IS3R 2023

Berlin/Germany
August 24–26, 2023

Techquity: What impact does access to personal computing and communication devices have on health equity and what steps may be taken to equalize this variable?

Bhavin Jankharia

Picture This – Mumbai

Radiology Education Foundation (REF)

Health Equity

Health equity is the state in which everyone has a fair and just opportunity to attain their highest level of health. Achieving this requires ongoing societal efforts to:

- Address historical and contemporary injustices
- Overcome economic, social and other obstacles to health and healthcare
- Eliminate preventable health disparities

Techquity – Equity in Technology

Healthcare techquity implies that healthcare technology or technology to access healthcare is equitably available

- Digital inclusion
- Access to technology
- Ensuring that technology itself does not exacerbate inequity

Picture This
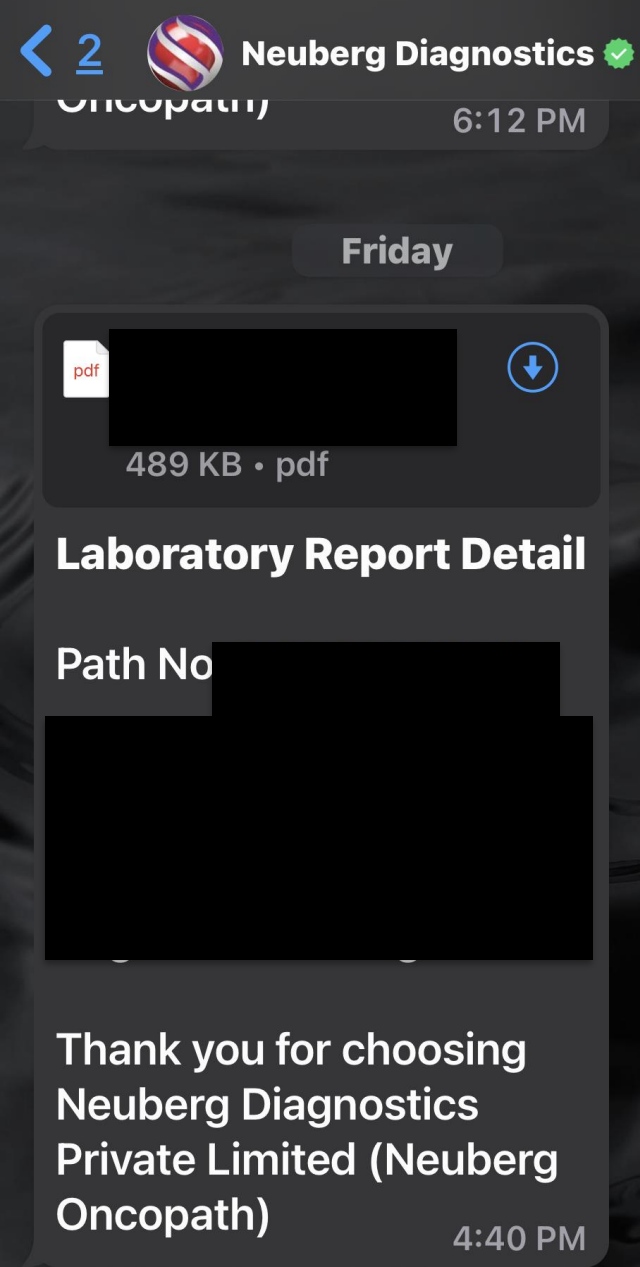
Reports are sent as pdfs – pathology and radiology to all those who have WhatsApp or email or both

Personal Computing and Communication Devices at a Personal Level

Images are available for viewing by the patients and referring doctors on platforms like Stradus, the moment they are uploaded to the cloud

