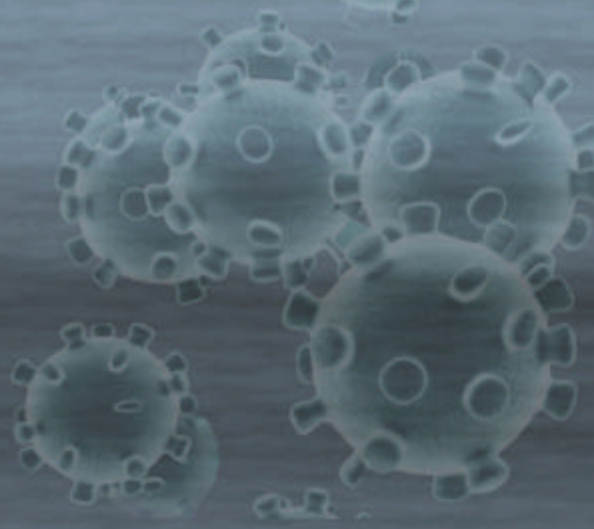
Public Health Lessons for India during CoVID-19 Crisis



Lekshmi Parameswaran

भारत नीति प्रतिष्ठान
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Published by:
India Policy Foundation
D-51, Hauz Khas,
New Delhi -110016 (India)
Tele: 011-26524018
Email: info@ipf.org.in, indiapolicy@gmail.com
Website: www.ipf.org.in

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The corona virus induced disease (CoVID-19) outbreak in India has brought into sharp focus the state of public healthcare in the country. While with the long periods of lockdown imposed, the authorities have been successful in ramping up the facilities to handle the rising number of cases, what has come to the fore are the years of neglect and mismanagement of a sector that should have ideally assumed prime importance in policy formulations in the last few decades. Before going into how India has managed the CoVID-19 crisis and the lessons to be drawn from the rich countries' handling, or mishandling, of the pandemic, it is necessary to understand the public healthcare system of the country and analyse the challenges as well as the opportunities before India.

Public Healthcare system in India – An Introduction

The public healthcare system in India is designed taking into account the differing needs of the vast populace as well as accessibility on account of disparities in development. Broadly, the healthcare system in the country is segregated as primary, secondary and tertiary levels. At the primary level are Sub Centres and Primary Health Centres (PHCs). The former caters to extremely backward regions and all expenses are footed by the central government. At this level, at least two health workers (male and female) are required to serve a population of 5000 people and these centres also work to spread awareness amongst the rural population about healthy practices that they should inculcate in their daily lives. The latter are funded by the state government and exist in rural areas with a population of 30,000 or more. They are larger clinics staffed with doctors and paramedics. Patients are often referred from the sub-centres. The PHCs also focus on health education with an emphasis on preventative measures.

Here, a special mention needs to be made about Accredited Social Health Activist (ASHA) workers in the country. An ASHA worker is a female volunteer who is usually between 24-45 years of age who serves a population of 1000 people in a village and who acts as an interface between the community and

the public health system. They were recruited in 2005 under the National Rural Health Mission. What makes this workforce really effective at the grassroots level is that in addition to a fixed salary, the workers have a performance based incentive which motivates them to work harder, thereby ensuring that every citizen has access to basic healthcare services.

At the secondary level are the Community Health Centres (CHCs) and smaller Sub-District Hospitals. The CHCs are funded by the state governments and serves a population of 120,000 in urban areas and 80,000 in rural areas. They are the first referral units which are required to have obstetric care, neonatal care and blood storage capacities at all times. Then come the District Hospitals which are the final referral centres for the primary and secondary levels. It is stipulated that there needs to be at least one hospital in every district of the country.

The tertiary level consists of Medical Colleges and Research Institutions. All India Institute of Medical Sciences (AIIMS) that are presently functional in New Delhi, Bhopal, Bhubaneshwar, Jodhpur, Raipur, Patna and Rishikesh are managed by the central government. These are referral hospitals with specialized facilities. At the regional level, research institutes and hospitals are jointly controlled by the central and state governments. There are a number of good hospitals and research centres run by the private sector. The Government Medical Colleges that function as referral hospitals are owned and controlled by the state governments.

At the policy level, health is a state subject which vests the responsibility on respective state governments to ensure the effective functioning of the healthcare delivery system. The centre's role is limited to policy making, planning, assisting and providing adequate funds to authorities at the state level to implement national programs. The central funding for a state is 36 per cent of all public health expenditures and in some states; it is over 50 per cent. At the national level, health comes under the Union Ministry of Health and Family Welfare and at the state

level; each state has a department of Health and Family Welfare that is headed by a state minister. The state health directorate has under it, the regional set up that covers 35 districts and the district level structure serves as the middle level management of health services.

India's Public Healthcare system – Going out of reach

The basic structure of India's public healthcare was designed in a manner that would cater to all sections of society. But the growing population coupled with a lack of focus on healthcare by subsequent governments meant that healthcare has remained one of the most neglected sectors. India ranks 130 out of 189 countries in Human Development Index Report 2018 issued by the United Nations Development Programme (UNDP). In a country where 21.9 per cent of its population is living below poverty line, the government at present spends[1] only 1.28 per cent of the GDP on healthcare. When the contribution of private sector is taken into account, India spends about 4.7[2] per cent of its GDP on public health. Compared to the rising healthcare costs, this amount is abysmal and as has become clear during the CoVID-19 crisis, India needs to do a lot more to be fully equipped to meet the healthcare needs of its citizens.

The issues with India's healthcare system start right at the primary level. It was the Bhore Committee Report[3] of 1946 that first advocated the need for a comprehensive primary healthcare system. It proposed the implementation of its recommendations in two distinct phases— "three-million plan" and the "ten-year plan." The "three million plan" which had a long-term vision was to be implemented over a period of three-four decades. It had its focus on building adequate health infrastructure recommendations in two distinct phases— "three-million plan" and the "ten-year plan." The 'ten-year plan" was formulated

[1]World Health Organization Global Health Expenditure database
[2]World Bank Report
[3] "Report of the Health Development and Survey Committee (Bhore Committee), Vol. II

taking into consideration that the country may not have adequate resources to ensure the feasibility of the first plan. In the "ten-year plan" instead of recommending the setting up of district level tertiary infrastructure, the Committee took a realistic view of the situation and advocated for four of the 200-bed secondary units in the districts to be elevated to the level of 500-bed secondary units. As against the 0.24 beds per 1000 population that were available in British India, the Committee recommended that the beds be increased to 1.03 per 1000 population within ten years of implementation of the plan and a ratio of 5.67 beds per 1000 population in thirty to forty years.

But even a cursory look at the figures related to primary healthcare reveals the dismal state that it is in at present. Though more than seven decades have passed since the Bhore Committee Report was submitted, India has only 0.7[4] beds per 1000 population. According to data published by the Centre for Economic and International Studies[5], in states like Madhya Pradesh, Bihar and Jharkhand, a PHC covers as many as 45,000, 49,000 and 76,000 people. In areas where population is dispersed like in Rajasthan, a person may need to travel 10-20 km to reach the nearest PHC. There is a shortfall of close to 9,000 doctors in about 25,000 PHCs in the country and in this about 2,000 of them do not have even a single doctor. In many of the tribal areas, a single doctor is posted for care all through the year. Conditions do not improve at the secondary level too. According to data released by the Ministry of Health and Family Welfare[6], there are only 605 district hospitals when the total number of districts stand at 640. Most of these hospitals have beds ranging from 75 to 500 but they lack modern equipment and adequate infrastructure to function in full capacity.

[4]World Health Organization
[5]Pavitra Mohan, 'Why India's primary healthcare is reeling and what it can learn from others,' *Business Standard*
[6]Guidelines for District Hospitals (2012), Directorate General of Health Services Ministry of Health & Family Welfare, Government of India

In addition to this,63 per cent of PHCs do not have an operation theatre and 29 per cent are operating without a labour room. The shortage of specialists including surgeon, gynaecologists and paediatricians are as high as 81.5 per cent[7].

The statistics released by the World Health Organisation (WHO) in 2012,India has only 0.7 physicians per 1000 patients, which are well below the WHO requirement of 1:1000.In rural Bihar, this figure is as low as 0.3 doctors for every 10,000 individuals. This in effect means that there is one government doctor for every 10,189[8] people, one hospital bed for every 2,046 people, and one government-run hospital for every 90,343 people. Moreover, only one[9] in five doctors in rural India are qualified to practice medicine which points to a two pronged problem – the practitioners of traditional medicine are not recognised and to a lack of strict checks and balances, there exists a widespread problem of quackery.

In addition to this, there is an acute shortage in India's nursing sector. According to the report by the Center for Disease Dynamics, Economics and Policy (CDDEP) in the United States, there is a shortage of 20 lakh nurses in India. The country's nursing and midwifery density is 10 per 10,000 of population, against a global average of 28.1. One of the major reasons contributing to this situation is that many of the students who graduate from nursing schools prefer to migrate to other countries in view of better job prospects. Despite nurses being the backbone of the healthcare sector, their pay is much lower and working conditions dismal when compared to their counterparts in other countries.

In 2019, the Supreme Court had intervened to direct the states that the salary of nurses working in private hospitals with more than 50 beds should be fixed at Rs 20,000 and the nurses of a

[7] India Spends, 2018
[8]Suparna Dutt D'Cunha, 'Despite A Booming Economy, India's Public Health System Is Still Failing Its Poor,' *Forbes*
[9]World Health Organization report on India's healthcare workforce

private hospital with more than 200 bed capacity should be paid an equal wage of nurses in government service. This was based Prof. Jagdish Prasad Committee based on the petition filed by Trained Nurses Association of India in 2016 regarding the fixing of minimum wages in the private sector hospitals. Yet when the Delhi administration passed an order to this effect, it was met with resistance from the corporate sector and the Delhi High Court had to intervene to uphold the validity of the Supreme Court's order. There have also been attempts by the private hospitals to reduce the number of beds below 50 and 200 to circumvent this order. The absence of stringent checks to ensure that the nurses get their due salaries fuel this practice. It is equally telling that many of the private hospitals in the country have forced nurses to take a pay cut citing the loss of income due to lockdown even when they play a crucial part in handling the crisis. In situations like this, government should intervene and stringent penalty clauses should be put in and hospital managements should be strictly regulated.

