# COVID-19: Questioning Public Healthcare Systems and Scientific approaches

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DIALOGUE

Science, Scientists, and Society

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In the context of the current COVID-19 pandemic, we argue that merely focusing on immediate Government decisions and scientific modeling directed to assist such immediate measures, leaves us with limited scope for eradication and prevention of such a global crisis. We should widen our perspective and methods of analysis to include the long-term economic, social and ecological causes which all combine to intensify the likelihood of recurrent epidemics, and sustain poor public healthcare systems.

**Keywords:** Public Healthcare; Eco-social health; Scientific methods

Faced with the global invasion of the virus SARS-COV-2, national Governments are imposing homogenized rules of conduct on citizens, as well as revitalizing the social support systems plagued by years of neglect. Suddenly, each individual has become equally important as they pose an equal threat of infection to others. Yet inequality is entrenched in our societies in economic and social spheres, accessibility to healthcare, and share of burdens of ecosystemic devastations caused by profiteering productive systems. What hinders further is our myopic intellectual approaches, which often miss crucial interdependent causes. A genuine intention of a collective fight for collective healthy existence demands sincere attempts to change these courses in days to come.

# 1 A Global Sketch of the Pandemic

The Covid-19 has affected 210 countries as of 17th April (John Hopkins CRC 2020). The epidemic caused mayhem in developed western countries like Italy, Spain, the UK, and the USA, whereas countries like China, South Korea, Taiwan, and Singapore in the east have managed to keep the spread under control.

China, the first epicenter of the disease, has now been able to contain its spread. The Chinese healthcare system is a mix of both public and private institutions. Following the 2006 reform, almost 95% of the Chinese population is now insured for basic healthcare (Healthcare in China, 2020). Despite some improvements, basic healthcare is still costly, especially in rural areas. For example, urban workers in Shanghai have 85% of their medical costs covered, while rural residents in the southwestern city of Guiyang have a reimbursement rate of about 65% (Brinza A 2020; Zhou 2018). Nevertheless, the Chinese state managed to put huge resources, aiming for complete disease suppression. Two temporary hospitals to treat Covid-19 patients were built in Wuhan. The state effort included a stringent tracking-tracing-quarantine method through 'QR code' technology and mobile apps to track individual movements, and aggressive neighborhood blockades along with door-to-door food delivery and checks (Kupferschmidt and Cohen 2020 ).

Unlike in China, South Korea has universal health coverage. In 2000, insurance companies of S. Korea merged into a single insurer system, where a large contribution comes from general taxation (Kwon et al. 2015). The number of hospital beds per 1000 in South Korea is among the highest in the world (Table 1). However, primary care access is not fully free for all.

The number of beds owned by public hospitals is 10% of the national total, and the healthcare delivery relies heavily on private service. The political will of the current liberal democratic government, that came to power in 2017 after the impeachment of their far-right president, was crucial to combat the crisis, as noted by a statement of 'People's Health Movement Korea' (Peoples Health Movement Korea 2020). The government relied on a more thorough testing programme than China, for both symptomatic and asymptomatic suspects, instead of imposing total lockdown of multiple cities (Bedingfield 2020; Engelberg et al. 2020; Jo 2020). They also circulated a detailed contact map of each confirmed case, which helped the public to assess their own risk. South Korea's experience in handling the MERS outbreak in 2015, may have created a general mass consciousness as well (Jo 2020).

On the other hand, though most industrialized countries in Europe have government-funded universal healthcare systems (like Italy, Spain, UK), they also experienced decades of budget cuts and privatization (Day 2011; Global Health Watch 2015; Jones 2015). Italy and Spain have similar expenditure on health (about 9% of GDP that is close to an average of OECD countries), and a similar number of doctors per 1000 people (see Table 1 for comparison). Yet, after 2009, owing to the sovereign debt crisis, the southern European countries like Spain, Italy, Greece, Portugal cut health fundings (Serapioni and Hespanha 2019). The governments of Italy and Spain have been

