

Harnessing the potential of the primary healthcare facilities in India to respond COVID-19 pandemic: A scoping evidence-based research synthesis

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ABSTRACT

COVID-19 has resulted in an unprecedented loss of human lives and sufferings across the world. It has resulted in the collapse of public health systems and economy across the globe. As most of the national health systems lack organized surveillance infrastructure, resources, and expertise to respond to a pandemic, most of the countries failed to mount an effective response to contain the spread of this virus initially. As primary healthcare (PHC) has better access to the community, the settings where PHC services are inadequate or weak, hospitals are overwhelmed with patients, thus overburdening, and wasting meager specialist resources. PHC interventions can manage mild to moderate cases (>80% of total cases) and their contacts, along with addressing the needs of general population while only severe cases may require specialized hospital care. As PHC interventions have huge potential to tackle this pandemic, strengthening and inclusion of PHC in pandemic response could play a significant role in relieving the workload on secondary and tertiary healthcare facilities and minimizing loss of lives and its short and long term socioeconomic consequences. This article explores the scope and importance of strengthening PHC in breaking the chain of the transmission of this infectious disease, building an adequate response to minimize its disastrous consequences and prevent future emerging and reemerging disease outbreaks, if any.

Keywords: COVID-19, pandemic, primary care, primary health care

Introduction

COVID-19 has resulted in unprecedented loss of human lives and resources and has led to the collapse of public health systems

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and economy across the globe. As most of the national health systems lack organized surveillance infrastructure, resources, and expertise to respond to a pandemic, most countries were not able to mount an effective response to contain the spread of this virus initially. Moreover, many developed countries are affected more seriously than developing countries in terms of spread of infection and number of deaths because of their largely privatized and weak public health systems.

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Even though COVID-19 is clinically similar to SARS and its fatality rate is lower than SARS (9.5%) and further lower than MERS (34.4%), the infection has proven to be highly contagious.^[1] Additionally, the preventive measures used in the past to contain the outbreaks of SARS and MERS are widely adopted to control COVID-19. The population containment measures of restriction of movement, social (physical) distancing, intensive contact tracing, isolation of cases, and quarantine of contacts along with other preventive measures including increasing awareness on cough hygiene, widespread use of mask, hand sanitizer, and proper hand washing are the public health interventions that can be implemented to prevent and contain any influenza outbreak and has been widely adopted in this pandemic too.

The healthcare delivery system in India is still facing the challenges of significant shortages of workforce, poor infrastructure, and quality of care and the condition is even worse in rural areas.^[2,3] There is a shortage of 18% sub-centers, 22% primary healthcare (PHC), and 30% community health centers (CHC) in the country as of March 2018.^[4] The rural India also has significant shortage of hospital beds (3.2 beds per 10,000 people) and specialists in government healthcare facility.^[5] Hence, the health system is not satisfactorily primed to contain COVID-19 especially in rural areas. As PHC has better access to the community, the settings where PHC services are inadequate and weak, hospitals are overwhelmed with patients, thus wasting meager specialist resources. PHC interventions are capable of managing mild to moderate cases (> 80% of total cases) and their contacts, along with addressing the needs of general population while only severe cases may require specialized hospital care.^[6,7] This article aims to explore the scope and importance of strengthening PHC to break the chain of the transmission of COVID-19, build an adequate response to minimize its disastrous consequences, and prevent future emerging and reemerging disease outbreaks, if any.

Methodology- Literature search was done using PubMed, Google scholar, and Scopus databases for the key terms “primary care AND COVID,” “primary health care AND COVID,” “primary health care AND pandemic,” and “primary care AND pandemic.” The relevant article, grey literature, case reports, and official communications published in English language were included in this review. We have just conducted literature search and online review of articles and this review does not include either primary or secondary data collected from human participants. So, ethics committee waiver was obtained from our institutional ethics committee to conduct this review.

