Global trends in diabetes and overview of existing data sources

David Beran
University of Geneva

NCD POLICY LAB

Round Table:
Leveraging Data-Driven Evidence
Informing Policy Decisions on Diabetes in Kyrgyzstan

UNIVERSITÉ DE GENÈVE

HUG Hôpitaux Universitaires Genève

What data sources do we have

1. World Health Organization
   a. Global
   b. Europe Health for All Database

2. International Diabetes Federation Atlas

3. Global Burden of Disease

4. Studies
   a. Green et al. type 1 diabetes
   b. Type 1 diabetes Index

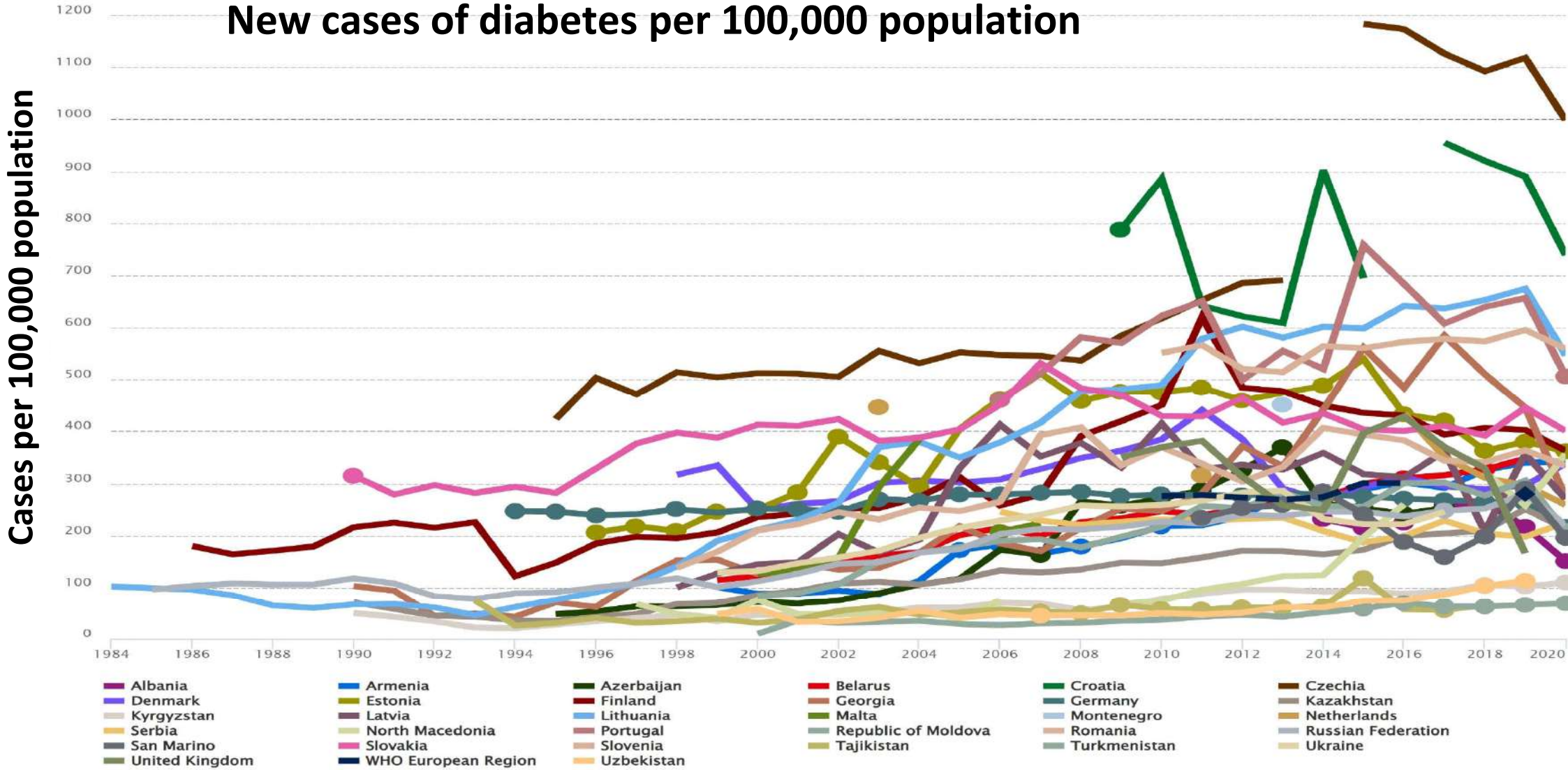
World Health Organization – Global

- Number of people with diabetes increased from 108 million in 1980 to 422 million in 2014

