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Reinvigorating the Health System in India

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Background

Meeting the health care needs of the people is critically dependent upon the quality, equity, and the efficiency of the health system. In this context, the weaknesses of India's health system are well-known. These weaknesses have persisted over time despite efforts to remedy them. These weaknesses have been amply exposed during the current COVID-19 pandemic when the health system of the country was found grossly wanting to deliver services that were critical to both checking the transmission of the Novel Coronavirus that causes the COVID-19 disease and preventing premature deaths among those who got infected from the virus. Estimates prepared by the United Nations Population Division suggest that during the period of COVID-19 pandemic in India (2020-2021), the life expectancy at birth decreased by around 3.7 years (United Nations, 2022). This drop in the life expectance at birth is amongst the highest in the world (Chaurasia, 2023). It is also estimated that there were around 4.3 million excess deaths in the country during this period (Chaurasia, 2023).

Concerns about the poor response of the health system in India to the health care needs of Indian people are not new. It has been repeatedly argued that expanding and strengthening the health system is the only way out to meet health care needs of the people and to achieve a degree of preparedness necessary to safeguard people from emerging and re-emerging diseases. The experience with COVID-19 pandemic has emphasised that the health system must always be at a constant state of 'battle readiness' to effectively combat and thwart threats to the health of the people that cannot be predicted in advance. One of the factors that have been found to be responsible for the extremely poor response of the health system in meeting the health care needs of the people in general and thwarting the challenge of the COVID-19 pandemic in particular has been the grossly inadequate public health infrastructure. The onus has, therefore, been put on the government to increase the investment in health as the current investment, by all accounts, remains abysmally low. The public health infrastructure is the foundation of the health system and, therefore, critical for the 'battle readiness' of the health system. It is the most critical element that determines the efficiency and effectiveness of the health system in meeting the routine health care needs of the people and in dealing with public health emergencies such as the COVID-19 pandemic. There are at least two key aspects of meeting the health care needs of the people. The first, and the primary one is preventing diseases and avoiding premature deaths. The second, on the other hand, is the treatment and cure of individuals who are suffering from specific diseases and ailments. It is the prevention of diseases and premature deaths that has a preponderance over the treatment and cure of diseases and ailments as regards population health.

The Government of India has recently launched the Ayushman Bharat Health Infrastructure Mission to augment the public health infrastructure in the country (Government of India, 2021). The Mission is directed towards improving the response of the health system to the health care needs of the people and to boost the 'battle readiness' of the system to effectively mitigate the challenge of health emergencies such as COVID-19 pandemic. The Mission, essentially, aims at establishing 150 thousand Health and Wellness Centres in the rural areas of selected states and in the urban areas throughout the country out of which 79 thousand are claimed to be already functioning. The Mission also aims to establish Public Health Units at the block level and Integrated Public Health Laboratories in all districts of the country. Another objective of the Mission is to establish critical care hospital blocks in all districts with a population of at least 500 thousand. The total outlay of the Mission is pegged at Rs 64000 crores which actually translates to less than Rs 500 per person at current prices. The Mission, however, lacks a vision for the health system of the country in the context of quality, equity and efficiency of the health system that is critical to improving the response of the health system to not only the routine health care needs of the people but also to the challenge of health emergencies like COVID-19 epidemic. Public health infrastructure is only one of the many dimensions of the health system that determine health system response to health care needs of the people. It would have been in the fitness of things if the Mission would have been based on a vision of the health system directed towards improving the health system response to both visible and unforeseen health related concerns facing the people. The Mission falls short of such an expectation.

This paper argues that improving the response of the health system to meet the health care needs of the people and to make the system 'battle ready' to address health emergencies like COVID-19 pandemic requires a comprehensive reinvigoration of the existing health system and not just additional investments in the existing public health infrastructure as is being targeted through the Ayushman Bharat Health Infrastructure Mission. There is a need to develop a business model for strengthening the health system in the context of the health system response to the health care needs of the people and in terms of the battle readiness of the system to deal with health emergencies effectively and efficiently. It is in this context that this paper presents an overview of the existing health system in India, outlines a conceptualisation or a business model that may serve as the basis for reinvigorating the health system and suggests a framework for strengthening and expanding the health system of the country.

Health System in India

The health system in India can broadly be classified into four categories as regards the delivery of health care services: 1) public health system in the rural areas; 2) private health system in the rural areas; 3) public health system in the urban areas; and 4) private health system in the urban areas. This distinction is important as the health care services delivered by the four categories of the health system are essentially different. Salient features of the four categories of the health system are

summarised in table 1. It is clear from the table that all the four categories of the health system country do not comprehensively respond to the health care needs of the people and they are not 'battle ready' to address health emergencies like COVID-19 epidemic at their own as critical elements necessary to effectively respond to health emergencies are missing in each category of the health system. Obviously, reinvigorating the health system is the first step towards strengthening the health system, especially in the context of its battle readiness to address health emergencies.

