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## REVIEW

# Fragility and challenges of health systems in pandemic: lessons from India's second wave of coronavirus disease 2019 (COVID-19)



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## ABSTRACT

The unprecedented healthcare demand due to sudden outbreak of coronavirus disease 2019 (COVID-19) pandemic has almost collapsed the health care systems especially in the developing world. Given the disastrous outbreak of COVID-19 second wave in India, the health system of country was virtually at the brink of collapse. Therefore, to identify the factors that resulted into breakdown and the challenges, Indian healthcare system faced during the second wave of COVID-19 pandemic, this paper analysed the health system challenges in India and the way forward in accordance with the six building blocks of world health organization (WHO). Applying integrated review approach, we found that the factors such as poor infrastructure, inadequate financing, lack of transparency and poor healthcare management resulted into the overstretching of healthcare system in India. Although health system in India faced these challenges from the very beginning, but early lessons from first wave should have been capitalized to avert the much deeper crisis in the second wave of the pandemic. To sum-up given the likely future challenges of pandemic, while healthcare should be prioritized with adequate financing, strong capacity-building measures and integration of public and private sectors in India. Likewise fiscal stimulus, risk assessment, data availability and building of human resources chain are other key factors to be strengthened for mitigating the future healthcare crisis in country.

## 1. Introduction

Health is now a central issue to human development. Much has been emphasized over the past few decades to strengthen and enhance health care system of countries round the globe. From Millennium Development Goals to Sustainable Development Goals, strong health system has been a top priority for practitioners and policymakers, considering health as a fundamental right. Strong health system is also key to reducing the other socioeconomic challenges, including poverty, illiteracy, gender bias, and ill-conceived social norms.<sup>1</sup> Whereas poor health systems and their impaired functioning are a crucial challenge to development. Since they imply severe consequences upon the better standard of life and material well-being.<sup>2</sup>

Despite the growing importance of strong health care systems, population health has been a challenge to be maintained across the globe. This challenge has been manifold particularly in the developing world, where the fragile health care systems encompassed by financial constraints possess a severe threat.<sup>3-4</sup> These problems are further aggregated through likely imbalance between demand and supply-side factors, which adds to their adversity and vulnerability during any humanitarian crisis.<sup>5-6</sup> Numerous other challenges have also emerged in the recent decade through increase in health care expenditure, age struc-

tural transition and increasing demand for provision of health services to elderly.<sup>7</sup> Similarly, inequality and provision of services to vulnerable groups has also been a challenge resulting in the liability of the health care system to meet the demands of population in developing world.<sup>8</sup> This has been acutely experienced during the ongoing crisis of coronavirus disease 2019 (COVID-19), reflecting the susceptibility of healthcare systems of countries across the globe. Countries due to pandemic have not only been vulnerable to address the uneven demand, but have also failed to capitalize on the lessons from first wave, which resulted into failure of tackling the crisis in the second wave of pandemic. Therefore to understand these challenges in healthcare system and its adversities, this study will make a comprehensive attempt to study the factors that resulted into vulnerability of healthcare systems due to pandemic outburst. Banking on the health system crisis in India during the second wave, this paper will mainly make the theoretical connotation from Indian perspective owing to the deadliest second wave in the country. The remaining paper will be structured as following. The paper will first study the building blocks of World Health Organization (WHO) and other health systems frameworks to set the context, followed by methodology. The paper will then study the results based on India's second wave of COVID-19 followed by key discussion and conclusion.

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### 1.1. Health system frameworks

A robust, effective and efficient health system is key to address the uneven shocks that may impact its functioning and addressing the health needs of population. Despite being the key focus of policy makers, countries have hardly managed to address this important challenge as compared to other policies of national interest.<sup>9</sup> But the ongoing pandemic of COVID-19 shaped a new set of priorities with health being the foremost.<sup>10</sup> Although this problem has been universal given the unprecedented demand reflecting the vulnerability of health care systems across the globe, but developing countries were at greater risk due to their poor health care systems.<sup>11</sup>

Despite vigorous advocacy to prepare the health care's systems for adverse by WHO, health systems have been still poor and vulnerable to uneven calamities across the world.<sup>12</sup> There have been already multiple frameworks set forth by WHO and various other policy makers to improve the healthcare systems, which can sufficiently balance the needs and meet the expected health care demands of populations.<sup>13-15</sup> One such building block emphasis for improving individual health to strengthen healthcare service provisions apart from financial security, equitable access and free and fair participation.<sup>16</sup> Similarly, there is also a strong emphasis on resource utilization and leadership skills to efficiently use resources and provide a balanced response to the challenges resulting in overstretching of healthcare functioning due to natural and man-made crises.<sup>17-18</sup>

