



PUBLIC HEALTH CHALLENGES in the 21st Century

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Public health is “the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private communities, and individuals.”

Prof. C.E.A. Winslow

*Phase 1 lecture, 2022 - 2023
academic year, spring semester
17th April 2023, Ankara - TURKIYE*

LEARNING OBJECTIVES

At the end of this Lecture, students will be able to _____ :

- ❖ *Introduce the main Public Health Challenges within the 21st Century.*
- ❖ **Learn definition and key terms of Public Health Challenges in this Era.**
- ❖ *Gain brief knowledge on each basic Public Health Challenges.*
- ❖ **Define the Public Health Approach for *Public Health* Challenges.**
- ❖ **List the Core Public Health Challenges by prioritizing.**
- ❖ **Recognise Critical Function of Wholistic Approach; *1 Medicine - 1 Health!***
- ❖ **Determine the indispensable global solidarity and Public responsibility.**

WHO Releases List of 10 Threats to Global Health

The World Health Organization has released a list of 10 threats to global health in 2019. They include :

1. Air pollution and climate change (*Climate disaster* recently)
2. *Non-communicable diseases (NCDs)*
3. Threat of a global influenza **pandemic**
4. *Fragile and vulnerable settings, such as regions affected by drought and conflict*
5. Anti-microbial resistance (AMR)
6. *Ebola and high-threat pathogens*
7. **Weak primary care**
8. *Vaccine hesitancy*
9. Dengue
10. *HIV / AIDS*



NEJM, January 18, 2019, <https://www.who.int/emergencies/ten-threats-to-global-health-in-2019>

❑ The World Health Organization (WHO) recently released a list of 13 urgent health challenges the world will face over next decade, which highlights a range of issues including *climate change / climate disaster* and health care equity. (13 Jan. 2020)

❑ According to WHO, the list provides an overview of "*urgent, global health challenges*" that WHO developed with help from experts around the world.

❑ WHO said the challenges included on the list "*demand a response from more than just the health sector,*" adding, "Governments, communities, and international agencies must work together" to address these "critical" issues. (International collaboration)

https://www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade?utm_source=STAT+Newsletters&utm_campaign=1931cb646b-MR_COPY_02&utm_medium=email&utm_term=0_8cab1d7961-1931cb646b-150708293 16.4.23

❑ **WHO said all of the challenges included on the list are urgent,**
and several are interlinked.

- ❑ *As such, WHO did not list the challenges in any particular order.*
- ❑ All the challenges in this list demand a response from more than just the **health sector**.
- ❑ We face **shared threats** and we have a shared responsibility to act.
- ❑ With the deadline for the 2030 **Sustainable Development Goals** quickly approaching, the United Nations General Assembly has underscored that the next 10 years must be the "**decade of action**".

https://www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade?utm_source=STAT+Newsletters&utm_campaign=1931cb646b-MR_COPY_02&utm_medium=email&utm_term=0_8cab1d7961-1931cb646b-150708293 16.4.23

WHO : *Urgent health challenges for the next decade*

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As a new year and a new decade kick off, **WHO** is releasing a list of

urgent, global health challenges.

This list, developed with input from our experts around the world, reflects a deep concern that leaders are failing to invest enough resources in core ***health priorities*** and systems. This puts lives, livelihoods and economies in jeopardy. None of these issues are simple to address, but they are within reach.

Public health is ultimately a political choice.

WHO : Urgent health challenges for the next decade!

1. Elevating health in the climate debate
2. *Delivering health in conflict and crisis*
3. Making health care fairer
4. *Expanding access to medicines*
5. Stopping infectious diseases
6. *Preparing for epidemics*
7. Protecting people from dangerous products
8. *Investing in the people who defend our health*
9. Keeping adolescents safe
10. *Earning public trust*
11. Harnessing new technologies
12. *Protecting the medicines that protect us*
13. Keeping health care clean

