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Challenges to India's Rural Healthcare System in the Context of Covid-19

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Introduction

The first case of Covid-19 in India was reported on January 29, 2020. Based on official data, there were 100 cases by March 14; about 5,000 cases and 166 deaths by April 9; and as of May 15, over 82,000 cases and 2,600 deaths (GoI 2020). Internationally, there were 8.5 million cases and over 4.5 lakh deaths as of June 15 (WHO 2020a). This paper explores the likely spread of Covid-19 to rural areas in India and the preparedness of Indian rural healthcare systems to meet the demands created by the pandemic.

Understanding the Pandemic

The Covid-19 pandemic refers to an epidemic of acute respiratory illness caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), commonly called the novel coronavirus. There are many types of coronavirus in nature, but not all of them cause diseases. The disease caused by this particular virus is called the Coronavirus Disease 19 (Covid-19).

Covid-19 was first reported in Wuhan, the capital city of Hubei province, China, in November 2019 (WHO 2020b). In many ways this disease is like the common flu, beginning with a fever and cough that lasts a few days and then subsides. In the case of flu, some patients, usually those with co-morbidities, die; the death rate is about 1 per 1,000 infected persons. Covid-19 lasts longer, is more infectious, and has a mortality rate of about 10 to 20 per 1,000 persons, or about 20 times the mortality rate of the flu. The rate is still lower than many other infectious diseases and over 98 per cent of those infected are likely to recover completely within one or two weeks (O'Hare 2020).

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Prior to Covid-19, there have been many pandemics of viral acute respiratory illness. The 1918 flu pandemic, also called the "Spanish flu" (though it had little to do with Spain), infected 500 million people, or approximately one-third of world's population at that time, and resulted in 20–40 million deaths (CDC 2020) worldwide. In India alone, 12–15 million people died between 1918 and 1920, about five per cent of the country's population (Arnold 2019). Since then, there have been five other flu pandemics: the "Asian flu" of 1957–58 with about two million deaths worldwide, the "Hong Kong flu" of 1968–69, of which about a million died, the bird flu of 1997, and, most recently, the swine flu of 2009 (CDC 2018). The last in the list is estimated to have killed between 151,000 and 575,000 people worldwide, according to the Centres for Disease Control and Prevention (Rettner 2020). Not surprisingly, mortality rates in both the seasonal and swine flus were highest in the world's poorest regions and among the elderly.

There have also been two outbreaks of coronavirus-related acute respiratory illness in the recent past. The first of these is severe acute respiratory syndrome (SARS) caused by the SARS coronavirus, which affected 30 countries in 2003-04. It infected about 8,500 persons, of whom about 813 died – a mortality rate of 9.5 per cent, similar to that of the flu of 1918. The next epidemic because of a coronavirus was in Saudi Arabia, the Middle East respiratory syndrome (MERS), which affected about 2,500 persons and caused 858 deaths – a mortality rate of 34 per cent (Sullivan 2018). In summary, pandemics are not new phenomena, though we are beginning to see somewhat more frequent outbreaks. All nations are expected to maintain a level of preparedness for timely and adequate response to such pandemics.

Epidemiology of Covid-19 Pandemic in India

The first reported case of Covid-19 in India on January 29, 2020, was from Kerala, in a student returning from Wuhan, China (Reid 2020). By February 3, there were three cases. In the entire month of February, there were no new cases identified, and except for fever screening in major airports in persons returning from China, no major control measures were undertaken. On March 4, 22 new cases, including 14 in Italian tourists, were identified (Perappadan 2020). Reported cases started increasing, with most new cases related to foreign travel. There were 100 cases by March 15, about 600 on March 23 when the country went into lockdown, about 1,000 cases by March 28, and 5,000 cases by April 7. The first 10,000 cases came by April 14, one month after the first hundred cases were recorded. The next 10,000 came eight days later, and the next 10,000 after one week. Thus, by April 29, there were 30,000 cases, and another week later, the number reached 50,000 (GoI 2020). This increase in number is due to both augmented testing capacity and the spread of the infection, despite what has been characterised as one of the world's most comprehensive and toughest lockdowns.

India saw its first Covid-19 fatality on March 12, when a person who had returned from Saudi Arabia died (Hindustan Times 2020a). The case fatality rate also rose steadily, but

was much lower than that of European countries. India reported 50 Covid-19 deaths by April 1, 100 by April 5, 500 by April 19, 1,000 by April 29, 1,500 by May 4, and 10,000 by June 15.