WHO's six building blocks for an effective and balanced health-care system emphasize on robust leadership and governance structure, resilient health information system, adequate health financing, service delivery, healthy workforce, and availability and affordability of medicines and medical technology.<sup>12</sup> These six building blocks signify the importance of sound health care system and ensure its well-functioning and efficient service provision to meet the health needs of people across the globe.<sup>19</sup> Similarly, another set of building blocks is framed to lower the burden and efficiently address the uneven shocks. This set of building blocks involve; preparedness, response, recovery, rehabilitation and mitigation.<sup>20</sup> These blocks are meant to make the health system resilient and avert the health care crisis during uneven health emergencies.

Health systems worldwide are always vulnerable to adversities as reflected through the recent pandemic.<sup>14</sup> However, health systems are at greater risk in developing countries given the financial constraints, lack of infrastructure, institutional capacity, human resources, and community participation.<sup>21</sup> There is also the challenge of transparency and accountability, which makes them more exposed.<sup>22</sup> Another likely factor is the weak health information system, making health systems more susceptible to avert any crisis.<sup>23</sup> The Indian health system has been long facing these challenges. Despite the attempts to overhaul it over the years, significant disparities still exist in its health care system, including embedded inequality, availability of services and health information.<sup>24</sup> Challenges like transparency and accountability are also an issue which was well reflected through the recent crisis.<sup>25</sup> Therefore, keeping in view the above building blocks and the existing frameworks, we will attempt to examine the possible factors that result in over stretching of health care systems in Indian context. Which recently witnessed the largest ever health crisis due to second wave of COVID-19 pandemic in country.

## 2. Data and methodology

The study was based on secondary sources of data. Various research databases were used to search the literature, including the reports published by the government related to COVID-19. An integrative review approach was adopted to assess the health care system and its response to the pandemic outbreak in India. This approach mainly aims for a new theoretical framework and perspectives to emerge.<sup>26</sup> One of the reasons to adopt the integrative approach in this study was that it pro-

vides a way-out to study the mature or emerging topics.<sup>27</sup> Furthermore, this is the only approach that can be used for a combination of diverse methodologies given the current scenario of the problem.<sup>28</sup> Therefore, to critically review the above problem, we applied this approach to understand the above challenges,<sup>29</sup> and provide a way forward.

Various articles were searched from databases such as Scopus, Web of science, Google scholar and other search engines to extract the information related to the health care system in India. The keywords used were, Indian health care system, health policy, COVID-19 second wave, lockdown etc. to obtain the relevant information related to the health care crisis in India owing to the deadly second wave. Similarly, we also used several other sources, including health policy reports, reliable newspaper articles, and other secondary sources of data to provide an integrated understanding of the health care system in India and its challenges. Moreover, the search was not only specific to India, but various other health care systems and policy papers were studied in detail to provide a way forward that can minimize further risk and strengthen the functioning of the health care system in Indian.

## 3. Health care system in India

A sound healthcare system is essential for coping with pandemics and promoting welfare in a country.<sup>30</sup> A good healthcare system not only allows countries to buy time to avert the challenges from any uneven calamity, but it also plays a significant role in preventing human losses.<sup>31</sup> Furthermore a good healthcare system promotes various positive externalities apart from lowering the diseases risk and health burden.<sup>2</sup> More significantly a robust healthcare system lowers the risk for frontline workers who are at greater risk of any vulnerability due to pandemic outbursts.<sup>32</sup>

Despite being the world's second largest populous country, the Indian healthcare system is one of the poorest. Although the recent decades have witnessed a proportionate growth through implantation of various reforms and healthcare policies in India. But the healthcare system in country faces challenges of fundamental features of access, affordability, competency and accountability.<sup>33-35</sup> Indian health care system is mainly comprised of public and private health care. Public health care is limited mainly to secondary and tertiary sectors providing primary health care facilities. Whereas private sector providing a majority of secondary and quaternary care institutions is concentrated mainly in urban settings.<sup>36-37</sup> Health being a state subject in India has given a primary authority for states to administrate the health system. Therefore due to this also vast disparities exist between states and within the states at rural-urban levels.<sup>38</sup> Lack of access, coverage and provision has made the Indian health system increasingly challenging, with greater dependence on private health care system resulting into inaccessibility to the poor and marginalized population.