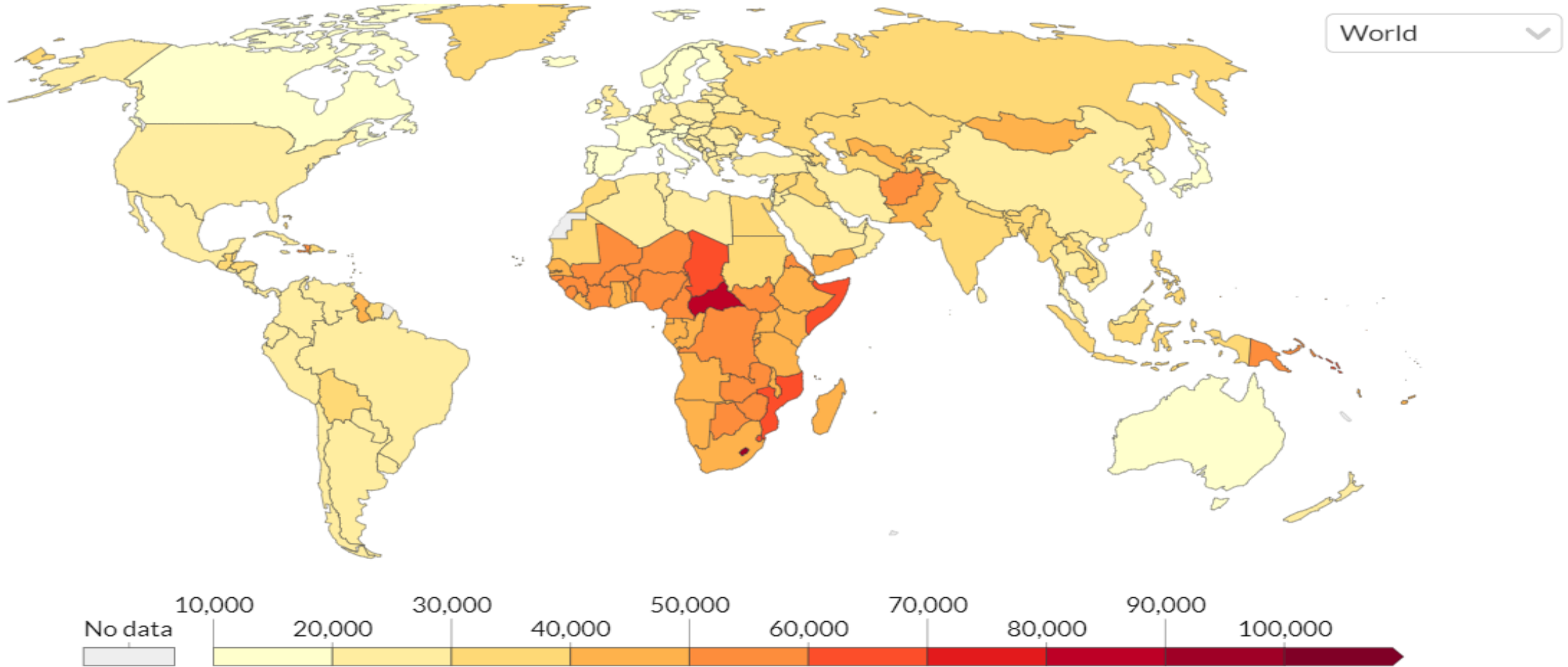


World Health
Organization

[Urgent health challenges for the next decade \(who.int\)](https://www.who.int), 13 Jan. 2020, ad: 16.4.23

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.



Source: IHME, Global Burden of Disease

OurWorldInData.org/burden-of-disease • CC BY

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



Global, regional, and national *burden of diseases and injuries* for adults 70 years and older: Systematic analysis for the *Global Burden of Disease* 2019 Study-1

Globally the population of older adults has increased since 1990 and all cause death rates have decreased for men and women.

However, mortality rates due to falls increased between 1990 and 2019,

the probability of death among people aged 70-90 decreased, mainly because of reductions in NCDs (non-communicable diseases).

Globally disability burden was largely driven by functional decline, vision and hearing loss, and symptoms of pain.

BMJ 2022; 376 doi: <https://doi.org/10.1136/bmj-2021-068208> (Published 10 March 2022)

Global, regional, and national burden of diseases and injuries for adults 70 years and older: Systematic analysis for the Global Burden of Disease 2019 Study-2

LE-70 (*Life expectancy at age 70*) and **HALE-70** (*Healthy Life expectancy at age 70*) showed continuous increases since 1990 globally, with certain regional disparities.

Globally higher LE-70 resulted in higher HALE-70 and slightly increased PYIH-70
(*proportion of years in ill health at age 70*).

Sociodemographic and healthcare access and quality indices were positively correlated with HALE-70 and LE-70. For **high exposure risk factors**,

data coverage was moderate, while limited data were available for various dietary, environmental or occupational, and metabolic risks.

BMJ 2022; 376 doi: <https://doi.org/10.1136/bmj-2021-068208> (Published 10 March 2022)

Global, regional, and national burden of diseases and injuries for adults 70 years and older: Systematic analysis for the **Global Burden of Disease** 2019 Study-1

Life expectancy at age 70 (LE₇₀) has continued to rise globally, mostly because of decreases in chronic diseases.

Adults aged ≥70 living in high income countries and regions with better «healthcare access» and quality were found to experience the highest life expectancy and healthy life expectancy.

Disability burden, however, remained constant, suggesting the need to **enhance public health** and intervention programmes to improve wellbeing among older adults.

BMJ 2022; 376 doi: <https://doi.org/10.1136/bmj-2021-068208> (Published 10 March 2022)

Current World population

Population is a dynamic field.