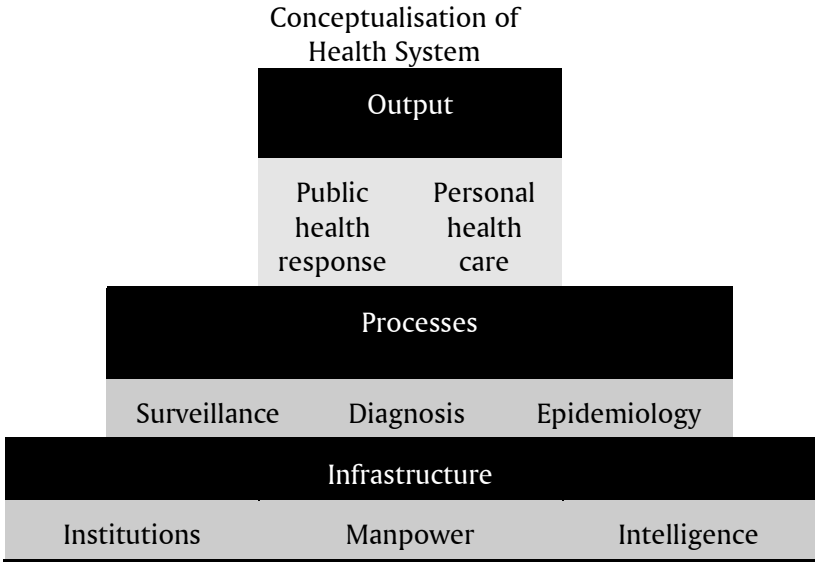
Table 1: Salient features of four categories of the health system in India.

	Rural	Urban
Public	• Comprises of primary health care institution organised in hierarchical manner. • Covers the entire rural population, at least, theoretically. • Follows an extension approach for the delivery of health care services. • Primarily focuses upon the promotive and preventive aspects of health care.	• Largely confined to secondary and tertiary level health care only. • Does not cover the entire urban population for the delivery of health care. • Follows institution-based approach for the delivery of health care services. • Primarily focuses on the delivery of hospital-based treatment of diseases and ailments.
Private	• Largely confined to dispensing services. • Largely unorganised and unregulated. • Provides largely clinic-based care only. • Extremely limited coverage.	• Delivers services ranging from clinic-based care to highly specialised health care services. • Very limited delivery of primary health care services. • Provides institution-based health care only. • Weak regulatory mechanism.

Conceptualising Health System

The health system can be conceptualised in different ways. In this paper, we argue that the health system may be conceptualised as a business model in which infrastructure is purposely created facilities are intentionally provided to put certain processes in motion that lead to perceived or expected output. This conceptualisation or business model of the health system may be conceived as a three-layered pyramid. The first or the bottom layer of the pyramid comprises of the infrastructure necessary for setting the business processes in motion. The second or the middle layer of the pyramid comprises of essential health care processes

necessary to produce the desired or the expected output. Finally, the third or the top layer of the pyramid is related to the appropriateness of the output of the processes put in motion. This conceptualisation or the business model implies that the output of the health system is contingent upon both health infrastructure and facilities in place health care processes in operation. If health infrastructure and facilities are inadequate or inappropriate then health care processes may not be efficient in terms of the appropriate outputs and, therefore, may not be capable of generating the response that is necessary to meet the health care needs of the people including health emergencies.



The infrastructure layer of the business model of the health system may further be conceptualised in terms of institutions, manpower, and intelligence. Similarly, the processes layer can be conceptualised in terms of surveillance, diagnosis, and epidemiology. Finally, the output layer of the business model can be conceptualised in terms of public health response and individual treatment and care. This business model argues that a certain threshold of infrastructure and processes is necessary for produce the output that is adequate and appropriate to meet the health care needs of the people. Deficiencies in either infrastructure or processes or both have a ripple effect throughout the health system and affect the system output. This conceptualisation perceives the health system as a closely inter-linked multi-layered and multi-dimensional entity. A brief overview of different layers of the health system may be illustrative to make an idea of the current state of the health system in the country.

Infrastructure

Institutions. India has both public and private institutions to meet the health care needs of the people. However, growth and expansion of health institutions in India has rarely followed a planned approach. There is very high rural-urban

inequality in the availability of health institutions. Health institutions in the rural areas are predominantly public health institutions established following population-based norms with little consideration to disease burden. The population-based norms in the urban areas are grossly inadequate. On the other hand, establishment of private health institutions is purely arbitrary and there is very heavy concentration of these institutions in large metropolitan cities and towns. A unique feature of public health system in the rural areas is that it covers entire rural population in a hierarchical manner. This is not the case in the urban areas. One limitation of private health institutions in the urban areas is that these institutions, largely, deliver curative services at the cost of promotive and preventive dimensions of health care.