India is thus facing the unprecedented demand of healthcare services both due to inadequate health financing and public provisioning of healthcare services to cater its huge population. Therefore given the unmatched demand due to COVID-19 outbreak, Indian health system faced the largest crisis ever since its emergence. Health system in India was on a brink of collapse with millions of countrymen facing the cord of crisis.

## 4. COVID-19 outbreak and its second wave in India

COVID-19, since its origin, has almost reached the very corner of this globe. Although second wave emerged more lethal, the first wave of COVID-19 was also disastrous but thought-provoking for many countries, who were less likely affected by this humanitarian crisis.<sup>39</sup> India in the first wave was not among the countries that were severely impacted by this virus owing to many key steps, including lockdown and social distancing norms.<sup>40-41</sup> Although the first wave implied the catastrophic impact on livelihood and economic well-being, it was a very low scale in nature from a healthcare perspective.<sup>42</sup> This likely provided an

opportunity for India to prepare for the second wave. However, missed opportunities from the first wave resulted into a deadly second wave in country.<sup>43</sup> The second wave, which started in late March and lasted to May of 2021, resulted in a devastating impact on the country's health system, ensuing in a healthcare emergency.<sup>44</sup> On May 1, 2021, India crossed 400 000 COVID-19 cases in a single day, which was the highest ever since the pandemic began in country.<sup>45</sup> This led to a healthcare emergency in the country, with the health system almost failing to meet the daily demands.<sup>46</sup> There was not only shortage of oxygen beds and other medical facilities, but frontline workers and crematoriums also faced the huge crisis.<sup>47</sup> Many hospitals turned away patients due to the shortages of both medical staff, oxygen supply and intensive care units (ICU) facilities.<sup>48</sup> Although the official data reported lower proportion of deaths, the death scale was such that various crematoriums across the country ran out of space.<sup>49-51</sup> Thus the second wave heightened the challenges of the COVID-19 outbreak in India and made the health system overburdened to cope with the unprecedented demand.<sup>52</sup> It completely exposed the vulnerabilities of the Indian health care system, which lacked potential given the minimal spending proportion, hospital beds, ICU facilities, health care workers and efficient health care management system.<sup>53</sup> It also exposed the governmental response, which failed to capitalize fully on the initial lessons learnt from the first wave.

## 5. Discussion

The COVID-19 outbreak has unsettled the health care systems of countries throughout the globe. The pandemic exposed the fragile healthcare systems across countries open to poor spending and lack of effective service delivery.<sup>54</sup> Although the pandemic impact has been universal across countries, but the developing countries suffered a systematic breakdown due to their poor health care system. India was among one of such countries, which suffered the most in the second wave of COVID-19. This can be attributed to multiple factors ranging from low financing to insufficient manpower and poor management. Despite being the world's second-largest country, the Indian health system has been one of the most fragile and poor globally.<sup>55</sup> With just 1.4% of government health expenditure, India's health care spending is lowest among the group of countries with similar levels of per capita income.<sup>56</sup> India's total healthcare spending (private and public) is just 4.2% of its gross domestic production (GDP), lowest in Brazil, Russia, India, China and South Africa income group and many neighbouring countries.<sup>57</sup> The other key factors include poor healthcare infrastructure, greater inequality, inefficiency and lack of human resources.<sup>24</sup>

Increasing health expenses and lack of social security has resulted to millions into poverty and risk for diseases and death.<sup>58</sup> Lack of spending in healthcare has made India vulnerable to both human resources and health care infrastructure, which is crucial to avert any calamity.<sup>59</sup> The Health system in India lacks responsiveness and capacity to deliver good health care services given the multiple policies and management constraints such as funding shortages, unavailability of staff, weak referral system and poor logistics.<sup>60</sup> Another critical challenge is the availability and accessibility of public health care services to rural populations, making it increasingly reliable on private health care spending.

India's per capita public expenditure on health is dismal, questioning its growth and welfare-oriented approach.<sup>61</sup> It, therefore faces the challenge of five A's (awareness, access, absence, affordability and accountability) as indicated by the earlier research.<sup>24</sup> According to Global Health Security Index, India ranks 66 among the group of 195 countries. The average score of health system to treat the sick and protect health workers is 42.8, reflecting the severe weakness in abilities and response to health emergencies. Furthermore, vulnerabilities to socioeconomic and political risks have also confounded India's outbreak preparedness and response,<sup>62</sup> thus making it more fragile and susceptible.

### 5.1. Overstraining of health care system in India

Given the intensity of the COVID-19 outbreak, health systems were on the brink of collapse across the globe. The second wave of COVID-19 pushed the health systems into limits as the medical supplies such as essential drugs, medical oxygen and ICU beds were soaring into acute shortages.<sup>63</sup> Indian health system also faced the similar challenges and was on the verge of collapse, given the unprecedented rise in confirmed cases and COVID-19 related deaths in country.<sup>52</sup> Some of the key reasons that overburdened the Indian health system and put it on the brink of collapse were identified as following.