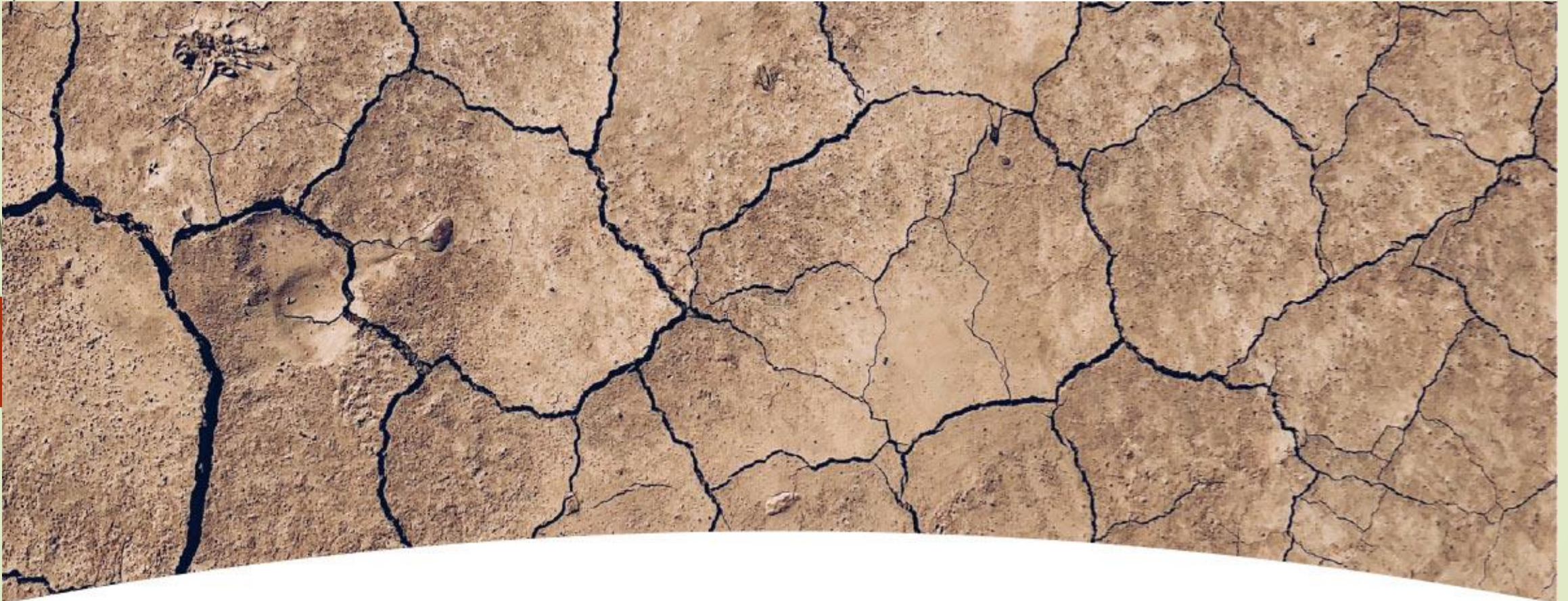
There have been significant changes in birth rates and the population trajectories of countries and continents in recent years.

Global population is still growing by more than 80 million a year,

however, and is most likely to continue growing for most of this century unless we take action.

Population: the numbers - 16.4.23

WORLD POPULATION DAY, 7TH JULY 2019:
NO SUSTAINABLE DEVELOPMENT
WITHOUT SUSTAINABLE POPULATION..



Age structure of the World population

*What is the age structure of the world population
and in countries around the world?*

How did it change over time and what can we expect for the future?

These are the questions of Public Health to be focused on.

The global median age has increased from just over 20 years in 1970 to over 30 years in 2022. *The global population breakdown by age*

*shows that a quarter (26%) are younger than 14 years,
10% are older than 65, while half of the world population is
the working age bracket between 25 and 65.*

Age Structure - Our World in Data - 16.4.23

Will robots and AI cause mass unemployment? *Not necessarily, but they do bring other threats*



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Child Mortality

In Public Health, *child mortality* refers to the death of children under the age of five while *infant mortality* refers to the death of those under the age of one.

5 million children died in 2021! (UNICEF)

Where did these children die?

1. Pneumonia is the most common cause of death,
2. preterm births and neonatal disorders is second,
3. and diarrheal diseases are third! *What are children today dying from?*



<https://ourworldindata.org/child-mortality> 5.5.22

LOWERING INFANT MORTALITY RATE (IMR) WILL LOWER POPULATION GROWTH



1 CHILD

1 FAMILY

[You searched for The global median age - Population Matters](#) 16.4.23

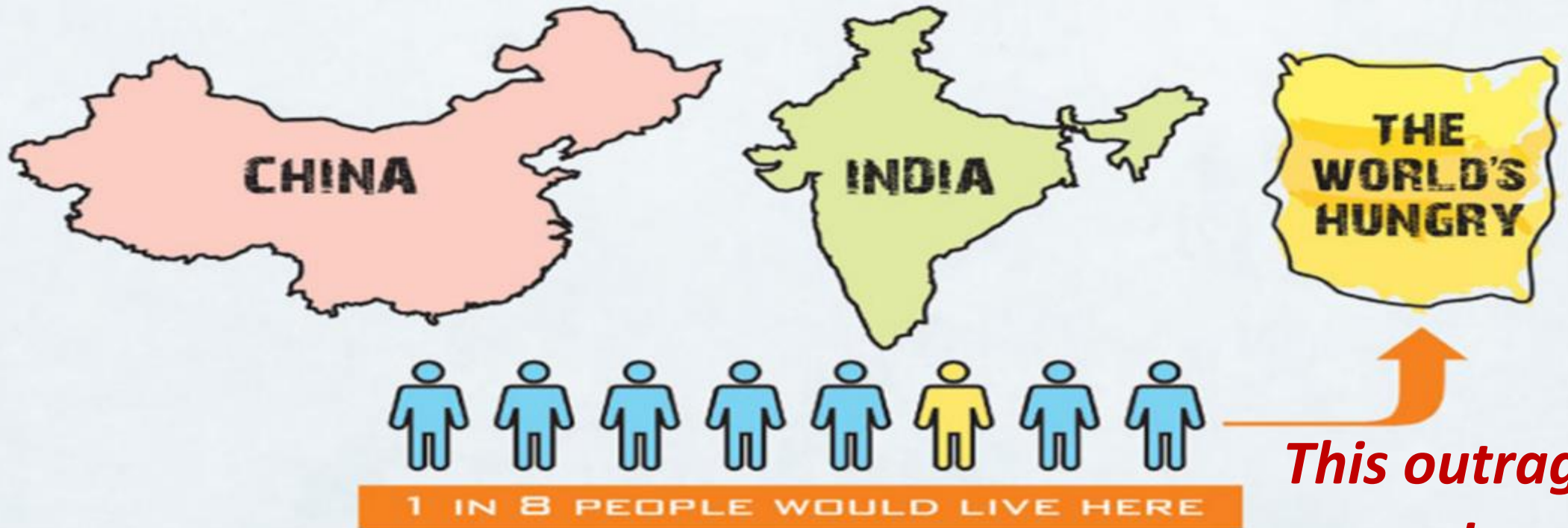
A recent paper published by a group of Australian academics has found that **reducing IMR-infant mortality rates will lower global population growth.**