Personal Computing and Communication Devices at a Personal Level

- Can improve access to healthcare facilities, including insurers, Govt and private schemes, etc.
- Can improve access to information about diseases – both diagnosis and management
- Can improve access to doctors and healthcare workers, many of whom are now willing to communicate via SMS, WhatsApp, WeChat or email
- Allow arbitrage in pricing for diagnostic tests and treatment packages, by comparing easily available pricing information online or using aggregators who do this for you
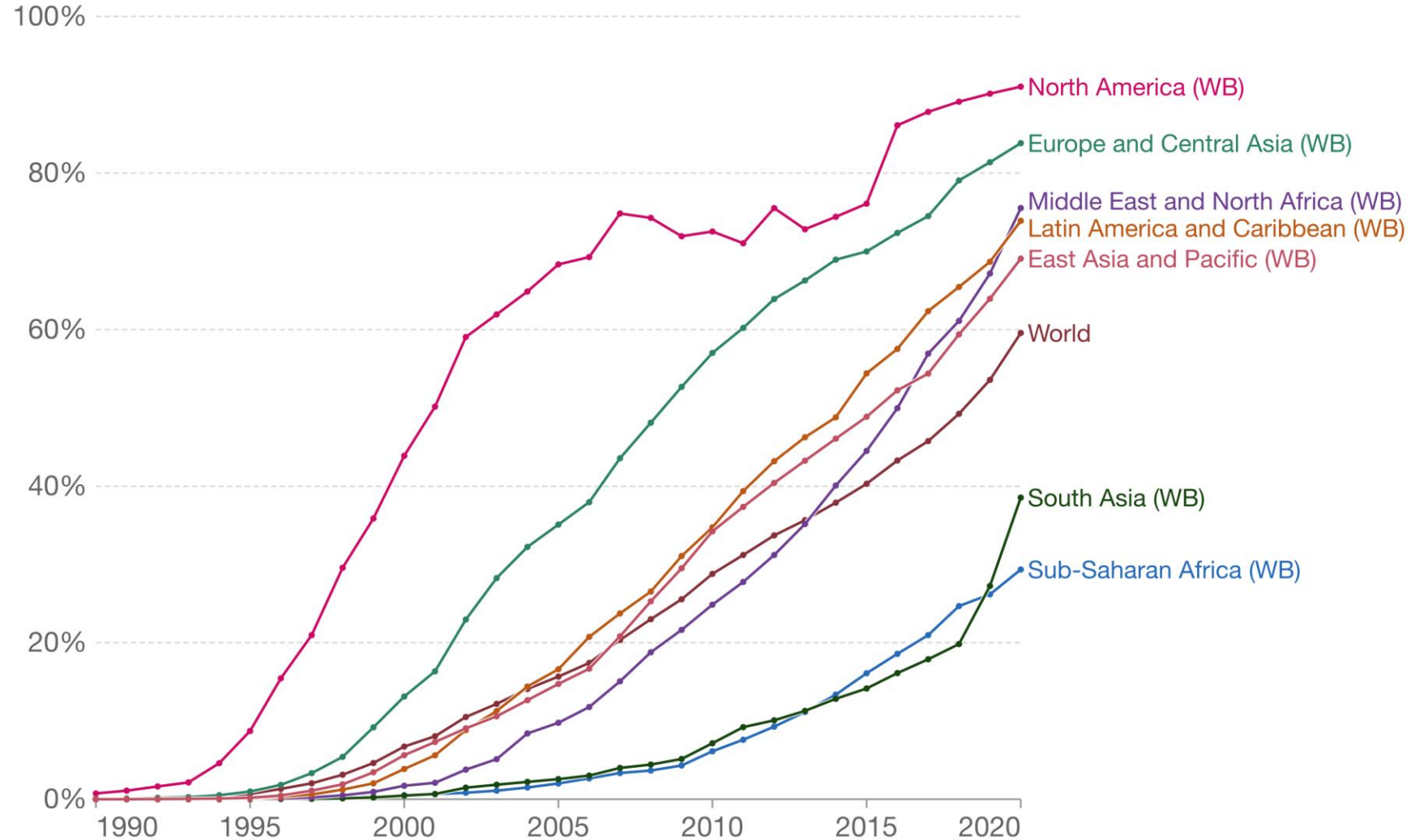
But...

Tech Inequity

There is still a significant amount of the population in LICs and LMICs that does not have access to the Internet

This also parallels the number of smartphone users

Share of the population using the Internet

Share of the population who used the Internet[1] in the last three months.

Legend (from top to bottom):
- North America (WB)
- Europe and Central Asia (WB)
- Middle East and North Africa (WB)
- Latin America and Caribbean (WB)
- East Asia and Pacific (WB)
- World
- South Asia (WB)
- Sub-Saharan Africa (WB)