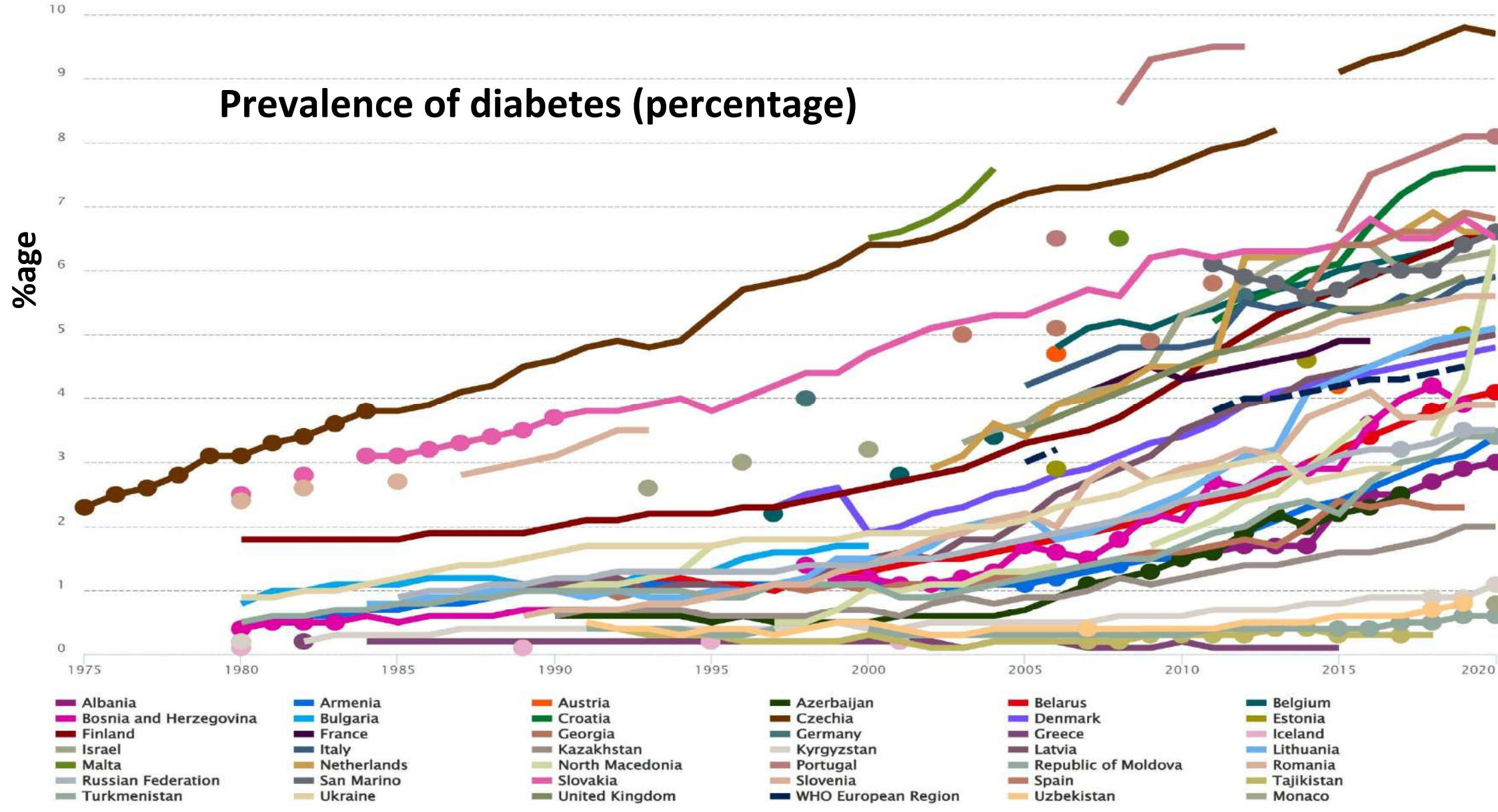
- Between 2000 and 2019, 3% increase in age-standardized mortality rates from diabetes.
  - In lower-middle-income countries, the mortality rate due to diabetes increased 13%.
  - In contrast the probability of dying from cardiovascular diseases, cancer, chronic respiratory diseases or diabetes between the ages of 30 and 70 decreased by 22% globally between 2000 and 2019

- 9 million people type 1 diabetes in 2017

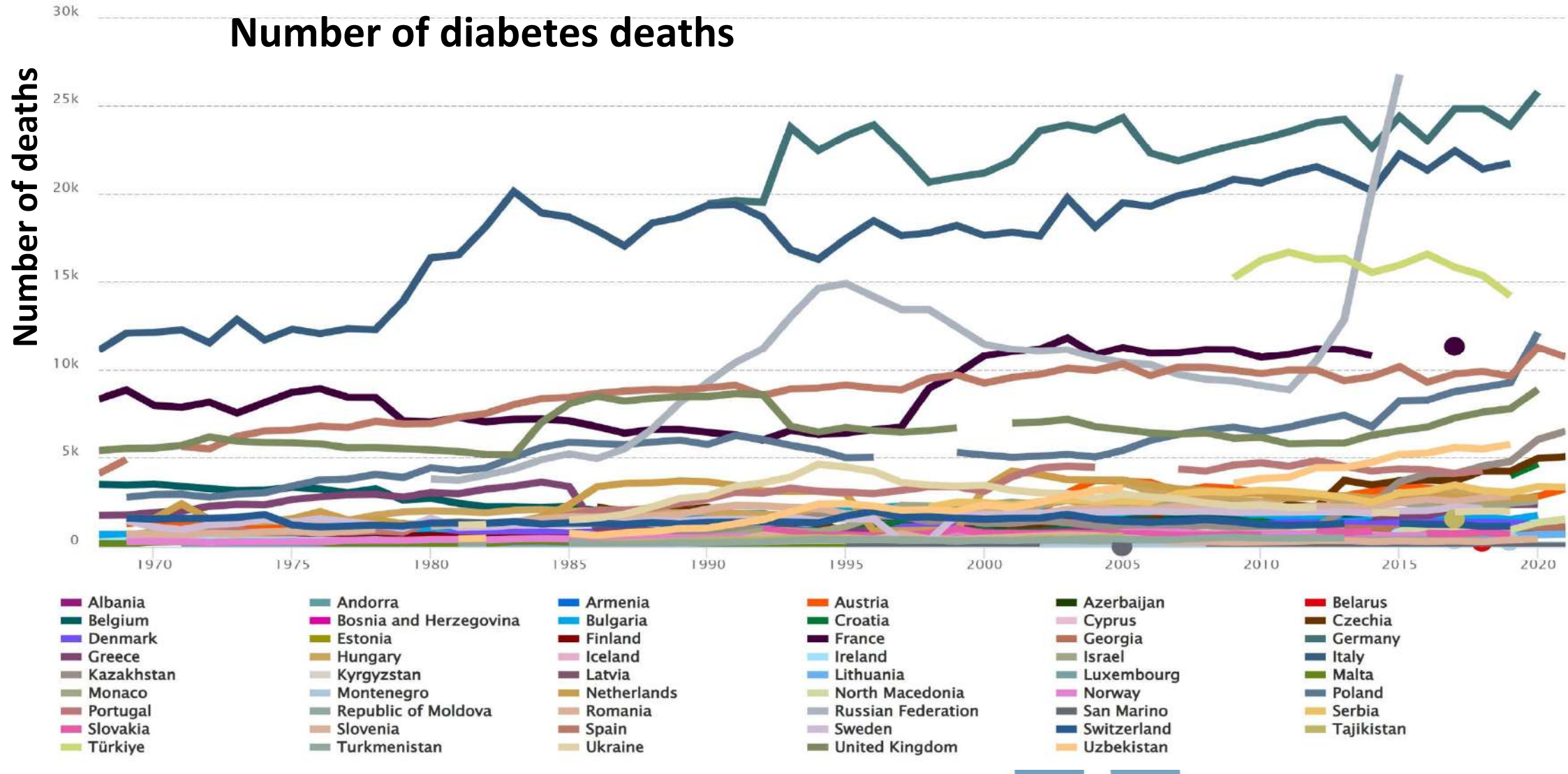
World Health Organization – EURO



World Health Organization – EURO



World Health Organization – EURO



International Diabetes Federation Atlas

World

2045	783 million
2030	643 million
2021	537 million

46% increase

North America & Caribbean (NAC)

