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Epidemiologic Understanding of the UN Sustainable Development Goals

Zeinab Baba

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SUSTAINABILITY RESEARCH and PRACTICE SEMINAR

OCTOBER 18, 2023

Professor Zeinab Baba
Public Health Sciences

Epidemiologic Understanding of the UN Sustainable Development Goals

Wednesday, 12:00 to 12:50 pm in person (255 A/B Sykes Student Union)
and in our Zoom room: *https://wcupa.zoom.us/j/91259797459*, passcode: *194422*

Epidemiology

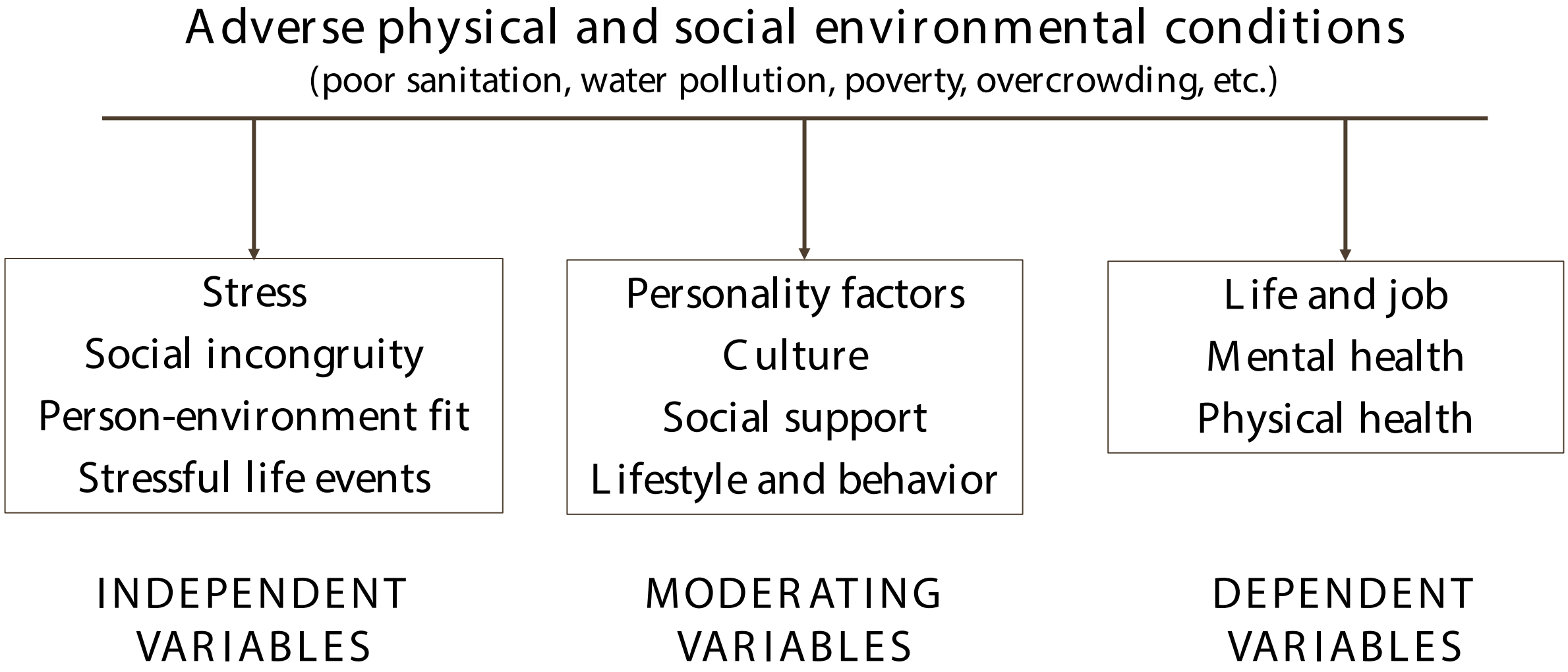
Sustainability

United Nations Sustainable Development Goals (SDGs)