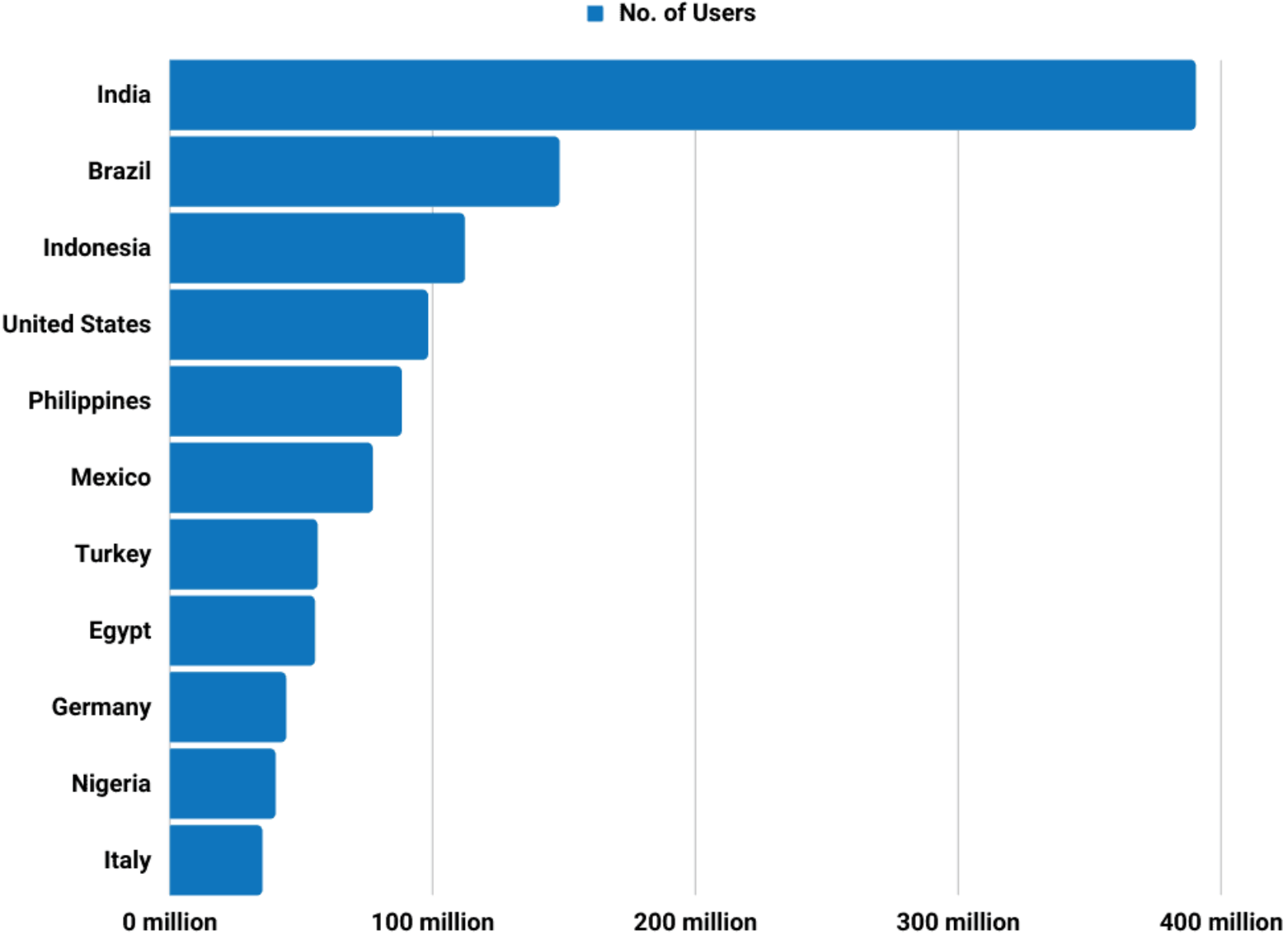Source: International Telecommunication Union (via World Bank)

OurWorldInData.org/internet • CC BY

1. **Internet user**: An internet user is defined by the International Telecommunication Union as anyone who has accessed the internet from any location in the last three months. This can be from any type of device, including a computer, mobile phone, personal digital assistant, games machine, digital TV, and other technological devices.

Tech Inequity

This parallels the earlier chart on smartphone users and Internet access

WhatsApp Users by Country

■ No. of Users

Country	
India	
Brazil	
Indonesia	
United States	
Philippines	
Mexico	
Turkey	
Egypt	
Germany	
Nigeria	
Italy	