2045	63 million
2030	57 million
2021	51 million

24% increase

Europe (EUR)

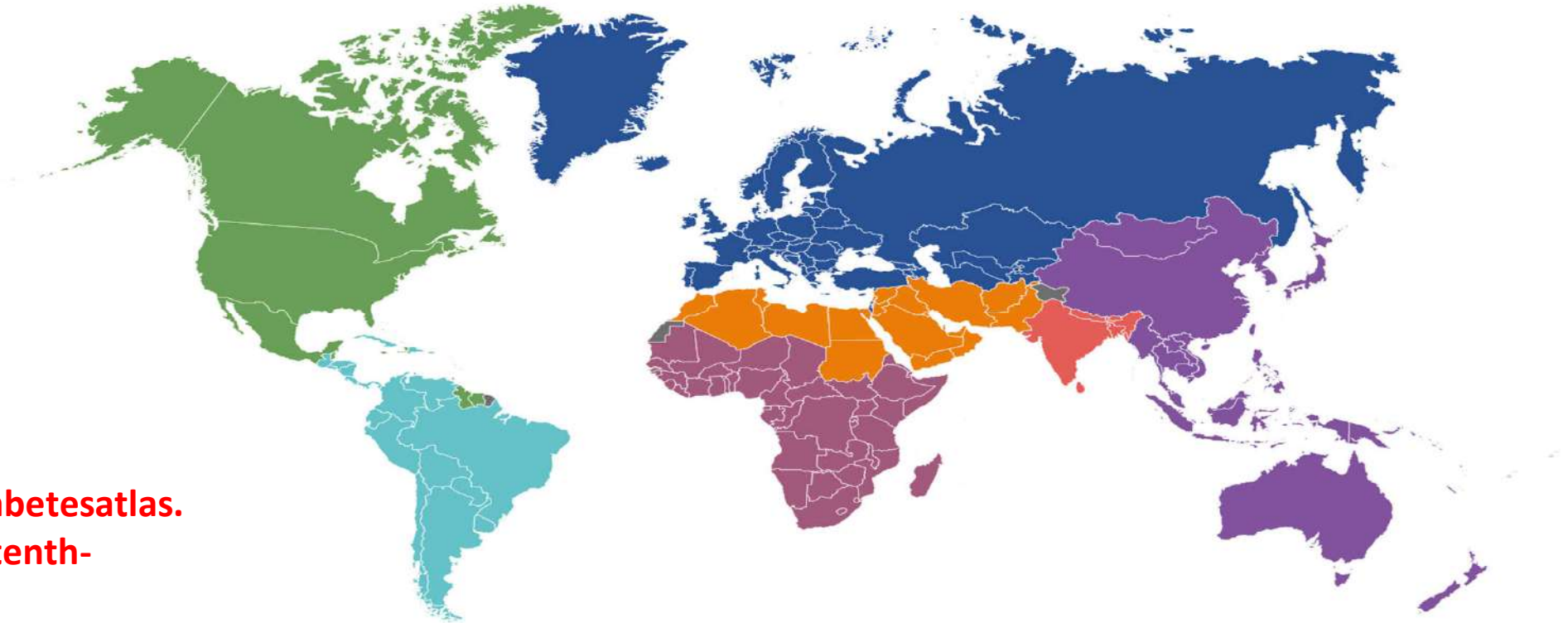
2045	69 million
2030	67 million
2021	61 million

13% increase

Western Pacific (WP)

2045	260 million
2030	238 million
2021	206 million

27% increase



https://diabetesatlas.org/atlas/tenth-edition/

South & Central America (SACA)

2045	49 million
2030	40 million
2021	32 million

50% increase

Africa (AFR)

2045	55 million
2030	33 million
2021	24 million

134% increase

Middle East & North Africa (MENA)

2045	136 million
2030	95 million
2021	73 million

87% increase

South-East Asia (SEA)

2045	152 million
2030	113 million
2021	90 million

68% increase

International Diabetes Federation Atlas

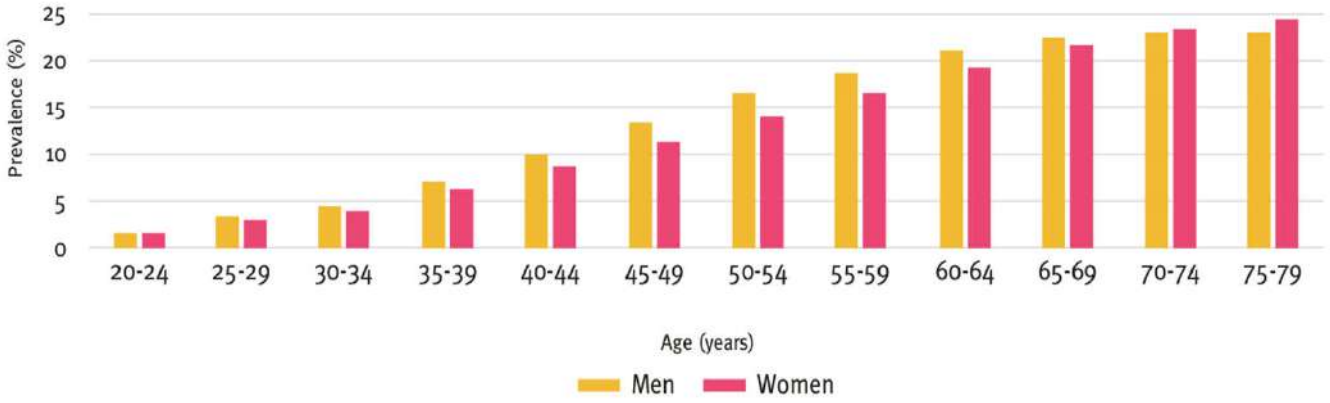
Diabetes (20-79 years)	2021	2030	2045
Prevalence	10.5%	11.3%	12.2%
Number of people with diabetes (million)	536.6	642.7	783.2
Number of deaths due to diabetes (million)	6.7		
Total health expenditure due to diabetes (2021 US$ billion)	966	1,028	1,054

