

Globalisation and health

70,000 years ago our ancestors took their first steps out of Africa and with those steps initiated the binding link between globalisation and health. The difference between then and now is a matter of temporal and geographical scale. Nothing moved faster than a walking pace then. Now a person can traverse the globe in 24 hours. A city thousands of kilometres away can be destroyed in 30 minutes. An idea can be everywhere in seconds.

The technological advances of the last century have been kept pace by extraordinary improvements in human health. Average life expectancy barely moved until the beginning of the last century, and over the next hundred years, it doubled. Last year the global average life expectancy was 71.4 years of age. We had achieved the biblical entitlement of three score and ten years promised in Psalm 90. The improvements in health were achieved because of globalisation. Reductions in poverty. Improvements in food supply. Advances in healthcare. Sophisticated infrastructure was delivering clean water and carrying away sewerage. Those advances have also been accompanied by large inequalities in health outcomes and significant environmental degradation. The past has already been written and the accolades distributed. What we need to decide now is whether the next century is going to be good or bad for our health, and the role of globalisation in helping us to determine our destiny.

In this essay, I want to sketch three broad intersections between globalisation and health. I will begin with disease because it is in many ways the obvious starting point. When someone links “globalisation” and “health”, thinking inevitably turns to real or imagined disease outbreaks: Ebola or the Zombie apocalypse. Disease, however, is only one part of the health and globalisation relationship. The second, very modern concern is the interconnection between our global activities and environmental change, and by extension the impact on human health. The final idea I want to touch on is our relationships with each other, and how these relationships can shift, and the effect the changes may have on the availability of health supporting resources.

Spreading disease

When we stepped out of Africa, we carried with us human tuberculosis (TB, *Mycobacterium tuberculosis*). Not only did we take it with us, but when we domesticated cattle about 8,000 years ago, we gave it to them (*Mycobacterium Bovis*). Today types of TB traverse the globe. We have even “improved” those types to the point that some of them are resistant to most of the drugs in our cabinets. Indeed, since we began developing antimicrobials on industrial scales in the early 20th Century, we have improved a wide range of microbes to the point that they are either completely resistant to our available drugs or resistant to most of them. Some of the antimicrobial resistance originates from misuse. Many people going to a Doctor with a viral sore throat, for instance, expect and sometimes demand antibiotics. Where I currently live, many family Doctors insist on prescribing antibiotics for a cold. It’s profitable. Less well known is that a share of antimicrobial resistance is attributable to animal production. We give animals antibiotics to promote growth, prevent disease, and treat disease. A multi-drug resistant strain of bacteria that causes urinary tract infections in humans first developed in the poultry industry. Indeed, there is a two-way traffic of anti-microbial resistance between farm and clinic, clinic and farm, and then around the world. The salient feature of the major infectious diseases is that they succeed because they have adapted to exploit the human ecological niche. They adapt to our behaviours, our living environments, and our food production.

Historically we have seen significant infections spread around the world, following trade routes, killing millions. The plague (*Yersinia Pestis*) was the cause of three major pandemics: the Justinian Plague emerged in Europe in the 6th Century; The Black Death appeared in Europe in the mid-14th

Century, killing one-third of the population, and it re-emerged for the third time in Asia in the mid-19th Century.

Today public health officials worry about the next pandemic virus. Will there be a major killer like the Pandemic Flu of 1918? Will we recognise it in time? Will we be able to control it? There have been notable scares. There was the severe acute respiratory syndrome (SARS) outbreak identified in Hong Kong in 2003. There was the H1N1 outbreak in 2009. Most people barely remember the H1N1 outbreak, but it is estimated to have killed more than 284,000 people. The most recent scare was the Ebola outbreak in West Africa in 2013 to 2016.

The major challenge for managing these disease outbreaks is that about 10 Million people fly internationally on every day of the year. Many of those passengers will pass through major hubs in the US, Europe and Asia. They might pause in a city for a day or two before moving on. If the next flu is a highly contagious, it will rapidly spread – a sneeze or a cough into the air, a handshake – the risks go up. Insidiously, for many of these diseases, a significant proportion of people may never experience noteworthy symptoms, but they can still infect others.

Humans have not, however, restricted the globalisation of disease to infectious diseases. The rapid, global rise in metabolic diseases over the last 40 years is attributable to changes in lifestyle, leading to increases in the rates of diabetes, hypertension, chronic kidney disease, and heart disease. The increase tracks changes in global trade and increases in national wealth and the rapid rates of urbanisation, a shift to more sedentary occupations, excessive caloric intake and insufficient physical activity.

Smoking is another excellent example of globalisation and health. One-quarter of men and 5% of women smoke, and smoking accounted for 11.5% of global deaths in 2015. The tobacco industry is a multi-billion dollar, multi-national endeavour with major international players and significant national producers. Until the late 19th Century it did not exist on any significant scale. Industrial production, marketing, and the highly addictive nature of nicotine embedded smoking as a globalised industry that kills people.