#### 5.1.1. Healthcare infrastructure

Lack of health infrastructure is one of the main reasons that has led into the current breakdown of health system across the globe.<sup>64</sup> Poor health infrastructure across states and poor logistics, despite having surplus oxygen capacity resulted into acute shortages in India.<sup>47-65</sup> Many states failed to procure the oxygen supply for medical use given the low level of available equipment and poor logistics to transfer it from one place to another. Whereas lack of human resources and other healthcare equipment's also significantly hampered the efforts of mitigating this pandemic crisis in India.

#### 5.1.2. Service delivery

Service delivery is key to the effective implementation of healthcare services in any country.<sup>66</sup> Effective service delivery ensures access, quality, safety and continuity of all health care services irrespective of the prevailing health conditions.<sup>67</sup> But the existing health system in India lacks the efficient healthcare service delivery approach.<sup>68</sup> Due to large scale disparities at both rural and urban level, service delivery has already emerged as a challenge in Indian settings and the pandemic further exposed it to mobilize the resources and deliver the service in a short span for meeting the increasing demand.

#### 5.1.3. Health financing

Ability to pay becomes an important determinant for use of healthcare services. Given the profound increase in health spending inflation, access and affordability of health care services has been a challenge to majority of Indians.<sup>25</sup> Moreover financial barriers affect coverage of healthcare services and emerge as challenge especially during catastrophic expenditure.<sup>69</sup> Lack of financial resources also results as a prolonged barrier to access the health services and capacity to seek care, which later becomes a critical factor in testing and vaccinating the masses.<sup>70</sup> Therefore these factors combined together increase the burden for health care costs and result in collapsing of health systems during the crisis.

#### 5.1.4. Transparency

Indian health care system has failed to collect, disseminate and utilize the available information from the first wave.<sup>71</sup> Given the role healthcare data can play in averting the challenges and strengthening the health care needs, Indian health care system has been disproportionately lacking the transparency approach and hence failed to predict the current crisis, particularly in terms of weighing the healthcare needs due to sudden outbreak.<sup>43</sup> Otherwise given the scope of transparency in health systems to offer a constructive criticism and rectification plays a significant role in better functioning of healthcare system. But if this role is minimized in a health system. It has a chance to fall pray into breakdown as experienced by Indian healthcare system during the second wave of the COVID-19 pandemic.<sup>35</sup>

#### 5.1.5. Healthcare management

Another significant factor has been the policy response to manage the current crisis. Government failed to safeguard the early measures in the first wave that may have ensured the expansion of health care

services during the initial wave of pandemic.<sup>72</sup> While an adequate focus was given on vaccine generation, when the dismal state of its health care infrastructure should have been given the primary focus. Health infrastructure should have been strengthened to avert the possible collapse or mitigate the crisis during the second wave to make the health system of the country more resilient.

#### 5.1.6. Data fallacy

Information is key to both policy making and measures taken to tackle the crisis.<sup>49</sup> While a lack of accurate numbers can be disastrous, asymmetric information flow and poor coordination among communication networks is a challenge during emergencies. They likely hinder the policy response and make the healthcare system vulnerable and incompetent to address the severity of the problem.<sup>73</sup> Although data accuracy has been a critical challenge in India in the recent years.<sup>74</sup> But the pandemic outbreak has made it more complicated only with lot of misinformation and reporting of accurate number on testing, new cases and deaths in India.<sup>75</sup>

#### 5.2. Future challenges

COVID-19 has implied a heavy burden on the health care sector across the globe.<sup>76</sup> It has inferred a more significant pressure on health care management and its response to the pandemic crisis. Indian health system experienced the worst crisis since its emergence due to the second wave of COVID-19.<sup>77</sup> The daily cases of COVID-19 were increasing exponentially with number of deaths taking a significant toll. The crisis wholly exposed the fragility of the Indian health care system and resulted in many additional vulnerabilities.<sup>78</sup> Therefore some of the significant challenges faced by the healthcare system in India are identified below, which requires intense policy interventions given the risk of current breakdown and the future possibility of public health emergency in the upcoming possible waves.<sup>79</sup>

Health is a state subject that lacks a central focus, thus results in sharp disparities across the states regarding health care and health outcomes.<sup>80</sup> Lack of coordinated approach results in the dismal performance of the provision of health care services in India.<sup>81</sup> When the country hits any such emergencies, it becomes difficult to transfer the resources and procure them. Wave-2 of COVID-19 outbreak experienced the similar crisis in India, where many states failed to procure the medical and oxygen supplies despite being available. On the other hand, surplus states were two hesitant to make them available for deficit states given the scale of their own challenge and poor management.