The initial projection of India being a leader and high achiever due to the boldness of its leadership in implementing a sudden, total, and tough lockdown is giving way to a more sober reassessment. Though the lockdown could be presumed to have slowed down the spread, the epidemic is far from contained. The number of cases reported each day continues to accelerate. When the lockdown is eventually lifted, the rise in cases and deaths will be even faster.

Furthermore, the relatively low number of cases and deaths per million in India as compared to other nations could be due to India's limited testing capacity. Additionally, though most nations test symptomatic persons irrespective of contact history, India did not test people unless they had a clear history of contact, and even now tests only in designated hotspots (GoI 2020). If community transmission is ongoing, the actual number of cases in India could be as much as five times higher than reported. India's death reporting system functions sub-optimally in most States, and three-fourths of deaths have no clear mention of the cause of death. Many of these deaths happen at home, especially in rural India (Edwards and Haleem 2014). Private sector reporting is also deficient; the Delhi Government, for example, had to issue strict notices to all hospitals about regular reporting of Covid-19 fatalities (The Hindu 2020b).

The Geographical Distribution of the Pandemic

One observation being made with increasing frequency by the government and media is that the spread of the disease is largely limited to a few urban agglomerations and relatively few districts. Close to one-third of districts in India have reported no cases.

The western States of Maharashtra and Gujarat have been the most affected. The spread of the disease is also high in Delhi and Chennai, two other cities associated with international travel. As the days pass, the pandemic is slowly but surely spreading to the east and northeast, both areas where there are, as of now, a relatively low number of cases (The Hindu 2020a). All States and Union Territories have reported confirmed cases. The only exception to this pattern is Kerala, where the spread started early and cases rose rapidly in March but was contained by April.[1]

However, it is unlikely that rural areas in India's hinterland will be spared. In India, as of now, there are no data available on the proportion of patients from rural areas. But

[1] Kerala contained the pandemic successfully. However, with the return of migrant workers from abroad and from other States, and because of low levels of local transmission as is expected in an endemic situation, the State has seen a constant trickle of cases in month of May and June.

we do know, from historical comparisons and current international experience, that though the pandemic arrives in rural areas after a time lag, these areas become just as affected as urban areas, if not more so (Penn State University 2020). The 1918 Spanish flu experience also shows that rural and urban areas were equally affected with respect to morbidity and mortality (Thießen 2016).

The 1918 flu is the nearest historical precedent to the current pandemic. In India, it broke out in Bombay in June 1918 on ships carrying troops returning from the First World War. Initially, the pandemic, known as the Bombay fever, was limited mainly to Bombay, but then spread across the whole country via rail (Chandra and Kassens-Noor 2014) by August; the death rate peaked between October and November. Though the 1918 virus is considerably different from the current virus, a similar spread is likely as urban migrants who were trapped in the large cities where the initial outbreak was most intensive, return to their villages.

Writing about the spread of the 1918 flu pandemic in India, Chandra and Kassens-Noor (2014) observed that "the duration and intensity of pandemic control measures will need to be judiciously calibrated to the variable nature of any future pandemic wave" (p. 9). Similar to scenarios during the 1918 pandemic in India, locations close to an entry point will have an extremely short time periods to deal with a virulent pathogen, placing emphasis on emergency management of a short and severe wave of illness. While locations that are distant from the entry point will have longer periods of time to prepare for and deal with less lethal variants of the disease, their task will be prolonged by the more gradual build-up and subsidence of the epidemic wave (Chandra and Kassens-Noor 2014). We do not know whether the virulence will weaken as the Covid-19 pandemic sweeps from urban to rural and from west to east. What we do know, from previous flu pandemic experience, is that there is time for many States within India to better prepare for the oncoming deluge.

Rural and tribal areas have less movement and connectivity than others and settlements are more spread out than in urban areas. However, when the pandemic eventually reaches these populations, its impact is likely to be worse because of adverse social determinants (Ranscombe 2020). Throughout the history of pandemics, from the fourteenth century bubonic plagues to the 1918 flu, socially and economically disadvantaged populations have been disproportionately affected (Duncan and Scott 2005; Mamelund 2018).