The allied services also face a similar shortage of workforce. According to a report of the National Initiative for Allied Health Sciences[10] (NIAHS), there is a gap of 20.42 lakh dental assistance-related technologists, 18.22 lakh rehabilitation-related workforce, 8.93 lakh miscellaneous health workers and 8.58 lakh surgery and anaesthesia-related professionals in India. The country is expected to face an acute skill gap of 12.7 million[11] in the field of health care by 2022. What worsens the situation is that only 10 per cent of the 30 lakh students who graduate with the relevant degrees every year are considered employable according to the National Assessment and Accreditation Council (NAAC). The Allied and Healthcare Professions Bill, 2018 which was introduced in Rajya Sabha on 31 December 2018 which provides for setting up of an Allied and Healthcare Council of India and corresponding state allied and healthcare councils, is yet to make any progress. It would have played the

[10] 'From Paramedics to Allied Health Professionals: Landscaping the Journey and Way Forward,' 2012

role of a standard-setter and facilitator for such professions which is important in view of the number of unskilled workers who are currently employed in the allied sectors. But the House is yet to reconstitute the parliamentary panel for early consideration of the bill and the future course of this proposed legislation remains unclear.

It is evident that deficiency of human resources in the public healthcare sector is perhaps the greatest the factor contributing to the present state of affairs. According to WHO, of the 57 countries facing human resources in health crisis, India ranks 52nd. There is a stark contrast between rural and urban areas with deficiency of specialists in rural healthcare being as high as more than 90 per cent in states like Chhattisgarh, Jharkhand, and Rajasthan. The density of doctors is four times and that of nurses is three times higher in urban areas as compared to the rural areas.

Absenteeism of health professionals especially in remote areas compounds to the existing problem. According to a survey[11] conducted, nearly 40 percent of the doctors and other health service providers were found to be absent from their posts on a typical working day. Another survey[12] has stated that about 10.4 per cent of the sanctioned posts of auxiliary nurse midwives are vacant and 27 percent of doctor posts at PHCs remain vacant. While absenteeism among doctors varied between 30 percent in Madhya Pradesh and 67 percent in Bihar it was found to be 30 per cent among pharmacists and laboratory technicians. What exacerbates this is the fact that the Indian public healthcare system pays salaries during absences which leads to a lack of accountability on part of those appointed to serve the people. There is also limited[13] availability of formally trained healthcare

[11]Rural Health Statistics, 2003
[12]Health Management Information system of the Ministry of Health and Family Welfare, Government of India, 2015
[13]Manoj Mohanan, Katherine Hay, and NachiketMor, 'Quality Of Health Care In India: Challenges, Priorities, And The Road Ahead,' *Health Affairs*

providers – those with at least a bachelor of medicine and bachelor of surgery (MBBS) degree. In the rural areas, all these factors directly affect the quality of healthcare provided with misdiagnosis, under trained health professionals, and the prescription of incorrect medicines emerging as pertinent problems.

The lack of doctors also results in overcrowding at hospitals with many patients unable to get timely treatment. The problem of unmanageable patient load is especially true for bigger cities where urbanization of rural poverty and overcrowding of slums with no basic amenities have given rise to many healthcare concerns that cannot be handled by a system that is already bursting at the seams. The system of referrals also does not seem to work effectively in Indian hospitals. A study[14] conducted at three referral hospitals in Lucknow district showed that nearly 90 percent of the patients coming to these hospitals were new and, of these, two thirds had reached directly without any referral. This means that just to get an out-patient ticket the patients may have to wait for days. The sight of people sleeping on the pavements outside government hospitals have become an all too familiar sight in India and its repercussions are seldom analysed.

The unending days of waiting often pushes families to look beyond the low-cost treatment available in public health centres and go to the private healthcare sector where it is estimated that the out-of-pocket health expenditure by Indian households comprises 60.6[15] per cent of the total health expenditure in the country. The "catastrophic" expenses incurred pushes nearly 63 million[16] people to poverty every year. In addition to this, only a very small percentage of Indians have health insurance policies in India. Almost 70 per cent[17] of urban households and 63 per

[14] Vikas Bajpai, 'The Challenges Confronting Public Hospitals in India, Their Origins, and Possible Solutions,'
Hindawi
[15]NHA Estimates, 2018
[16]Ministry of Health
[17]National Family Health Survey – 3 (2005-06)

cent of rural households are dependent on private sector for primary healthcare. An estimated 469 million[18] people in India do not have regular access to essential medicines. The expenses on medicine alone have pushed 33 million[19] under the poverty line.

The next big concern for public healthcare is accessibility. According to the Global Burden of Disease study, published in *Lancet*, India ranked 154 out of 195 countries regarding healthcare access, much behind nations like Bangladesh, Nepal and Ghana. This predominantly stems from the lack of physical reach which is defined as "the ability to enter a healthcare facility within 5 km from the place of residence or work".[20] Using this criterion, a 2012 study[21] found that in rural areas, only 37 per cent of the population were able to access in-patient facilities within a 5 km distance and 68 per cent were able to access out-patient facilities.

The exploitation by private healthcare sector

The many lacunae in India's public healthcare sector paved the way for the growth of private sector hospitals and other allied facilities. According to a study[22], only 23.5 per cent of urban population and 30.6 per cent of the rural population go to government facilities which show a clear lack of faith in public sector. The high out of pocket expenditure of Indian households point to a deeper problem of how human lives are put at risk for the sake of profits. Today, private players have entered every area of medical care such as pharmaceuticals, paramedical training, medical education, nursing education, technology and research.

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[18] WHO
[19] Public Health Foundation of India (PHFI) 2018
[20] Munjanja SP, Magure T, Kandawasvika G, 'Geographical access, transport and referral systems,' *CAB International*
[21] Understanding Healthcare Access in India, Report by the IMS Institute for Healthcare Informatics, 2012
[22] Central Bureau of Health Intelligence, 2010

The growth of private sector has been exponential in India. After independence in 1947, the private hospitals used to provide services to only 5-10 per cent of the patients, but today its accounts for 82 per cent of outpatients visits and 58 per cent of inpatient. The support given by government has resulted in India earning more than USD 3 billion in medical tourism, a majority of which is due to the contribution of the private sector. According to a survey conducted by *Finline*, healthcare market is expected to grow three-fold to USD 133.44 billion by 2022. The lack of stringent penalties for overbilling has also contributed to the rise of private sector.

Here, what is seldom noticed is that private healthcare in India is highly fragmented[23] with over 90 per cent of the services provided falling in the unorganised sector. Eighty percent of the private hospitals are small clinics and nursing homes (less than 30 beds). Six to seven percent are 100–200 bed size hospitals and only 2–3 per cent of hospitals are 200- plus bed. The rules that apply to private sector still remain unregulated which has resulted in an unholy nexus between doctors, hospitals, pharma companies, insurance companies, diagnostic labs and medical device manufacturers.

It was also the growth of the private sector that greatly diminished the role of practitioners of general medicine and gave emphasis to specialists. This has resulted in commercialisation of healthcare with people being made to see one doctor after another and getting multiple tests done to arrive at a diagnosis. A loosely formed network called Alliance of Doctors for Ethical Healthcare[24] had acknowledged this problem in at a meeting held in AIIMS in Delhi in 2018. The alliance called upon hospitals to stop imposing "conversion" targets on doctors and ensure transparency in all components and bills. It said that the hospitals must stop receiving all kind of commissions and kickbacks. It

[23]Ministry of Health and Family Welfare, 2010
[24]Dinesh C Chandra, 'Why Indian healthcare desperately needs ethics,' *DailyO*

urged doctors to not accept gifts, sponsorships or any financial or non-financial incentives from drug and medical device companies. It also appealed to doctors to not give or take any charges for patient referrals and said doctors should become whistle blowers exposing malpractices.

When such an observation comes from within the medical fraternity, it is clear that the bane of commercialisation has its root much deeper than what is outwardly visible. A civil society group All India Drug Action Network[25] (AIDAN) had in 2019 called out pharmaceutical companies for giving unethical incentives to doctors. It is by now well-known that doctors often push particular brands of medicines in return of undue favours like subscription to medical journals, foreign trips and expensive gifts.[26] The last three decades have seen a tremendous increase in the corporate -insurance, pharmaceutical and the hospital industry which has made healthcare in India unaffordable even to the comparatively well-off families. Often a life-threatening disease pushes a family to the brink of poverty. What is unfortunate here is that despite the prevalence of unethical practices in the healthcare industry, there is no legislation holding the doctors accountable to such malpractices. The checks in place are reduced to mere guidelines from the Medical Council of India (MCI) and the Uniform Code of Pharmaceutical Marketing Practices (UCPMP) notified by the Department of Pharmaceutical for voluntary adoption by the industry.

Another casualty of the growth of private healthcare sector was that indigenous systems in India came to be increasingly viewed with suspicion. The widespread practice of quackery did not help matters. Despite the odds, the committee on "national health" of the "National Planning Committee" of the Indian National Congress had proposed that, "If medical advice and treatment to

[25] Joe C Mathew, 'Pharma companies giving payouts to doctors, claims All India Drug Action Network,' *Business Today*
[26] Shyama Rajagopal, 'Pharma companies giving payouts to doctors, claims All India Drug Action Network,' *The Hindu*

the mass of the people is [sic] to be provided on the necessary scale free of charge, the National Plan will have to bring the indigenous Vaidya, Hakim, or Dai into line with more elaborately or pretentiously trained physician or surgeon, gynaecologist or obstetrician". Closely on the heels, the Mudaliar Committee opined that "integration of Modern Medicine and Ayurveda is eminently desirable and all steps towards achieving that end should be promoted. Such integration should result in the development of a system of medical knowledge and practice based on all the best that is available in Modern Medicine and in Ayurveda".