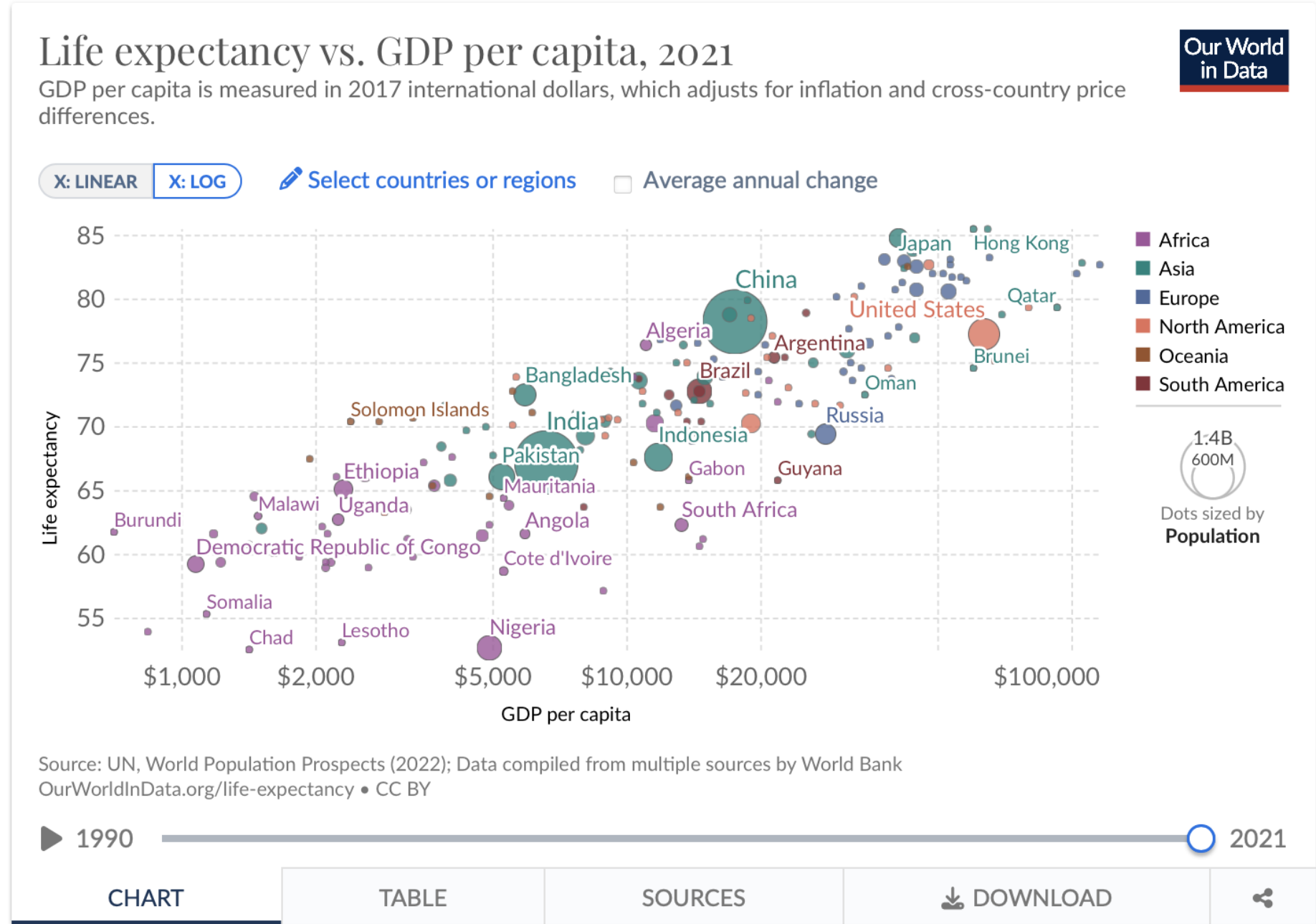0 million · 100 million · 200 million · 300 million · 400 million

bankmycell

The use of personal computing and communication devices does not solve the overall problem of health inequity, and just makes the divide between those who are tech savvy and those who are not, wider

The Broader Picture

Health Inequity

There is a logarithmic relationship between a country's GDP and life expectancy

Similarly, within a country, there is a clear relationship between wealth and health

Life expectancy vs. GDP per capita, 2021

GDP per capita is measured in 2017 international dollars, which adjusts for inflation and cross-country price differences.

Source: UN, World Population Prospects (2022); Data compiled from multiple sources by World Bank
OurWorldInData.org/life-expectancy • CC BY

https://ourworldindata.org/grapher/life-expectancy-un-vs-gdp-per-capita-wb

Perhaps the only real way of removing health inequity and tech inequity is by improving a nation's wealth, which will improve health and reduce transnational and intra-nation inequity in health and technology