criticized by the media for delayed responses in testing and restrictive measures (Pisano et al. 2020; Tremlett 2020), but now they are gaining momentum to mitigate the spread (Impelli 2020). The US is now the global epicenter with the highest number of confirmed cases. US healthcare is not a single-payer system and was already in a worse condition than most developed countries (Scott 2020). Despite spending a huge amount (17.8% of GDP) in healthcare, almost 11% population is uninsured, and the average spending of US citizens is more than $1,000 a year on prescriptions, while most Europeans spend about half of that. In fact, almost a quarter of US healthcare costs are administrative, i.e., the money is wasted on submitting and monitoring reimbursements to insurance companies (Olsen and Zamora 2020). Similarly, the relatively lower percentage of the out-of-pocket payment (see Table 1) is misleading, because the net expenditure in health is high in absolute terms. In practice, almost 40% of people making less than $40,000 a year postpone preventive visits unless their conditions become serious. Moreover, 25% of the working population do not have paid sick leaves (Nickels et al. 2020). Though the US government made the testing for Covid-19 patients free, yet Covid-19 average treatment cost is $30,000, which is partly covered by the insurance (Brien 2020; Hall 2020). Hence, patients with mild symptoms would understandably be reluctant to approach health centres. In contrast with the US, Canada having universal health coverage is managing the epidemic much better in terms of testing and treatment than the US (Mackie 2020). Here we note that several European countries have made the testing and treatment free or nominal (The Policy Times 2020), and China has made it completely free (Ye 2020).

In India, the number of Covid-19 patients is also picking up (ICMR 2020). Initial low numbers were due to fewer testing based on more conservative criteria than prescribed by WHO (report of Jan Swasthya Abhiyan, JSA 2020). Nevertheless, over the past few weeks, the number of testing centers have steadily gone up and there are 176 government-approved centres and 80 private ones (on 17$^{th}$ April, ICMR 2020). The measure of complete nationwide lockdown from 24$^{th}$ March has caused immense economic hardship for the daily wage earners and migrant workers. The Government has allotted a package of INR 15000 crore for the public health sector (PIB 2020), and those people insured under the Ayushman Bharat scheme would have free testing and treatment at the empanelled hospitals for Covid-19 (Ayushman Bharat 2020).

Yet, due to the long-term weaknesses of our healthcare system and privatized form, common Indians remain immensely vulnerable (Shukla 2020). The Government health expenditure has remained stagnant over the years (see Table 1). The number of hospital beds, 0.7 per 1000 people (roughly the same over the past 30 years), is one of the lowest in the world. The number of physicians and nurses are a factor of 3 lesser in comparison to S. Korea (see Table 1). More importantly, the majority of Indians approach private health centers as the state of public healthcare is very poor. Consequently, the out-of-the-pocket expenditure for medical treatment in India is a glaring 64.6% in 2016 (see Table 1 for other countries). In India, 40% of patients have to borrow money when hospitalized, and that pushes poor families into huge debts (Sengupta and Nundy 2005). While harrowing experiences of patients seeking treatment at private hospitals and health centres in India have been documented in the testimonials of conscientious physicians (Gadre and Shukla 2015; The Telegraph 2015), the Government attempt to regulate private health sector for inadequate and inappropriate treatment, negligence, and excessive use of higher technologies, through the Clinical Establishment Act (CEA) 2010, has been vehemently opposed by the medical doctors and private hospitals of the country (Pandey

2018; Phadke 2010). This being the general plight of Indian patients, in the time of Covid-19, how the Government may take hold of private medical resources for public accessibility would be a matter to watch.

The Covid-19 situation is evolving fast, and a country's success in mitigation or suppression of the epidemic depends on multiple factors – the pathogenicity and transmissibility, the timely response of Governments, the vigorous testing efforts, etc. Yet these contingent factors operate within the framework of public healthcare systems and policies, the inadequacies of which are tested in these trying times. These are reflected in immediate shortages of medical resources, reluctance and fear of patients to seek healthcare unless desperate, and their long term economic burdens which eventually affect health. But how have healthcare systems globally come to this point, where the shortfall of public support is being questioned? We believe that neoliberal capitalism has played a significant role in shaping global healthcare in the last 30-40 years, and some aspects of which are discussed below.