Manpower. Availability of manpower in public health institutions is guided by Indian Public Health Standards laid down by the Government. There is, however, little evidence about the extent up to which these standards are met in different categories of public health institutions. The population-based availability of manpower, especially, doctors and nurses, is estimated on the basis of the number of doctors registered under the Medical Council of India and the number of nurses registered under the Nursing Council of India. On the other hand, there is little idea about the health manpower norms for private health care institutions. These institutions are also supposed to follow the Indian Public Health Standards. There is, however, little information about the proportion of private health care institutions that have achieved Indian Public Health Standards.

WHO recommends that there should be one doctor for every 1000 population and three nurses for every doctor (WHO, ___). This means that there should be 300 nurses for every 100 doctors. There is, however, little information about the nurse-doctor ratio in health institutions of the country either public or private. Similarly, there has never been any attempt to estimate the demand of other categories of health manpower. Health manpower planning in India remains a grossly neglected area in India. Creating more health institutions carries little meaning unless these are not fully and adequately staffed. Health manpower development is a time-consuming process. It is possible to establish additional health institutions within a short notice, but it is not possible to staff them through properly trained and adequately skilled manpower. In the recent past, the government has allowed establishing new medical colleges and nursing institutions in the private sector. The government has also decided as a policy to establish a medical college in every district of the country. It is expected that establishing additional medical colleges and nursing institutions would result in increased availability of health manpower. However, the evidence is that the paucity of health manpower in health institutions remains a major challenge. At the same time, there is very little knowledge about the adequacy of health manpower in private health care institutions.

Intelligence. The weakest component of the health infrastructure in India is the intelligence component. Intelligence is needed to provide evidence for planning and programming, monitoring, and evaluating the impact of the health system. Health intelligence also serves the foundation for developing an early warning system that may be crucial in controlling the spread of epidemic and responding to other health emergencies. The ‘battle readiness’ of the health care system depends, very

crucially, upon the availability of specific, meaningful, accurate, reliable, and timely, or SMART, information so as to facilitate appropriate action at appropriate time. Health intelligence contributes to evidence-based decision-making. It also helps in improving the quality, equity, and efficiency of health care services. Although India has a Central Health Intelligence Bureau, by name, at the national level with field survey units at the state level, yet the role of the Bureau in providing intelligence for decision-making is limited to compilation of selected data from different sources with little triangulation of different types of data. The existence health intelligence system in the country is grossly inadequate to monitor population health, to identify gaps and disparities in population health and to monitor and evaluate the performance of different health care interventions and programmes. Health intelligence requires combining data from different sources into a meaningful whole and transforming data into evidence and knowledge for decision-making.

Processes

The second layer of the health system comprises of processes that need to be put in motion to generate the response to the health care needs of the people. Health infrastructure, although necessary, is not sufficient to produce appropriate health system response to health care needs of the people in the absence of necessary health care processes.

Surveillance. Health surveillance may be defined as the continuous but systematic collection, analysis, and interpretation of health-related data and timely dissemination of these data for appropriate response of the health system to the health care needs of the people. Health surveillance may be perceived as a tool for identifying the need for health-related interventions well in time and for measuring the effect of these interventions in terms of the system response. Surveillance is critical for appropriate and timely response of the health system to the health care needs of the people.

Health surveillance may be classified further into passive surveillance and active surveillance. Active surveillance is conceived as an initiative of the health system to regularly reach out to the people to collect information related to their health conditions. Active surveillance provides the most accurate and timely information that is critical for controlling the spread of epidemics and for preventing premature deaths. Passive surveillance, on the other hand, is based on people accessing health institutions to inform about their health conditions and health needs. The appropriateness, quality, and timeliness of the information from passive surveillance, however, remains doubtful as it is driven by the people and not by the health system. Experience suggests that passive surveillance contributes little to controlling epidemics and to preventing premature deaths. An active health surveillance system is necessary for appropriate health system response to health care needs of the people. In India, an active health surveillance system does not exist in its totality. The Government of India has launched an Integrated Disease Surveillance Project, but the project relies primarily on passive surveillance.

Diagnosis. Diagnosis includes testing. In combination with an active health surveillance system, diagnosis constitutes the first but the most critical line of defence to safeguard people from infections, diseases, and premature deaths. The weakness of the health system in India in this context has amply been highlighted during the COVID-19 pandemic. It is imperative that every health institution must have a testing and diagnosis facility as an integral component. The current scenario, however, leaves much room in this context. At the national level, it has been decided to establish a public health laboratory in every district of the country, but the progress is painstakingly slow. Out of more than 700 districts of the country, a public health laboratory could be approved in only 250 districts as of March 2017 and very little is known about how many of these are functional. There has been vast expansion of testing and diagnosis facilities in the private sector, but this expansion has virtually been confined to large metropolitan towns and cities only. In the vast rural tracts of the country, there are bare minimum testing and diagnosis facilities which hinder the appropriate health system response to the health care needs of the people.