Their answer: **Better access to contraception and family planning.**

If HUNGER Were a Country

At any point in time, almost 1 billion people on our planet suffer from chronic undernourishment. That's about 1 in every 8 persons alive today. Moreover, about 24,000 people die every day from hunger-related causes and 16,000 of them are children under the age of five. If "hunger" were a country, it would be the third largest populated country in the world, just behind China and India. It would be almost three times the population of the USA.

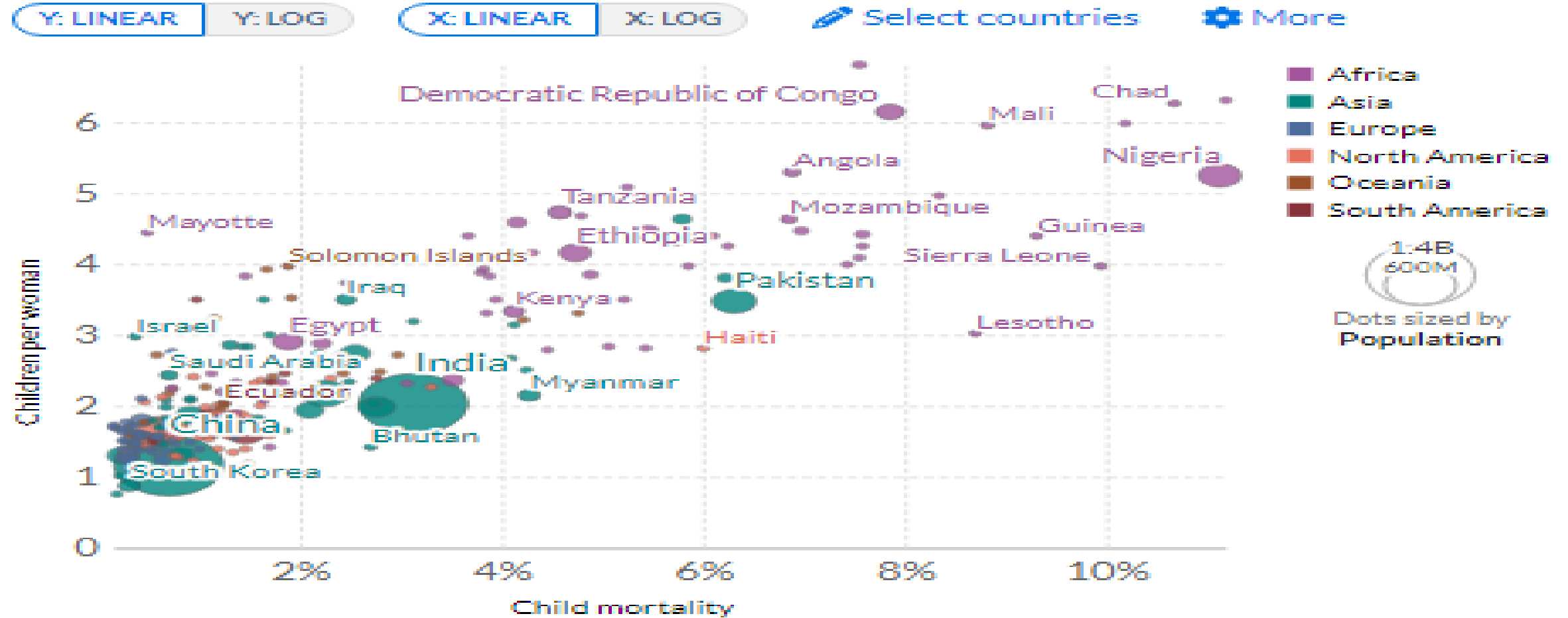
THE 3 LARGEST POPULATION GROUPS IN THE WORLD



***This outrage
must end!***

Average number of children vs child mortality, 2021

Child mortality measures the share of children that die before their fifth birthday.



Source: United Nations, World Population Prospects (2022)
 OurWorldInData.org/fertility-rate • CC BY

Fertility Rate - Our World in Data 16.4.23

1950 2021

Maternal Mortality

What could be more tragic than a mother losing her life in the moment that she is giving life to her newborn?

This risk -**maternal mortality**- is the focus of this entry.

We are presenting the global data, study the development over the last generations, ask how it was possible to make child birth so much safer, and what we can do to reduce the risk of maternal death further still.

For most of our history, pregnancy and childbirth were dangerous for both baby and mother.

If we look at long-term trends in maternal mortality -*the likelihood a woman will die*

from pregnancy-related causes- we see that every 100th to 200th birth led to the

mother's death. Improvements in healthcare, nutrition, and hygiene mean

maternal deaths are much rarer today. [Maternal Mortality - Our World in Data 16.4.23](#)

Maternal Mortality

But women are still dying from pregnancy-related causes that are preventable.