Table 1 Comparing indicators of healthcare systems of afew nations.

| Country | Out-of-pocket expenditure (% of current health expenditure) | | Government spending on health (% of GDP) | | Doctors per 1000 people | | Hospital beds per 1000 people | | Nurses per 1000 people | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2016 | 2000 | 2016 | 2000 | 2017 | 2000 | 2016 | 2000 (except Italy) | 2016 |
| India | 71.7 | 65.2 | 0.939 | 0.899 | 0.530 | 0.78 | 0.66 | 0.48 | 0.74 | 1.50 |
| China | 60.1 | 35.9 | 0.986 | 2.912 | 1.250 | 2.01 | 1.69 | 4.05 | 0.99 | 2.50 |
| South Korea | 43.6 | 33.4 | 2.155 | 4.329 | 1.300 | 2.34 | 4.65 | 11.98 | 2.98 | 6.80 |
| UK | 11.6 | 23.9 | 4.734 | 7.709 | 1.980 | 2.81 | 4.08 | 2.57 | 8.15 | 7.83 |
| Italy | 26.5 | 22.9 | 5.506 | 6.627 | 3.440 | 3.99 | 4.71 | 3.17 | 6.48 (2011) | 6.71 |
| Spain | 24.3 | 23.9 | 4.864 | 6.378 | 3.140 | 3.88 | 3.65 | 2.97 | 3.54 | 5.74 |
| USA | 15.5 | 11.1 | 5.542 | 14.471 | 2.290 | 2.61 | 3.49 | 2.77 | 10.17 | 11.74 |

Data from OECD health spending, 2020 and OECD hospital beds, 2020.

# 2 Health Committed to the Neoliberal Path

David Harvey pointed out in his book "A Brief History of Neoliberalism" (Harvey 2007), that neoliberalism is a set of

"*...political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms,...by strong private property rights, free markets, and free trade.*"

With this logic, health is dominantly viewed as a commodity, where business is encouraged without any state intervention (for a detailed study see the report of Global Health Watch 'The health crises of neoliberal globalization', Global Health Watch 2015). This runs contrary to the aspiration of 'Health for All', which was proclaimed through the Alma Ata declaration of 1978 in an International Conference on Primary Health Care (Alma Ata 1978). The USSR and Chinese delegates argued in favor (Rao 2010). During the 1980s under conservative governments, the US and the UK adopted the neoliberal project, though it was still not a globally dominant current. 'New public management' models were adopted in the UK that designed the NHS hospitals, ambulance and community services as semi-independent trusts, where health authorities would act as 'commissioners' with the trusts themselves acting as 'sellers'. Private bankers, builders and service operators raised money on government's behalf and got the contract to design and build hospitals, even to run facilities for the next 30 years (see Report of Global Health Watch, 'The National Health Service (NHS): Prey to neoliberal lust for markets', Global Health Watch 2015). These private initiatives were accompanied by massive public budget cuts. For example, during the Reagan era, the US saw a massive ∼40% (inflation-adjusted) cut in federal aid to the states for preventive health programs such as high blood pressure control, venereal disease, immunization, etc. (Terris 1999).

Though neoliberalism proceeded through similar strategies (mainly *via* privatization of public sectors, tax break for corporations, and governments' funding cut) across the globe, different countries were affected to a different extent with their historical specificities. For example, West Germany and Japan maintained a tight relationship between corporations and national banks through the state and invested in technology that led to economic growth driven by exports. The Japanese model was followed by other Asian nations (like South Korea, Taiwan, Hong Kong and Singapore) that partially resisted the neoliberal policies through some variety of nationalized capitalism (see Chap. 4 of Harvey 2007). Interestingly, S. Korea's economic growth was matched by increased social welfare spending. After 1987, per capita government's expenditure on defence increased almost arithmetically over time, while social welfare expenses (including education and health) increased exponentially; in particular, over the years, health spending has risen from about 2% to 12% (Potter and Kim 2020). In contrast, after the 2008 crisis, almost all European countries went through severe austerity measures that somewhat reversed the healthcare benefits achieved during the early period of welfare states. Cuts in government spending simply meant a reduction of hospital beds, medical stocks and more workload on nursing staff. For example, the UK, Italy and Spain show a steady decline in

the number of beds from the 90s to 2016 (OECD hospital beds, 2020, and see Table 1). Recently the UK government further abolished bursaries for nursing students, which was criticized by NHS (Campbell 2019).