Epidemiology. The third indispensable process to meet the health care needs of the people is the capacity of the system to objectively investigate the disease process including unforeseen emergence of a disease or any other health emergency or epidemiology. Epidemiology is the process of identifying the causes of health outcomes and diseases in the population. Epidemiology treats patients as community and individuals are viewed collectively. Epidemiology is defined as the scientific, systematic, and data-driven study of the frequency and pattern (distribution) and causes and risk factors (determinants) of health-related states and events (including diseases) in the population and the application of this knowledge to the control of health problems (Centers for Disease Control and Prevention, 2012). Epidemiology provides the much-needed data-driven or empirical evidence for planning and programming health care services to meet the health needs of the people. The planning and programming for health care services is directed towards putting in place the necessary infrastructure and setting in motion necessary health processes to achieve the desired output in terms of both public health response and individual treatment and care.

Epidemiological activities in India have virtually been limited to the investigation of outbreaks of diseases, especially, communicable diseases. Ideally, epidemiological services must be able to investigate and diagnose health related problems and hazards being faced by the people that can serve as the basis for planning and programming of health care services to achieve the desired level of output. This means that epidemiological services must be proactive in nature rather than reactive in scope as is the case at present. It is imperative that epidemiological services must regularly provide the information about the health-related problems and hazards being faced by the people so that this information can constitute the basis for planning and programming health care services delivery to meet the health needs of the people. Since health-related problems and health hazards facing people are dynamic in nature, the task of investigating and diagnosing health-related problems and hazards facing people must be a regular activity of the health system.

It may also be emphasised that epidemiological services should be distinguished from the process of health surveillance. Health surveillance, whether passive or active, is limited to the observation of the health state, primarily occurrence of diseases and ailments in the community, whereas epidemiological services are dedicated to the investigation and diagnosis of the prevailing health state – health problems and health hazards facing people. The scope of epidemiology is different from that of health surveillance.

Health System Output

The health system response to health care needs of the people constitutes the output of the health system. Responding to the health care needs of the people and minimising the impact of health emergencies require leveraging both health infrastructure and health processes. The inability of the health system to effectively respond to health care needs of the people exposes the system to critical gaps in services delivery which have a negative impact on the health and well-being of the people. This negative impact, in turn, affects the efficiency of the health system. The health system response to the health care needs of the people is also the public face of the health system which contributes significantly towards building the community confidence in the system.

The health system response to the health care needs of the people can be divided into public health response and personal health care or individual care and treatment. Public health response is related to the health of the population, with the expression of illness found in the lives of individuals. On the other hand, the personal health care, on the other hand, is directed towards individual patient, within the context of the family and the community. For the health system, the two categories of health response provide distinct yet complementary perspectives. Public health response is primarily directed towards the prevention of diseases and premature deaths. Personal health care stresses prevention, diagnosis, and treatment of individuals. Personal health care is a well-established health profession with a sharp public image whereas public health response is characterised by multiple professional identities and diffused public image. However, both are complementary and reinforce each other and, in combination, decide the output of the health system. Integration of the two components of the health system output is needed to promote the overall efficiency and effectiveness of the health system and achieve gains in population health. The health system cannot effectively respond to health needs of the people by either focussing on personal health care or promoting public health action. Public health action alone cannot stop all illnesses and prevent all premature deaths just as personal health care cannot reduce health hazards facing the people.

The health system out or response to the health care needs of the people may be both pro-active and reactive. A pro-active response is directed towards safeguarding the entire population from different health hazards and health emergencies thereby preventing premature deaths. The reactive response waits for the people to access the health system for the treatment and cure of diseases and ailments. In the context of population health, the scope of the reactive response is,

at best, limited because a large section of the population may not be able to access the health system for many reasons both endogenous and exogenous to the health system. This is particularly the case with the vulnerable and the marginalised sections of the community, although the health care needs of these sections of the community, incidentally, are the most demanding. It is imperative that the health system reaches out to all people to prevent diseases and avoid premature deaths rather than waiting for the people to access the system.

There is currently little idea about the nature of the health system response to health care needs of the people. Since health care needs of the people are very diverse and dynamic in nature, it is obvious that the health system must be an adaptive system rather than a normative one so as to better respond to the health care needs of the people. One requirement to ensure that the health system is adaptive rather than normative is the regular measurement and monitoring of health system response to the health care needs of the people. Such a measurement and monitoring system is also necessary to provide an evidence-based impetus for the investment in the health infrastructure and for institutionalising health care processes. Since, the health system response to health care needs of the people is the public face of the health system, improving the response must be an intrinsic goal of the health system.