https://diabetesatlas.org/atlas/tenth-edition/

NCD POLICY LAB

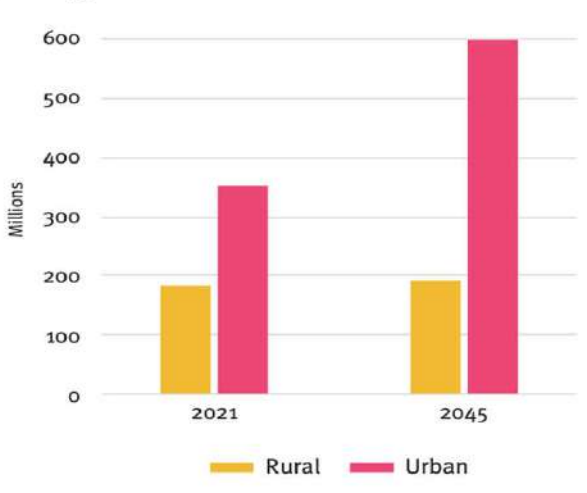
International Diabetes Federation Atlas

Prevalence of diabetes among men and women (20-79 years) 2021



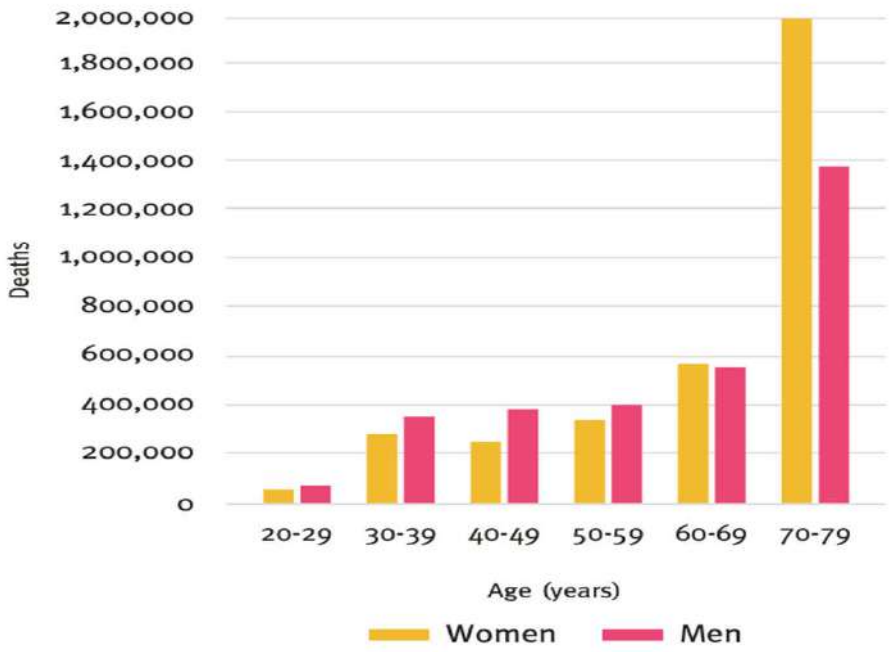
https://diabetesatlas.org/atlas/tenth-edition/

Number of people with diabetes (20-79 years) in urban and rural areas 2021



International Diabetes Federation Atlas

Number of deaths due to diabetes (20-79 years) by sex 2021

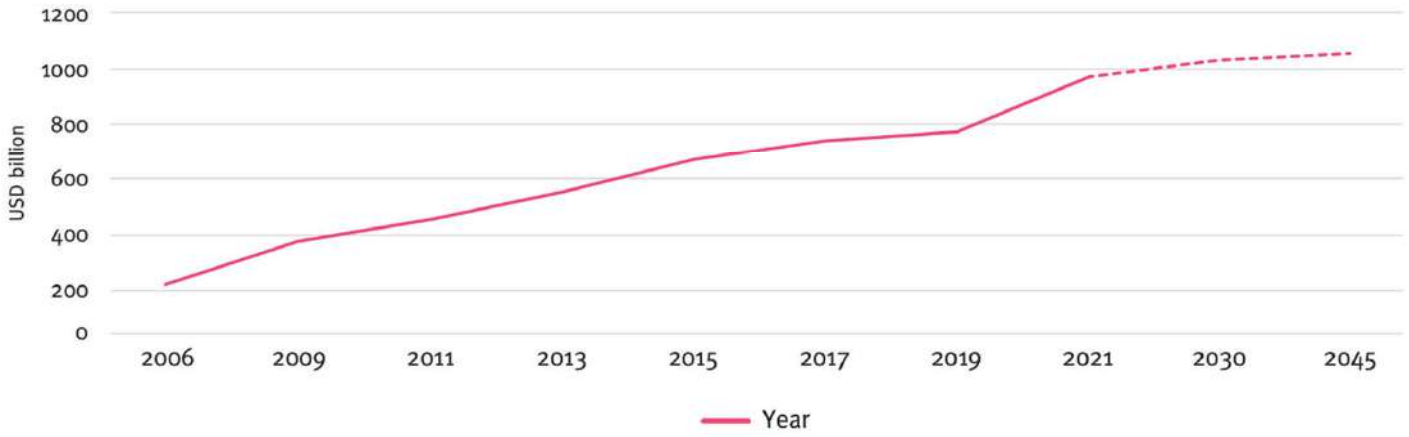


https://diabetesatlas.org/atlas/tenth-edition/

NCD POLICY LAB

International Diabetes Federation Atlas

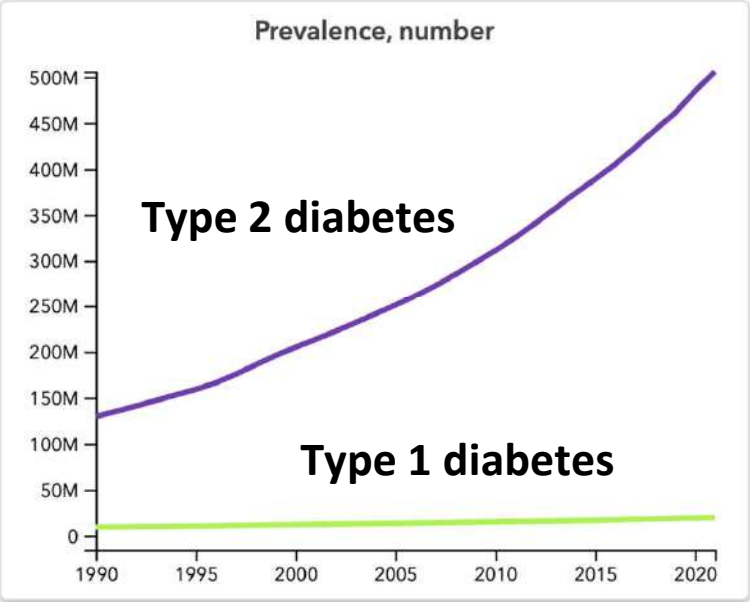
Total diabetes-related health expenditure (20-79) from 2006 to 2045