Primary Health Care

The “Dawson Report” published in 1920s in the United Kingdom mentioned the term PHC for the first time and suggested PHC centers as an effective model to provide healthcare services to the community and respond to challenges in healthcare delivery.^[8] The following decades observed the expansion of the concept of PHC which culminated in Alma-Ata Declaration

in 1978 which defined PHC as “essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford.”^[9]

Conceptual framework of primary health care

The experiences of the past 40 years endorse the comprehensive definition of PHC which identifies following three major inter-related and synergistic pillars [Figure 1] in primary health care.^[9-11]

The comprehensive PHC approaches and interventions as elaborated by the conceptual framework of PHC can be adapted to effectively respond to any outbreak including COVID-19.

Meeting people’s health needs throughout their lives

This component comprises of the basic pillars of PHC which consists of promotive, preventive, curative, and rehabilitative services.

Preventive measures

In the absence of effective vaccine and treatment, the preventive community containment measures remain the main strategy to stop the transmission of COVID-19 across the world. Most of the countries have imposed some form of restriction in movement of people. Some countries even completely stopped the movement of their population, locked them in their homes (home quarantine) and banned both domestic and international travel. The concepts of social (physical) distancing are imposed very strictly in the current era along with widespread promotion of hand hygiene practices and use of mask. All these preventive measures can be effectively endorsed and practiced via PHC in normal as well as pandemic situations. These measures were widely adopted in the containment of SARS and MERS outbreaks.^[11,12]

Health education and health promotion

Appropriate health education empowers individuals, families, and communities to actively participate in taking appropriate measures to take care of their health and wellbeing. Li W *et al.* in his publication stated that properly planned and effective health education in emerging infectious diseases plays a vital

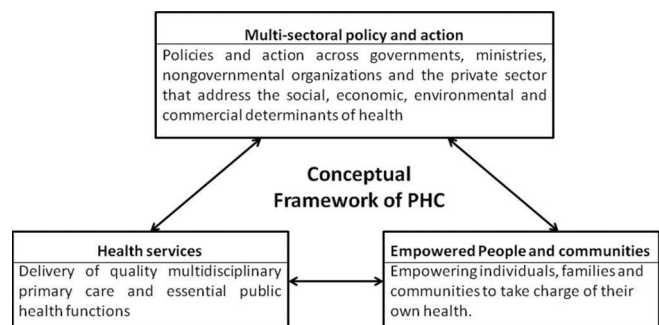


Figure 1: Conceptual Framework of PHC

role in improving individual as well as community adherence to take preventive measures that can significantly contribute to break the chain of transmission of the infection.^[13] It also helps in preventing panic and minimizing fear, stigma and discrimination that can significantly compromise public health interventions leading to their failure. These health education and promotion strategies during outbreaks should be contextual and continuously updated as per the change in existing knowledge pool and situation. It should be based on the need of local people and specifically customized as per the target community. Health workers who are working in PHC can effectively disseminate these messages to the community.

Risk communication

Although it is challenging to mobilize resources during the pandemic, it is important to formulate and implement a risk communication strategy to mitigate risk and prevent miscommunication in the community. A Risk Communication and Community Engagement (RCCE) Action Plan can be formulated to guide these strategies for effective communication.^[14]

This pandemic is accompanied by a serious “infodemic.” Effective and properly planned health promotion and education and risk communication measures have huge potential to curb out this infodemic.^[14,15] There is also a need to establish the authenticity for the content published over internet. Responsible authorities, public health institutions, and all stakeholders should establish a social media strategy to develop and spread authentic information through various internet channels.

Triage

The resources are limited, and health systems are failing to address the healthcare and welfare needs of general masses. There is an urgent need to mobilize resources to design and implement an appropriate framework and mechanism for triage of patients as well as services as per local context and availability of resources to ensure that all PHC facilities are adequately utilized. This could be an effective strategy to contain the spread of disease, reduce nosocomial and community transmission, reduce mortality and sufferings [Table 1].^[16,17]

Surveillance

Implementation of effective surveillance strategies in primary health setting is important to timely identify the hotspots of local outbreak and control the spread of virus. It is crucial to empower