Globally also, it is now accepted that Ayurveda remains the most ancient yet living tradition of medicine. It is interesting to note that Ayurveda along with other alternate schools of medicine like Yoga, Unani, Siddha and even Homeopathy has its focus on holistic wellness. All these systems emphasise on increasing the immunity and maintaining a healthy metabolism. They advocate for simple living with techniques like mediation which can help calm the mind as well as the body. Unlike the present allopathic treatment which is based on clinical test results more than on the physician's acquired clinical acumen resulting in suppression of the symptoms, the alternate schools try identifying the root cause of the disease and treatment is directed towards finding a permanent relief. With the advancement of science, the practitioners of these schools have been able to back their traditional knowledge with research and have ensured that scientific temperament is infused into the study of the ancient systems of medicine.

Despite the positives, the political will to establish a ministry for alternate medicines and promote its use was shown only in 2014 when Prime Minister Narendra Modi-led government established the Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH). However, the years of neglect prior to this step had helped the private sector in discrediting

these systems. A 2011 study[27] estimated that out of the roughly 20 health workers per 10,000 population, only nine per cent are AYUSH practitioners. Such a lax approach to healthcare has also extended to the public sector with many of the services like testing, hospital maintenance etc being outsourced to private players. This has forced the public sector hospitals to levy additional charges to be footed by the patients. The emphasis on high-end technologies even for treating minor ailments have made healthcare inaccessible to a large section of population in the country. The market-led model of healthcare in the country has made basic services inaccessible to the poor in the country. Towards that end, it is also likely that the pharma companies have been clamouring for an increase in healthcare budget as they are looking to capture the section that are currently relying on traditional medicines.

Another major concern is the availability of antibiotics as over the counter drugs. The production and distribution are not regulated which helps the private sector to exploit this market. The end result of this is that people take antibiotics without prescription and do not complete the full course which makes them drug resistant. This is one of the biggest challenges that the country is facing in terms of its increasing disease burden. Though the 'The 2017 National Action Plan on Antimicrobial Resistance and Red Line campaign' mandated that prescription-only antibiotics should be marked with a red line to discourage the over-the-counter sale, these efforts are yet to get sufficient legal backing and financial support.

Another interesting fact that comes to light when analysing the Indian drug market is that though India is the world's largest provider of generic medicines, its use is yet to gain steam in India. According to a 2019 report by Ernst and Young, 20 per cent of all global generics, in terms of market value comes from India. The Supply Annual Report of UNICEF (United Nations

[27] Rao M, Rao KD, Shiva Kumar AK, Chatterjee M, Sundararaman T, 'Human resources for health in India,' *The Lancet*

Children's Fund) recognized India for rendering yeoman service in developing countries by facilitating affordable healthcare. The government taking this into consideration implemented the Jan Aushadi Scheme in 2015 under which over 5000 outlets have been opened with the aim of making available affordable generic medicines for all. But the sale at these outlets have below par with the major reasons being lack of awareness in the public, distribution of free medicines by state governments, lack of support for the scheme, poor supply chain, and doctors not prescribing generic medicines.[28] The has especially been encouraging the big pharma companies to continue selling over priced drugs even for life threatening diseases.

Pathology is yet another area where the private sector has established a significant amount of control. It is estimated that India's diagnostic industry is worth USD 9 billion[29] and with the rise in focus on preventive healthcare, it is expected to witness a strong growth. Despite this sector being a huge source of revenue, it remains highly fragmented with 45-50 per cent of the diagnostic labs in the unorganised sector, 35 per cent in the organised sector and the rest being hospital-based diagnostic centres. According to a report by Research and Markets, the industry will see greater consolidation in the coming years with larger players acquiring the smaller laboratories.

However, the lack of stringent regulation has led to this sector posing a grave threat to the way healthcare system is structured in the country. A large number of labs operating in the unorganised sector are run by underqualified technicians. In October 2019, the Delhi High Court had sent a notice to the Delhi government to close 875 labs that were found to be operating with no legal permits. The incorrect diagnosis and the

[28] Vijay Thawani, Abin Mani and Neeraj Upmanyu . 'Why the Jan Aushadhi Scheme Has Lost Its Steam in India?' *Journal of Pharmacology & Pharmacotherapeutics*

[29] Rashmi Mabiyan, 'Amid regulatory issues, diagnostic chains bet on mom-and-pop labs to expand presence.' ETHealthWorld

erroneous reports that many of the labs issue can even prove life threatening to patients.

What is shocking here is that the court's observation came nine years after the central government enacted the Clinical Establishment (Registration and Regulation) Act, 2010, which makes registration a must for running a clinical establishment. Till now, only eleven states including Arunachal Pradesh, Himachal Pradesh, Rajasthan, Jharkhand, Mizoram, Uttar Pradesh and Uttarakhand have adopted the Act but many of them are yet to implement it. Following this, the incumbent government has proposed amendments for the Clinical Establishment (Central Government) Rules, 2019 with the aim of regulating the diagnostic industry. According to the provisions included, health facilities not complying with the prescribed norms in terms of infrastructure, manpower, equipment, drugs, support service and records will not be granted registration. It includes in its ambit private sector institutions belonging to both Allopathic and AYUSH schools of medicine. The norms have covered aspects like minimum standards of facilities and services, minimum requirement of personnel and displaying of rates at a conspicuous place.

But the efforts of the government to bring about stringent regulation to this sector have been faced with stiff resistance from the private players. The Indian Medical Association (IMA) has openly voiced its concern that it is not feasible for private hospitals and clinics to provide standard facilities at the rates set by the Act. The private establishments have also opposed the provision that the patients or their kin have the power to lodge a case if the minimum standards prescribed by the Act are not adhered to by the hospitals or clinics. Since health is a state subject, the private lobbies have largely succeeded in convincing the state governments not to adopt this Act and for the states who have adopted it, they have not been able to implement it due to resistance from the private players. When the fact that over 70 per cent on the population is dependent on private health facilities is taken into account, it is clear that the state

governments are also under tremendous pressure to adopt this Act without compromising on the existing healthcare structure. A collapse of the private healthcare system would put undue burden on the public healthcare system and India still do not have the resources to handle the crisis that will ensue.

Medical Education in India

The focus on Allopathic medicine also led to the elitization of education. Medicine came to seen as a profession for those belonging to the economically well-off section that had the finances to fund long and expensive years of study. The current education system does not prepare the doctors to serve the needs of the country and they very easily get attracted by the high pay packages offered by the private hospitals once they graduate. Also, by denying a chance to those students who hail from economically backward sections and are willing to put in long hours to serve the deprived, India has been stopping real development from taking place. It is telling that in 2011, the total number of doctors serving the rural population of more than 833 million was a mere 45,062. An institution like AIIMS that was started to make medical education accessible to all has contributed most to the migration of doctors to private hospitals. From 1989 to 2000, nearly 54 per cent of the medical graduates migrated out of the country. Of the remaining graduate doctors in the country, nearly 74 per cent live in urban areas serving a mere 28 per cent of the population. There is also the issue of contractual staff in many of the public hospitals which further contributes to the migration of medical and para medical workers. These workers are not given any performance incentives that would have helped them to stay in their jobs.

As can be seen from the statistics stated earlier, India has only 10 lakh registered doctors to cater to 1.3 billion citizens. With such a dismal scenario, it is important to understand how the medical education in India is structured and why has it remained inaccessible to large section of meritorious students. According to data released by the Ministry of Health and Family Welfare, with the opening of 90 new medical colleges in the last five

years, the number of government-run medical colleges has surpassed private medical colleges for the first time in India. In the academic year 2019-20, there were 279 government medical colleges offering MBBS courses against 260 private ones as compared to 215 private medical colleges and 189 government medical colleges in the academic year 2014-15. There has been a 47 per cent rise in government medical colleges during 2014-19, compared to a 33per cent increase in the total number of medical colleges in the past five years, from 404 in 2014-15 to 539 in 2019.[30]

For a country where medical education has been skewed in favour of the private sector, the statistics usher in a much-delayed positive change. The donation-based seats given in private medical colleges have been seriously hindering the quality of Indian healthcare system. The authorised sale of medical seats that is not seen in any other country apart from India has greatly diminished the role of merit and produced doctors who are not competent to treat patients. The wide disparity in costs has meant that private education is available only to students who can afford it. In a comparative study conducted by the *Hindustan Times,* it was found that the average cost of private medical education is around Rs 40 to 50 lakh, while in government sector, it is around Rs 10,000 to 4 lakh. In the private sector, the students will also have to pay capitation fees that can range anywhere from Rs 1 to 4 crore. At a time when the private colleges were more in number, this meant that quality of healthcare was being compromised for business gains.

In an analysis published in *Lancet,* every year nearly 16 lakh Indians die due to poor quality care. That's about 4,300 deaths every day due to poor treatment and nearly 5,000,000 Indians dying due to medical negligence every year. The figures are significant and point towards a deeply tilted model of medical education. It has brought into focus the necessity for government

[30]Rhytma Kaul, 'Number of govt medical colleges surpasses private ones: Data,' *Hindustan Times*

control and strict regulation. There is urgent need to ensure uniformity in admission with focus on merit, curriculum, and accreditation for all degrees in medical, nursing, and other para-medical courses. Several concrete measures have been taken to this end by the Narendra Modi-led government in the past few years such as converting certain district hospitals into medical colleges through public-private partnership, increasing the number of undergraduate medical seats to 80 per cent in the academic year 2019-20 from 48 per cent in 2014-15. Post graduate seats have also increased by 65 per cent for the corresponding period.