The WHO (World Health Organization) estimates that almost

Approx. **268,000 women died from pregnancy-related causes in 2022.**

That's 733 women die every day!

[Maternal Mortality - Our World in Data](#) 16.4.23

Maternal mortality rate MMR=

(Number of maternal deaths / Number of live births) X 100,000 The maternal mortality ratio can be calculated directly from data collected through vital registration systems, household surveys or other sources.

MMR, Turkiye-2021, 13/100 000 (13E-05)



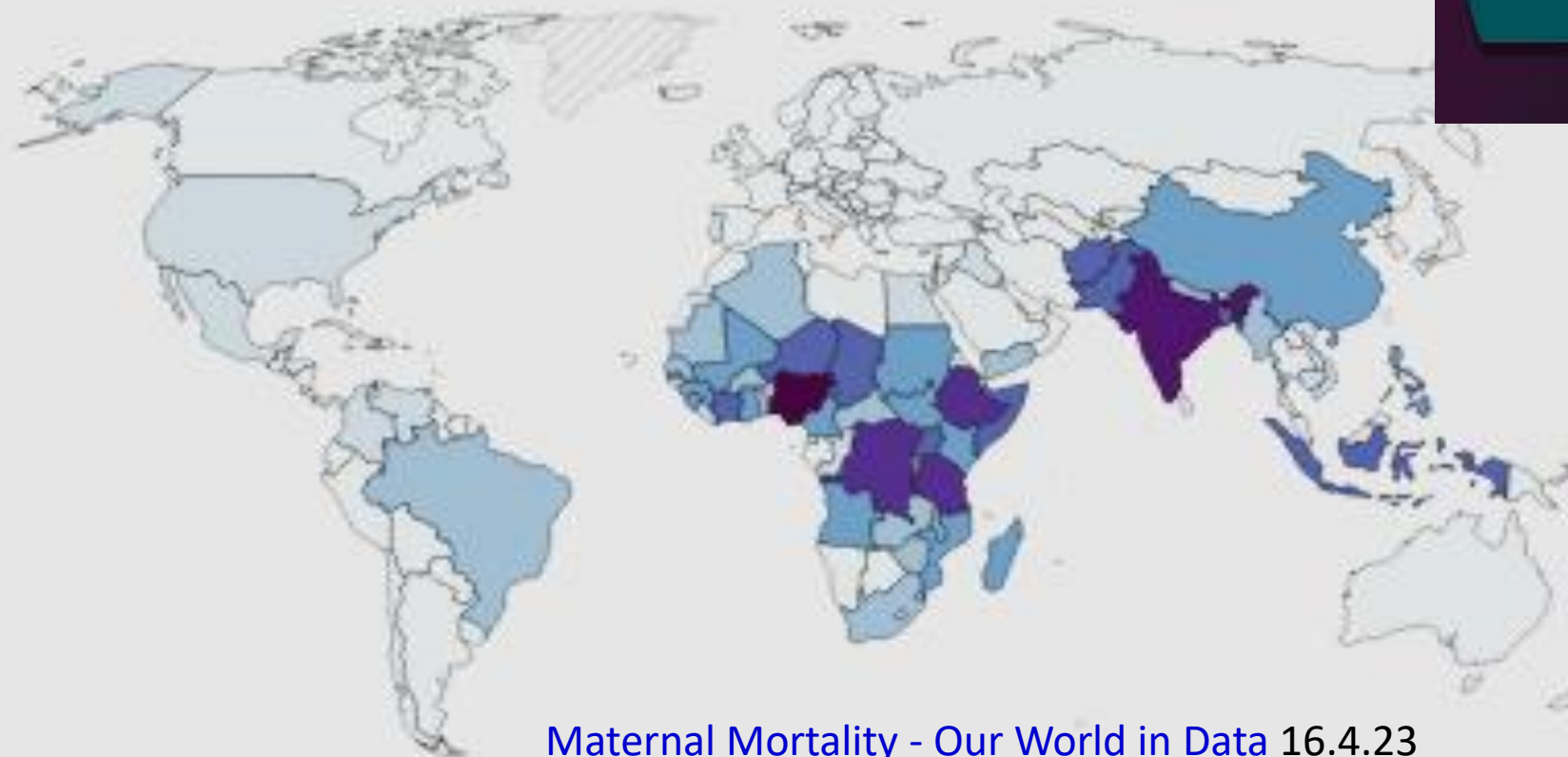
[Equity and Social Determinants of Health | American Institutes for Research \(air.org\)](#) 16.4.23

Number of maternal deaths, 2017

The number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination.



Maternal
Mortality



[Maternal Mortality - Our World in Data](#) 16.4.23

The 5 countries with the highest number of **maternal deaths** in 2017 were: **Nigeria** (67,000); **India** (35,000); Democratic Republic of **Congo** (16,000); **Ethiopia** (14,000); and **Tanzania** (11,000). Plus **Indonesia**, 8600!)

The Poverty & Public Health

The poverty we are dealing with is not the kind due to *flood* and *famine*.

It is the kind that has existed since the 1st Industrial Revolution (1760..) and is especially poignant because it exists in the midst of plenty, in cancerous pockets within the most productive and wealthy society ever created by man.

The great change that has taken place in our thinking about this kind of **poverty** is that we are beginning to believe it can be abolished.