Recent newspaper reports have documented the early stages of the spread to rural areas in India. As migrant workers return, the virus spreads to remote and rural areas (Deccan Herald 2020). In the week of May 13, eight rural districts of Madhya Pradesh reported their first cases. Whereas earlier reports from Rajasthan stated that less than 10 per cent of cases were from rural areas, a recent report from Bihar stated that 65 per cent of cases, i.e., 410 out of 766 reported cases, were from rural and semi-urban areas (Express News Service 2020). As these reports increased, the

Prime Minister of India also went on record appealing to safeguard rural areas from the virus (DNA Web Team 2020).

It is unlikely that such a barrier between the urban and the rural can ever be erected. The two are closely intertwined by a network of social and economic relationships that make complete distancing quite impossible. Further, most households in rural areas have only one or two rooms, and the nature of work and daily life makes social distancing less effective. So the real challenge is enabling health systems to cope with the pandemic when it finally arrives.

The question that this paper addresses is the level of preparedness of rural health system in India. To answer this question, we look at what is known about the use of healthcare services as well as the barriers to it from the 71st (2014) and 75th (2017-18) Rounds of the National Sample Surveys (NSS) (NSSO 2016; NSO 2019). We then look at some examples of infrastructure and human resources from recent studies and conclude with requirements for scaling up health systems to withstand shocks now and in the long term.

Utilisation of Healthcare in Rural India

One frequently used measure of morbidity is the proportion of persons who self-report themselves as ailing, including having an acute and chronic illness, in the past 15 days. A 15-day time period is chosen because of more reliable recall (see Table 1).

The decrease in persons self-reporting as ailing from the 71st to the 75th Round can be attributed to the addition of a question regarding recent minor illnesses (Muraleedharan *et al.* 2020), but could also indicate a real decrease in the use of healthcare services. The focus of our discussion is not the change between the 71st and the 75th Rounds but to show how the use of care services, choice of provider, and expenditure on healthcare varies in rural and urban areas and, within them, with economic class.

The lower incidence of illness in the rural population is not indicative of a healthier constitution in people living in rural areas over their urban counterparts. With respect to economic class in both rural and urban areas and empowered action group (EAG) and non-EAG States, the incidence of people self-reporting illness increases with income quintile and is highest in the richest income quintile.[2] This does not imply that the richer quintile is sicker, but that there is a much higher proportion of unmet, often unperceived, healthcare needs in rural populations than urban ones, especially among the poorer economic quintiles. Perception of illness is

[2] Empowered Action Group (EAG) States include Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Orissa, and Rajasthan. This group was created under the Ministry of Health and Family Welfare to give a higher focus to health interventions in these States, which together accounted for about 48 per cent of India's population, and had much higher fertility and mortality rates than other States of India.

Table 1 *Persons self-reporting as ailing in the 15 days preceding the survey as a proportion of all surveyed persons, India, 2014 and 2017-18* in per cent

	All India		EAG States		Non-EAG States	
	2014	2017-18	2014	2017-18	2014	2017-18
Total	9.8	7.5	6.5	5.5	12.9	9.4
Rural and urban areas						
Rural	8.9	6.8	6.1	5.1	12.5	9
Urban	11.8	9.1	8.2	7.1	13.6	10
Economic class						
Rural						
Q1 (lowest)	6.5	4.8	5.7	4.5	9.6	6.3
Q2	7.9	5.4	6.3	4.6	10.3	7.3
Q3	8.3	6.5	6	5.5	10.8	7.9
Q4	10.3	7	6.5	5.1	13.1	8.4
Q5 (highest)	13.6	10.5	7.4	8	16.3	11.3
Total	8.9	6.8	6.1	5.1	12.5	9
Urban						
Q1 (lowest)	8.3	6.5	6.8	6	10	7.3
Q2	11	8.7	7.4	7.2	12.8	9.4
Q3	13	9.3	9.2	6.9	14.2	10.1
Q4	13.4	10.3	9.8	8.7	14.4	10.6
Q5 (highest)	16.1	11	13.5	9.3	16.7	11.3
Total	11.8	9.1	8.2	7.1	13.6	10

Notes: 1. EAG stands for Empowered Action Group or States identified as requiring intensive health intervention.
2. Economic class is based on economic quintiles computed from usual monthly per capita consumer expenditure (UMPCE).
Source: NSSO 71st (2014) and 75th (2017-18) Rounds.

closely related to factors such as education and health awareness as well as ease of access to healthcare and cultural patterns of seeking care. Amartya Sen has an interesting discussion of self-assessed morbidity and ill-health in Kerala on the one hand and Bihar and Uttar Pradesh on the other in Sen (1993). This same trend is seen in inpatient care or hospitalisation as well (see Table 2).