Another laudable reform that the government has pushed through Parliament is the National Medical Commission Bill, 2019 which has the stated objective of curbing corruption and boosting transparency in the governance of medical education. It will replace Medical Council of India (MCI), the country's regulatory body for medical education with a more centralized National Medical Commission. It will also revamp medical licensing procedures and enshrine several recent reform initiatives, such as the standardization of admission requirements at medical schools nationwide. In a bold step, the government has tasked the interim Board of Governors of the proposed National Medical Commission (NMC) with drafting guidelines for fee structure in private medical colleges so as to slash fees for half of graduate and post-graduate seats by 70 per cent and 90 per cent, respectively.[31]

In view of the rising number of students who are graduating from medical schools without having sufficient skills to practice medicine, the bill proposes a common final-year MBBS exam, the National Exit Test (NEXT), before an individual can start

[31] Sanjeev Davey, Anuradha Davey, Ankur Srivastava, Parul Sharma; 'Privatization of medical education in India: A health system dilemma,' *International Journal of Medicine and Public Health*

practising medicine. This is also applicable to those seeking admission in post-graduate medical courses and for enrolment in the State Register or the National Register. For private medical colleges that charge a huge amount of capitation fees for gaining entry into post graduate courses even if a candidate fails to clear the entrance test, this step has dealt a heavy blow. But interestingly, the protest against this bill from the medical community has come from the provision that it allows for licensing of 3.5 lakh non-medical persons or Community Health Providers to practise modern medicine. This argument may not hold much ground as the community health providers are already functioning as frontline public health workers in the rural areas and if anything, this step lends their practice legitimacy and will also help in keeping the illegal practitioners in check. Before issuing licences, the government should ensure that proper training with a national curriculum is given to these practitioners and they are made to undergo a standard testing procedure endorsed by competent government authority.

Meanwhile, taking into consideration the new changes and the fact that there will be a severe shortage of faculty in the coming years, the MCI has amended regulations to increase the number of teachers in medical colleges. As per the MCI norms, nearly 70 teachers are required per college for 50 admissions, 90 for more than 50 to 100 admissions, and 125 for 150 admissions per year. The privatization of medical education is among the primary reasons for the dismal state that India is in at present. Due to the high costs as well as the challenges related to accessibility, many students from rural areas who aspire to be doctors have had to give up their dreams. What India needs currently are doctors who are sensitive to the needs of the patients and who are willing to serve in rural areas and has both social and cost consciousness to view healthcare as a service. India will have to move away from the system of commodifying medical education and ensure that only the truly meritorious students are given seats not just in the government colleges but in private institutions as well.

How India is tackling CoVID-19

It was on 30 January 2020 that India had reported its first case of CoVID-19 in Kerala. An effective public policy framework would have ensured quick action to prevent the import of the virus to India. But even with the World Health Organisation (WHO) declaring a pandemic only on 11 March 2020, India like all other nations did not understand the real nature of the threat. CoVID-19 by itself may not be a deadly virus but it is the rate at which it spreads and an inefficient public health system that makes it deadly. To that extent, India's strategy was short sighted with Prime Minister Narendra Modi announcing a national lockdown on 25 March 2020 with the aim of curbing mass transmissions. With the infected in India standing at more than 85950[32] and with over 2752 people dead, it is clear that India has missed out the crucial phase when it had enough time to screen international passengers and take them to quarantine facilities. Compared to the population of the country, India is still among the select few that have successfully managed to implement a stringent lockdown and going by the figures of the Ministry of Health and Family Welfare, in the absence of such containment measures, cases in India would have crossed 8.2 lakh by 11 April 2020.

A major reason why India has been able to contain the crisis at least to some extent is due to the over nine lakh plus[33] ASHA workers called upon by the government to go to the remotest areas and educate the population about CoVID-19. They have been given the responsibility of conducting door-to-door surveys, keeping an eye out for migrants and educating people about necessary precautions. By putting in long hours in the fight against the pandemic, they have proven how integral they are to the country's institutional healthcare system. They were also backed by an efficient Panchayat Raj (local self-government) system where the Sarpanches have been acting as a bridge between the ASHA workers and Block Development Officers to

[32] Data as on 15 May 2020

[33] Pooja Awasthi, 'The life of ASHA workers in the time of COVID-19,' *The Week*

pass on vital information about households with suspected cases of CoVID-19 which has helped a great deal in containing its spread in rural areas.

The WHO had also praised India's initiatives to fight CoVID-19 which saw the country announcing an economic stimulus plan of USD 22.6 billion immediately after the first phase of lockdown was announced that included free rations for 800 million disadvantaged people, cash transfers to 204 million poor women and free cooking gas for 80 million households for the next three months.

However, the partial success that India has achieved in containing the spread of the virus should not be seen as offering any respite. The current state of affairs in India is proof that the country has not learnt any lessons from its past. The 1918 flu pandemic[34] which left around 17 million dead in the country was the deadliest situation India has had to face till now. Even though that happened during an era when antibiotics were yet to be discovered and healthcare was not as advanced as it is today, it has still brought to light the dangers of overcrowding in cities. With Mumbai reporting nearly 27500 infected cases and over 1000 deaths as on 15 May 2020, this holds true even in the present situation. But it is from a comparatively recent outbreak that India still has lessons to learn. The 1994 plague outbreak in Surat had given a glimpse of the problems that could arise when there is mismanagement of an epidemic. After the news broke of the plague in the second week of September, the city saw 60 per cent[35] of its population moving out and the panic had led to the closure of all the business establishments in the city. Though the administration managed to contain the plague in a week's time, the disease had by then claimed 52 lives and the losses incurred due to the economic shut down was over USD 151 million. But

[34]Soutik Biswas, 'Coronavirus: What India can learn from the deadly 1918 flu,' *BBC News*
[35]Mohana Basu, Swagata Yadavar, '1994 Surat plague has many lessons for India on how to beat coronavirus,' *The Print*

just after two years, a city where 80 per cent of its population lived in slums was adjudged the cleanest city in the country. The city's public health response has improved significantly with health workers making door to door visit of households every two weeks with the aim of detecting suspected cases of malaria, dengue, chikungunya and filariasis. The active surveillance has yielded results with cases of malaria dropping from 21,540 in 1994 to 7734 in 2014. Yet despite having an excellent model to improve India's public healthcare system, the importance to introduce changes at the grassroots level was not understood by the authorities.

An effort towards this end was taken only in 2005 when the United Progressive Alliance (UPA) government launched the National Rural Health Mission[36] (NRHM) touting it as one of the "most ambitious" rural health initiatives. It had the aim of converting all existing primary health centres into viable 24/7 facilities at least for Reproductive and Child Health (RCH) services. But the lack of political will and financial misappropriation meant that the scheme could achieve only 48 per cent of its target and all the objectives remained unmet. The approach to healthcare changed with the BJP government in power. Prime Minister Narendra Modi launched the Swachh Bharat Abhiyaan in 2014 with the aim of defeating open defecation in rural areas and addressing the issue of solid waste management in urban areas. The government constructed 110 million toilets between 2014 and 2019. India was declared open defecation free on 2 October 2019. What is notable here is that the government understood the need for hygiene to curb the spread of diseases and concentrated on behavioural change. It demonstrated that it has the machinery in place to work at the grassroots level to bring about significant changes to improve healthcare. Another commendable achievement of the government is the launch of Ayushman Bharat which will provide free treatment of up to Rs 5,00,000 to 500 million poor

[36] T Sundaram, 'Mixed report card on rural health,' *The Hindu Business Line*

every year. As pointed out earlier, the government also opened more than 5000 public medicine centres (Jan Aushadhi Kendra) where 800 varieties of medicines are available at affordable prices. But in light of the challenges that the public healthcare sector is facing that have already been listed in this paper, these positive steps may be rendered meaningless. The CoVID-19 outbreak has in a way reinforced the failings of healthcare in India.

The strategy that India is following at present is reactive[37] than proactive. With the number of cases seeing an exponential rise despite the multiple phases of lockdown imposed, there is still no strategy in place to ensure that people have access to timely treatment. The complete reliance on public health infrastructure by many of the states may reverse the gain India has made so far in flattening the curve if a spike occurs once the restrictions on movement are lifted. It also needs to be noted that India's CoVID-19 tests per 10,000 population has been a mere 6.5[38] at the initial stage. Now with 359 government laboratories and 145 private ones equipped to do CoVID-19 tests, India has crossed the daily capacity of 100,000 tests and has conducted over 2 million tests so far, according to Union health minister Dr Harsh Vardhan. This means India has tested 540 people per million of its population, much higher than the 94.5 per million population it was testing in late March. But the figure is still far lower than tests per million in other countries. In the US, Spain, Russia, the UK, and Italy, the corresponding numbers are 31,080; 52,781; 42,403; 32,691; and 45,246 respectively.[39] Though the Indian Council for Medical Research (ICMR) has asserted that the ratio is not low when compared to the rate at which the infection is spreading, India will have to do more to equip its diagnostic

[37] T Jacob John, 'India's corona strategy is very amoebic,' *The Hindu Business Line*
[38] Worldometer 2020
[39] Sanchita Sharma, 'India tops 2 million Covid-19 tests,' *Hindustan Times*

centres to do more tests and strengthen its laboratory response network in the coming days if the virus has to be contained. [40]

The ranking by Global Health Security Index 2019 which has placed India 57th among 100 countries on a scale to gauge preparedness for the outbreak of serious infectious diseases point to serious flaw in the country's healthcare system. But the one factor that has stood out is the readiness of the authorities to innovate and fight the disease as a comprehensive unit. India's decision to convert 20,000 railway coaches and several stadiums across the country into medical facilities even before the outbreak happened at a mass scale is proof that if the need arises India has the resources to meet the challenges. What is required is better coordination at all levels to make healthcare a priority and implement the reforms that are long overdue.