*The existence of **poverty** is finally becoming unacceptable.*

<https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.55.11.1757> 5.5.22

Vicious Circles of Poverty

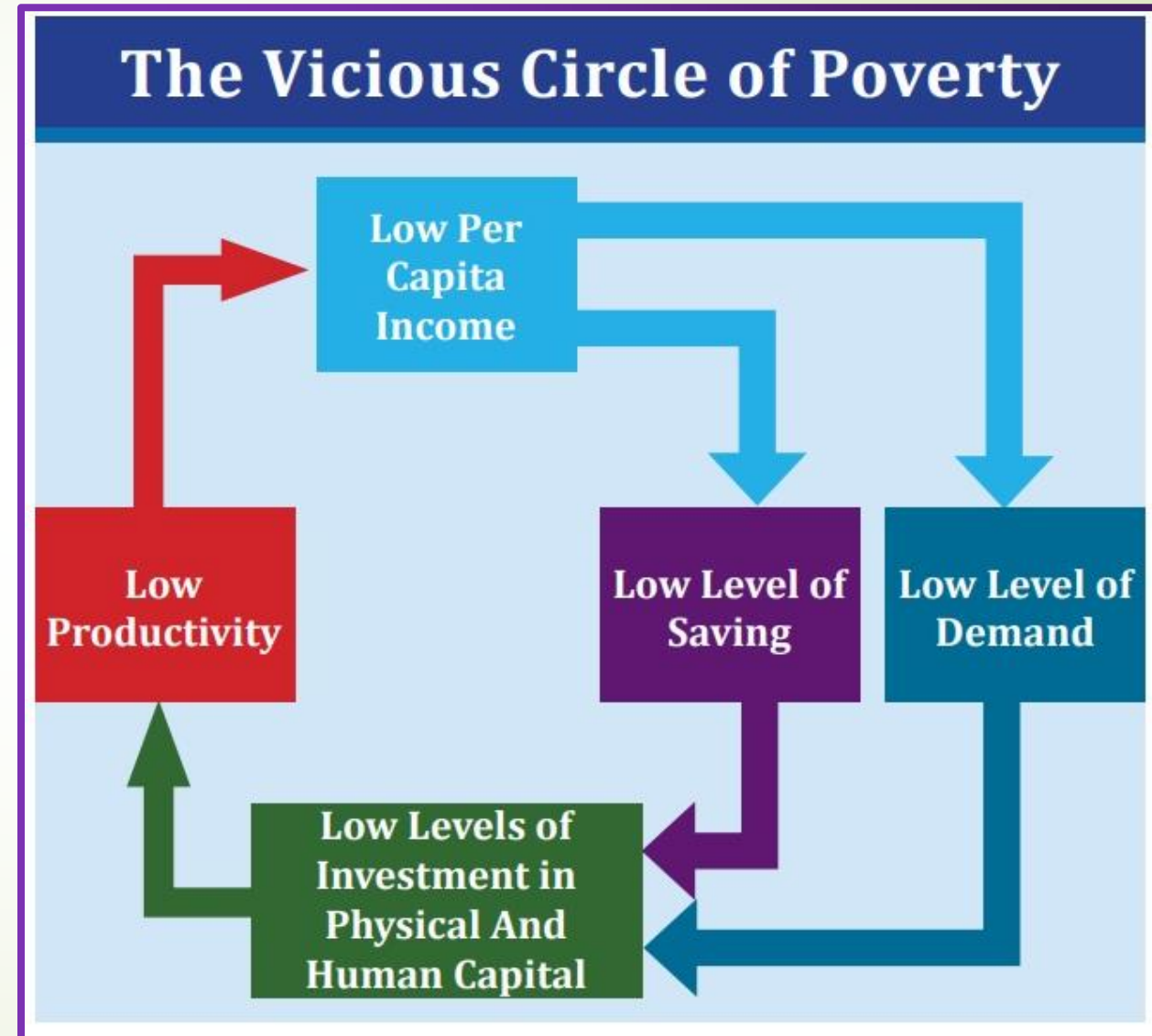
We are increasingly dealing with what can be called *vicious circles* in medicine. We are faced with situations in which a given condition, often minor and manageable in itself, leads to something, worse which again leads to further serious difficulties.

These are cases in which slow deterioration can become an avalanche.

Perhaps we might call it *the avalanche phenomenon.*

[https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.](https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.55.11.1757)

55.11.1757 5.5.22



What are *health inequalities*?

Health inequalities are the unjust and avoidable differences in people's health across the population and between specific population groups.

Some authors, particularly from North America, use 'inequalities' to denote differences between groups and 'inequities' to denote unjust/unfair differences between groups.

The more commonly used term "**inequality**" has been adopted to describe unjust/unfair differences.

<http://www.healthscotland.scot/health-inequalities/what-are-health-inequalities> 5.5.22

What are health inequalities?

Health inequalities go against the principles of **social justice** because they are avoidable.

They do not occur randomly or by chance.