Climate, Population, and Environment

In 2015 I wrote a paper with colleagues exploring the confluence of three ideas. Everyone has a right in international law to the highest attainable standard of health. The achievement of good health relies on a certain minimum level of resource consumption. The population of the world is increasing, and by 2100 we will add almost 50% more people.

The question is, what is the maximum sustainable level of per capita resource consumption allowable? I don't mean "allowable" in a moral sense. I mean that if we exceed that threshold, there will be dramatic global consequences for human health and wellbeing. What are the limits on consumption? While we ponder that number, we need to bear in mind that if we cannot become much smarter about resource consumption, the per capita values of allowable consumption will need to drop year by year to account for the increase in the world's population.

Much of the world's environmental attention has been on the threats of global climate change associated with CO₂ production arising from human consumption. In our 2015 article, we used the CO₂ footprint of different countries to show that those countries with the best health outcomes were also those countries with the most unsustainable levels of consumption.

Let me tease out at least one of the concerns with climate change -- it may increase the variability in temperature and rainfall. Human agriculture emerged about 10,000 years ago. It developed around the same time that global climate stabilised. It is easy to imagine why a stable climate is necessary for societies to move away from small hunter-gatherer communities to larger agrarian-based settlements. Stable annual variation in temperature and rainfall makes the timing of planting and

reaping predictable, which smooths out the variation in the yield. Agriculture provides a static source of food, around which communities can settle and grow, ultimately providing the basis for cities of people whose lives are not devoted to food production.

There is historical evidence showing that small increases in climate variability about 4,000 years ago were associated with the destruction of incipient cultures developing in China, Egypt and Mesopotamia. The foundation on which we currently feed most of the world's 7.5 Billion people is the farming of arable land with predictable water supply and temperatures, and sufficient nutrients to support plant growth. To feed billions of people requires industrial scale agriculture distributed all over the world. We are now very successful at mitigating the wider impact of adverse local weather events that result in crop failures, ensuring that the global food supply is relatively stable.

Famines, in a world with a surfeit of food, currently reflect social and political choices rather than agricultural failures. Politics may no longer dominate food supply with increases in climate instability. If the climate were to shift (sufficiently gradually) becoming warmer or a colder, dryer or wetter, we could adapt the agriculture to the conditions. If there is dramatic climate change, more important, climate variability, could we adapt to feed more than 11 Billion people in 2100; or are we facing a future of significant famines?

While people often talk about CO₂ (the great climate changer) you will rarely hear people talk about the human impact on the nitrogen cycle. Atmospheric nitrogen is generally non-reactive. The development of the Haber-Bosch industrial process for nitrogen fixation created highly reactive compounds of nitrogen that completely changed agriculture. Reactive nitrogen allowed for the manufacture of fertiliser. Because of fertiliser we can grow more food and feed more people, preventing global hunger. We could already predict the sunshine and the rainfall; now we could control the nutrients as well.

Before the invention of the Haber-Bosch process, the only substantial source of reactive nitrogen was naturally occurring. Now half of all the fixed nitrogen in the system is contributed by human activity, and we have had a greater impact on the nitrogen cycle than we have had on any other biogeochemical cycle. Many ecosystems rely on a stable nitrogen cycle, but because of human activity, it is the most perturbed cycle on the planet.

Initially, the consequences of fixing nitrogen were only beneficial. More fixed nitrogen in the system, however, has increased the risk of adverse health effects. We have developed more favourable breeding conditions for the mosquito vectors of diseases like West Nile virus and malaria. The nitrates that leach into the water supply have significant consequences including potential increases in the risk of some cancers. And the reactive atmospheric nitrogens increase the rates of respiratory diseases.

Pumping CO₂ and reactive nitrogen into the global system are significant ways in which we are changing our planet, and therefore altering the environment – with probable adverse consequences for human health. These are the readily apparent risks. Other changes, caused by the increase in human numbers and the scale of human activity over the last 100 years, include the acidification of the oceans, destruction of vast areas of forest, and species loss. The planet is a highly complex system, our understanding of it is limited, and the effects that our actions have are potentially enormous. We necessarily act with incomplete information. Identifying the likely consequences of our actions is therefore often speculative because of those ubiquitous “unknown unknowns”.

The Global Community

When issues like population growth, climate change, agricultural production, and Pandemic Flu become global concerns, the only real mechanism we have for action is through international agreements and international coordinating agencies. The system of multilateral, international

organisations is not perfect, but they do provide fora for the development of international consensus and global action. Most importantly, the multilaterals try to balance and give voice to different national governments ensuring that the world is not reduced to a global politics of “might is right”. The system attempts (imperfectly) to create a global community, a sense that we are all in it together.

The political theorist Michael Walzer wrote, ‘[t]he primary good we distribute to one another is membership in some human community. And what we do with regard to membership structures all our other distributive choices. It determines with whom we make those choices . . . and to whom we allocate goods and services’. Supporting Walzer's idea of the community membership as a good, is Philosopher-Psychologist, Joshua Green’s notion of “moral tribes”. Green argued that communities of people have a shared moral commonsense. The “tragedy of commonsense morality”, however, is that while members of a community may agree about what is right, there is often disagreement between communities.