Life expectancy vs. GDP per capita, 1800 to 2018

GDP per capita is adjusted for inflation and differences in the cost of living between countries.
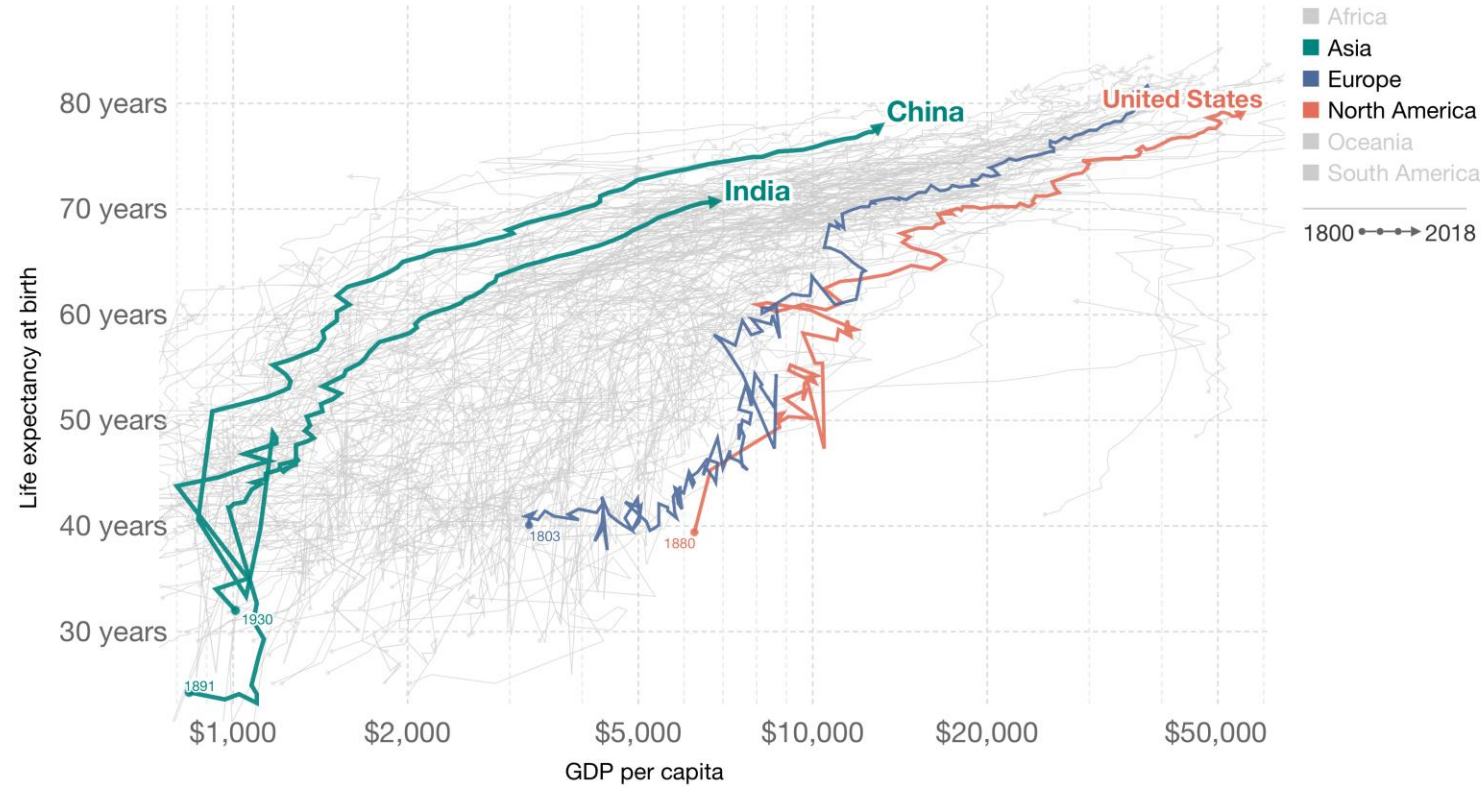
Source: UN WPP (2022); Zijdeman et al. (2015); Riley (2005), Maddison Project Database 2020 (Bolt and van Zanden, 2020)
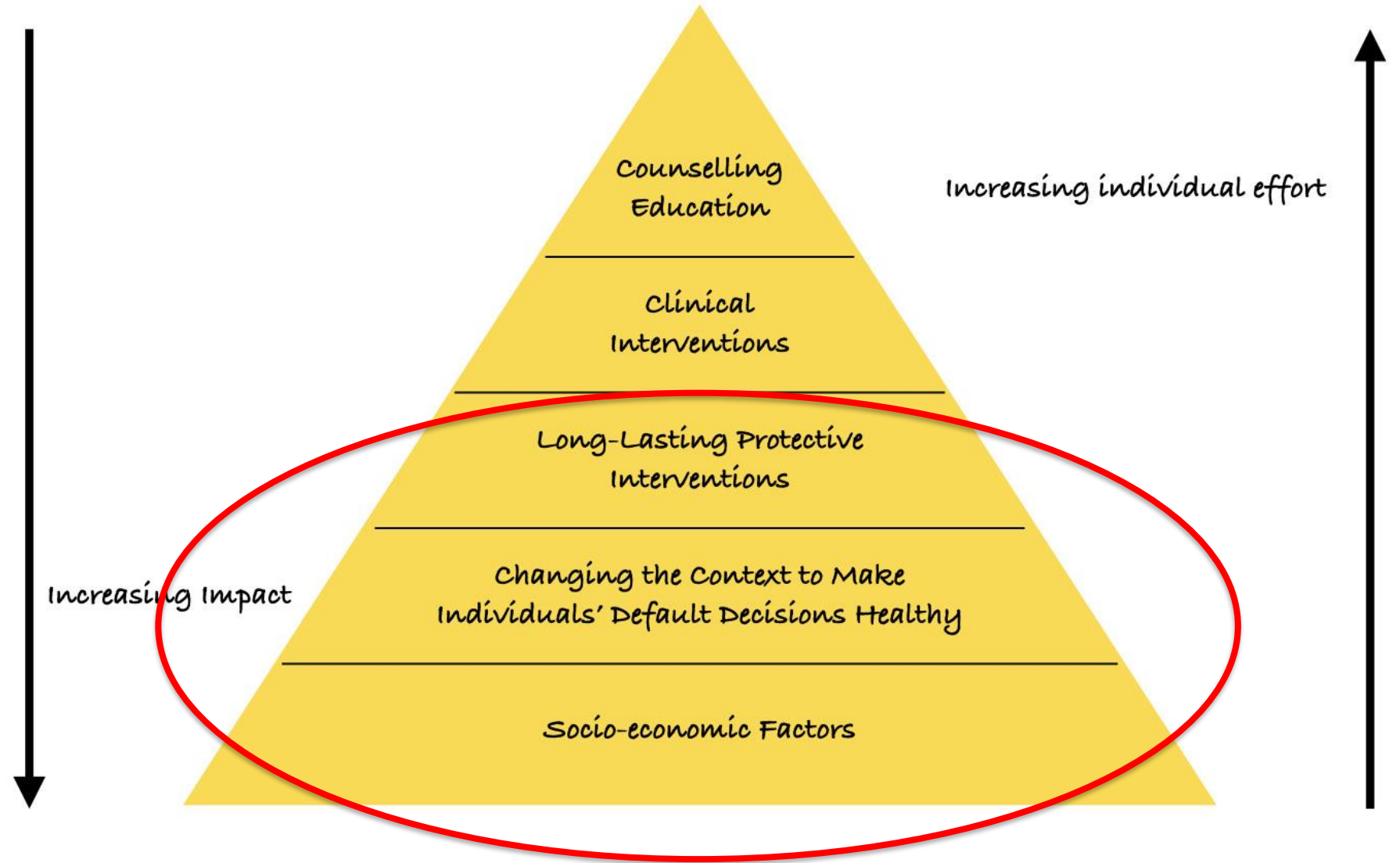Note: GDP per capita is expressed in international-$[1] at 2011 prices.
OurWorldInData.org/life-expectancy • CC BY