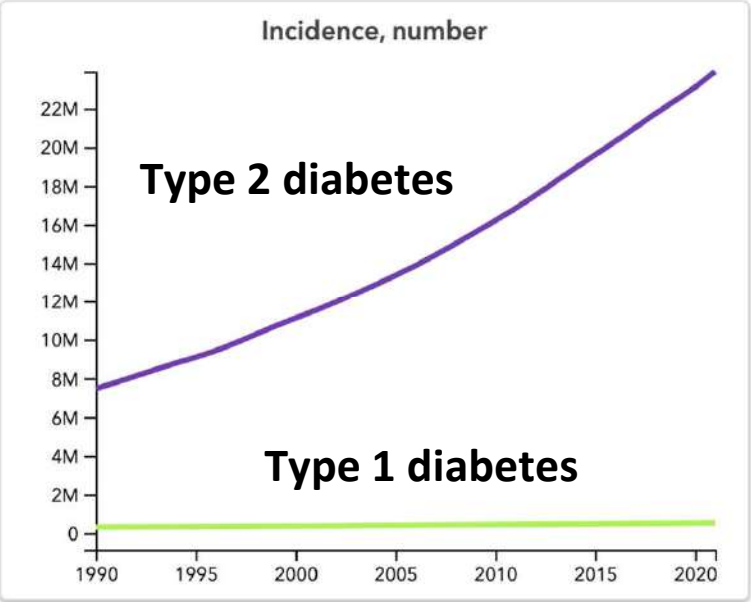


https://diabetesatlas.org/atlas/tenth-edition/

NCD POLICY LAB

Global Burden of Disease

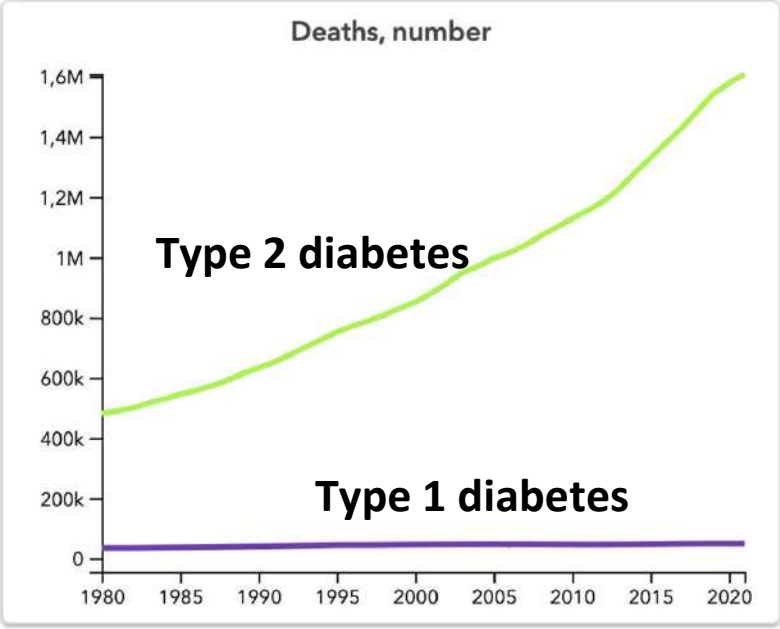




https://vizhub.healthdata.org/gbd-results/

NCD POLICY LAB

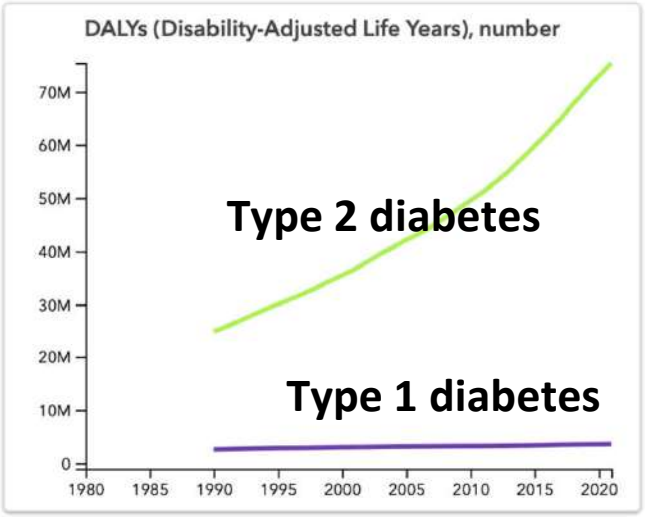
Global Burden of Disease

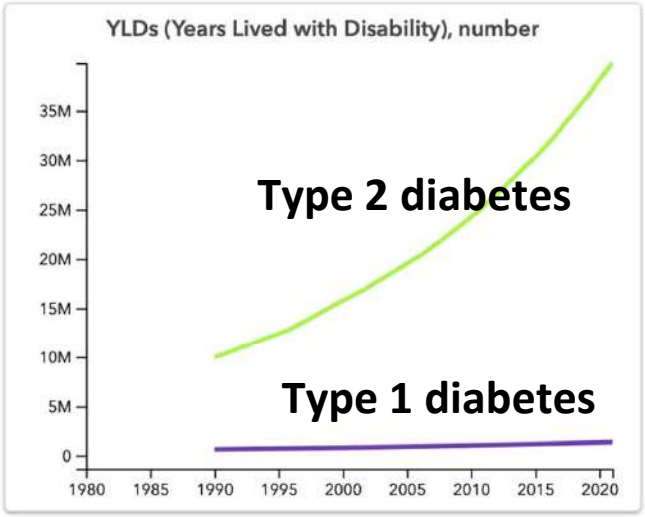


https://vizhub.healthdata.org/gbd-results/