Table 1: Role of Community Volunteers Corps in Kerala during COVID

The Chief Minister established a Community Volunteers Corps to assist the administration in pandemic and in times of disasters in future. With a target of one volunteer per 100 people, there are currently 337 thousand community volunteers in the state. They are in almost all local bodies and are working with Ward Level Committees in COVID response. These volunteers are actively involved with police in patrolling activities and health workers to provide essential services. They are actively monitoring individuals in home quarantine and their involvement has significantly contributed in Kerala's fight against COVID.^[18,19]

public health officials through surveillance data to manage the risk of spread of COVID-19, and thereby facilitate the resumption of economic and social activity to the possible extent. It is also necessary to monitor long term trends of transmission as well as changes in the virus. This is crucial to prevent the resurgence of the infection in areas which has successfully stopped the transmission.^[20] The existing infrastructure of Integrated Disease Surveillance Project and National Tuberculosis elimination Program can be effectively utilized to track infected individuals in the rural areas. It could act as a low cost and effective strategy to strengthen COVID surveillance in the country. Newer concepts such as “Google search trends” and “Blockchain technologies” can be incorporated in our existing surveillance system.^[21,22]

Vaccination services

The concepts of achievement of herd immunity either through use of effective vaccine or natural immunization has been widely debated in recent times. The world is witnessing an intense global competition to develop a path breaking vaccine against COVID-19. However, it still seems to be a dream as most of the potential candidates are still in different phases of clinical trials.^[23] Even if a vaccine becomes available in near future, its mass production, access, affordability, and delivery is a big challenge for the entire world.

The achievement of herd immunity through natural infection requires a threshold of 67% (assuming $R_0 = 3$). The target could be higher considering the differences in the basic reproductive rate. Along with high herd immunity thresholds, the consequences of this approach could be serious and may lead to a huge loss of lives.^[20] Considering the approach of mass immunization through a new vaccine in future, it is an essential to strengthen the PHC system now to effectively deliver vaccination services in future. There is also a strong need for global coordination to approve the generic production of vaccine for public health welfare (People's vaccine).

The pandemic has also resulted in disruption of immunization services for other vaccine preventable diseases (VPD). This may result in outbreaks of VPD in near future and contribute to mortality and morbidity. Therefore, WHO has strongly recommended sustaining of routine immunization services while complying with physical distancing measures.^[23]

Rehabilitative measures

The patients who required intensive support during the management of COVID-19 also require rehabilitative services to restore normal respiration and to re-gain stamina and strength to get back to a normal life. Post-pandemic rehabilitation will be requiring great efforts to mitigate secondary outcomes especially the psychological trauma and stigma in affected population as well frontline workers. There are various studies which reported an acute and persistent stress as well as emotional sequelae during and after SARS outbreak in 2003 among healthcare workers. The interventions including community counseling services could be initiated to improve mental health in the affected population including healthcare workers.^[24]

Addressing determinants of health through multi-sectoral policy and action

Socioeconomic determinants of health

It is a well-known fact that health services that fail to address socioeconomic determinants of health leads to exacerbation in the health inequities.^[25] The current pandemic has converted the gaps in health services in to trenches. Inclusion of actions addressing the socioeconomic determinants of health as part of national containment strategies along with the continuous revitalization of PHC is a key approach to minimize the impacts of this pandemic on the society. There is an urgent need to develop inclusive policies; else the pandemic is going to have long lasting devastating consequences on the nations.

Multi-sectoral actions

Integrated multi-sectoral coordination and actions are needed to respond to every emergency. Inclusion of the local, regional, national, as well as international stakeholders at every stage of planning and implementation of strategies is vital to implement a successful integrated containment strategy to minimize the current, short as well as long-term consequences.