The frequency of hospitalisation in the rural population is lower than among the urban population, and within both of these groups, the poorer quintiles are less likely to be hospitalised than the richer ones.

The proportion of the total population using public healthcare (42 per cent) is less than the proportion using private healthcare (58 per cent) as seen in the 75th Round of NSS (2017–18) (Table 3). But this difference is less than it was four years earlier in the 71st Round of survey (2014). We also note that the population in urban areas uses public providers less, yet even here, in the poorest two quintiles, the dependence on the

Table 2 *Persons per 100 persons treated as inpatients during the 356 days preceding the survey as a proportion of all surveyed persons, India, 2014 and 2017-18* in per cent

	All India		EAG States		Non-EAG States	
	2014	2017-18	2014	2017-18	2014	2017-18
Total	3.7	2.9	2.4	2	4.5	3.6
Rural and urban areas						
Rural	3.4	2.6	2.2	1.9	4.5	3.5
Urban	4.3	3.4	3.1	2.7	4.6	3.7
Economic class						
Rural						
Q1 (lowest)	2.1	1.7	1.7	1.5	2.9	2.9
Q2	2.6	1.8	1.9	1.5	3.4	2.5
Q3	3	2.4	2.3	1.9	3.4	3.2
Q4	4.2	2.9	3.1	2.2	4.6	3.4
Q5 (highest)	6.3	4.1	3.8	3.5	6.9	4.3
Total	3.4	2.6	2.2	1.9	4.5	3.5
Urban						
Q1 (lowest)	3	2.8	2.3	2.1	3.4	3.6
Q2	4.1	3.2	3.2	2.6	4.1	3.5
Q3	5	3.6	3.7	3	5.1	3.8
Q4	4.6	3.6	3.6	3.7	4.5	3.5
Q5 (highest)	5.9	3.8	5	3.5	5.7	3.8
Total	4.3	3.4	3.1	2.7	4.6	3.7

Notes: 1. This excludes hospitalisation for childbirth.
2. EAG stands for Empowered Action Group or States identified as requiring intensive health intervention.
Source: NSSO 71st (2014) and 75th (2017-18) Rounds.

public sector is over 50 per cent. This same pattern persists when we disaggregate the data into EAG and non-EAG States. In non-EAG States, there were publicly funded health insurance (PFHI) programmes that were meant to provide cashless access to private healthcare services for the hospitalisation needs of the poor. We note that the coverage of PFHI is less equitable in rural areas (poorest quintile has 9.9 per cent coverage and richest has 18.4 per cent) than in urban areas (poorest quintile has 7.6 per cent coverage and richest has 5.4 per cent) (Table 6).

This high use of private care facilities – almost 50 per cent in even the poorest quintile – is a matter of great concern because, as Table 4 shows, the out-of-pocket expenditure incurred during private hospitalisation is nearly five times the expenditure incurred during hospitalisation in the public sector.[3]

[3] Out-of-pocket expenditure (OOPE) is the total amount household pays from its savings or after borrowing from others. OOPE was calculated by adding total medical expenditure and transportation cost followed by deducting reimbursements paid to household from insurance companies.

Table 3 *Hospitalised persons in private and public hospitals as a proportion of all hospitalised persons, India, 2014, and 2017-18* in per cent

	All India				
	2014		2017-18		
	Public	Private	Public	Private	Trust/NGO
Total	38.4	61.6	42	55.3	2.7
Rural and urban areas					
Rural	41.9	58.1	45.7	51.9	2.4
Urban	32	68	35.3	61.4	3.3
Economic class					
Rural					
Q1 (lowest)	57.7	42.3	53.5	44.7	1.9
Q2	52.3	47.7	50.5	47.6	1.9
Q3	43.6	56.4	48.6	48.8	2.6
Q4	41	59	43.7	53.9	2.4
Q5 (highest)	27.4	72.6	37.6	59.7	2.8
Total	41.9	58.1	45.7	51.9	2.4
Urban					
Q1 (lowest)	46	54	48.2	48.9	3
Q2	40.2	59.8	43	54.2	2.8
Q3	32.4	67.6	34.1	62.1	3.8
Q4	24.5	75.5	28.3	68.2	3.5
Q5 (highest)	15.9	84.1	15.8	80.6	3.6
Total	32	68	35.3	61.4	3.3

Source: NSSO 71st (2014) and 75th (2017-18) Rounds.