In this regard, Prime Minister Modi's announcement that Rs 15,000 crore will be allocated to strengthen healthcare is a welcome step. India was prompt to earmark 14000[41] existing ventilators for use of CoVID-19 cases and is importing 10000 ventilators. As a long-term strategy, the government has asked India Inc to produce 40000 more ventilators to help meet any surge in demand. The government has also been importing lakhs of Personal Protection Equipment (PPE) kits and masks for frontline health workers while also ensuring that domestic demands for masks are sanitisers are met with the help of small and medium scale enterprises. The country has so far produced 50 lakh PPE kits and is expected to produce 2 crore PPE kits by the end of June to meet the needs of over 3 lakh medical personnel treating Covid-19 patients in a day, according to data released by the Textiles Ministry.

While the government is doing all it can to develop the needed surge capacity, it is limited by the policy paralysis that has been

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[40] Dr Shankar Narang, 'How prepared is India to tackle a coronavirus outbreak,' *The Week*

[41] 'Coronavirus update: Govt asks automobile manufacturers to make ventilators,' *Press Trust of India*

affecting the healthcare sector for long. As K Srinath Reddy, President, Public Health Foundation of India (PHFI) put in an article[42] that appeared in *The New Indian Express*, "a hobbling horse cannot suddenly become a champion racer when the foe is charging at full speed." The CoVID-19 crisis is a reminder that investment in health is necessary for economic growth of a nation. A World Bank report[43] had strongly argued that governments should spend more on health if it has to reap the economic benefits. With the long periods of lockdown bringing an acute economic crisis all over the world, it is clear that the situation could have been tided over if India had an excellent healthcare system in place that caters to its citizens in an equitable manner. Here taking into account the constraints of the Indian healthcare system as well as the Indian economy, it needs to be noted that an excellent healthcare system does not necessarily mean better health infrastructure. Cities like Delhi and Mumbai which seemed well equipped to handle the crisis in terms of the resources available found itself at the top of the table in failing to contain the spread of the virus. This proves that more than increased funding, the need of the hour is utilise the available resources at the optimum level. What becomes clear from this is that along with physical infrastructure, a nation must also equally invest in its human resources. Along with specialised doctors, India also needs trained nurses, pathologists and PHC workers to ensure that the country's healthcare system is able to handle the load. The system has to be decentralised and strengthened at the grassroots level so that hospitals at the tertiary level do not get overburdened.

States in India lead by example

Amidst the chaos experienced by the healthcare sector while it is dealing with one of its biggest challenges, few states in India are

[42] K. Srinath Reddy, 'Investing in health: Lessons from CoVID-19,' *The New Indian Express*

[43] The World Development Report of 1993 - Investing in Health, *World Bank*

leading the way in fighting CoVID-19. First is the state of Kerala that has started flattening the curve[44]. Through early screenings at the airports to contact tracing, it has laid down an effective roadmap to deal with epidemics. It also drew lessons from the 2018 Nipah outbreak where an efficient coordination between the government and healthcare workers from all segments could successfully contain the outbreak to just two districts. Here, the leadership role of Kerala's Health Minister, K K Shailaja deserves special mention which was acknowledged even by the British newspaper Guardian. She took it as her personal responsibility to curb the crisis which proved a morale boost to the sector as a whole. In light of the CoVID-19 situation, the state government also announced an economic package of Rs 20,000 crore which included health measures, loan assistance, free food grains, advance payment of welfare pensions, subsidised meals, tax relief, and more. A unique initiative adopted by the state was to start a helpline number to assist home-quarantined people with mental health issues. The government has also launched an app to check the spread of fake information.

Another state that has been effectively fighting CoVID-19 with early diagnosis and efficient clinical management is Tamil Nadu. Even though the total number of cases has crossed 10,000 with the majority of cases concentrated in Chennai, several districts that had initially seen a spike in cases have not reported any new cases of CoVID-19. The state has fatality rate of 1.1which is amongst the lowest in the country. And with 868 tests per million population in the beginning stage, it has shown that rapid testing coupled with contact tracing may be the most effective way to contain the spread of the virus. The success that Tamil Nadu has shown does not lie in any knee jerk reactions. It is the result of governments looking beyond party politics to make healthcare a priority.

[44] AyanSharma , 'As states show the way to fight CoVID-19, federalism in India gets a much-needed boost,' *Newslaundry*

The state has already fulfilled national targets to achieve the Millennium Development Goals set by the United Nations and has set 2030 as the deadline for achieving UN's Sustainable Development Goals. It tops the country in bringing down the maternal mortality rate with the state data recording the rate as 62 per one lakh in 2015-16 which is well below the national average of 167. Another interesting point is that well before the Ayushman Bharat scheme was launched, three out of five people in Tamil Nadu have been covered by medical insurance, which is tax-funded for the last 10 years. In 2008, the Tamil Nadu government launched the Kalaignar Insurance Scheme for Life Saving Treatments which benefitted more than one crore families in the state with an annual income of Rs 72,000. With the change in government in 2011, the scheme continued under a different name - the Chief Minister's Comprehensive Health Insurance Scheme and few modifications. It provided treatment for 1,016 procedures, 23 important diagnostic procedures and 113 follow-up procedures, providing insurance cover of Rs 1 lakh per year and Rs 1.5 lakh for certain complicated procedures. This sum was later raised to Rs 2 lakh per annum and 312 new procedures have been added to the scheme. It also covers migrant workers who have lived in the state for more than six months and orphan children smart cards were issued to 1.58 crore families and 751 hospitals were emplaned to provide treatment.[45]

Irrespective of the party in power, the state governments have been increasing the budget to healthcare every year. The state has 1,747 PHCs, 336 urban PHCs and health sub-centres (HSC) have been established for population of 3,000 in the plains and 2,000 in hilly areas. The state's reservation policies and incentive structure has ensured that the primary healthcare system remains strong with the required availability of manpower. Generic drugs are distributed free of cost at all government hospitals in the state. The importance that Tamil

[45] SushilaRavindranath, 'Health coverage: What India can learn from Tamil Nadu,' *Financial Express*

Nadu has been giving its primary healthcare is a model that can be emulated throughout India.

Rajasthan is yet another state that has set an example to fight epidemics. The Bhilwara district of Rajasthan which was among the worst affected with CoVID-19 with 27 cases and two deaths has created a model that has proved the most effective way to fight transmissions. The district followed the protocol and went into a full lockdown. But what it did differently than other districts were that it screened the entire population. After that it reported no new case of CoVID-19 and the Bhilwara model garnered praises from all over the country and is now looking to be replicated in all states despite the challenges posed by mass testing.[46]

It also needs to be noted that Rajasthan has had a previous success containing the outbreak of Zika virus[47] in 2018 and it is the same strategy that the state is using to contain CoVID-19. After the first confirmed case of Zika virus was reported in September 2018, the Rajasthan government quickly implemented a containment strategy which included active human and mosquito surveillance, laboratory testing, intersectoral coordination, risk communication and social mobilisation in a predefined geographic area around the epicentre. Within a week, the outbreak was successfully contained with 159 cases reported from in and around the 3 km containment zone. Rajasthan model brought to light the importance of stringent measures coupled with effective communication and coordination at all levels to contain an outbreak.

However, the same state could not replicate this model in bigger cities such as Jaipur and Jodhpur. The Bhilwara Model, which drew laurels across the globe, seems to be losing ground in

[46]Taruka Srivastav, 'Rajasthan and Kerala can teach the world how to fight coronavirus,' *World Economic Forum*
[47]Ruchi Singh, 'Cluster containment strategy: addressing Zika virus outbreak in Rajasthan, India,' *NCBI*

Jaipur's Ramganj area with CoVID-19 numbers swelling each day, taking Rajasthan to fourth in the national tally after Maharashtra, Tamil Nadu and Delhi.

A state that deserves special mention for the way it has handled the CoVID-19 crisis is Uttar Pradesh. Though a first glance at the statistics which puts the number of confirmed cases at 4054 and deaths at 94 as on 15 May 2020 makes it an unlikely candidate to be included among the best performers, the perspective changes when the population of the state and the prevailing conditions are taken into account. Uttar Pradesh is India's most populous state with over 200 million people with widespread poverty, illiteracy and lack of proper infrastructure. When the first case of CoVID-19 was reported on 3 March, the state had no facilities for testing the pathogen. Now the number of labs equipped to test CoVID-19 stands at 10 with five more to be commissioned soon. Around 2400 tests are being done daily.It has also got clearance from ICMR to do "pool testing", becoming the first state in the country to do so. Currently, the state has 78 level-1 coronavirus hospitals, 64 level-2 hospitals and 6 level-3 hospitals. The state has 9442 isolation beds, 12119 quarantine beds and 931 ventilator beds.50 units were also operationalised for producing PPE gears and in Noida, AgVa Healthcare in Joint Venture with Maruti Suzuki has developed a monthly capacity of producing 10 thousand ventilators.

Even before the national lockdown was announced on 25 March, 16 districts of Uttar Pradesh were identified as hotspots, sealed completely and lockdowns were imposed on these areas from 23 March 2020. Taking into account the lack of awareness among the public regarding the seriousness of CoVID-19, stringent measures were imposed throughout the state and any non-essential movement was strictly curbed with offenders penalised under Section 188. The success of the Uttar Pradesh government becomes more pronounced when the situation in Noida which is part of the National Capital Region is taken into account. Despite sharing the border with Delhi where the number of cases has

crossed 8895[48] with 123 confirmed deaths, Noida has managed to keep the spread in check with 247 confirmed cases and five deaths. In addition to the stringent lockdown, what worked in the state's favour is that right at the beginning of the lockdown, the state government announced free ration and transferred Rs 1000 to the bank accounts of 12.25 lakh registered construction workers and four lakh street vendors, auto-rickshaw drivers and other daily wage earners, thus assuring them that they will be provided with sufficient means to survive[49]. In addition to this, the state government had also brought back several hundred thousand of migrant workers back home as soon as the first phase of lockdown was announced. Uttar Pradesh, a state which did not have the advantage of a better public healthcare infrastructure or an educated citizenry like that of Kerala has shown what an effective leadership can achieve even when the odds are against the system.