The developing nations, on the other hand, borrowed heavily with the condition of structural adjustment from first-world banks to continue post-colonial industrialization, thereby putting them under the grip of neoliberalism (Global Health Watch 2015). In 1988, the World Bank went ahead to declare the following (World Bank 1988):

"*the more common approach to health care in developing countries has been to treat it as a right of the citizenry and to attempt to provide free services to everyone. This approach does not usually work.*"

which went totally against the spirit of the Alma Ata declaration of 1978 (Alma Ata 1978). India, though was initially committed to the Alma Ata declaration, in early 1991 came close to defaulting on commercial debt, and took loans from IMF multiple times on condition of cuts on spending in health and education. In fact, public health spending declined from 1.4% of GDP in mid-1980 to 0.9% in 2002. The universal public distribution of food was also sharply curtailed that negatively impacted the health of the rural poor (Rao 2010).

A country's neoliberal healthcare system may not directly translate to inefficient response during this global pandemic, nevertheless, years of funding cuts, privatization, and lack of government's control over the free market make the system vulnerable. Within weeks of the Wuhan outbreak, S. Korean CDC summoned 20 companies to produce test-kits and quickly gave them government approval (Terhune et al. 2020). In stark contrast, the ventilator shortage in the US is partly due to its incapability to control the free market. Long back, the US CDC noticed the shortage of ventilators in the country and contracted with a small firm to produce inexpensive ventilators. The firm was later bought by a major corporation, Covidien, which cancelled the contract as it was not sufficiently profitable for them (Kulish N et al. 2020).

Amidst this health crisis, the coercive market logic is also giving rise to a lack of solidarity at a national and international level. This is evident when the US government offers large sums to a German medical company for exclusive US access to coronavirus vaccine (Oltermann 2020), or the US hijacks mask-shipments going to France by bidding more money (Willsher et al. 2020). In sharp contrast, socialist Cuba is sending trained doctors to other countries to tackle the health crisis (AP 2020). We note that Cuba did not follow a neoliberal path like the other countries. Faced by the challenge of the pandemic, some governments could not avoid at least temporary socialization of their healthcare like Spain and Ireland (Lindsay 2020; The Democracy Now 2020).

While highlighting the problems with the economic aspects of healthcare infrastructure, we should not forget the equally important analysis of possible causes of repeated epidemic outbreaks in recent years, and the reason why our scientific approaches remain inadequate to address those. Epidemiology suffers not because we are lagging in the knowledge of genetics, microbiology, or biotechnology, but rather because the emergence and transmission of

epidemics depend on how human beings interact with ecosystems through business practices, which go beyond the scope of conventional biology.

# 3 Rethinking Our Priorities and Methodological Approaches

"*...thousands of reports have been published on the virus's molecular structure, genetics, virology, pathogenesis, host biology, clinical course, treatment, modes of transmission, phylogenetics, and geographic spread. That body of work, much of it riveting, appears predicated on a molecular narrative that portrays disease largely in terms of a conflict between virion and immunity, between viral evolution and humanity's capacity to produce adequate vaccines and antivirals, between nature red in glycoprotein and nurture white in lab coat. Paradigms compete and in investing in one narrative perhaps because of its political, commercial, or institutional benefits other explanations suffer. Some of the most basic questions about bird flu's nature appear lost in the blizzard of micrographs, sequence alignments, tertiary solution structures, SIR models, antigenic cartograms, and phylogenetic dendrograms. What of the virus's greater context?*"

The above quote is from Rob Wallace's book titled 'Big farms make big flu' (Wallace 2016). Wallace, based on phylogeography, evolutionary and ecological studies traces the emergence of pathogenic influenzas in recent years to eco-social causes like big commercial livestock farming, destruction of wetlands and forests for agricultural development, and structural adjustment programs undermining public health and animal health surveillance (Wallace 2016). After the emergence of Covid-19, Wallace's perspective has been widely discussed (Chuang 2020) and his interviews have appeared in several places (Marx21 interview 2020; MR interview 2020) – nevertheless the origin of SARS-COV-2 and its link to agribusiness remains unclear. Recently, scientific works claimed that Covid-19 has originated from natural selection and not from laboratory genetic engineering (Andersen et al. 2020). A second work studied a particular receptor binding to SARS-COV-2 in various mammals which may have served as intermediate hosts before transmission to humans, and swine is one in the list (Qiu et al. 2020). Based on these facts, recently a small farmers support group 'Grain' has speculated the connection of Covid-19 to hog agribusiness (GRAIN 2020). This hypothesis need not be true, and tracing causal paths to complex phenomena is not easy. Yet Wallace's methodology of understanding the pace of evolution of pathogens and their transmission from organism to organism, within non-natural environments created by transnational animal farming and their commodity chains, calls for a new kind of science beyond usual biology. This kind of research led to H5N1 (1996) being linked to poultry agribusiness in South China (Wallace et al. 2007), and showed that in high likelihood H1N1 (2009) may be linked to pig agribusiness (Wallace 2016). Doing similar studies in the Indian context may be worthwhile in future. After H1N1 spread to India, it has stayed with us and has caused over 1.6 lakh infections and 10000 deaths since 2010 (Sharma 2020).