Evolution of Health System in India

The evolution of the health system in India can be traced back to the Health Survey and Development Committee, also known as Bhore's Committee, constituted 1943. The Committee recommended a long-term programme and a short-term programme of the development of health services for the people of the country (Government of India, 1946). The long-term plan programme proposed by the Committee comprised of establishing 150 primary units, 6 secondary units, and 1 district unit in every district of the country. This programme was based on the assumption that the average population of a district, at that time, was around 3 million. The Committee, therefore, named this long-term programme as the Three Million Plan. Under this Plan, every primary unit was envisaged to have a 75 bedded hospital facility; every secondary unit was envisaged to have 200 bedded hospital facility; and every district unit was envisaged to have 2500 bedded hospital facility so that the total number of beds available in a district with a population of 3 million would have been 17000. In other words, the Three Million Plan recommended by the Committee, when implemented, would have resulted in a bed-population ratio of 5.67 beds per 1000 population. The long-term plan was to be implemented over a period of 30-40 years.

The Health Survey and Development Committee also recommended a short-term programme which was to be implemented in a duration of 10 years. This plan envisaged establishing a primary health unit for every 40 thousand population with each unit having a dispensary with 2 emergency and 2 maternity beds; establishing a 30 bedded hospital facility for every 2 primary units over a period of 10 years; and a

secondary health unit with a 200 bedded hospital facility for every 12-13 primary units. The Committee envisaged that, at the end of the short-term programme or after a period of 10 years, there would be 23 primary units each with a dispensary having 4 beds – 2 emergency and 2 maternity beds – 13 hospitals, each with 30 beds, 2 secondary units, one with a hospital having 200 beds, and the other having a hospital having 500 beds capacity for every 1 million population. The short-term programme, thus, aimed at a bed-population ratio of 1.18 beds per 1000 population.

After the independence in 1947, the Government of India constituted the Health Survey and Planning Committee in 1959 which is popularly known as the Mudaliar Committee (Government of India, 1962). This Committee recommended that the development of health services for the people of the country should aim at achieving the norm of 1 bed for every 1000 population. To achieve this norm, the Committee proposed that 1) there should be one 10-bedded primary health centre and three 4-bedded primary health centres for every 40 thousand population; 2) there should be one sub-district level hospital with at least 50 beds capacity; and 3) the bed strength of the district level hospital should be between 300-500 beds. After the Health Survey and Planning Committee or the Mudaliar Committee, the Government of India constituted Committees from time to time to recommend steps to be taken for the reorganisation, expansion and strengthening of the health system in the country to meet the health care needs of the people, but none of these Committees dealt with the issue of organisation of the health system in the context of improving the health system response to the health care needs of the people of the country. The current evidence suggests that there is still substantial scope in improving the health system response to the health care needs of the people of the country. One implication of the far from satisfactory health system response to the health care needs of the people is that population health in India remains low by international standards as is reflected from the life expectancy at birth which is the most commonly used indicator of population health (United Nations, 2022).

The Government of India currently follows a population-based normative approach for the creation of health institutions in the country. These norms are given in table 2 and are different for rural and urban areas of the country (Government of India, 2022). In the rural areas, the norms followed by the Government of India ensure, at least in principle, the universal coverage of the population through the health system which is a hierarchical system. This is, however, not the case with the norms followed in the urban areas of the country. It is argued that there is a very strong presence of the private health care services in the urban areas and, therefore, a health system similar to that in the rural areas is either not necessary or not desired in the urban areas. It is, however, well-known that a substantial proportion of the urban population of the country remains uncovered through either the government or the private health system. At the same time, there remains substantial gap between the number of health institutions required according to the norms laid down by the government of India and the number of health institutions in existence. The Government of India has also laid down public health standards for different categories of health institutions in the context of the quality of health care services (Government of India, 2022a; 2022b; 2022c; 2022d). However, there is no system in

place to measure and monitor the realisation of these public health standards at the health institution level. In the absence of such a measurement and monitoring system, there is no information about the proportion of different category of health institutions in the country either in rural or in urban areas who meet the public health standards and, therefore, ensure the quality of health care services delivered through the institution. It is well-known that there are substantial gaps in terms of both quantity and quality.

Table 2: Population norms for establishing primary health care institutions in India.

SN	Health institution	Population norm	Bed facility
Rural areas			
1.	Health sub-centre	For every 5000 population (3000 in hilly/tribal/hard to reach areas)	No bed facility
2.	Primary health centre	For every 30000 population (20000 in hilly/tribal/hard to reach areas)	4-6 beds
3.	Community health centre	For every 120000 population (100000 in hilly/tribal/hard to reach areas)	30 beds
Urban areas			
1.	Community health centre	For every 250000 population (500000 for metro cities)	30-50 beds
2.	Primary health centre	For every 50000 population	No bed facility

Source: Government of India (2022).