Lessons from the West for India

It was believed that if a country spends around 5-6 per cent of its GDP on health, it will have an efficient healthcare system that will be well equipped to tackle all challenges. But the CoVID-19 pandemic has put aspersions on that belief with many of the countries in the West being the worst affected. The United States (US) has seen spending 17 per cent of its GDP on health, the United Kingdom 9.3 per cent, Germany 11.3 per cent and France 11.6 per cent.[50] Yet in the US and many of the countries in the European Union (EU) that have borne the brunt of the virus outbreak. What the world saw was health systems that were

[48] As on 15 May 2020

[49] Shantanu Gupta, 'When a crisis is as big as the Wuhan coronavirus pandemic, we need taskmasters as strong as Yogi Adityanath,' *Op India*

[50] World Bank Statistics, 2017

equipped with state-of-the-art facilities faltering revealing lack of preparedness and planning to handle a pandemic.

The West had a seven-week head start to chalk out a strategy in terms of planning and coordination to contain the spread of CoVID-19. The United States' Centers for Disease Control and Prevention was touted to be the one of the most equipped federal agencies to deal with the spread of the virus. Yet with New York city alone recording over 27,000 deaths and US becoming the first country to record over 2000[51] deaths in 24 hours in the second week of April, it appears the most ill-equipped nation to handle the crisis. The decentralised health system had added to the difficulties with the country yet to see a coordinated strategy to contain the outbreak. A lot of what the country is facing has to do with its inability to develop a primary healthcare system. The nation's healthcare system has its focus on speciality care. They do not have any workers at the grassroots level like the ASHA workers in India who have access to every household. The end result of such an orientation has been that primary doctors get paid less which has made them move away to lucrative jobs in bigger hospitals. The US has around three general or family practitioners per 10,000 people, compared to 7.5 in the United Kingdom, 9 in France and 13 in Canada[52].

Another reason why US looks so unprepared to deal with the outbreak is that hospitals are already operating near capacity. The country has roughly 2.8 hospital beds per 1,000 people. This means that it has an estimated 924,100[53] hospital beds, but most of it are occupied by patients at any one time. Among these, 46,800 to 64,000 are medical intensive-care unit (ICU) beds. In a report published in March 2020, the Center for Health Security at Johns Hopkins estimated that US has a total of 160,000 ventilators available for patient care. The same report estimated

[51] John Hopkins Corona Virus Research Centre
[52] Commonwealth Fund Analysis
[53] American Hospital Association survey, 2018

that a moderate pandemic would mean one million people requiring hospitalization and 200,000 needing intensive care.

Compared to India, the figures from US point to the latter in a better position to deal with the viral outbreak. But the piecemeal responses by the US which has been giving prominence to economic growth rather than people's lives have pointed to the underlying dangers in a healthcare system that has been predominantly profit driven. The shortage of beds in the US is a result of market forces exerting a huge pressure on public policy. Over the last 50 years, as an effort to control costs, more attention was given to care being shifted to outpatient services from inpatient hospital settings. The government also worked actively to cut down the number of hospital beds to curb the escalating costs[54].

Compounding this situation is the fact that the US happens to be the only developed nation without universal healthcare. According to the Census Bureau data 2018, nearly 28 million non-elderly Americans, or 10.4 per cent, are uninsured. Though it is an improvement when the percentage of non-elderly who lacked coverage stood at 17.8 per cent, this number is crucial when fighting a pandemic[55]. The uninsured often rely on community clinics or hospital emergency rooms. Though the government has declared that testing for CoVID-19 will be made available free of cost, it has stated that the affected will have to pay for their treatment. This means that people who do not have coverage will wait for their condition to turn serious before seeking medical help. This waiting period due to lack of finances would lead them to infect many more which will make it difficult to contain the viral spread.

It is ironical that on the day the country recorded over 764,000 total infections and over 40,000 deaths, US President Donald

[54] Drew Altman, 'Why the U.S. doesn't have more hospital beds.' *Kaiser Family Foundation*

[55] Tami Luhby, 'Here's how the US health care system makes it harder to stop coronavirus,' *CNN*

Trump made the claim the country has tested 4.18 million people which is a "record anywhere in the world" and is making steady progress against the disease. The numbers itself prove that increased testing without having a contingency plan will only benefit the test kit manufacturers. What is required is community surveillance and imposition of stringent security measures in all hotspots.

Moreover, with the possibility of US developing a vaccine for CoVID-19, it may also be the time to re-evaluate the system. Even though the country has been providing sufficient public funding for biomedical research, the American tax payers will still have to pay a huge amount for a vaccine that they essentially paid to develop. This is because the government issues exclusive license to pharmaceutical companies to produce the drugs at the later stage and there is no regulation imposed on these companies to make the publicly funded inventions affordable.[56] This means that the private drug manufacturers have a monopoly on even life saving drugs and basic healthcare remains out of reach for a significant section of the American population.

The US has given the world many lessons on how not to commercialise healthcare. In India, where healthcare is increasingly getting concentrated on the hands of the private sector, the situation in US should be a cue on why it is necessary to strengthen its primary healthcare sector. The Ayushman Bharat scheme is a first step in the goal towards universal healthcare. Affordable healthcare and increasing the budget outlay for health sector infrastructure would remain the key in fighting grave scenarios in the future. The next region where India can draw valuable insights from is Europe. As with the case of US, the European Union (EU) too floundered in coming out with an effective containment strategy due to its lackadaisical approach in the beginning.The failure of a

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Mariana Mazzucato and Azzi Momenghalibaf, 'Drug Companies Will Make a Killing From Coronavirus,' *The New York Times*

collective approach meant that the situation in countries like Italy and Spain spiralled out of control and it had reached a situation where the doctors had to make the difficult choice of whom to save and whom to let go. By the time, the region started showing the spirit of solidarity with Germany sending protective equipment of the hardest-hit regions in Italy accommodating some of the most vulnerable French patients at its hospitals, the flaws of the system were clearly exposed.

It is the way Italy failed to rise up to the challenges posed by CoVID-19 that will be analysed and studied in the years to come. Italy spends about 9 per cent[57] of its GDP on health services and its healthcare sector ranks second in the world. Compared to the USD 241 that Indian government spends per individual every year; the Italian government spend USD 3427 per citizen. The density of doctors in Italy is 40 per 10000 people and it has a total of 1063 hospitals while India has a total of 23852 hospitals. The country has been operating a universal public health system since 1978 and healthcare is provided to all through a mixed public-private system.

From the statistics, it is clear that Italy has one of the best public health systems in the world. Lombardy which accounts for 20 per cent of the country's population and is one of the wealthiest regions was worst affected with the CoVID-19 outbreak with it accounting for 51 per cent[58] of fatalities. Hospitals in Lombardy were known for its pioneering research because of which thousands of patients used to flock every year which resulted in an annual turnover of an annual turnover of €7.8 billion.

But it is this successful profit-driven model that is being blamed for the humanitarian crisis that Italy was faced with in the first stage of the virus outbreak. After Rome decentralised the healthcare system in 1997, public and private clinics have been competing for taxpayers' money. The regions were free to use the money allocated in the budget to healthcare according to

[57] WHO statistics, 2018
[58] World-o-meter 2020

their discretion. This resulted in subsequent governments pitting the private and public sector against each other in the belief that withholding funds from those who have failed to meet the set standards to give rise to greater efficiency. The private sector which has the funds to offer more services to the patients even started leading the race and public sector started letting go many of the financially unviable activities that were engaged in. The healthcare system began to cater to medical tourists in the years prior to the CoVID-19 crisis.

Once the outbreak started, the burden of treating the patients who were tested CoVID-19 positive fell on the public sector. Even though the private sector was receiving a major share of the public health budget, the private hospitals refused to play their part in containing the crisis. It is interesting to note that despite availing all the benefits, the private sector had only 800 intensive care beds as opposed to 5300 in the public health sector. But the total number of beds in public hospitals had decreased from 45,630 to 20,838 between 1995 and 2018, and the number available in private hospitals remained insignificant, despite having jumped in that period from 10,602 to 13,155[59].Later, the Italian government had to forcibly requisition private hospitals for treating CoVID-19 affected.

In India, as the governments are once again discussing the implementation of public-private partnership, the Italian experience should serve as an example of the unfortunate consequences that the nation as a whole will have to face when health is viewed as a commodity. Without a strong public healthcare system, the profit incentives will do more harm than good in the long run.

Spain is another European nation that has suffered the most after Italy with more than 130,000 registered cases and more than 12,000 recorded deaths. The country's health system is ranked tenth in the world by WHO and the statistics reveal that it spends

[59]Ben Muster, 'What made Italy's wealthiest region so vulnerable to coronavirus?' *New Statesman*

nine per cent of its GDP on health. According to the data released by the Health Ministry's Coordination Centre for Health Alerts and Emergencies, Spain had around 4,400 intensive care beds, for a population of nearly 47 million[60]. Yet these positive markers were of little use to handle a large-scale crisis.