1. International dollars: International dollars are a hypothetical currency that is used to make meaningful comparisons of monetary indicators of living standards. Figures expressed in international dollars are adjusted for inflation within countries over time, and for differences in the cost of living between countries. The goal of such adjustments is to provide a unit whose purchasing power is held fixed over time and across countries, such that one international dollar can buy the same quantity and quality of goods and services no matter where or when it is spent. Read more in our article: What are Purchasing Power Parity adjustments and why do we need them?

https://ourworldindata.org/grapher/life-expectancy-vs-gdp-per-capita?zoomToSelection=true&time=1800..latest&country=IND~CHN~USA~GBR

The reason why wealth =
health is because our
health is largely
dependent on the bottom
3 factors

It is only when these are
better taken of that the
top two become more
important

Counselling
Education

Clinical
Interventions

Long-Lasting Protective
Interventions

Changing the Context to Make
Individuals' Default Decisions Healthy

Socio-economic Factors

Increasing individual effort

Increasing Impact

Thomas Frieden's Health Pyramid - Modified

Picture
This

A country's wealth matters and is likely the most important factor that determines population and eventually individual health

So, with the understanding that wealth = health, what can still be done to reduce health inequity and tech inequity

Leveraging technology to leapfrog the wealth = health problem

Techquity and Health Equity

Assuming the Government and those in power are committed to improving living standards and reducing overall inequity

- Easy availability of cheap hardware
- Cheap bandwidth
- National health systems with easy-to-understand online interfaces that be easily accessed and understood by people and patients
- Use of push technologies to reach out to people for preventive tests and conditions (just simple but impactful issues such as blood pressure estimation, blood sugar tests, testing for anemia, etc.), vaccines for children and for reminders, follow-ups along with manual intervention with calls, etc.

Ayushman Bharat

Ambitious plan to have healthcare available to every Indian.