The norms laid down by the Government of India for the health institutions in the rural areas suggests that total number of hospital beds available in a population of 120 thousand is 54-60 which implies, in principle, one hospital bed for every 2000 population. This hospital bed-population ratio is in quite contrast to WHO recommendation of 5 hospital beds per 1000 population. The WHO recommendations imply that there should be 600 hospital beds for every 120 thousand population in the rural areas of the country. On the other hand, there is no specific norm or guidelines laid down by the Government of India for establishing secondary and tertiary level public health institutions except that there is one health institution in every district which is designated as the district hospital. Establishing secondary and tertiary level public health institutions is largely arbitrary in the country and all these institutions are located in the urban areas resulting in a big gap in the availability of hospital beds in the rural areas as compared to that in the urban areas. Similarly, most of the private health institutions are also located in the urban

areas, especially, in big towns and metropolitan areas so that there is a very heavy concentration of hospital beds in large metropolitan cities and big towns while there is serious paucity of beds in the rural areas and in small urban towns of the country. The private health system of the country is heavily biased towards the personal health care component of the health system response at the cost of public health response to health care needs of the people.

Reinvigorating the Health System

The foregoing discussions suggest that there is a strong case for a comprehensive reinvigoration of the existing health system in India is obvious from the foregoing discussions. This reinvigoration must be directed towards improving the health system response to the health care needs of the people and must focus on both public health response and personal health care or individual care and treatment. Personal health care has a sharp public image, yet it is the public health response that ultimately contributes to lasting gains in population health and contributes to the 'battle readiness' of the health system in meeting health emergencies such as the COVID-19 epidemic. In this context, it is proposed to adopt a hospital beds-based approach of reinvigorating India's health system. This approach is based on two cardinal principles. The first cardinal principle is that the reinvigoration of the health system should be based on the bed-population ratio. The second cardinal principle, on the other hand, is that health institutions should be as near to the people as possible. This principle was laid down by the Health Survey and Development Committee or the Bhore's Committee that was constituted way back in 1943.

The World Health Organization recommends that there should be 5 beds for every 1000 population, 1 doctor for every 1000 population or for every 5 beds, and 3 nurses per doctor (WHO, ___). According to these norms, total hospital bed requirement in India is around 7 million assuming a projected population of 1392 million in 2023 (Government of India, 2020). Against this normative requirement, the actual number of beds available in the country are not known, although it is estimated that there are around 1.90 million hospital beds in the country - 0.71 million in the public sector and 1.19 million in the private sector (Kapoor et al, 2020). This means that there is a shortage of more than 5 million hospital beds in the country with reference to the norm of 5 beds per 1000 population recommended by the World Health Organization. It is also estimated that around 70 per cent of the available hospital beds are concentrated in large metropolitan towns and cities which implies that there is very significant distribution inequality in the hospital beds that are currently available in the country. This means that any effort to reinvigorate the health system in the country should not only focus on increasing the number of hospital beds but must also address the very strong inequality in the distribution of hospital beds that currently persists in the country. Addressing this distribution inequality is the key to realise the second cardinal principle of reinvigorating the health system.

The foregoing discussions suggest that an additional 5 million hospital beds need to be created in the country to meet the norms recommended by the World Health Organization. This is a tall order and requires a massive expansion of health institutions. The National Health Policy 2017 of the country (Government of India, 2017) aims at universal access to good quality health care services through increasing access, improving quality, and lowering the cost of health care delivery but is conspicuously silent about the need of creating additional hospital beds which is imperative to achieve the goal of universal access to health care. The hospital bed-population ratio in India is currently very low by international standards. According to the estimates prepared by the World Health Organization, there were only 0.53 hospital beds per 1000 population in India in 2017 compared to more than 4.3 hospital beds per 1000 population in China and more than 4.1 hospital beds per 1000 population in Sri Lanka (WHO, 2021). Obviously, the hospital bed-population ratio in the country is grossly inadequate to realise the goal of universal access to good quality health care as emphasized in the National Health Policy 2017.

One approach to reinvigorating the health system in India may be based on the principle of increasing the availability of hospital beds in the country to achieve the norms laid down by the World Health Organization. This approach is justified in view of the demographic and epidemiological transition that the country is undergoing. The fertility in India has now decreased to the replacement level which implies that the population of the country will increasingly get older. On the other hand, the share of the non-communicable and degenerative diseases in the disease profile of the country increasing. This means that the demand for the institution-based health care to meet the health needs of the people will increase in the coming years. The universal access to health care also demands that the inequality in the distribution of health institutions is decreased substantively so that the institution-based health care is available as near to the people as possible. In this context, creation of additional hospital beds in the country must also take into consideration the rural-urban distribution of population and the distribution of the urban population across different size class of towns.