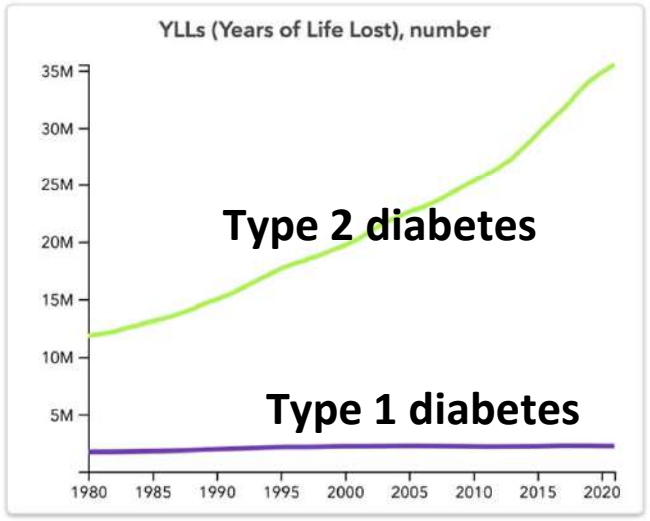
NCD POLICY LAB

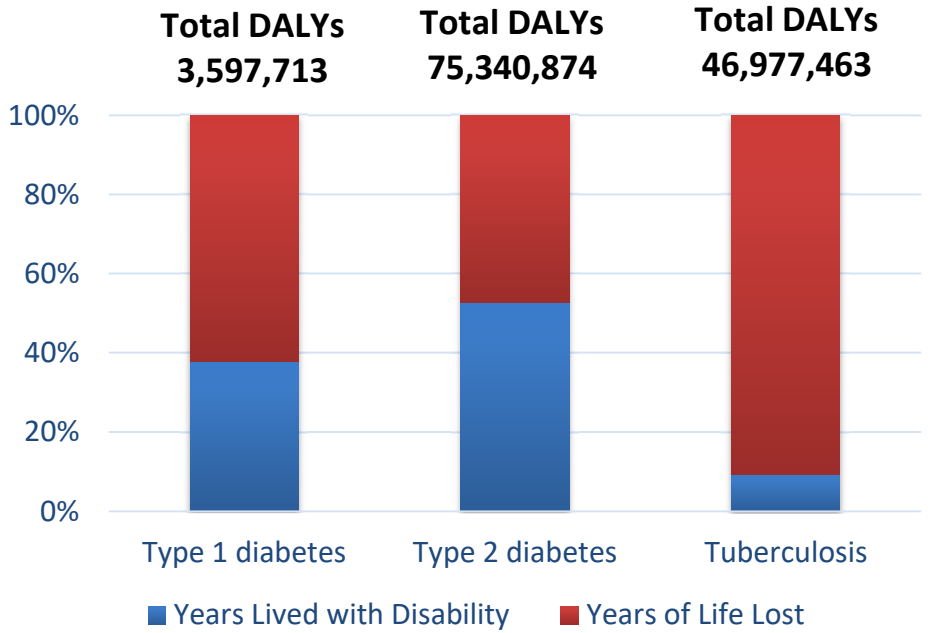
Global Burden of Disease





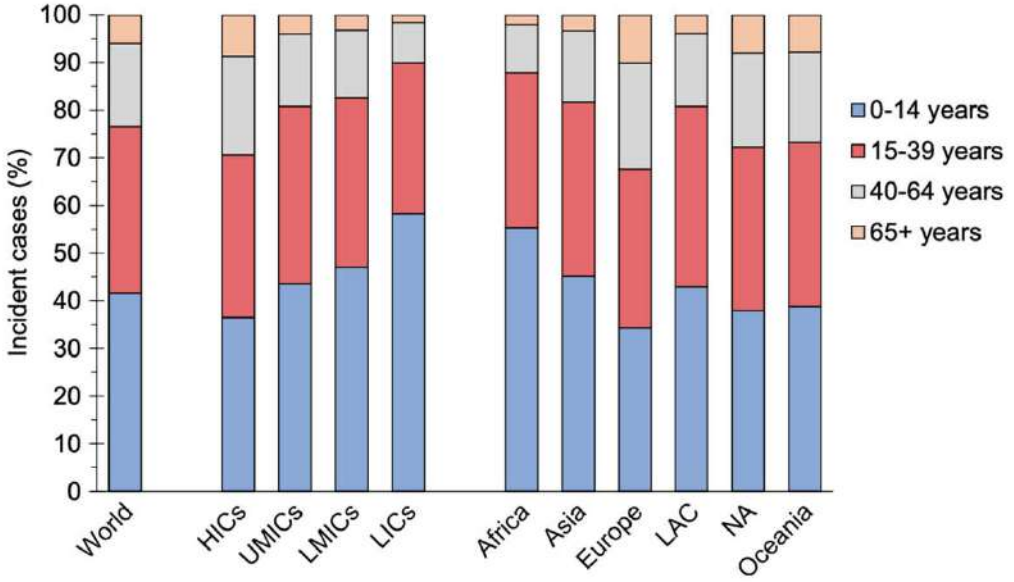
https://vizhub.healthdata.org/gbd-results/



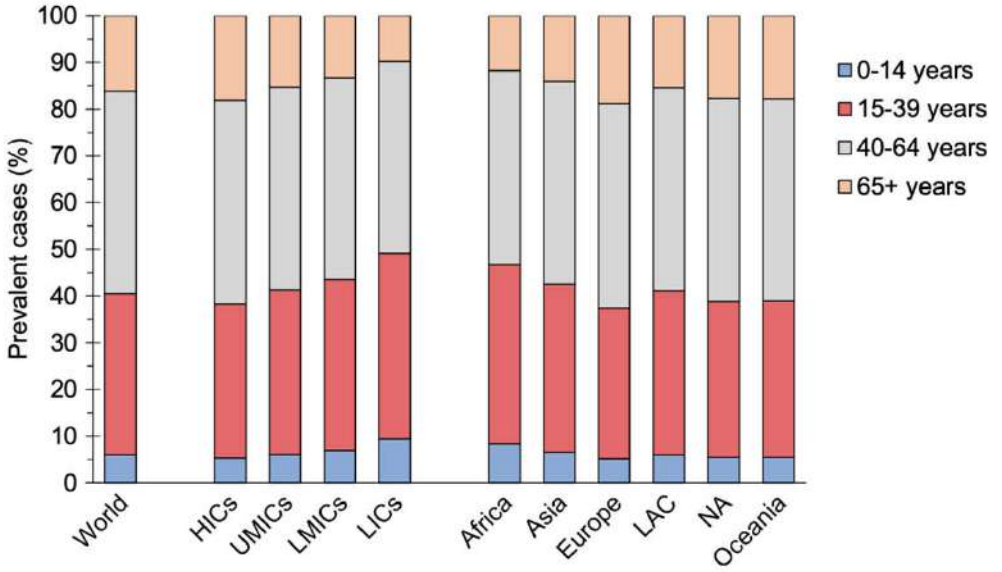


Green et al. type 1 diabetes estimates for 2017

Global numbers of incident and prevalent cases of type 1 diabetes were estimated to be 234,710 and 9,004,610 in 2017