Within Western European countries, one can often see the division of communities in the rhetoric of the left- and the right-wings of politics. Should a community’s resources be shared to support the disadvantaged? Most people would agree that resources should be shared. They disagree, however, about who belongs to the community that is entitled to that share.

A close family member falls ill and needs medical care. She can't afford it, but you can. Do you share resources with the community of your family? Most people would say yes. This time it isn't a family member who falls ill, it's a member of your community of close friends; then close neighbours; distant neighbours; someone in the same city; the same province; the same country; the same region; someone, somewhere on the planet. On the left of politics, there is a tendency to be more broadly inclusive about the size of the entitled community; on the right of politics, there is a tendency to be more narrowly inclusive – closer to home. Look after one's own. Both sides, however, agree that one should share resources within the community.

The left shares resources by empowering the state to distribute goods and services, because the community is so large that only the state could identify and allocate resources fairly – of course they often get it wrong. The right often restricts the state's role, because the community is smaller, more easily identifiable – and frankly, it is not the business of the state. Smaller communities are empowered to forge their destinies.

Over the last 30 years, there has been a focus on global responsibilities and global governance, dominated by Western liberal democracies. We have seen a world of increasingly globalised trade and a particular globalised morality, sometimes unsubtly buttressed by force. In that globalised world, well-being was not a zero-sum-game. Improvements in China did not mean reductions in the US. Healthier Bolivians did not mean sicker Armenians.

Very recently that worldview has begun to shift. Increasing nationalism in the US and the nation states of the European Union, decreasing diplomacy, and a frankly uncivil disregard for others leads to a sense of a fracturing global political order. A loss of common goals increases the risk of worsening human health globally. Communities will no longer feel the need to share and support “outsiders”. The sense of fracturing is expressed in statements about being overwhelmed by refugees, or whether citizens of different faiths are truly "one of us", or whether climate change is a conspiracy. The fear that “my community” is being threatened decreases international cooperation, which makes it harder to coordinate international action to support health. The risks are exacerbated by our current incapacity to be global citizens and confront threats that can be seen on the horizon, in type if not in specificity. There are tipping points between climate stability and climate change, global cooperation and global threats, and when it is too late ... it is too late.

It is tough for nation states to ask their citizens to be good global citizens when they face economic hardship. The populist political response is to repudiate the need to be global citizens in spite of hardship; it is to encourage fear, paint a picture of a fictional past when everything was in abundance, draw stark lines about who belongs to the community. It is “Me First” politics. Unfortunately, in our smaller world, when goods, people, and ideas move very fast, Me First politics is dangerous politics, because it is a clear statement of exclusion and division, and there is no conception of shared solutions to shared problems.

On 26 January 2017 the *Bulletin of the Atomic Scientists*, the thinkers and the keepers of the “Doomsday Clock”, moved the clock forward 30 seconds to two and a half minutes to midnight. They wrote, “over the course of 2016, the global security landscape darkened as the international community failed to come effectively to grips with humanity’s most pressing existential threats, nuclear weapons and climate change.” Two and a half minutes to midnight is the closest the clock has been to Doomsday since the 1980s.

Conclusion

Good health is an end in itself, and a means to other ends. It is nice to be healthy, and if we are healthy, we can do lots of things. Our health, however, is not entirely in our hands. There are lots of moving parts that need to come together for us to live long, healthy, happy lives. Beyond what we can do as individuals, governments need to function.

People living in failed states do not enjoy utopian, anarchic freedom. They die young.

Healthy populations need the goods and services of society to be shared in a broadly inclusive fashion. They need health systems that can respond rapidly and flexibly to emerging disease. They need environments that support human life. Significant health inequalities arise in societies with sharp social inequalities. As a consequence of social inequalities, those at the bottom are deprived of their health. They are also deprived of their opportunity to the other goods of life. And from my selfish point of view, they are deprived of the opportunity to become good productive members of society – making it a better place for me to live.

In this smaller globalised world, however, to imagine that strong civil society can be produced within the insulated environment of a single country, a single province, or a single city (without reference to the world) is to misunderstand how deeply interconnected things now are. To all intents and purposes, we share one environment – Planet Earth. If we do not manage the relationship between globalisation and health, there is a risk that 1901 to 2000 will mark the century of the greatest improvements in human health and 2001 to 2100 will mark the greatest reversals.

I have painted a pessimistic, dystopian vision of the future and the relationship between globalisation and health. In fact, I think there are many reasons to be hopeful. One has to be hopeful, however, with a clear eye to where the risks lie. Improbable catastrophic events do occur – they are the Black Swans of globalisation and health. One can decrease the risk of catastrophe by leveraging the great positives of globalisation – the relationships that have arisen out of trading and meeting, and sharing ideas.

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