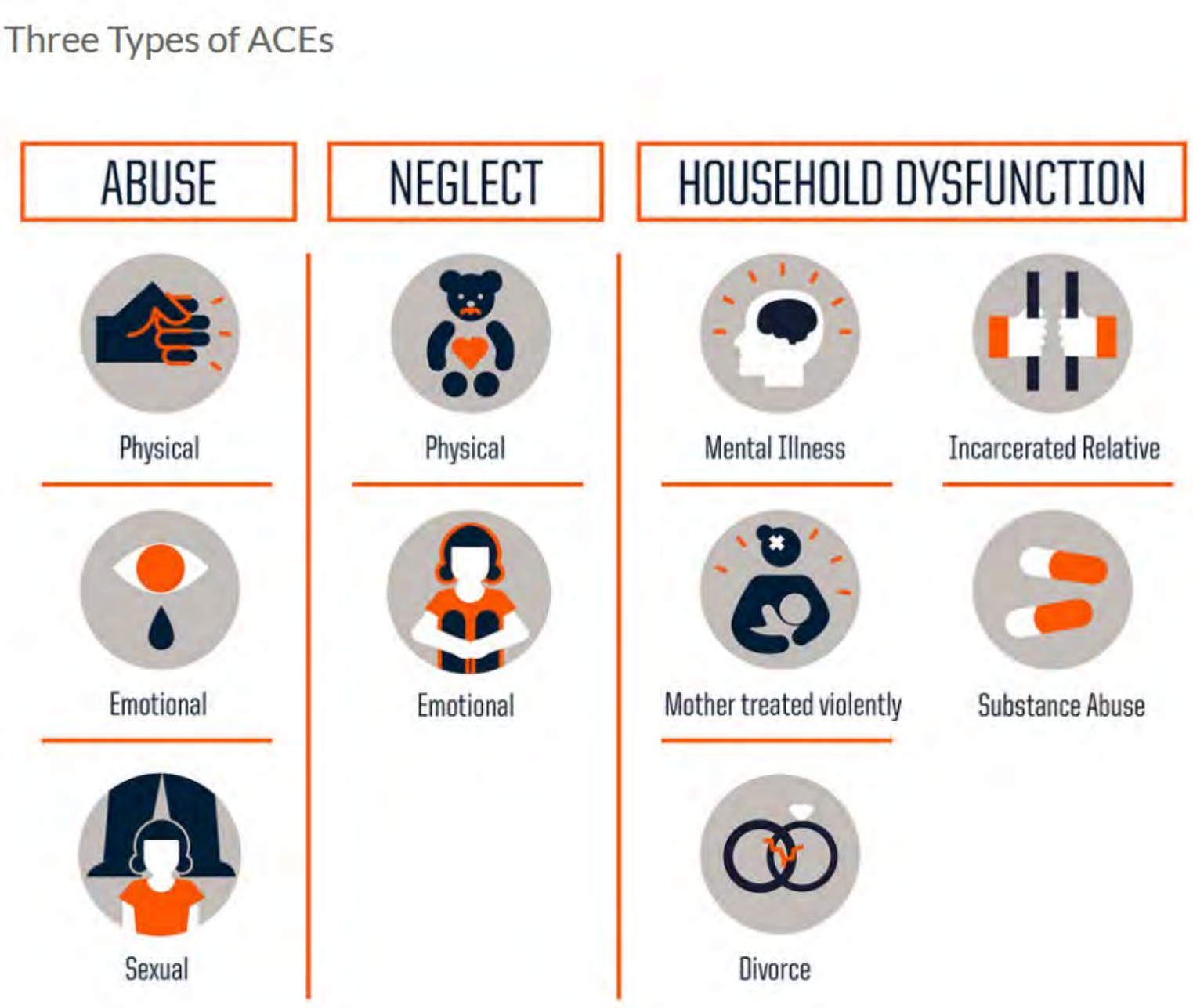
Social and Behavioral Epidemiology

A Model for Psychosocial Factors in Health

(Adapted from Friis)



Adverse Childhood Experiences (ACEs)

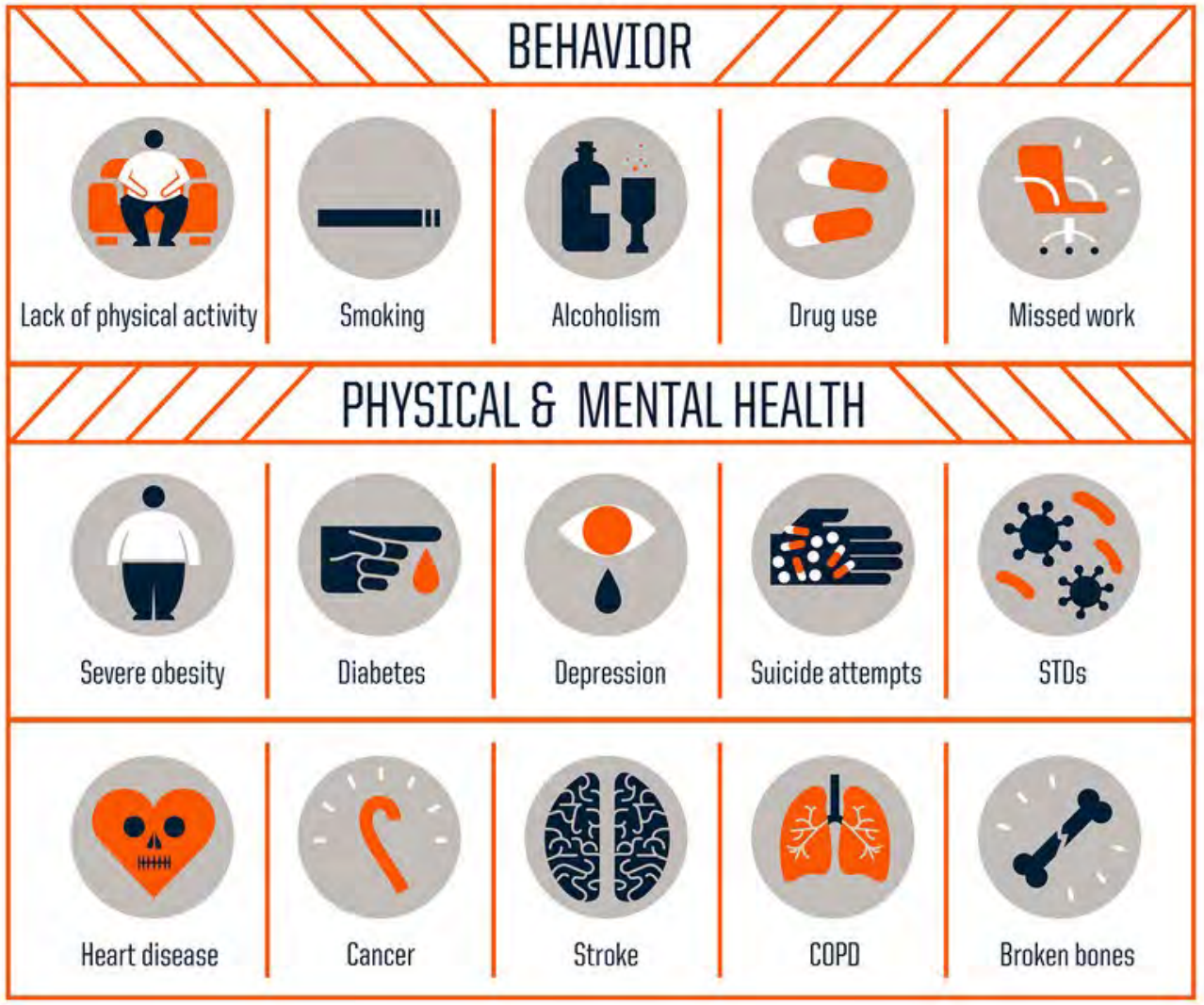


Source: Centers for Disease Control and Prevention

Credit: Robert Wood Johnson Foundation

ACEs Increase Health Risks

According to the Adverse Childhood Experiences study, the rougher your childhood, the higher your score is likely to be and the higher your risk for various health problems later.