The health care system is engulfed by multiple challenges ranging from minimal finance to inadequate policy intervention.<sup>77</sup> Indian health system faces not only the challenges of low public expenditure and inadequate human resource, but also inadequate public health education among the masses.<sup>82</sup> Therefore rather than performance Indian health system lacks structural constraints given the dismal proportion of health spending, availability of doctors, hospital beds, ICU facilities, health care workers and the coordinated health care management system.<sup>29</sup>

India's low investment in the health sector is another challenge that has long been overdue to be addressed.<sup>83</sup> Despite the rise in health care costs unadjusted by inflation, health services provision has been facing unprecedented challenge for poor to access and afford. India spends only 1.4% of its GDP on health, despite being the fastest growing economy and second largest population. Moreover, it is having also highest demand for healthcare services given its large population in the subcontinent.<sup>84</sup>

Another challenge of the health care system in India is its small manpower to meet the increasing demand. Although India does not perform poor on doctor capacity given the ratio of 86 doctors per 10 000 population. However, lack of health infrastructure and human resource in health system has resulted into its dismal state.<sup>85</sup> Given the unprecedented demand, the existing health care infrastructure failed to address

this issue and hence needs a strong investment push to adhere this health care challenge.<sup>86</sup>

Pandemic preparedness and diseases surveillance are essential to avert the crisis and address the most vulnerable population groups in terms of healthcare crisis.<sup>87</sup> Therefore addressing this challenge is also pivotal to save both lives and economic burden. Lastly there is a challenge of data accuracy and transparency in the system. Due to the current crisis, available statistics are becoming increasingly difficult to be reliable, making it difficult for policymakers to assess the situation and develop an adequate policy response.

#### 5.3. Lessons for India

Health should be prioritized in concurrent list, given the wider interstate disparities across states from income and population perspective. Health as state subject has deeply affected the timely intervention and effectiveness of healthcare provisions in India, which has largely resulted into a dismal state of healthcare services as witnessed in the current crisis.

A coordinated approach must be adopted at the central level to enhance the healthcare system capacity and health financing in India.

Though private health sector in India is playing a significant role but since the large chunk of populations fails to afford even the basic health care services. The current emergencies can risk its more, therefore efforts to ensure solid partnerships during the pandemics should be institutionalized, keeping in mind the cost sensitivity of consumers.

Capacity building measures both in terms of human resources enhancement and infrastructural capability must be financed with long term goals so that mitigation strategies can be adopted at mass scale, like testing, tracing and isolating the affected persons during the COVID pandemic.

One of the key challenges in India is to address the socioeconomic inequality. Polarization over the past decade has deeply infected the Indian society making poor and marginalized groups more vulnerable to health care services. Therefore, equity and inclusion approaches are must to address the marginalized groups who have not only limited access to public health services but are also more risk prone to COVID-19 risk given their poor socioeconomic and living conditions.

Fiscal stimulus to increase the health care spending, including tax holidays and subsidized loans to enhance the medical devices, vaccines and health care infrastructure.

Knowing the risks, however, is not enough political will is important to protect the population from pandemic consequences. Although India does not face the crisis of political stability, but political arrogance is what has made India vulnerable to many crises in the recent past. Political leadership has hardly accepted the severity of COVID-19 crisis and celebrated too early the success of overcoming the pandemic. Therefore, acceptability along with inclusivism of various other groups is must to overcome the challenges of fragile health system in India.

## 6. Conclusion

Despite the fragile health systems, countries have failed to strengthen their healthcare needs through financing and infrastructure building. However, the COVID-19 outbreak is giving us an ample opportunity to reform our already brittle health systems. Given the present crisis and possible challenges of the upcoming waves in India. It is pertinent to initiate the necessary measures to avert the possible breakdown of health system in country. This is not the last pandemic India will face, given its huge demand for healthcare needs and vast population. So strong measures are required to enhance its healthcare system and make it more resilient. Furthermore, battling the pandemic with mass scale repercussions needs an organized strategy and an effective health care system, thus the preventive and promotive health care orientation is required to avert the crisis and overcome the challenges of upcoming possible waves in country.



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## Consent for publication

Author provides consent for the final accepted version of the manuscript to be considered for publication in *Global Health Journal*.

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The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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