Incident cases of type 1 diabetes



Prevalent cases of type 1 diabetes

https://link.springer.com/article/10.1007/s00125-021-05571-8

Gregory et al. Type 1 diabetes Index

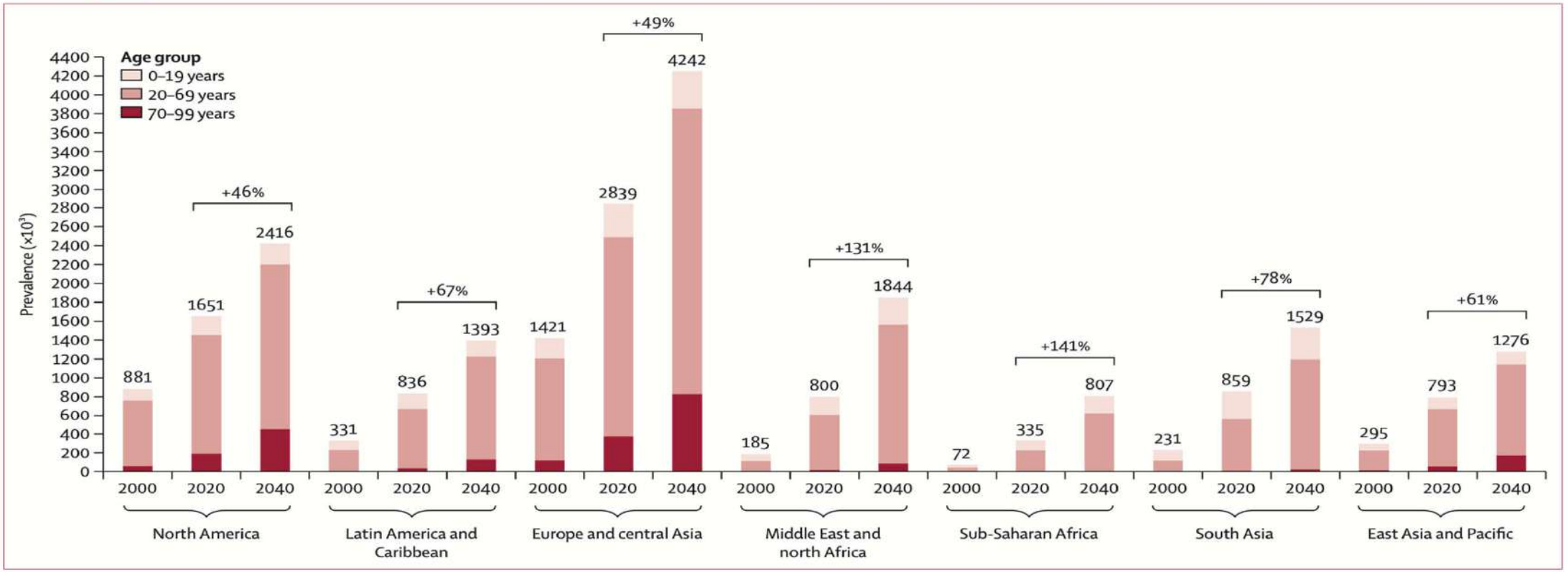
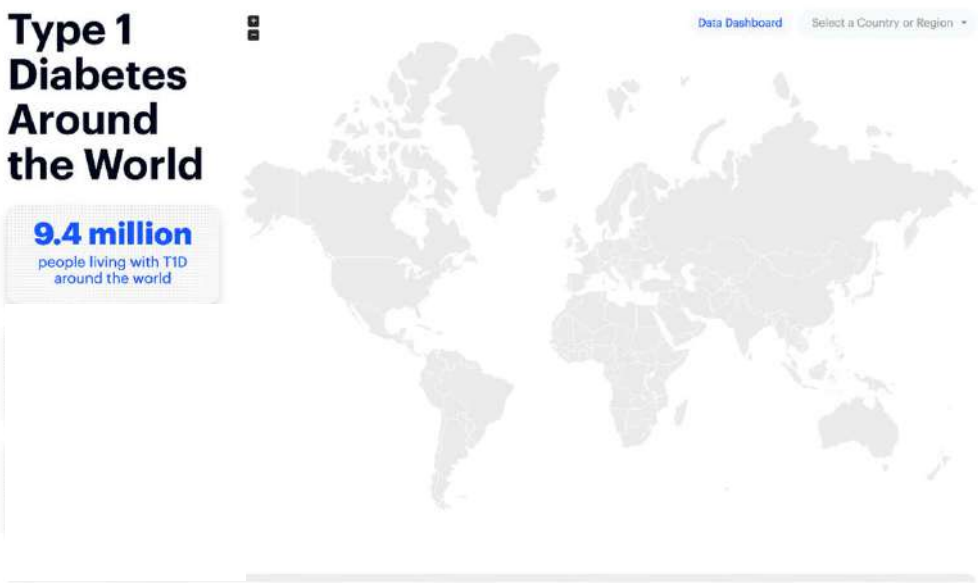


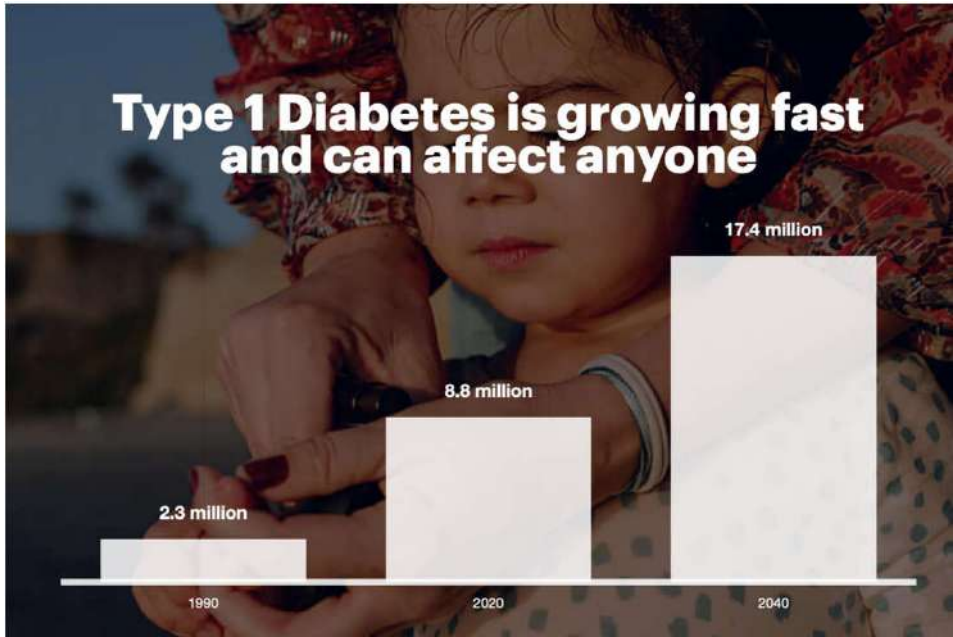
Figure 5: **Prevalence of type 1 diabetes in people aged 0–99 years by world region in 2000, 2020, and 2040**
Data are (× 10³) based on conservative scenario.