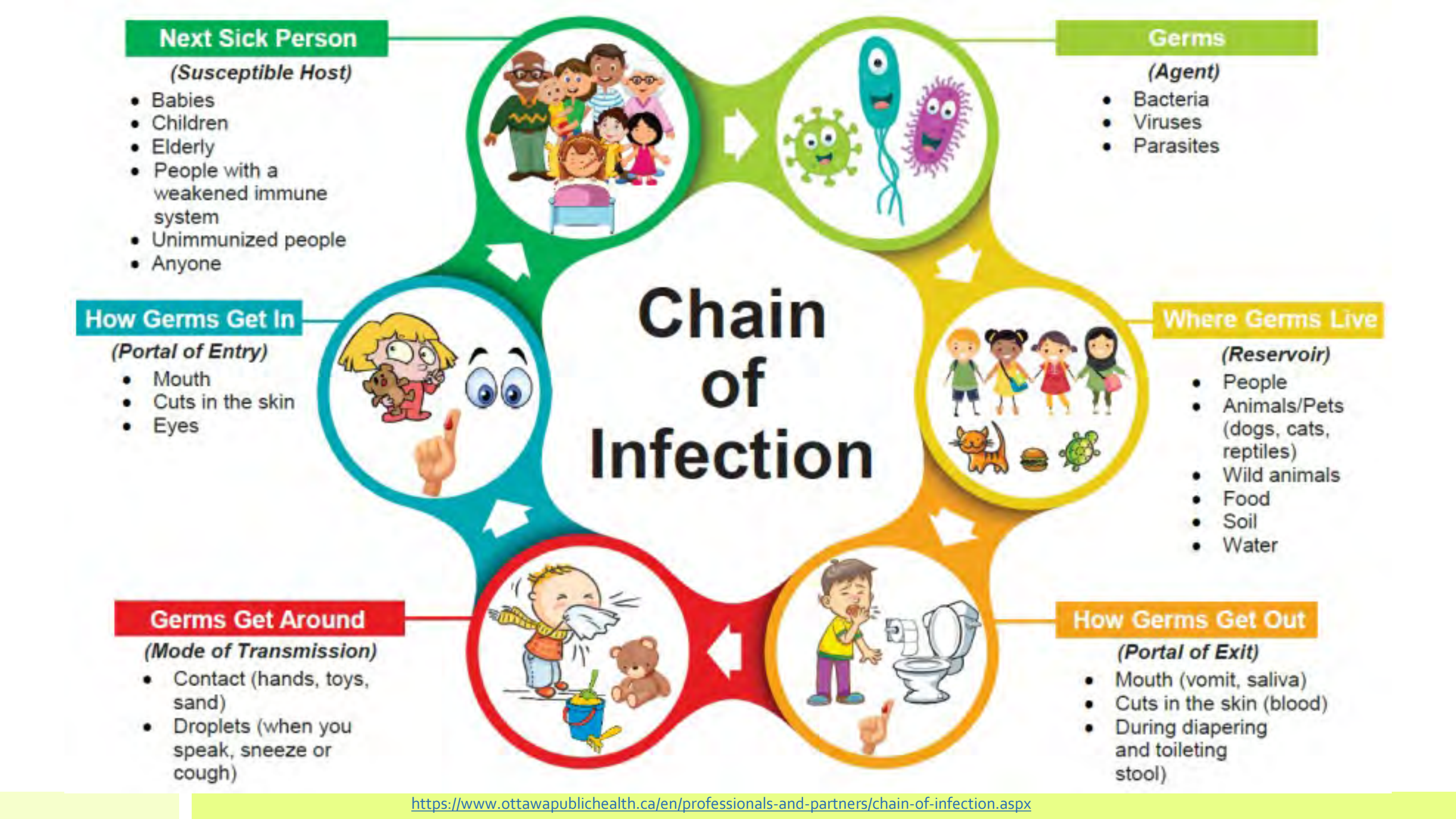


Source: Centers for Disease Control and Prevention

Credit: Robert Wood Johnson Foundation

Communicable Disease Epidemiology

Chain of Infection



Next Sick Person

(Susceptible Host)

- Babies
- Children
- Elderly
- People with a weakened immune system
- Unimmunized people
- Anyone

Germs

(Agent)

- Bacteria
- Viruses
- Parasites

How Germs Get In

(Portal of Entry)

- Mouth
- Cuts in the skin
- Eyes

Where Germs Live

(Reservoir)

- People
- Animals/Pets (dogs, cats, reptiles)
- Wild animals
- Food
- Soil
- Water

Germs Get Around

(Mode of Transmission)

- Contact (hands, toys, sand)
- Droplets (when you speak, sneeze or cough)

How Germs Get Out

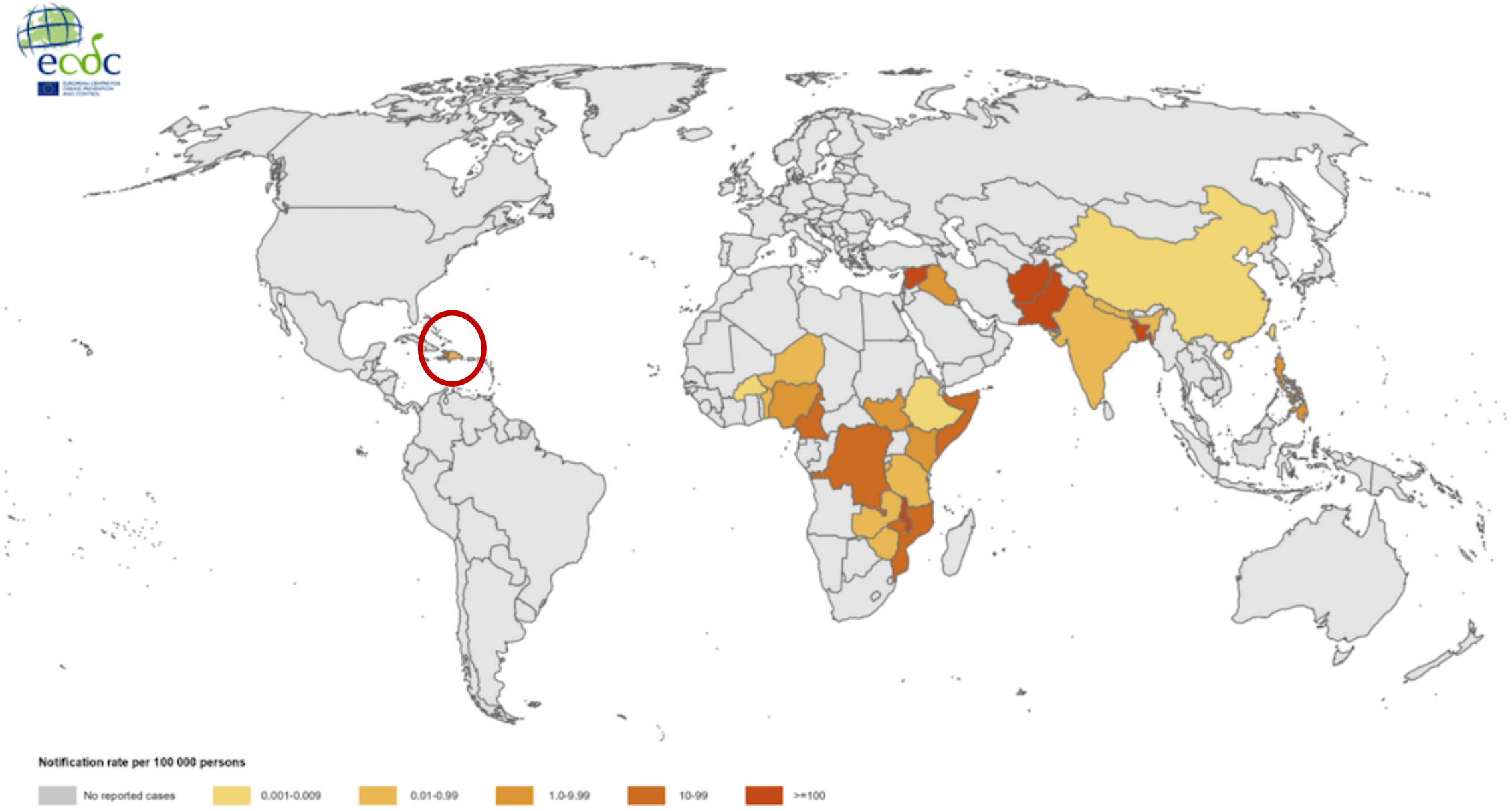
(Portal of Exit)