Policy makers have pointed to the deep spending cuts[61] that Spain suffered as result of the 2008 global financial crisis as a reason for the crisis in its healthcare sector. Also, the fact that the autonomous regions that hold power over healthcare could not come up with a coordinated strategy worsened the situation. Ever since the financial crisis, public health in Spain has been sustained by low-paid professionals with temporary contracts. More than 8,000 nurses have migrated to the United Kingdom, France or Germany in search of work which has led to an acute shortage of healthcare workers in the country. The shortage of personnel has left many of the hospitals in Spain facing a major backlog. The Spanish National Health System had estimated that about 700,000 patients were waiting for operations before the crisis. [62]

The Spanish example is a reminder for India that spending cuts at the cost of health sector can have dangerous consequences especially at an age where the threat does not arise from any nuclear weapons but microscopic organisms that has the potential to wipe out the entire human race.

Another European country that does not have as many fatalities as that of Italy or Spain but the daily increase in the volume of fatalities puts it at par with the worst affected nations is the United Kingdom[63] (UK). As with Spain, the UK National Health Service (NHS) which has been hailed as an example to emulate

[60] David Jiménez, Spain's Lethal Secret: We Didn't Have 'the Best Health Care in the World', *The New York Times*
[61] 'Why has Spain been hit so hard by the coronavirus pandemic?' *AFP*
[62] Ferdinando Giugliano, 'How Spain tragically bungled its response to coronavirus,' *The Print*
[63] Caelainn Barr, 'UK's coronavirus death toll: how does it compare with Spain and Italy?' *The Guardian*

universal health care has been operating on severe budgetary restraints and staffing shortages for more than a decade. About 100,000 positions in a workforce of more than one million went unfilled in the latest quarter, almost 40 per cent of them nursing roles, according to London-based Nuffield.[64] Nine out of ten beds are already occupied according to data released by Eurostat 2017. The country has 193 independent hospitals with about 8,500 beds. There are nearly 4,000 adult critical care beds in England currently and there are 1,000 more beds in NHS private patient units.[65] One in four doctors are off work because they are either sick or in self-isolation, according to the Royal College of Physicians.

The challenges faced by UK may be aplenty. But the NHS by directing all its resources to fight CoVID-19 has also given some valuable lessons that can be replicated in other countries. According to a statement released by NHS, it has struck a deal with private hospitals to acquire thousands of extra beds, ventilators and medical staff to fight a spike in outbreak. Because of this step, an extra 8,000 hospital beds, nearly 1,200 ventilators and almost 20,000 fully qualified staff were made available throughout England. The additional staff includes 10,000 nurses, more than 700 doctors and more than 8,000 other clinical staff who are expected to handle a surge in cases.[66]Such an arrangement where the private sector is forced to step in when the public health system is likely to become overburdened with the caveat that they will only be paid their minimum costs is a model that India can also adopt to ease the strain on its healthcare system.

Amidst the pall of gloom that has enveloped Europe, there is one nation that seems to be doing better than the other countries in the fight against CoVID-19. The nation is Germany which after

[64]James Paton and Suzi Ring, 'Coronavirus Poses 'Hugest Challenge' to U.K.'s Health System,' *Bloomberg*
[65]Laing Buisson report 2018
[66] 'Coronavirus: Thousands of extra hospital beds and staff,' *BBC News*

its initial incoherent response to contain the spread of the virus has shown remarkable resilience in containing the spread of the virus. The country spends about 8.8[67] per cent of its GDP on health. According to John Hopkin's University, Germany's fatality rate which stands at 1.4 per cent compared to 12 per cent in Italy, 10 per cent in Spain, France and Britain and 2.5 per cent in US, is amongst the lowest in the world.

What Germany has been doing differently from other European nations it had early and widespread testing and treatment, the government ensured that social distancing guidelines were strictly observed and it had sufficient intensive care beds. After the country tested its first case of CoVID-19 in February, the labs started building up a stockpile of test kits. At present, Germany is conducting around 350,000 tests per week which is higher than any other country in the EU. They have also been testing their medical staff regularly and are planning to roll out a large-scale antibody study, testing random samples of 100,000 people across the country every week to monitor the immunity level. [68]

Before outbreak of CoVID-19, Germany had 33.9[69] intensive care beds per 100,000 people. This translated to 28,000 intensive care beds. The total hospitals beds stood at 497,000 which the critics have been saying for long that the number needs to be brought down. But as the hospitals began coping with the huge influx of patients, the real nature of the challenge emerged and the German authorities immediately granted financial incentives to the hospitals. Because of this, the number of intensive care beds was raised to 40,000 and there are an estimated 30,000 ventilators available. In addition to this, a 2017 survey conducted by the federal office showed that 14 per cent of intensive care beds were located in more than the half of country's hospitals

[67] OECD Data, 2018
[68] 'A German exception? Why the country's coronavirus death rate is low,' *The New York Times*
[69] OECD Research 2019

with fewer than 200 beds. Such a balanced network of regional hospitals ensured that the big city hospitals are not over whelmed by the rising cases and effective treatment can be provided at the primary level. Germany has also been setting an example by accepting patients from Italy, Space and France as they have adequate resources to meet all exigencies[70]. The lesson that Germany has given is to make health a priority in policy decisions and ensure that the public health systems are not stretching beyond its capacity. However, despite the positive measures and the focus on decentralisation of healthcare, new CoVID-19 cases in Germany has tripled ever since the lockdown was lifted. This once again point towards the need for the government and those in the healthcare sector to work in tandem when managing an emergency situation.

While Germany is trying its best to flatten the curve in a remarkable way, Europe as a whole has shown that good health indicators may not be a sign of preparedness or efficiency. A mix of policy paralysis, profit-driven approach to healthcare and lack of effective leadership because of which there was chaos at the federal level are some of the factors that became adverse to many of the countries dealing with CoVID-19 in the West. What also went against these countries was that they took the threat lightly in the beginning and had the confidence that their healthcare system was well equipped to handle an outbreak of CoVID-19.

Such an approach led to neglect many of the warning signs. A report published by the Pharmaceutical Group of the European Union (PGEU) had pointed out before the outbreak that many countries in Europe had shortages of respiratory medicines. The countries failed to come together and share timely information with each other as well as the EU. The EU itself has contributed to the crisis by writing about 50 warning letters to the states to

[70] 'Will the German Healthcare System Become a Model for Europe?' *Leaders League*

reduce the healthcare costs. As a result of this, Italy has undergone USD 37 billion in cuts in the last 10 years. [71]

What happened with the European nations should serve as a reminder to India that cutting back on public infrastructure costs comes with a heavy price. It has also brought forth the need to have better coordination among federal units. India by imposing a 64-day lockdown which is one of the largest in the world proved that in times of crisis the central government can get the states on board and evolve a unified strategy to save its citizens. Another important lesson from how the crisis has panned out in the US and the European nations is how a sole focus on allopathic school may not bode well for strengthening the healthcare infrastructure. Though these nations looked better equipped to handle the pandemic in the initial stages due to its increased budgeting and better health infrastructure, they failed in containing the spread as they were solely dependent on just one school of medicine and did not have any alternatives to accommodate the rising number of cases. Here, the example of China is of particular interest. China has successfully integrated the methods of tradition Chinese medicine in modern healthcare. Though there is yet to be a proven remedy for CoVID-19, such an approach opens up new frontiers for research and possibly more options to help develop a vaccine.

As a whole, in the fight against CoVID-19, Asia has been setting a better example for the world. Several countries in Asia drawing from their experience of dealing with an outbreak of MERS in 2015 and the 2002-03 SARS epidemic have fared much better than the countries in the West. One country that needs particular mention for its containment strategy is South Korea. Other than China, it is the only nation to have flattened the curve. South Korea has proved that the effectiveness of a strategy lies in its strict implementation. Through swift action, rigorous testing, contact tracing and surveillance, it is perhaps the only country to

[71] Roberto Musacchio, 'The Virus Hits an Ill-Prepared Europe,' *Transform Europe*

have slowed the rate of infection without completely shutting down the economy. It also worked in the country's favour that more than 63 per cent of cases could be traced back to the gathering at Shincheonji Church which was from where the virus began its spread. South Korea has conducted over 300,000 tests and produces 100,000 testing kits daily. It has opened 600 testing centres that would reduce the burden on hospitals and clinics. Technology has also been in an effective way to contain the spread of the virus. The government has made it mandatory for everyone in quarantine to download an app that would help the authorities ensure that nobody is venturing out of homes. Lastly, it showed the power of effective communication to make the civil society a part of the fight. Public participation has contributed in a big way to manage the spread of the virus[72]. But now with the lifting of restrictions, South Korea has begun seeing the second wave of infections with over a hundred cases being linked to nightclubs. This proves that social distancing measures are not to be taken lightly and increased awareness is necessary to contain the spread of the virus. In this context, the case of Bali in Indonesia is of particular interest. Being a popular resort island, it was expected that Bali will see a spike in CoVID-19 cases. But on the contrary, the island with a population of 4.2 million has reported just four CoVID-19 deaths and 343 confirmed cases for a fatality rate of 1.2 per cent, far below the national average of 6.5 per cent. This was made possible with the help of about 1,500 traditional village committees that could influence the Hindu residents to stay indoor and maintain strict social distancing norms.[73]The success of Bali is a reminder that no outbreak can be contained if there is no people-to-people contact at the primary level. Every nation needs to invest in a community of health practitioners who have the trust of people and will cooperate in times of a crisis.

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[72]Max Fisher and Choe Sang-Hun, 'How South Korea Flattened the Curve,' *The New York Times*

[73]Arys Aditya and Harry Suhartono, 'How Bali Escaped Being Virus Hot Spot With Local Traditions,' *Bloomberg*

The Way Forward

The CoVID-19 crisis has triggered a debate on the challenges that India's already over stretched public healthcare system faces. Correcting all that is wrong with the system may not be possible at once. But an effective public policy outlook and political will can start improving the system. Indian Prime Minister Narendra Modi's announcement in 2018 that India's public health spending will be increased to 2.5 per cent of the GDP is a welcome step and efforts must be put in to strengthen the public healthcare system with the available resources on an immediate basis.