Most of the population of the country lives in the rural areas. According to the population projections prepared by the Government of India, it is estimated that around 490 million or around 35 per cent population of the country lives in the urban areas as defined at the time of 2011 population census while the remaining 65 per cent population lives in more than 600 thousand villages as identified at the 2011 population census. The urban population of the country is very highly unequally distributed across different size class of towns. However, it is estimated that more than 70 per cent of the health institutions in the country are located in big cities and large metropolitan towns and majority of these health institutions are in the private sector. The result is that a large section of the population living in the rural areas, especially the poor and the marginalized ones, does not have access to health facilities to meet its health care needs. This unequal distribution of health institutions has implications for the health of the population and needs to be corrected in any reinvigoration of the health system.

The hospital bed-based approach of reinvigorating the health system will require both creation of new health institutions as and the expansion of the existing ones. The increase in the number of health institutions is necessary for increasing the number of hospital beds as there is a limit to the number of beds that may be made available in a health institution. Moreover, increasing the number of health institutions is also necessary to realise the second cardinal principle of reinvigorating the health system which emphasizes that the health institutions must be as near to the people as possible so that they are easily accessible to the people. Easy accessibility of the health institution is one of the necessary requirements for the use of health care services available at the institution.

An astute distribution of hospital beds, therefore, is the first requirement for reinvigorating the health system. The first consideration in this direction is the distribution of hospital beds between public health institutions or the health institutions owned by the government and private health institutions. Health care services available through the private health institutions are available only at a cost and are concentrated in big cities and large metropolitan areas. These institutions, in general, provide curative health care services at the cost of preventive and promotive health care services. The accessibility of private health institutions to the people, especially, the poor and the marginalized ones is therefore limited.

It is, therefore, proposed that the number of hospital beds required in India according to the norms recommended by the World Health Organization should be distributed between public and private health institutions in 2:1 ratio. There should be around 4.7 million hospital beds in the public health institutions and 2.3 million hospital beds in the private health institutions. The hospital beds in the public health institutions should be distributed equally between rural and urban areas so that there should be around 2.35 million hospital beds in rural public health institutions in around 2.35 million beds in urban public health institutions. The hospital beds in the urban areas should be distributed further across different size class towns according to the proportionate distribution of the urban population. Table 3 summarises the proposed distribution of hospital beds in the country. To realise the proposed distribution of hospital beds in the public health institutions, there is a need of increasing the number of hospital beds in the existing public health institutions and, at the same time, creating new public health institutions. Given the number of additional hospital beds required to meet the recommendations laid down by the World Health Organization, it is imperative that new public health institutions must be established, especially in the rural areas of the country. At present, there is a wide gap between the bed-population ratio in the urban areas and the bed-population ratio in the rural areas of the country. Similarly, the bed-population ratio varies widely with the urban areas, across different size-class of towns. The reinvigoration of the public health system in the country must address the highly distorted distribution of hospital beds that currently exists in the country.

It is in the above context; the following framework is proposed for increasing the number of hospital beds in the existing public health institutions and for establishing new public health institutions to improve the bed-population ratio in

the country and to balance the distribution of hospital beds across urban and rural areas and across different size-class of towns in the urban areas .

1. Expand all existing Sub Health Centres and Primary Health Centres into Gram Panchayat Health Institution with at least 5 hospital beds. At present, there are 161829 Sub Health Centres and 31053 Primary health Centres in the rural areas of the country (Government of India, 2022). The Sub Health Centres do not have hospital beds at present while the number of hospital beds in the Primary Health Centres ranges between 6-10.
2. Establish a public health institution having at least 5 hospital beds in all those Gram Panchayats which, currently, do not have a public health institution. This will make sure that every Gram Panchayat of the country (approximately 300 thousand) has a public health institution of its own with at least 5 hospital beds to meet the health needs of the people of the Gram Panchayat.
3. Every Gram Panchayat Health Institution will have at least 1 Health Officer and 3 Nurses as recommended by the World Health Organization.
4. Increase the number of beds in the existing Community Health Centres in the country to at least 50 hospital beds in every Community Health Centre. At present, there are 6064 Community Health Centres in the country (Government of India, 2022). These Community Health Centre will serve as the first referral unit (FRU) to the Gram Panchayat Health Institutions.
5. Establish a Community Health Centre with at least 50 hospital beds in all those development blocks of the country which, currently, do not have a Community Health Centre to serve as the first referral point for the grass roots level Gram Panchayat Health Institutions.
6. Every Community Health Centre must have at least 10 doctors and 30 Nurses as recommended by the World Health Organization.
7. Increase number of hospital beds in every district hospital to 500 to serve as the referral unit for Community Health Centres and Gram Panchayats health institutions. The district hospital will have at least 100 doctors and 300 Nurses and may be attached to the district medical college to serve as the teaching hospital also. The Government of India has already launched a scheme to establish a medical college in every district of the country.
8. Establish at least one public health institution in every urban local body. The number of beds in the public health institution of the urban local body should be in proportion to the population of the urban local body. Urban local bodies are usually divided further into municipal zones and municipal zones are further divided into municipal wards for administrative and development purposes. In those urban local bodies where there are more than one municipal zones, a public health institution may be established in every municipal zone depending upon the population in the zone.
9. The remaining hospital beds required to comply with the recommendations of the World Health Organization may be created in the private sector.