- Mouth (vomit, saliva)
- Cuts in the skin (blood)
- During diapering and toileting stool)

https://www.ottawapublichealth.ca/en/professionals-and-partners/chain-of-infection.aspx

Source: Snow J. Snow on cholera. London: Humphrey Milford: Oxford University Press; 1936.

https://asm.org/Articles/2023/March/Cholera-in-Times-of-Chaos

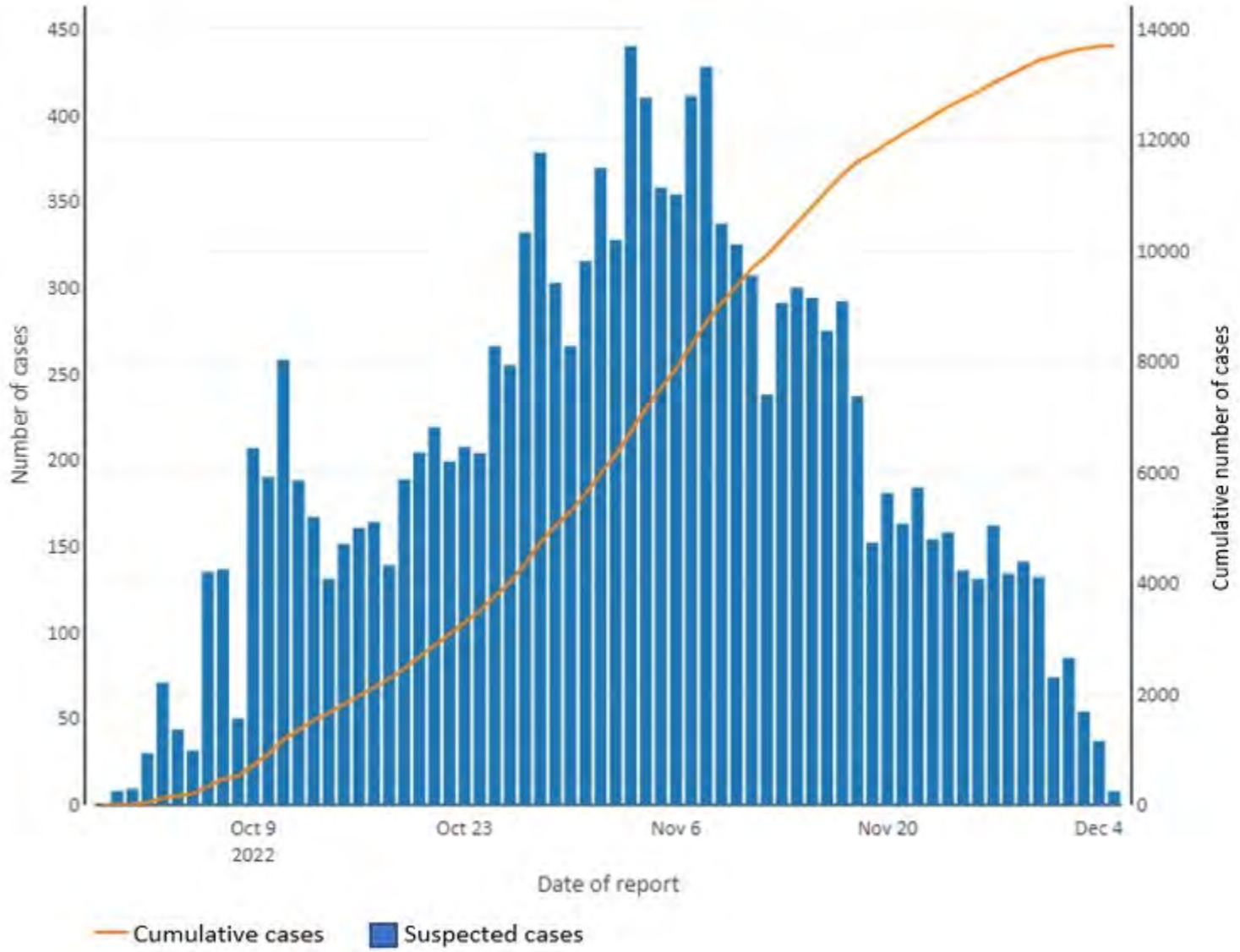


Note: Data refer to cases reported in the last 12 months. Administrative boundaries: © Eurographics
The boundaries and names shown on this map do not imply official endorsement or acceptance by the European Union. ECDC. Map produced on 17 January 2023

https://asm.org/Articles/2023/March/Cholera-in-Times-of-Chaos

CHEZ
CHEZ

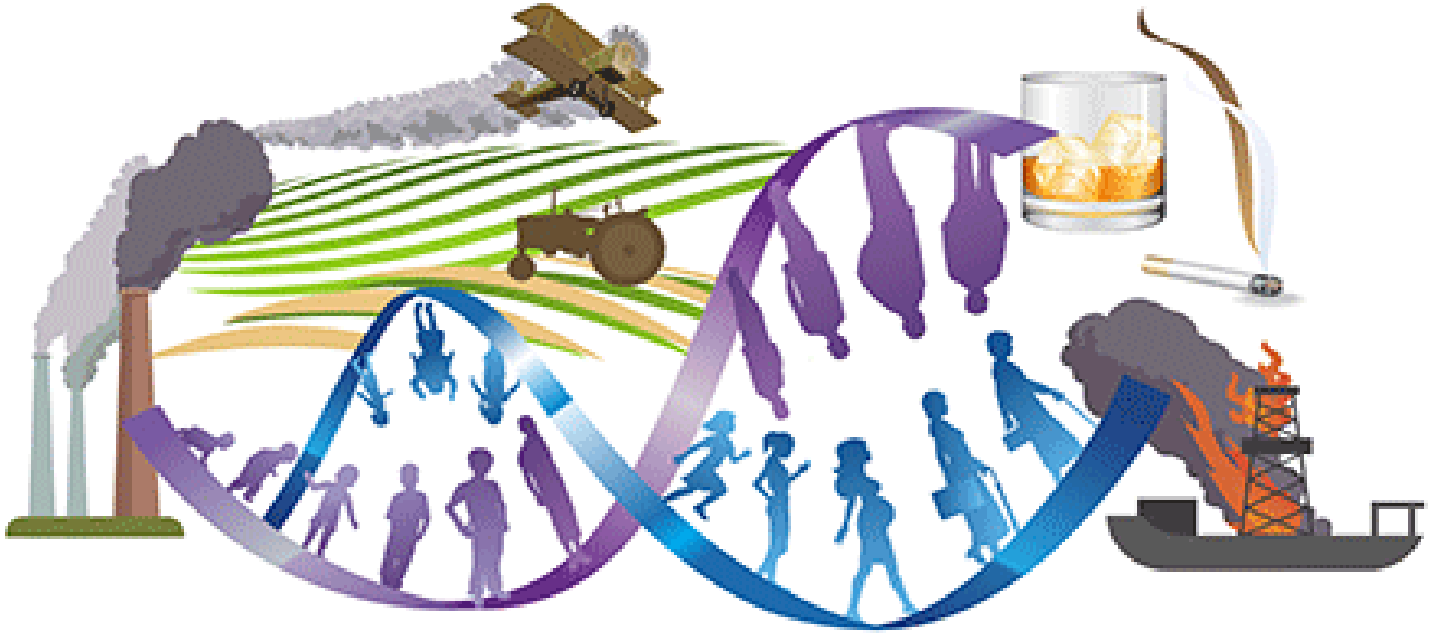
Number of suspected cholera cases reported in Haiti from 2 October to 6 December 2022