Two parts
- Primary health centres - starting with 15,000 primary health centres in 18-19, India has 150,000 as of Dec 2022

- Govt sponsored insurance scheme – PM-JAY for the 550 million who are in the bottom 40% of the country's income – around 20-30% have been enrolled so far
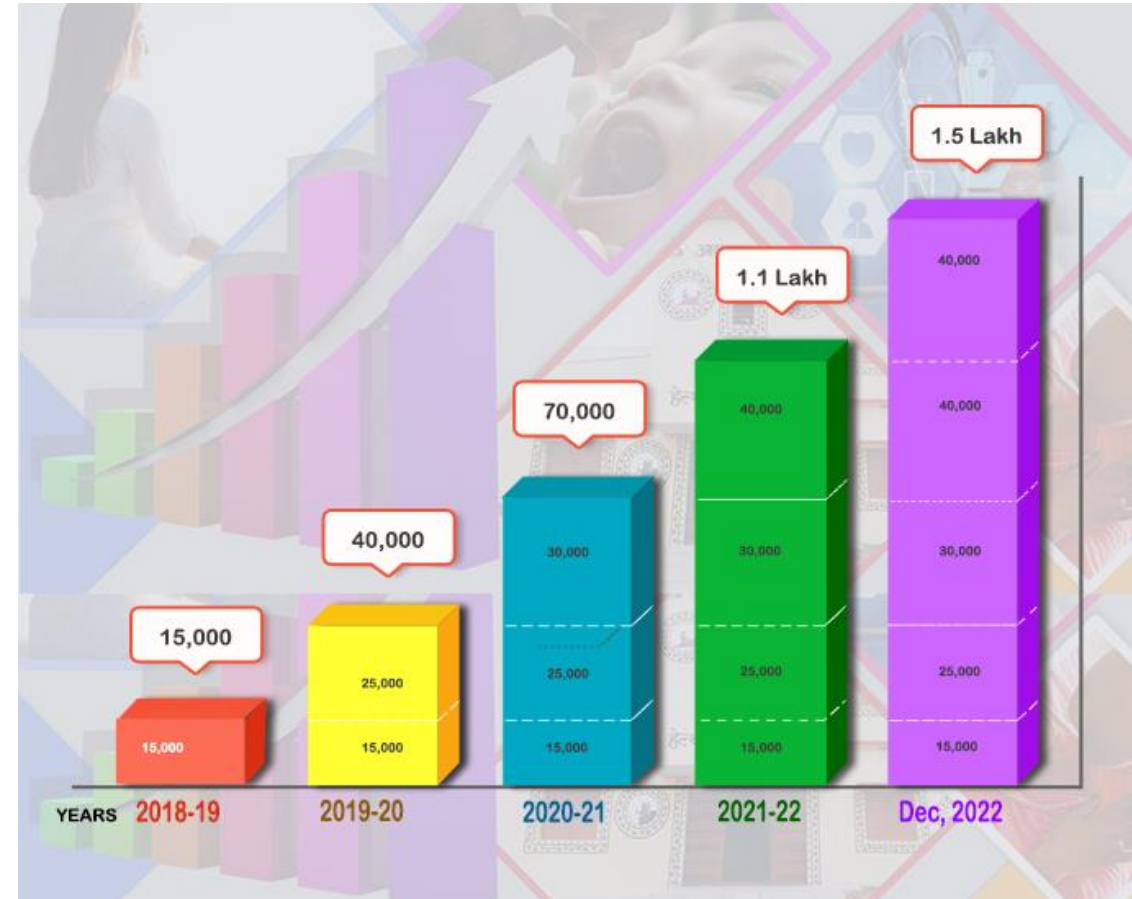
Ayushman Bharat Digital Mission (ABDM)

Leveraging tech to achieve the Ayushman Bharat aims

- To onboard every Indian into a national EHR system with a unique health ID (300 million IDs already created)
- Each person's and patient's records would be available for any provider to access with permission
- Allowing better management of health and insurance issues
- Preventing people from falling through the cracks when it comes to major diseases, both preventive and clinical

This is where techquity would help achieve health equity within the country and make a difference at the population level, even if there are resource challenges

Ayushman Bharat Digital Mission (ABDM)

What can IS3R do?