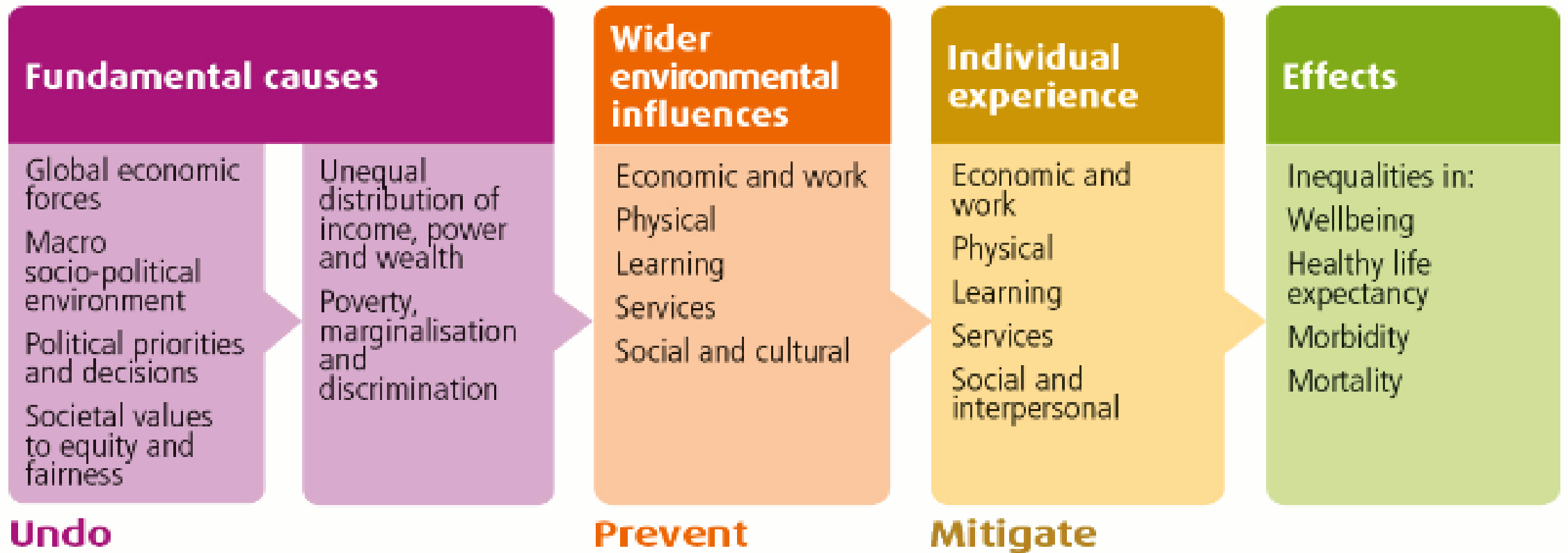
They are socially determined by circumstances largely beyond an individual's control.

These circumstances disadvantage people and limit their chance to live longer, healthier lives.

The existence of **health inequalities** in Scotland means that the right of everyone to the highest attainable standard of physical and mental health is not being enjoyed equally across the population.

<http://www.healthscotland.scot/health-inequalities/what-are-health-inequalities> 5.5.22

Causes of health inequalities



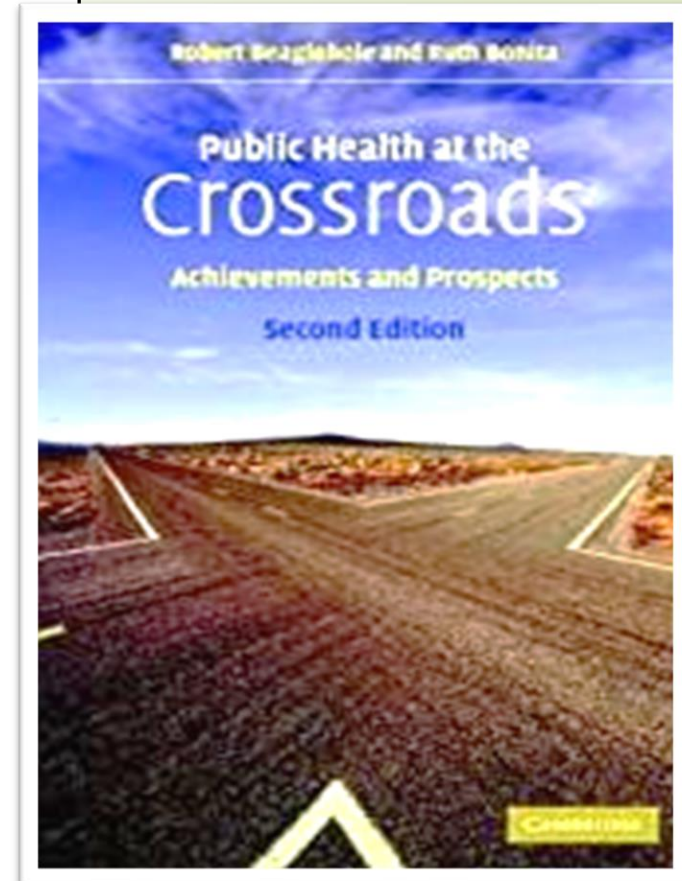
As shown in the diagram above, the fundamental causes of health inequalities are an unequal distribution of income, power and wealth. This can lead to poverty and marginalisation of individuals and groups.