https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON427

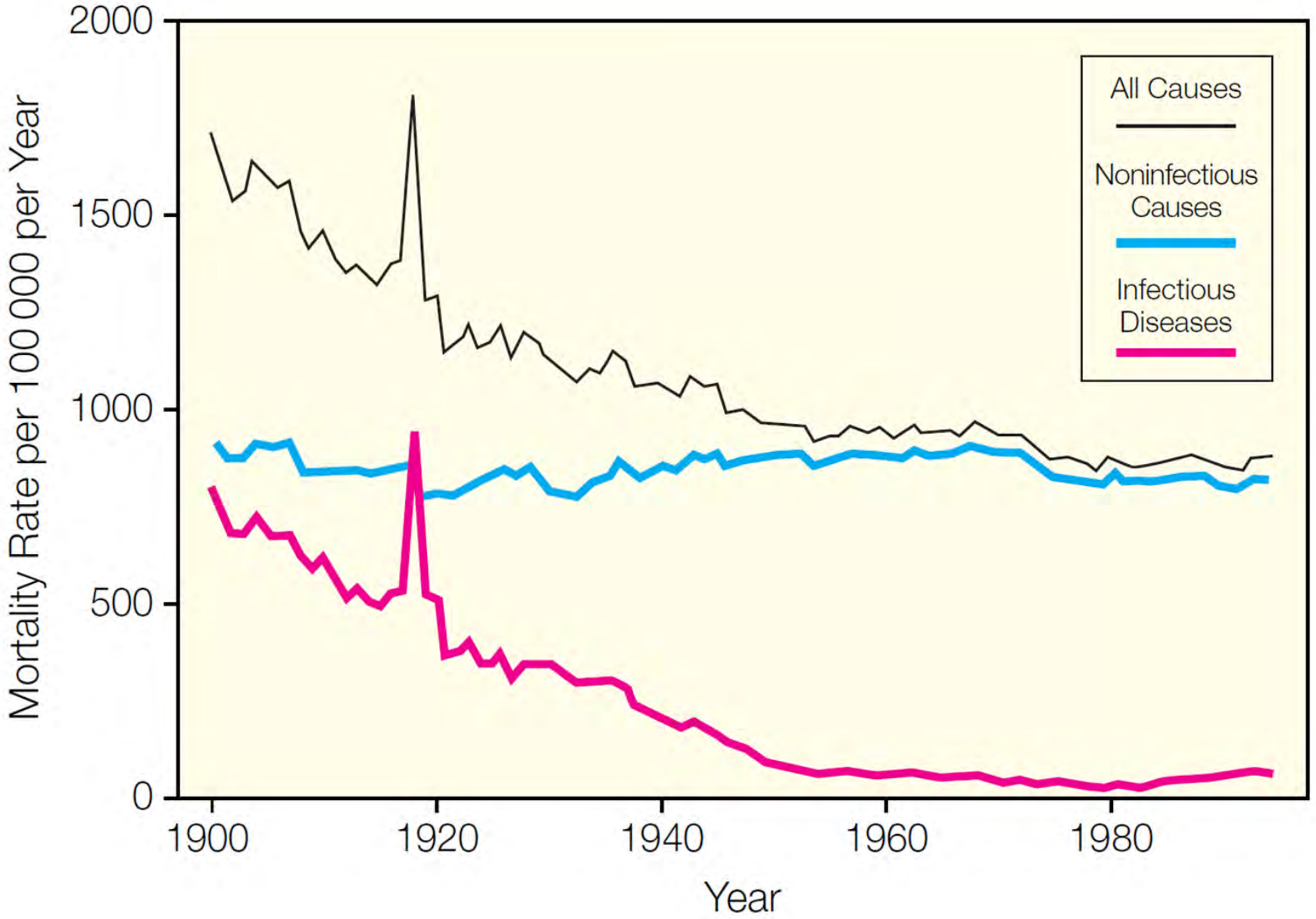
World Vision
Pour les enfants
DINEPA
REHABILITATION DE SAEP
à K-ROCHE / L'AZILE

Chronic Disease Epidemiology



https://www.niehs.nih.gov/research/atniehs/labs/epi/pi/chronic/index.cfm

Figure 2. Crude Mortality Rates for All Causes, Noninfectious Causes, and Infectious Diseases



CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)