The outcome of such high out-of-pocket expense is, predictably, a high level of catastrophic health expenditure (CHE). Catastrophic health expenditure is defined as the proportion of hospitalised patients reporting an out-of-pocket expenditure over 10 per cent (CHE-10) or over 25 per cent (CHE-25) of annual consumption expenditure. We argue that any CHE is associated with falling below the poverty line, or deepening of poverty. It is a sad commentary on the healthcare system that a single hospitalisation can push persons below the poverty line and it is not surprising that the poor more frequently confront CHE. What is noteworthy is that though public sector healthcare services are far less expensive than private services, the expenditure on public healthcare also constitutes catastrophic expenditure for almost one-fourth of all patients (Table 5).

Furthermore, catastrophic health expenditure continues among the poor after most non-EAG States introduced extensive, publicly-funded health insurance for people below the poverty line and in the unorganised sector. The extent of insurance coverage according to self-reported data is shown in Table 6.

Table 4 *Out of pocket expenditure per hospitalisation episode, India, in 2014 and 2017-18* in Rupees at current prices

	All India				
	2014		2017-18		
	Public	Private	Public	Private	Trust/NGO
Total	6421	24824	4701	29313	23059
Rural and urban areas					
Rural	5936	21793	4628	27070	21617
Urban	7593	29620	4874	32793	24960
Economic class					
Rural					
Q1 (lowest)	5707	17625	4023	22918	13227
Q2	5794	16734	4818	30663	18955
Q3	5650	16641	4344	22875	23411
Q4	4647	19835	3928	24989	24480
Q5 (highest)	8210	28665	5948	31322	22583
Total	5936	21793	4628	27070	21617
Urban					
Q1 (lowest)	4119	19587	4699	26530	13346
Q2	5974	21619	3568	27529	20009
Q3	6898	26164	5208	33872	16526
Q4	14924	34085	5599	34165	16972
Q5 (highest)	12868	41994	7699	40530	66023
Total	7593	29620	4874	32793	24960

Source: NSSO 71st (2014) and 75th (2017-18) Rounds.

This same pattern is also seen with respect to outpatient care. A much larger proportion sought care in the private sector than in the public sector (69.8 per cent versus 30.2 per cent), but this difference is less sharp in rural areas (67.4 per cent versus 32.6 per cent) than that in urban areas. Similarly, the proportion using public services, even in the poorest quintile in rural areas, is only 37.3 per cent, whereas it is 32.6 per cent in the richest quintile (Table 7).

Insurance schemes in India do not cover outpatient care and are far more expensive in the private sector than in the public sector; these costs are a major contributor to impoverishment (Berman, Ahuja, and Bhandari 2010).

The NSS Health Surveys show that consumption of healthcare in rural areas and among the poor is less than in urban areas, but a large proportion among those who consume healthcare services seek private care. To understand why, we turn to a more detailed study of the patterns of the use of healthcare services in Uttar Pradesh. Verma *et al.* (2018) showed that for vast sections of the poor, there is no

Table 5 *CHE-10 and CHE-25 during hospitalisation, India, in 2017-18, India* in per cent

	CHE-10			CHE-25		
	Public	Private	Trust/NGO	Public	Private	Trust/NGO
Total	15.1	58.1	46.6	6.3	29.7	22.9
Rural and urban						
Rural	16.5	62.7	52.6	6.9	33.9	29.6
Urban	11.6	51	38.8	4.7	23.4	14.3
Economic class						
Rural						
Q1 (lowest)	25.9	75	53.9	12.1	47.1	36
Q2	16.6	70.4	47.1	5.9	41.5	25.9
Q3	15.2	62.6	63.2	6.6	32.6	42.3
Q4	13.1	60.2	49.6	5.3	28.9	19.8
Q5 (highest)	13.2	54.9	47.9	5.4	28.3	25.6
Total	16.5	62.7	52.6	6.9	33.9	29.6
Urban						
Q1 (lowest)	16	67.6	48.3	6.8	35.5	14.9
Q2	11.5	53.4	44.8	4	22.9	11.5
Q3	9.8	51.3	33.7	4.3	25	13.2
Q4	7.1	46.2	29.7	2.6	19.2	10.7
Q5 (highest)	7.7	38.7	39	4.2	15.5	22
Total	11.6	51	38.9	4.7	23.4	14.3