However, while planning for the future, it needs to be kept in mind that the National Health Policy launched in 2002 and the Common Minimum Program of the first UPA government had promised to increase the health spending to a level of 2 to 3 percent of the GDP by 2010. Following this, the UPA government launched the National Rural Health Mission (NRHM) in 2005 which was unable to achieve any of its objectives. This points to a wide gap in policy formulation and implementation.

From the way the CoVID-19 crisis was handled by the West, it is clear that increased budget, more number of hospitals, doctors and hospital beds may not necessarily result in better response in a public health emergency. What is important is to have institutional support at the grassroots level like that provided by ASHA workers in India. An efficient healthcare system is characterised by accessibility and the changes that is brought about at the primary level. The need of the hour for Indian sector is to set realisable goals keeping into account the lack of resources and infrastructure and work towards it. Decentralisation will hold the key for India developing an efficient healthcare system in the coming years.

The first and foremost step that India must take is to strengthen the immunity of its population. The focus should be on

prevention rather than cure. Towards this end, the Government of India has launched Mission Indradhanush with the aim of improving coverage of immunisation in the country. In addition to this, the Swacch Bharat Abhiyaan as well as the POSHAN Abhiyaan, the government's national nutrition mission launched in 2017 which aims to address the issue of malnutrition, are important measures that will go a long way in strengthening the immunity of the population. In Union Budget 2020-21, Rs 35,600 crore has been allocated for nutrition-related programmes.

It has also brought forth the need to restructure India's primary healthcare. Steps towards achieving this goal have to start by increasing public awareness in having a robust primary healthcare system. Lessons should be included on this topic in secondary education and students should be given the option of getting trained in primary education at the 10+2 level in schools. If India has to make its decentralised healthcare system efficient, it needs trained personnel in the rural areas. The country should also encourage its indigenous systems to flourish. A country like Japan that is known for its unrivalled hygiene has imbibed it from the Buddhist philosophy. Likewise, India needs to devote more time and resources to research on the ancient health practices and adopt the best practises from it that are in line with the needs of the present times.

The government must ensure that adequate funds are allocated to institutions starting from the PHCs. To address the problem of staff shortages, the government must make at least two years of rural health service compulsory for all doctors graduating from government medical colleges. For those in the private sector, mandatory rural service must be part of their internships. India needs good hospitals within a radius of 5km of every residential area, be it rural or urban. More money needs to be spent on creating the infrastructure which includes diagnostic equipment that can give accurate results. Panchayat level awareness programs should be conducted to ensure that all families are brought under insurance cover.

There is an urgent need to bring in accountability and hold every stakeholder responsible for the timely delivery of services. A separate tribunal should be created and doctors should be brought under the Consumer Protection Act in order to curb any kind of negligence. The government should mount strict vigilance on harmful medicines recommended by doctors for profit obsessed pharma sector and ensure that there is judicious use of allopathic medicines, especially antibiotics. Legal provisions should also be made to bring the BPL families under insurance cover. India should draw from best practices around the world to achieve universal healthcare. In countries like Turkey and Thailand, 80 per cent of the healthcare services are provided in the public sector with an aim to make healthcare affordable while ensuring that the quality of services is at par with that provided by the private sector.

Another important area that India needs to focus on is research and development (R&D). The CoVID-19 pandemic has taught nations the importance of investing in R&D and also given way to a global order where all countries will have to be self-sufficient to meet the challenges that may arise. India has institutes like the National Institute of Epidemiology in Chennai, the National Centre for Disease Control in New Delhi, the Centre for Infectious Disease Research in Bengaluru, and the National Institute of Virology in Pune which needs to be given a fresh mandate to focus on research. Professionals ranging from research assistants to those heading the institutions should be given time and goal-oriented targets and made personally accountable. India will have to make use of its world-class IT prowess in mining infectious diseases data to help crack the genetic code which may prove crucial to developing vaccines. It also needs to rope in private sector for its technical expertise whenever necessary.

It is unfortunate that institutions like AIIMS that were set up as a model of patient care and medical teaching in the country are unable to give enough time for medical research due to overcrowding at hospitals and shortage of staff. In order to

remedy this situation, it is important for primary and secondary level healthcare to be strengthened so that the tertiary level hospitals function purely as referral centres. Greater facilities in terms of accommodation and accessibility to services like schools should be provided by the government to healthcare workers who are deputed to rural areas. A greater emphasis must be placed on the training of para medical personnel to fill in the gaps at primary level. For those studying in government and government aided institutions, it must be made mandatory for them to come out with research papers and participate in a minimum number of conferences every year to be certified eligible to gain a degree in medicine and to practice thereafter.

Another immediate step the government must take is to bridge the data gap in the health sector which will help measure district level outcomes. The government's proposal that the frequency of the National Family Health Survey should be moved from a ten-year cycle to a three-year one must be implemented at the earliest to understand the demographic changes and the changing needs of a population. For a healthcare system to be efficient, it is necessary to understand the underlying challenges.

The next important step is to educate the medical students on the economics of healthcare. They should be educated on the costs of healthcare and how crippling it is for the country to have a system that is driven by market forces. They should be taught not to recommend expensive treatment where it is not necessary, undue use of tests and procedures that further raises the out-of pocket expenditure of Indian households. The focus on tests often only benefits the manufacturers and patients are made to undergo tests without making an assessment of its usefulness or accuracy of the testing devices. A case in point is how India was forced to place an order of half a million corona virus rapid testing kits from China due to the pressure from various medical bodies on testing. In the end, this order had to be cancelled as most of the testing devices were found to be faulty.

The focus on improving India's healthcare system will come to fruition only if there is a strict action plan to control population growth in the absence of which India will continue to remain poor and vulnerable. A report[74] by the United Nations Population Fund has indicated that India's population growth had slowed substantially in the 2010-2019 period. The report estimated that India's population grew at an average annual rate of 1.2 per cent in the period ending 2019 and pegged the country's current population at over 1.37 billion people. This shows a considerable slow down as the 2011 census had calculated the average annual growth rate to be 1.64 per cent for the 10-year period between 2001 and 2011. The report stated that the slowdown in population growth is due to more Indian women using contraceptives for birth control and also resorting to modern methods of family planning. The credit for such behavioural change should go to the National Population Policy (NPP) of 2000, which sought to advocate a small family norm without adopting any coercive measures. This was followed by the government proposing Population Regulation Bill in 2019 which went a step further and included provisions for punitive action against people with more than two living children and making them devoid of all government services, denial of financial benefits and reduction in benefits under the Public Distribution System (PDS) for people having more than two children. The bill also suggests that government employees should give an undertaking that they will not procreate more than two children.

Though the provisions seem harsh especially in light of the UN report which indicates that population growth may longer be an important concern for India with the growth rate slowing down, it is not the case when the larger picture is taken into account. Official government data has shown that states like Uttar Pradesh, Bihar and Madhya Pradesh have an average fertility rate of well above 3 when the national average fertility rate is 2.3 which is close to the ideal replacement level fertility rate of 2.1.

[74] State of World Population, 2019

This clearly indicates that there is a need to keep population growth in control and India may need to look in the direction of incentivising those families with not more than two kids. As a first step, there needs to be more awareness camps in rural areas where the benefits of having a small family are spoken about and people are made aware of the strain it causes on existing resources with every addition to the family.

The last decade has shown that India has the resources to usher in major changes in healthcare. The country has been free of polio since 2014 and tetanus since 2015. The decision of the government to set up 1.5 lakh health and wellness centres points towards India changing its approach towards healthcare and looking at holistic healing.

But the CoVID-19 crisis has shown that the only way for countries to survive a situation that has no precedent is through innovation. The coming years will be the age of artificial intelligence and India is among the most well-equipped nations to leverage the benefits and apply it to improve its public healthcare system. A research by Deloitte Touche Tohmatsu has stated that the size of the healthcare industry in India will reach USD 160 billion by 2017 and USD 280 billion by 2020.

At a time when innovative solutions are required to address the gaps in India's healthcare system, Indian start-ups should step up and play a crucial role in bringing about reforms. The process has already begun with start-ups targeting to improve healthcare in rural areas. An example is of a start-up named A3RMT and Neurosynaptic Communications which manufactures light-weight equipment for measuring ECG, blood pressure, heart rate, auscultation, oxygen saturation and the temperature of a patient. It then transmits data to doctors anywhere in the world. It has assisted in effective treatment of more than 56,000 patients in 450 locations in India and saved more than 2,000 lives through emergency intervention till date. [75] Other interesting initiatives

[75] Karan Kashyap , 'How Startups Are Trying To Overcome India's Healthcare Challenges', *Forbes*

where technology was used were the digital health program called eVIN to track immunization and ANMOL, another digital health tool which helps to provide better health care services to pregnant women, mothers, and new-borns.

It is clear that India will have to strengthen its public healthcare system. But the current healthcare system of the country is such that it will be impossible for the government to create a massive public health infrastructure on its own in view of the budgetary constraints and lack of manpower. The lessons from the West are also a reminder that every country has its own developmental needs and a lot of analysis that were previously presented as India and other developing nations failing the healthcare needs of its population may have been nothing but mere propaganda by the Western nations to push their commercial interests. In such a scenario, India needs to concentrate more on working with the available resources and invest more in human capital. Last mile connectivity has proved to be of prime importance in dealing with a pandemic.

The next best available option is to include the private sector in bringing reforms at the primary and secondary levels. In the 2020-21 Budget, the government has pointed to such an approach by saying that for the states that fully cooperate in its efforts to promote private healthcare will be rewarded with Viability Funding Gap. While this may be a good step when the disadvantages are taken into consideration, the CoVID-19 crisis has shown that the public and private healthcare systems will have to work in tandem and there is also a need for government to impose reasonable restrictions on the private sector to ensure that affordable healthcare is available to all.