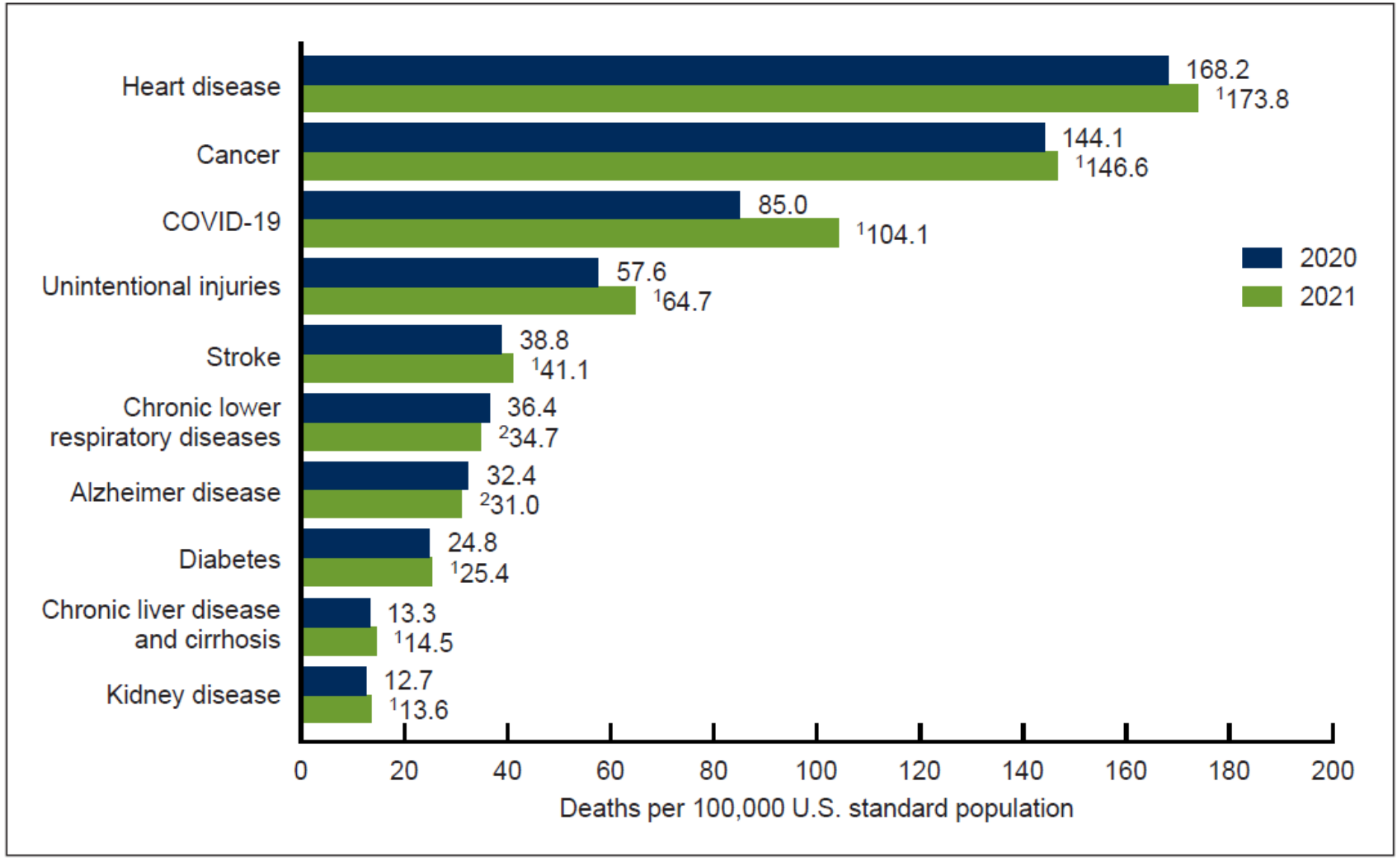
CHRONIC DISEASES IN AMERICA

6 IN 10
Adults in the US
have a **chronic disease**

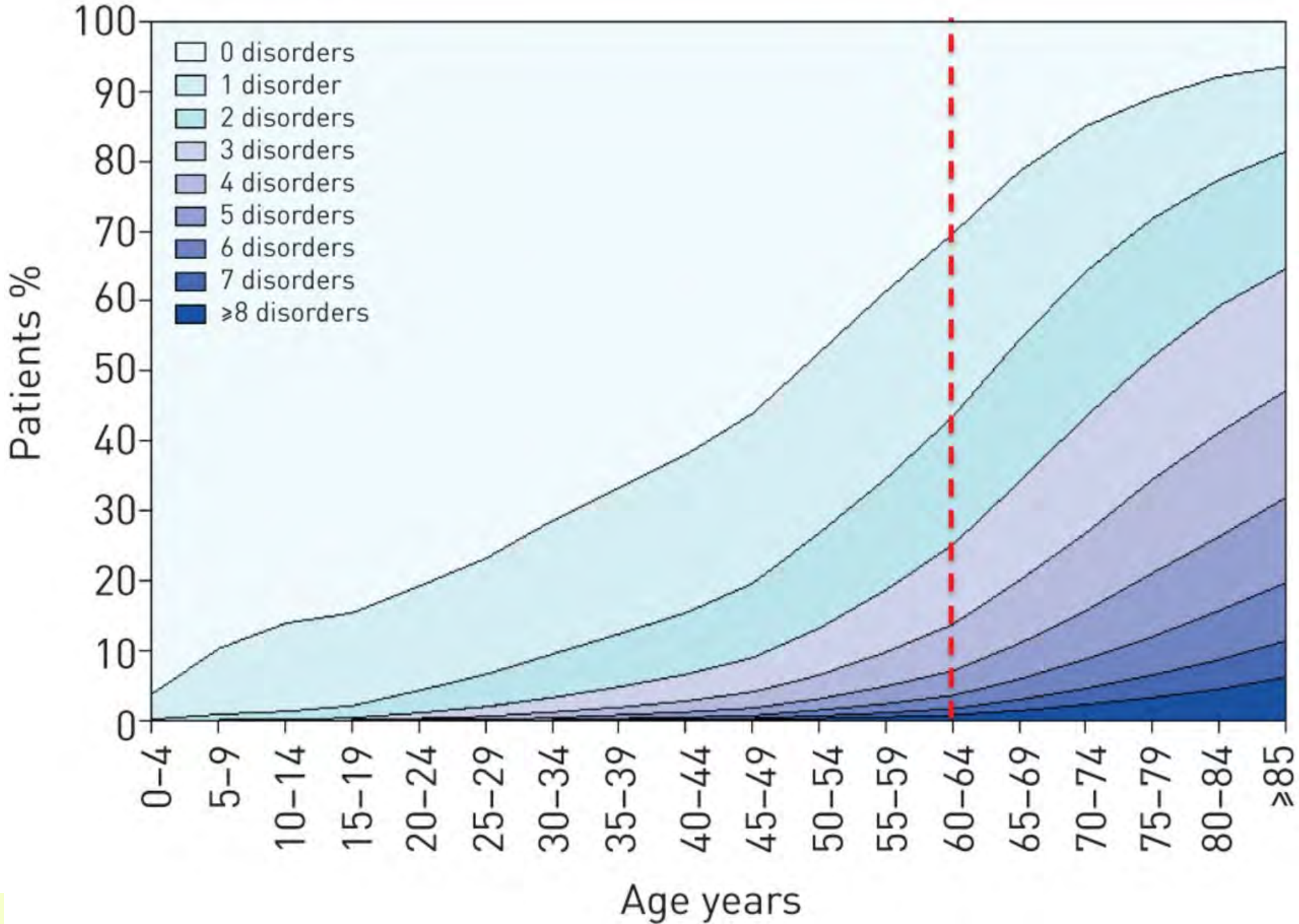
4 IN 10
Adults in the US
have **two or more**

THE LEADING CAUSES OF DEATH AND DISABILITY
and Leading Drivers of the Nation's **$3.5 Trillion** in Annual Health Care Costs

Figure 4. Age-adjusted death rate for the 10 leading causes of death in 2021: United States, 2020 and 2021