Notes: 1. CHE = Catastrophic health expenditure.
CHE 10 = Hospitalised persons who spend more than 10 per cent of annual consumption on hospital expenses as a proportion of all hospitalised persons.
CHE 25 = Hospitalised persons who spend more than 25 per cent of annual consumption on hospital expenses as a proportion of all hospitalised persons.
2. Proportion of households in a population who face catastrophic health expenditure computed using the threshold of 10 per cent of usual annual consumer expenditure.
Source: NSSO 75th (2017-18) Round.

accessible and affordable provider, and treatment for a number of ailments remain unmet needs. Other studies have also confirmed that a considerable part of the healthcare needs of the poor are unmet, especially with reference to chronic illnesses like hypertension, diabetes, and undiagnosed mental health problems (Ranjan 2019).

Compared to urban States with better health performance, decreased access to services in poorer States is largely due to the fact that the density of public health facilities in these States is less than the national average and lower than largely rural, better-performing States. Verma *et al.* (2018) who studied Uttar Pradesh, stated that

> In terms of densities there is only one sub-centre per 9,592 population in the state as against the recommendation of one per 5,000 population, one PHC per 57,154 population as against a norm of one per 30,000 population and one CHC per 2,58,489

Table 6 *Proportion of persons reporting that they are covered by health insurance schemes, India, 2017-18* in per cent

	No coverage	Public funded health insurance	Any insurance coverage
Total	84.5	11.7	15.5
Rural and urban areas			
Rural	85.9	12.9	14.1
Urban	80.9	8.6	19.1
Economic class			
Rural			
Q1 (lowest)	89.9	9.9	10.2
Q2	90.8	8.8	9.2
Q3	86.8	12.5	13.3
Q4	84	15.1	16
Q5 (highest)	78.1	18.4	21.9
All	85.9	12.9	14.1
Urban			
Q1 (lowest)	90.2	7.6	9.8
Q2	85.9	10.7	14.1
Q3	81	11.1	19
Q4	79.8	9.5	20.2
Q5 (highest)	66.9	5.4	33.1
All	80.9	8.9	19.1

Source: NSSO 75th (2017-18) Round.

> against a norm of one per 1,20,000 population. Further, there is a sharp underinvestment in the regular public health workforce. (p. 61)

In addition, the care provided by public services is a select, minimal package of essential services, largely consisting of pregnancy care; family planning; immunisation; and control of tuberculosis (TB), HIV, and vector-borne diseases. All of these account for less than 15 per cent of healthcare needs (Ranjan 2019). For the rest, the population must rely on the private sector.

Implications for Managing Covid-19 in Rural Areas

A nationwide lockdown was imposed on March 23, with the aim of containing the pandemic and, equally important, of ensuring health system preparedness. The economic consequences of the lockdown, particularly on agriculture and agriculture workers and migrant populations, are well known (The Economist 2020).

Less well recognised are the lockdown's adverse impacts on the social determinants of health and on access to essential health services. If the impact of this disease is

Table 7 *Healthcare utilisation pattern during outpatient care, India, 2014 and 2017-18* in per cent

	All India					
	2014		2017-18			
	Public	Private	Public	Private	Trust/NGO	Informal
Total	25.8	74.2	30.2	65.8	1.1	3.03
Rural and urban areas						
Rural	28.5	71.5	32.6	62.2	0.9	4.3
Urban	21.2	78.8	26.2	71.6	1.3	0.9
Economic class						
Rural						
Q1 (lowest)	33.8	66.2	37.3	56.3	0.9	5.5
Q2	32.5	67.5	31.8	64.6	0.7	3
Q3	28.5	71.5	29.7	62.9	1.5	5.9
Q4	24.5	75.5	33.1	60.5	0.5	5.9
Q5 (highest)	26	74	32.4	64.5	0.9	2.2
Total	28.5	71.5	32.6	62.2	0.9	4.3
Urban						
Q1 (lowest)	28.3	71.7	37.6	60.5	0.6	1.4
Q2	25.2	74.8	29.5	67.3	1.3	2
Q3	21.2	78.8	25.6	72.5	1.3	0.6
Q4	18.2	81.8	21	77.7	1	0.4
Q5 (highest)	13.6	86.4	16.6	80.8	2.3	0.4
Total	21.2	78.8	26.2	71.6	1.3	0.9