Understanding the real causes of the emergence of epidemics are necessary for eradication and future prevention. At the same time, concerns regarding the weaknesses of public healthcare systems of nations assume importance in post-infection scenarios, as noted by People's Health Movements around the world (PHM webpage 2020). These two directions often stay disconnected, even though a spectrum of intellectual currents have developed over the years relating ecology to the economics of health. *Ecosystem Health* views human species as a part of the larger environment, and how human activities affect the latter (Butler and Friel 2006). *Environmental Justice* fights environmental pollution due to big businesses endangering human health (Skelton and Miller 2012). The *Social Determinants* movement points to inequalities of income and social position determining health (Donkin et al. 2017), and the *Healthcare for All* movement demands equal access to healthcare for everyone (TheUN General Assembly 2012). The works of Wallace strongly bring out the spirit of ecosystem health and environmental justice, while the people's health movements around the world predominantly articulate the aims of health for all and social determinants of health. The need is to integrate these currents and not treat them as isolable influences on healthcare policies (see works of Richard Levins and collaborators, Levins and Lewontin 2007 and Levins and Lopez 1999).

Healthcare policies are influenced by scientific modelling. For example, during this pandemic, a work from Imperial College (Ferguson et al. 2020) which suggested lockdown towards suppression as a strategy was adopted by the Government of UK (Nuki 2020). The work has been criticized as they ignored contact-tracing as a possible strategy in their study (Shen et al. 2020). Other works on epidemic modelling have also appeared and suggested other strategies (Adam 2020). In the Indian context, a recent model (Singh and Adhikari 2020) had argued in favour of a 49 days nationwide lockdown as a restrictive strategy. Introducing a realistic time for the lockdown to come into effect, and a small possibility of contact during this period, another work (Dhar 2020) showed that the suggested time of 49 days lockdown doubles. If minor changes in parameters lead to the large variability in prediction, they are dangerous to be used as guidance by policymakers. Moreover, such models need input data whose reliability is often questionable. A summary and critique of some standard epidemiological models for Covid-19 have appeared recently in Indian media (Menon 2020). Although contributing to interesting data analysis, the models focus on limited aspects of administrative measures which may regulate the epidemic, namely, days of lockdown, social distancing, quarantine, testing, and institution closures. However, there is no attempt to get into causes and sources of prolonged sustenance of the diseases.

Our main critique is that a vast area of causation of emergence and post-infection sustenance of epidemic is often assumed as *given, unchangeable boundary conditions* by the existing models; partly because *business* and *government* policies are usually not questioned. How long can global causes as agribusiness spillovers be ignored? How long can poor healthcare systems be accepted as the norm? How long can we regard these as factors external to our models? We believe that a host of interrelated aspects and their feedback need to be assimilated in models of future (Wallace 2020): the sources of epidemics (ecological and agribusiness related), commodity circuits, animal-human and human-human contacts at farms, workplaces, through travel, and the nature of socio-economic support in post-infection scenarios (e.g. through

healthcare, jobs and food security). Moreover, heterogeneous regional specificities should not be glossed over, in the quest for mathematically universal answers. A critique of the reductionist scientific method needs to be absorbed in future epidemiological modelling (Levins 1996).

We would conclude by recalling the following words of P. Sainath in his article in PARI on Covid-19 which is a vivid reminder of the larger context (Sainath 2020):

*"The idea that we're fighting just one virus, and all will be fine once we're on top of it – is dangerous. Sure, we need to fight Covid-19 desperately – this could be the worst pandemic ever since 1918...But focusing on Covid-19 to the exclusion of the larger canvas – that's attempting to mop the floor dry with all the taps open and running. We need an approach which pushes ideas that strengthen public health systems, rights and entitlements."*

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# Source

1. Table 1: Data from OECD health spending, 2020 and OECD hospital beds, 2020.