- Vendors and leaders can help by interacting with the Government and/or providers in making the systems robust, helping with backend technology and enabling access at the patient end
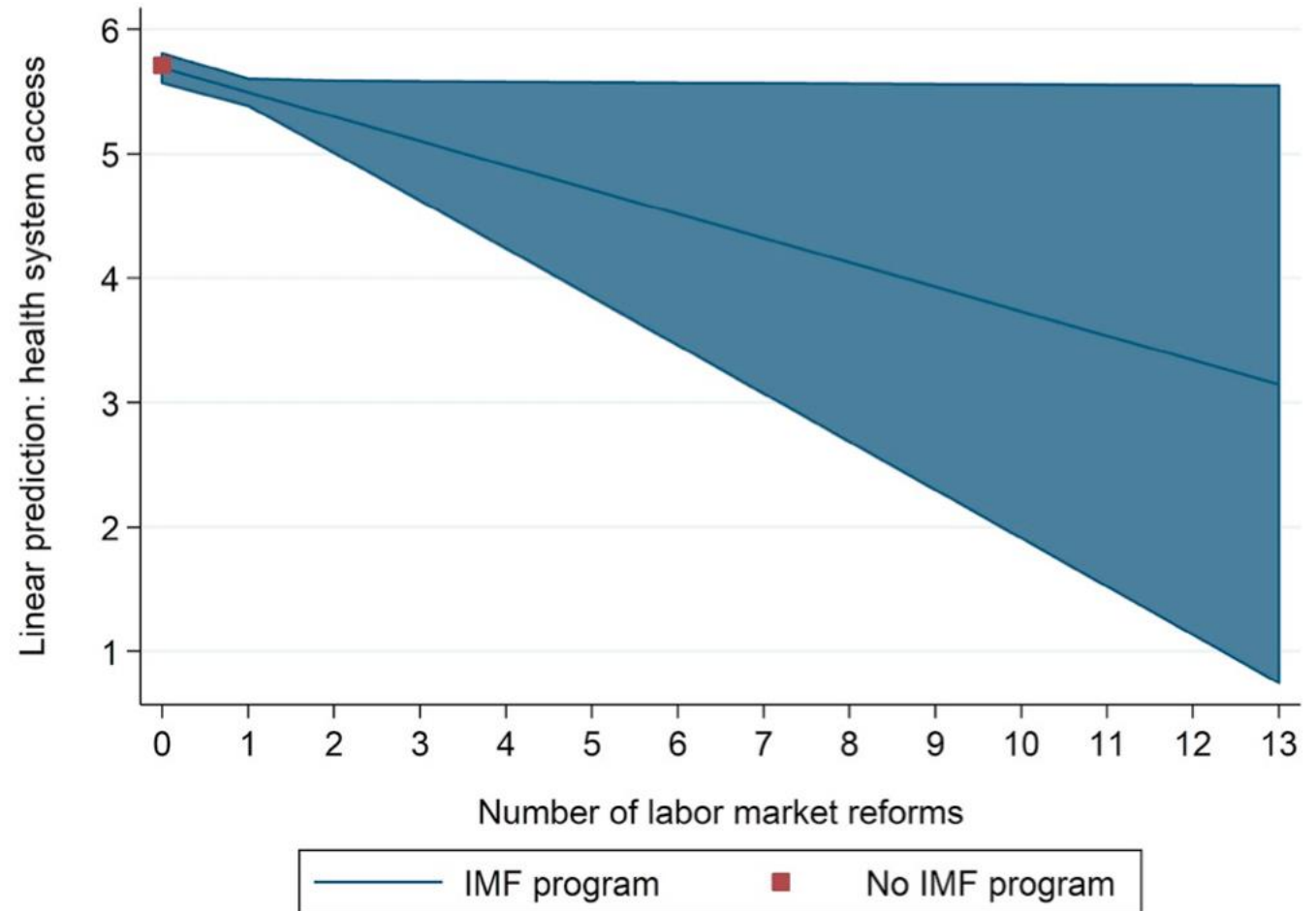
What should not be done?

Avoid

A top down approach

e.g. every time IMF (International Monetary Fund) did a structural adjustment in an LIC or LMIC, it exacerbated health inequity

This is a classic example of the "white savior" complex

Forster T et al. Soc Sci & Med 2020;267:112496

The art of medicine

Are we training our students to be white saviours in global health?

Ananya Tina Banerjee, Shashika Bandara, Joyeuse Senga, Nadia González-Domínguez, Madhukar Pai
School of Population and Global Health, Faculty of Medicine and Health Sciences, McGill University, Montréal, QC H3A 1G1, Canada
ananya.banerjee@mcgill.ca

This means, asking how we can help, not coming up with solutions which we think are apt and foisting them on LICs, LMICs, etc

That also means listening to the stakeholders in LICs and LMICs

Point of Care Technology, for e.g.

- Just as point of care USG has revolutionized obstetrics, emergency medicine and the diagnosis of acute abdominal emergencies

- Point of care X-rays with DR systems, not just for chest but also for spine and pelvis – this cannot be so difficult to develop and implement

- Point of care CT scans and MRIs for stroke to address the population that cannot make it to a stroke centre in time, but could still be salvaged at a district hospital to some extent – the companies we have engaged with refuse to come to India, for e.g.

It is therefore very unlikely that an individual's access to personal computing or communication devices will make any significant difference in reducing health inequity at a population level, though it may help that particular individual improve their and their family's health

Health inequity and tech inequity are best addressed at a policy level by Governments and providers.

Healthcare companies and organizations like IS3R and individuals with influence can make a difference by providing good advice and technological help

Thank You