https://www.thelancet.com/action/showPdf?pii=S2213-8587%2822%2900218-2

NCD POLICY LAB

Type 1 diabetes Index





https://www.t1dindex.org

World Health Organization Global Coverage Targets

- 80% of people with diabetes are diagnosed
- 80% of people with diagnosed diabetes have good control of glycaemia
- 80% of people with diagnosed diabetes have good control of blood pressure
- 60% of people with diabetes of 40 years or older receive statins
- 100% of people with type 1 diabetes have access to affordable insulin and blood glucose self-monitoring

➢ Need for local data to measure this

https://www.who.int/news-room/feature-stories/detail/first-ever-global-coverage-targets-for-diabetes-adopted-at-the-75-th-world-health-assembly

UNIVERSITÉ DE GENÈVE

NCD POLICY LAB

Overall view of the data we have

- Increase in prevalence of diabetes globally
- Increase in mortality
- Increase in cost
- Interplay between incidence and prevalence
  - Increase in prevalence due to more new cases or less deaths
  - Importance of demographic changes
- Issues
  - Real world data versus modelled data
  - Completeness and quality of data
  - Up to date
  - Distinction of type 1 versus type 2 diabetes
  - Disaggregation
    - Gender
    - Ages
    - Urban / Rural
    - Other factors

Diabetes research on the global agenda

World Health Organization

SEVENTY-FOURTH WORLD HEALTH ASSEMBLY
Agenda item 13.2

A74/A/CONF./5
24 May 2021

Reducing the burden of noncommunicable diseases through strengthening prevention and control of diabetes

(10) to strengthen monitoring and evaluation of diabetes responses, through country-level surveillance and monitoring systems, including surveys, that are integrated into existing national health information systems, and by identifying priority areas for diabetes research;

Launch of Prioritized Research Agenda for the Prevention and Control of Diabetes on 20 November 2024

NCD POLICY LAB

Initiatives to improve data

https://cdn.who.int/media/docs/librariesprovider2/euro-health-topics/diabetes/registries-information-systems-diabetes-consultation-eng.pdf?sfvrsn=d9f3551f_2&download=true

Correspondence

A plan to improve global type 1 diabetes epidemiology data

Published Online February 1, 2023 https://doi.org/10.1016/S2213-8587(23)00029-3

The discovery and subsequent introduction of insulin therapy in 1922 led to fundamental changes in the treatment and epidemiology of type 1 diabetes. In Boston, MA, USA, the life expectancy of people with type 1 diabetes diagnosed at age 10 years increased from 2·6 years during 1914–1922 to 45 years during 1939–1945.[1] Therefore, type 1 diabetes is not only a condition of young people.[2,4] Reduced life expectancy of people with type 1

and Ward and colleagues[6] and other global estimates (appendix),[3,23] they all highlight the scarcity of data on incidence and mortality for type 1 diabetes, especially in people older than 19 years. We therefore propose a plan to increase knowledge of type 1 diabetes epidemiology to improve services and outcomes. This plan includes actions at global and national levels.

At a global level, mapping data gaps in existing estimates as well as targeted studies to address these gaps are needed. Re-launching global studies, such as the WHO Diabetes Mondiale study and the EURODIAB register, broadening their

These targets include "100% of people with type 1 diabetes having access to affordable insulin and blood glucose self-monitoring". An improved understanding of type 1 diabetes epidemiology is essential in achieving this goal.

DB received a visiting professorship grant for this work from the Danish Diabetes Academy (VP003-21). All other authors declare no competing interests.

*David Beran, Kurt Højlund, Stéphane Besançon, Mads Loftager Mundt, Graham D Ogle, Kaushik Ramaiya, Tom Robinson, Jannet Svensson, Jaakko Tuomilehto, Sarah Wild, Anders Green
david.beran@unige.ch

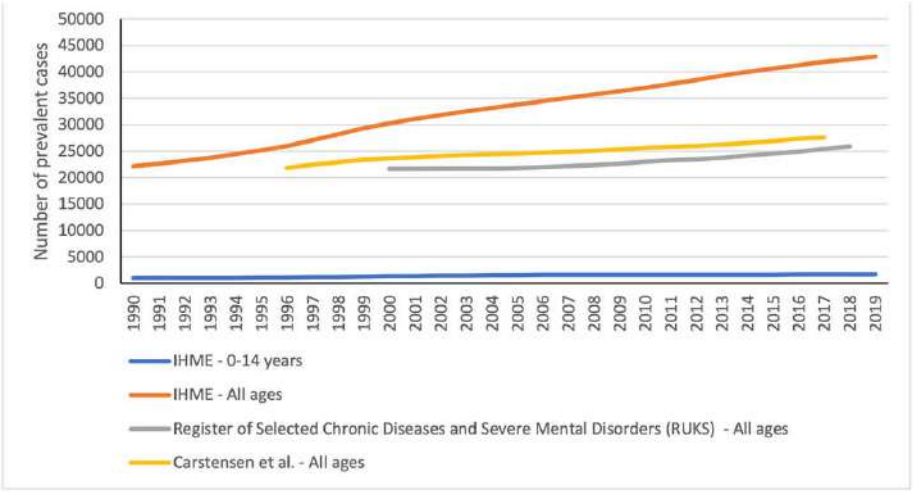
https://www.thelancet.com/journals/landia/article/PIIS2213-8587(23)00029-3/fulltext

UNIVERSITÉ DE GENÈVE

NCD POLICY LAB

What does this mean for Kyrgyzstan

- What data is available locally
  - Many studies
  - Data from Ministry of Health
- If using global estimates recognise their limitations



- Thinking about the whole data pathway

Data collection → Data aggregation → Data use → Communication of data and results

https://archive-ouverte.unige.ch/unige:171203

- Opportunities to implement global guidance or studies

UNIVERSITÉ DE GENÈVE

NCD POLICY LAB

Thank you and any questions

David.Beran@unige.ch

NCD POLICY LAB

UNIVERSITÉ DE GENÈVE

HUG Hôpitaux Universitaires Genève