Table 3 summarises the proposed distribution of hospital beds in the country. Almost one third of the hospital beds will be available in the public health institutions in the rural areas of the country while another one third will be available in the public health institutions in the urban areas which means that around two-third of the total hospital beds in the country will be available in the public health institutions. The remaining one third of beds will be available in the private health institutions.

Table 3: Proposed distribution of hospital beds in India to comply with the norms recommended by the World Health Organization.

Institution	Beds		Doctors		Nurses	
	Number	%	Number	%	Number	%
Public	4485000	64.0	897000	64.0	2691000	64.0
Rural	2235000	31.9	447000	31.9	1341000	31.9
Gram Panchayat	1500000	21.4	300000	21.4	900000	21.4
Janpad Panchayat	360000	5.1	72000	5.1	216000	5.1
District Panchayat	375000	5.4	75000	5.4	225000	5.4
Urban	2250000	32.1	450000	32.1	1350000	32.1
Class I	500000	7.1	100000	7.1	300000	7.1
Class II	500000	7.1	100000	7.1	300000	7.1
Class III	650000	9.3	130000	9.3	390000	9.3
Class IV	370000	5.3	75000	5.4	225000	5.4
Class V	200000	2.9	40000	2.9	120000	2.9
Class VI	30000	0.4	5000	0.4	15000	0.4
Private	2515000	35.9	503000	35.9	1509000	35.9
Total	7000000	100.0	1400000	100.0	4200000	100.0

Source: Author

Table 3 also gives the number of doctors and the number of nurses required as recommended by the World Health Organization. Provision of the adequately trained and skilled manpower as per the norms laid down by the World Health Organization is critical for the effective utilization of the hospital beds. If the manpower is inadequate either in numbers or in skill, the hospital beds will remain largely unutilized or under-utilized as is the case at present. As such, it is imperative that any effort to increase the number of hospital beds must invariably be associated with the effort to make the necessary manpower available so that the bed facility is optimally and effectively utilized. There is little sense in augmenting the hospital bed facility without meeting the recommended health manpower requirements.

In the above context, it may be pointed out that Government of India has already launched a centrally sponsored scheme of establishing a medical college with an intake capacity of 100 in every district of the country (Government of India, no date). The scheme is currently limited to under-served districts. In order to meet the health manpower requirements of the proposal of increasing the number of hospital beds to meet the WHO norms, it is suggested that the scheme of the Government of India may be extended to all districts which not currently having a medical college.

Moreover, the medical colleges to be established under the scheme should not be restricted to training only doctors but should also be engaged in the training of nurses. The medical college, in every district, it is expected will be able to meet the health manpower requirement of the health institutions, especially, the public health institutions in the district.

The last and the most crucial requirement of increasing the number of hospital beds to meet the WHO standards is the mobilization of financial resources. In this context, it is proposed that a specific proportion (ideally six percent) of the allocation to the state government by the central government and to Panhayats by the state government may be marked exclusively for increasing the number of hospital beds and associated physical and other infrastructure in the public health institutions in the district while the capital cost of creating new public health institutions may be shared by the central government and the state government. Other innovative and time trusted approaches may also be used to generate financial resources for increasing the number of hospital beds. One such approach is the Patient Welfare Committee (*Rogi Kalyan Samiti*) which has been introduced under the National Rural Health Mission. At present, the Patient Welfare Committee is constituted in every public health institution of the country. It is suggested that a pool of resources may be created out of the funds generated by Patient Welfare Committees in every district and these funds may be used for increasing the number of hospital beds.

Conclusions

The public health care delivery system that currently exists in India was conceptualised more than 50 years ago when infectious and parasitic diseases were the primary cause affecting the health of the people. The scenario has now changed significantly and non-communicable, degenerative disease are the primary cause affecting the health of the population. It is obvious that, with the epidemiological transition, the public health care delivery system must also evolve. This has, however, not happened in India, although the need of such an evolution has repeatedly been emphasized in different policy documents. The need of reinvigorating the health system in India is also justified from the observation that, by international standards, the health of the people of the country remains poor as reflected from the low rank of the country in the life expectancy at birth in relation to other countries of the world.

This paper proposes a hospital beds-based approach of reinvigorating the public health care delivery system in India with the objective of meeting the bed-population norms recommended by the World Health Organization. The approach outlined in the paper calls for increasing the number of hospital beds in the existing public health institutions of the country and creating new public health institutions so as to achieve a balanced distribution of hospital beds which, currently, happens

to be highly skewed. The essential idea of the approach outlined in the paper is that the health facilities must be as near to the people as possible so as to make them efficient as well as effective.

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