Public Health at the Crossroads : Achievements and Prospects

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- *This book is an introduction to public health as a discipline and a critique of its recent development.*
- ***Identifying Poverty as the greatest continuing threat to health worldwide,***
- *It reviews epidemiological, demographic and public health trends internationally, and argues that the prospects for public health will improve only if **health in a broad sense becomes a central concern of the policy-making process.***

Beaglehole R, Bonita R. The World Health Organization, Geneva, 2004



Health & Globalisation

Global risks for health

- ◆ **Exclusion from global markets, e.g.** *North Korea, Zimbabwe, Cuba (converse results)*
- ◆ **Private ownership of knowledge:** *TRIPS, drug patent laws, HIV drugs,*
- ◆ **Migration of health professionals:** *mainly to wealthier nations, OECD, Australiasia, e.g. in one town in Canada, 2/3 doctors migrant from one small area of South Africa*
- ◆ **Cross border transmission of disease:** *SARS, bird flu, NIPAH, MDR-TB*
- ◆ **Environmental degradation:** *rise in dengue, Nipah, SARS, West Nile disease, Chikungunya; floods, tsunami, forest fires, tropical storms*
- ◆ **Conflict:** *War, refugees, famine e.g. cholera*

'Least developed countries' pose the next big globalisation challenge..



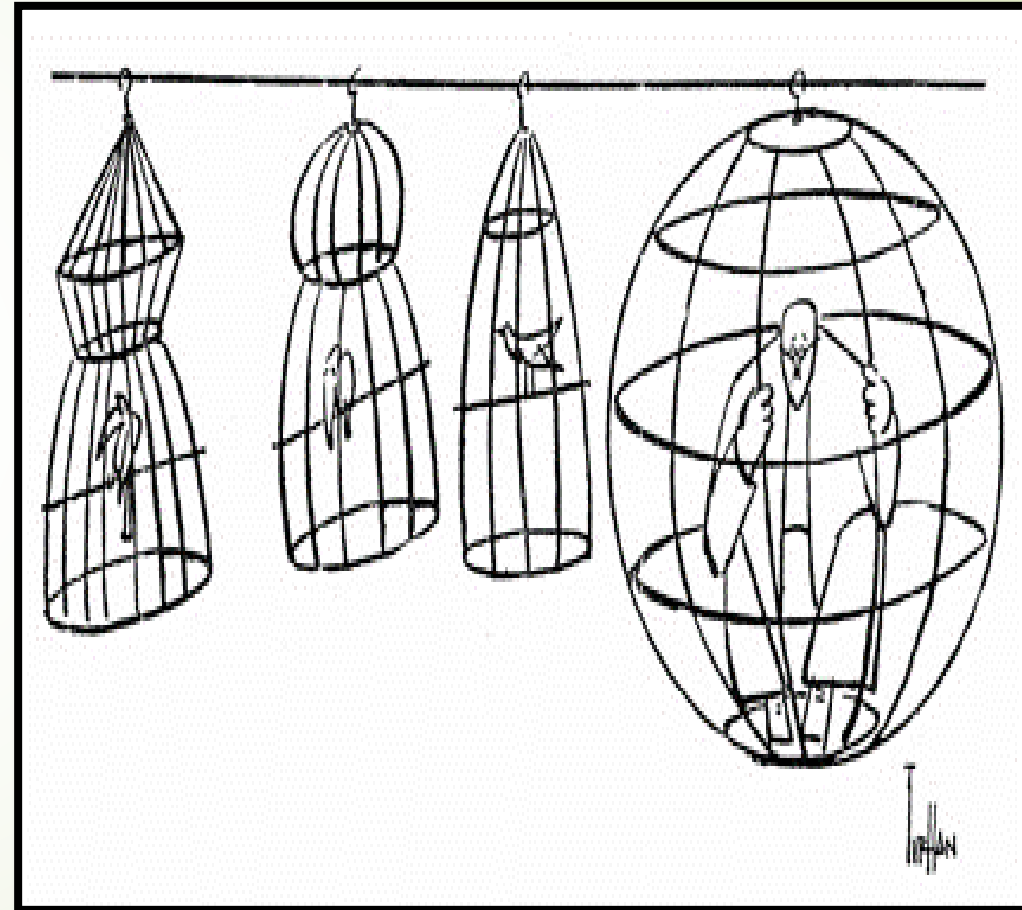
www.ahmetsaltik.net

<http://www.theguardian.com/global-development/poverty-matters/2011/mar/30/least-developed-countries-globalisation-challenge>

A SEVERE THREAT to HEALTH?

*'All the indications are that the current forms of globalisation are making the world a safe place for unfettered market liberalism and the consequent, **growth of inequalities**. This economic globalisation is posing **severe threats** to both people's health and the health of the planet.'*

Prof. Fran Baum, Flinders Univ., Australia (2001)



In Conclusion...

At the end of this Lecture, you have learned to :

- ❖ *Introduce the main Public Health Challenges within the 21st Century.*
- ❖ Define and key terms of **Public Health Challenges** in this field.
- ❖ *Brief knowledge on each basic Public Health Challenges.*
- ❖ Define the Public Health Approach for *Public Health Challenges*.
- ❖ *List the Core Public Health Challenges by prioritizing.*
- ❖ Recognise Critical Function of Wholistic Approach; **1 Medicine - 1 Health!**
- ❖ *Determine the indispensable global solidarity and Public responsibility.*
- ❖ *A healthier World is possible in case of better & fair management.*



**United
Nations**



UNITED NATIONS
HUMAN RIGHTS
OFFICE OF THE HIGH COMMISSIONER

«Access to health care is a
fundamental human right
& must be protected.

Healthcare is a fundamental human right.»

UN Human **Rights**



***Health is fundamental
for a good quality of life.***

**Being free from illness or injury,
directly affects our capacity to enjoy life.
*And a healthy - well trained communtiy is
a must for global welfare & development.***

Thank You

