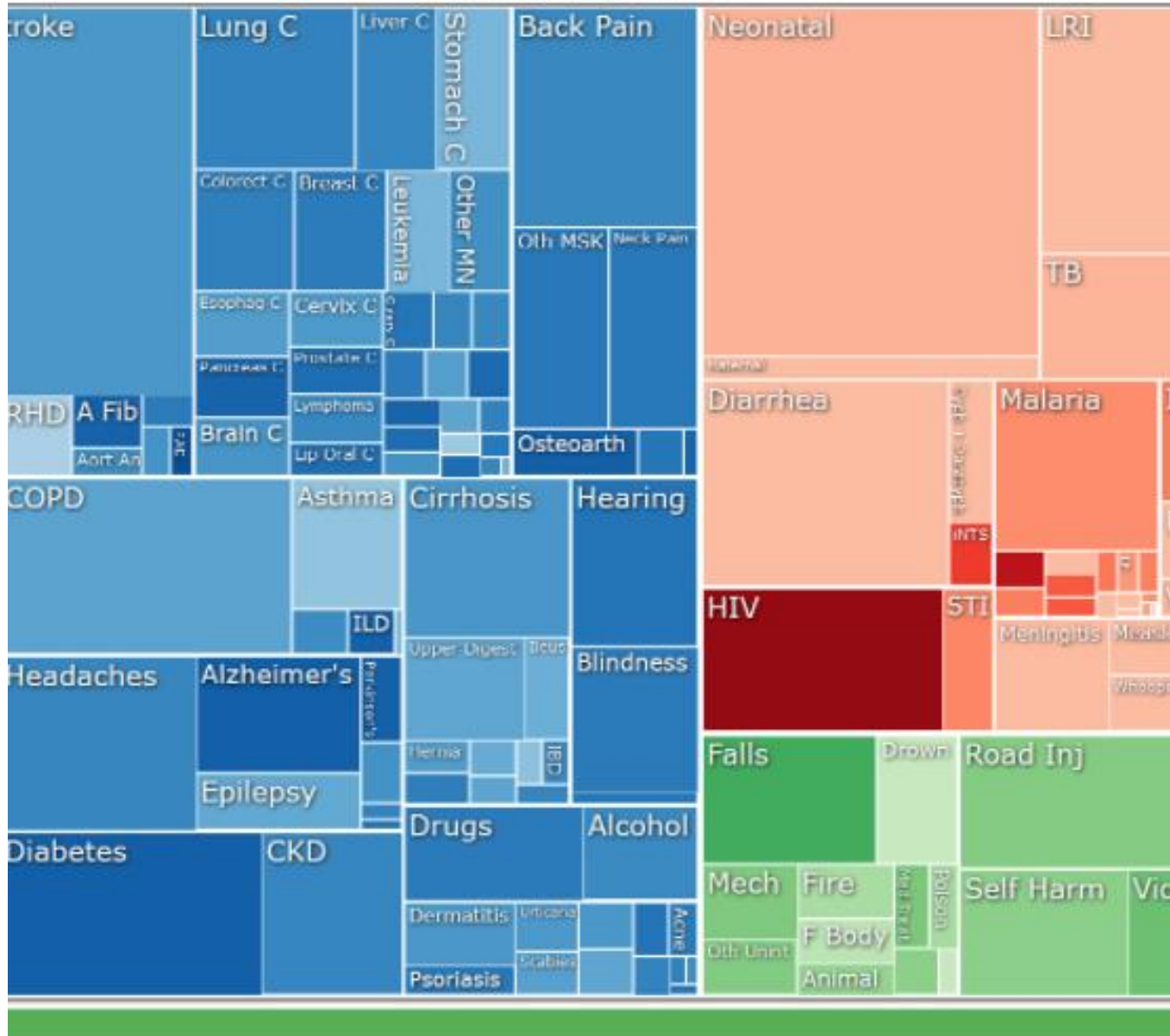
Questions?



Reading recommendation



Global  
Both sexes, All ages, 2017, DALYs



## NEXT WEEK: Where lies the global disease burden?

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# Supplementary reading

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- The fight for an HIV treatment: <https://msf.org.uk/article/fighting-treatment-history-hiv-care-south-africa>