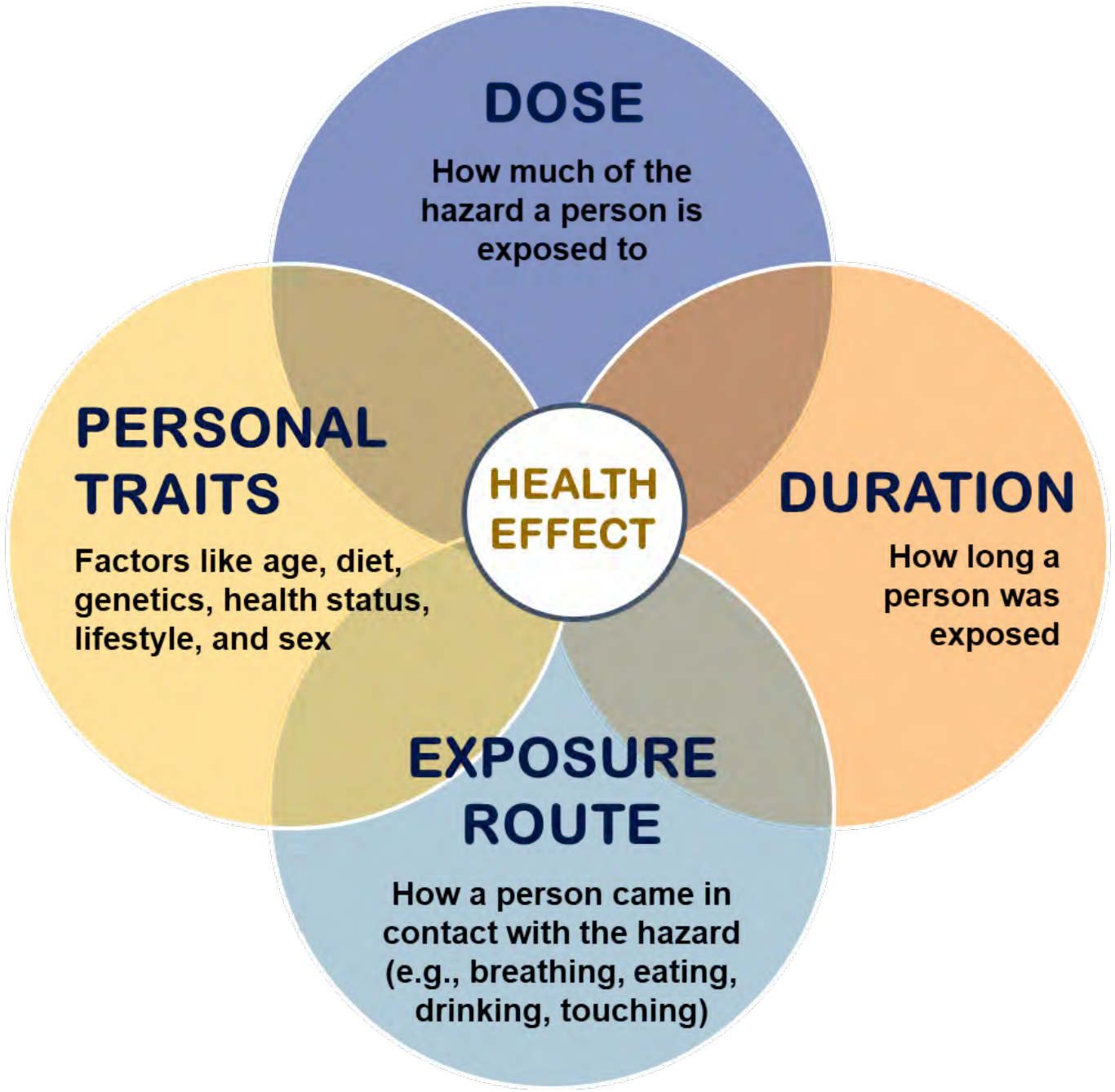
[1]Statistically significant increase from 2020 to 2021 ($p < 0.05$).
[2]Statistically significant decrease from 2020 to 2021 ($p < 0.05$).
NOTES: A total of 3,464,231 resident deaths were registered in the United States in 2021. The 10 leading causes of death accounted for 74.5% of all U.S. deaths in 2021. Causes of death are ranked according to number of deaths. Rankings for 2020 data are not shown. Data table for Figure 4 includes the number of deaths for leading causes and the percentage of total deaths. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db456-tables.pdf#4.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