Source: NSSO 71st (2014) and 75th (2017-18) Rounds.

similar to that of earlier contagious diseases like TB, it will have a greater adverse impact on socio-economically disadvantaged populations. For example, although both infection and case fatality are higher in males, 70 per cent of health and social service staff, globally, are women, putting them at a higher risk of contracting Covid-19. Also, there are other gendered effects that flow from the lockdown, rather than the virus. For instance, domestic violence increased globally during the 2014-16 Ebola and 2015-16 Zika epidemics, and is increasing during the Covid-19 pandemic as well (Linde and Laya 2020). Furthermore, earlier studies have shown that public health systems treat people of the Scheduled Castes and Scheduled Tribes with more apathy, denial, and avoidance than other people in the population (George 2019). We do not as of yet have data on these issues.

Although India's Covid-19 death rates may be lower than elsewhere because of India's younger population, this demographic advantage may be offset by the threat of malnutrition. One recent post-lockdown study by PRADAN conducted in 12

States showed that 50 per cent of rural households are eating less than usual, and 68 per cent have reduced the number of food items from their meals (Hindustan Times 2020b).

A recently published paper modelled the potential impact of Covid-19 response in TB patients in high-burden countries and concluded that

> globally, a 3-month lockdown and a protracted 10-month restoration could lead to an additional 6.3 million cases of TB between 2020 and 2025, and an additional 1.4 million TB deaths during this time. (Stop TB Partnership 2020, p. 6)

This implies a setback of at least five to eight years in the fight against TB because of the Covid-19 pandemic. The paper further states that for each month taken to restore normal TB services in India an additional 40,685 deaths would be incurred between 2020 and 2025 (Stop TB Partnership 2020). Similarly, sharp increases can be predicted for HIV and cancer as well as mental health conditions and all non-communicable diseases. Reports indicate a rise in newborn deaths, maternal deaths, and an increase in fertility rates. Recent National Health Mission data show that post lockdown, there has been a 69 per cent reduction in measles, mumps, and rubella vaccination in children and a 21 per cent reduction in institutional delivery as of March 2020 (Cash and Patel 2020).

Paradoxically, the pandemic has led, in many parts of India, to an unprecedented decline in healthcare services (Chetterje 2020) because of four relatively independent trends. Firstly, the cessation of all public transportation has made it difficult for people to reach a healthcare facility. This is a far greater problem in rural areas where ambulance services are virtually non-existent and public transport is scarce. A second important factor is that a large proportion of private healthcare facilities have closed (Bedi 2020) out of fear of their staff getting infected by patients. A third factor is a planned suspension of public healthcare services by local administrative initiatives to prevent the spread of disease. The fourth is a repurposing of major public healthcare facilities in preparation for Covid-19 patients (The Lancet 2020). At the primary care level, this takes the form of diverting the minimal workforce already available to undertake contact tracing and other Covid-19 related tasks.

The major preparation required is the provision of hospital beds, both for isolation of a large number of mild and moderate cases and for treatment of critically ill patients. Given that gaps are higher in rural areas, needs are more urgent there.

One of the reasons why the government failed to invest in building public hospital capacity was because it considered purchasing healthcare from private providers through insurance mechanisms a better option. The Pradhan Mantri Jan Arogya Yojana (PM-JAY: Prime Minister's People's Health Scheme) was launched on an already existing government-funded health insurance system precisely for this purpose. It claims coverage of over 500 million people, who constitute the poorest 40

per cent of the population. The expectation was that it would help the poor gain access to better quality care in private hospitals (Porecha 2018). But in the current crisis situation, the private-sector response has been abysmal. Even private diagnostic laboratories are testing less than 20 per cent of the total number of people tested as of May 23, 2020, which is highly inadequate considering private sector reach in the market (Ghosh, A. 2020).