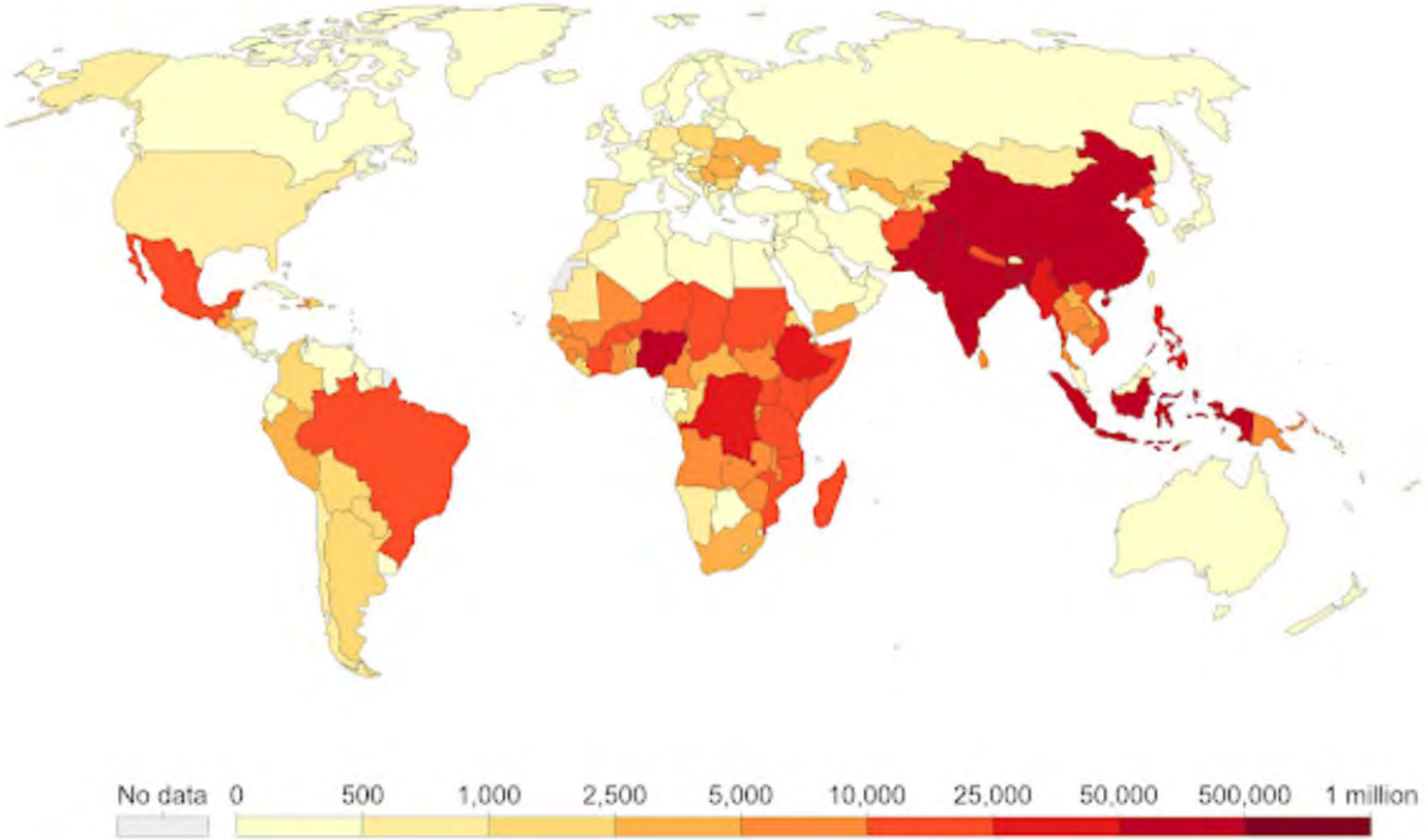

0 disorders
1 disorder
2 disorders
3 disorders
4 disorders
5 disorders
6 disorders
7 disorders
≥8 disorders
Patients %
100
90
80
70
60
50
40
30
20
10
0
0–4
5–9
10–14
15–19
20–24
25–29
30–34
35–39
40–44
45–49
50–54
55–59
60–64
65–69
70–74
75–79
80–84
≥85
Age years

The Social Ecological Model

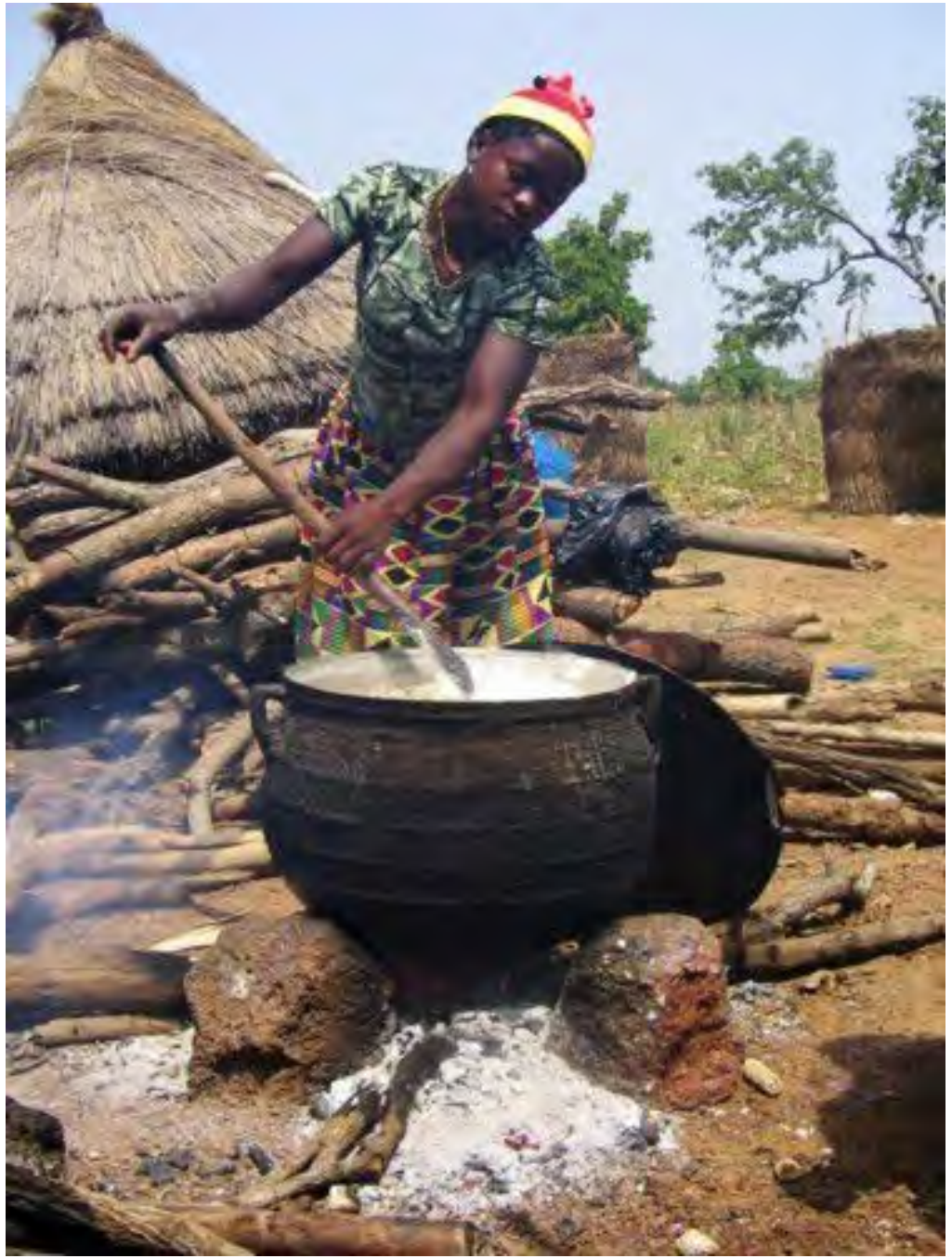
A Social-Ecological Model for Physical Activity - Adapted from Heise, L., Ellsberg, M., & Gottemoeller, M. (1999)

Environmental Epidemiology





Number of deaths attributable to indoor air pollution in 2017. Image credit Our World in Data.



HOUSEHOLD AIR POLLUTION

Over 3.2 million people

a year die prematurely from household air pollution (2019). Household air pollution is mostly created by using kerosene and solid fuels such as wood with polluting stoves, open fires and lamps.

23%
from stroke

32%
from ischaemic heart disease

19%
from chronic obstructive pulmonary disease (COPD)

6%
from lung cancer

21%
are due to lower respiratory infections

CLEAN AIR FOR HEALTH #AirPollution World Health Organization

"A growing number of scalable business models are capable of meeting the cooking energy needs of developing markets."

Dymphna van der Lans
CEO, Clean Cooking Alliance

CLEAN COOKING ALLIANCE

Health Policy and Epidemiology

Health in All Policies

Good health requires policies that actively support health

It requires different sectors working together, for example:

HEALTH TRANSPORT HOUSING WORK NUTRITION WATER & SANITATION

TO ENSURE ALL PEOPLE HAVE EQUAL OPPORTUNITIES TO ACHIEVE THE HIGHEST LEVEL OF HEALTH

Thank
You!