The private sector continues to fail to meet the challenges as the pandemic continues, and in fact, many private hospitals have even closed. Though Covid-19 care is now part of the PM-JAY package, the empanelled hospitals that are functional are sending few claims for such hospitalisation. The Covid-19 patients that they admit are uninsured, patients from whom they can extract hospitalisation charges ranging from 3 to 12 lakhs (Sethi 2020). Also, there are instances of private hospitals not following Covid-19 treatment and infection-control protocols, thereby becoming sources of infection themselves (S. Ghosh 2020; Rajagopal 2020).

People and governments have then had to rely on public hospitals. What is required is the rapid building of new hospitals with truly *additional* beds, as has been done in China, Spain, and the United Kingdom. Public hospitals should not be built on the principle of minimum beds required. On the contrary, the Government should plan for an excess (Yelin, Katz, and Banks 2020) of beds and ventilators. This excess, or planned redundancy, is also referred to as surge capacity. If there is an inbuilt surge capacity, then Government can respond whenever a disaster strike. This is not the first time the Indian public health sector has needed ventilators urgently. We must also recall the epidemic of children with encephalitis in Gorakhpur (Sharma 2017) or the food poisoning of school children (by pesticides) in Saharan District, Bihar, in 2013 (BBC 2013). At present, most district hospitals and medical college hospitals outside the main metropolises are not equipped to provide the intensive care required to treat Covid-19.

The other requirement for immediate and long-term preparedness is strengthening government-owned and managed universal primary healthcare. Establishing Health and Wellness Centers (HWCs) under Ayushman Bharat was a good beginning, for it proposed a more comprehensive, better-equipped, and better-staffed model of primary healthcare services in the 150,000 government health sub-centres and primary health centres. Most of these are located in rural India, and upgrading them would have helped achieve the level of preparedness currently needed – not only in responding to the pandemic but also in maintaining other essential healthcare services.

However, this programme of HWCs has only been minimally implemented. One of the barriers to scaling-up is the reluctance to recruit and deploy the necessary levels of human resources for healthcare. The problem with these human resources is *not* the absolute numbers, rather it is a problem with a skewed distribution. There are

districts and States with excess human resources, and other districts where there is not even one doctor per 10,000 population. This problem arises largely because the expansion of all medical, nursing, and technical education after the 1990s has been in the private sector and was market-driven (Sengupta 2013). Unless there are policies that ensure that job seekers from under-serviced areas can gain access to education and recruitment and that medical, nursing, and technical education is oriented to public services, this problem will not go away.

The workforce in health must have regular employment. It is difficult, if not impossible, to provide universal access to quality public services using only contractual or contracted-in employment. If public policy supports a meaningful expansion of public sector employment, it could be an effective way to address burgeoning poverty and unemployment as well as the lack of social security across rural India.

Under the National Rural Health Mission, from 2005 to 2012 there was an increase in public health expenditure towards strengthening public health infrastructure and expanding the health workforce, but even then, the expansion of the total services provided was not enough. This expansion slowed down after 2012 and stopped altogether after 2014, when attention shifted to encouraging purchases from the private sector rather than building public sector capacity (Sundararaman, Mukhopadhyay, and Muraleedharan 2016).

After the lockdown began, the Government of India announced an additional Rs 150 billion (15,000 crore) to strengthen public health services immediately. Though a welcome move, the government should have provided this annual increment in funding over the last four years to reach its own policy targets. In 2016-17, Sundararaman, Mukhopadhyay, and Muraleedharan (2016) commented on the low allocations to health in the Union Budget that:

> The finance ministry is apparently responsive only to the needs of industry and defence, and to economic growth rates. Without sounding alarmist, it would be useful to remind the ministry that chronic and sustained under-financing of public health systems over the last four years has now reached such critical levels that there is a serious threat to the health security of the nation as well as to its economic growth — not only in the long run, but also in the immediate future — not only for the poor but for everyone. (p. 42)

Unfortunately, this prediction of dire times ahead has come true.

The limits of lockdown have clearly been reached and migrants cannot be forced to stay in cities any longer. The pandemic will arrive late in the predominantly rural districts of north, central, and east India, and when it does, rural health systems will be underprepared to meet the challenge. The focus must be on rapid efforts at strengthening health systems in these districts, especially in enhancing public health infrastructure and a regular, well-trained, health workforce. Though this work

should have begun a long time ago, it must at least begin now, without further loss of time.

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