Food security and supply

Closure of international, provincial, and district borders in many countries, strict home quarantine and disruptions in market, supply chain and trade have put severe restrictions on access to adequate, affordable, as well as nutritious food. The countries hit hard by the virus are facing high level of food insecurity, hunger, and starvation and the situation may severely aggravate in medium and longer run.^[26] There is an urgent need to revive agricultural activities and supply chain to prevent this crisis. The public distribution system (PDS) has played a crucial role in distribution of essential commodities to millions of people in the country. The community kitchens and various initiatives of civil society organizations worked responsibly to feed millions of migrants during this pandemic. However, there is still an issue of percolation of these essential commodities. These implementation challenges to access food grains through PDS should be identified and fixed to prevent widespread hunger and malnutrition.

Water and sanitation

About 785 million individuals do not have access to basic drinking water across the globe, 22% of healthcare facilities in least developed countries have no water supply, 21% lack sanitation services, and 22% have no waste management services.^[27] The whole idea of adequate hand washing in these parts of the world is impractical. If applied consistently, WASH and waste management practices act as an important barrier to human-to-human transmission of flu viruses. Ideally, adequate, and safe water supply and sanitation should be ensured universally. It is important to invest in water and sanitation to ensure adequate hygiene especially during the pandemic.^[28]

Table 2: Kerala: A case of community empowerment and engagement

The state of Kerala in India has been able to control COVID-19 till now through application of successful lockdown with firmness and compassion along with alleviating the sufferings caused to the poor due to its empowered *panchayat system* (village council). Even though the state suffers from chronic fiscal stress, it has regularly allotted a significant proportion of fund to its *panchayat* as development and maintenance funds. The *Kudumbashree system* acts as a civil society checkpoint to the panchayats holding them accountable for their work and collaborating to form women self-help groups and their federations. Nearly 2/3rd of all women elected to the *panchayats* are *Kudumbashree* members.^[33-35] Kerala's *panchayats* were ready to tackle COVID-19 because they are empowered and act as caregivers for old, weak and marginalized since years. These existing initiatives of village *panchayats* are successfully utilized by the state government to take care of those affected by COVID-19.

Use of appropriate technology

Appropriate technology provides exceptional support in all the aspects to control diseases. The development of testing kits, vaccines, masks, and innovative delivery systems have ensured success of containment measures. The adoption of newer, effective, and rigorously evaluated technologies is essential to break the chain of transmission of the disease as well as to maintain basic services to return back to "normal." Use of online platforms for education, meetings, and professional activities and use of GPS, Credit Card Transactions, and CCTV, as a part of contact tracing mechanism has effectively helped in controlling the movement of people, contact tracing as well as surveillance activity.^[29]

Telemedicine

There has been a sudden rise in utilization and endorsement of telemedicine platforms in this pandemic. People are advised to visit hospitals only in unavoidable circumstances, to prevent overcrowding of health facilities and reduce the burden on emergency services. Most of the services are being provided through telemedicine platform to prevent community transmission. However, there is also a need to formulate guidelines for ethical practice of telemedicine and streamline this potential service delivery mechanism for the benefit and safety of people.^[30]

Social Media Platforms

As reported in Digital Overview 2020, 60% of the world population and 3.8 billion are using various social media platforms.^[31] This is a great medium to spread information about issues regarding pandemic and its trends. There are several guidelines formulated to disseminate information using social media platforms which should be adhered strictly. Mechanisms should be designed to prevent the spread of rumors and stop infodemic.

Empower people and communities to take charge of their own health

Involvement of local communities plays a crucial role in successful delivery of community-centered and integrated health services. Community participation was recognized as a vital component of PHC in the Alma Ata Declaration which

encouraged greater community participation, engagement and mobilization in health.^[9,10] This concept was revitalized as “engagement and empowerment” and became a core strategy of the WHO Framework on integrated people-centered health services (IPCHS) in 2016.^[32]

Involvement of community in all stages planning, design, implementation, and evaluation of health services plays an important role in success of public health interventions, even in humanitarian crisis [Table 2]. Each community has different beliefs, local resources, and social structure. The health systems that follow the practice of engaging and empowering their communities are more resilient and are expected to have better outcomes in this pandemic.

Conclusion and Recommendation

The pandemic of COVID-19 has revealed several weak spots in our health systems, government machinery as well as lack of inter-sectoral and international coordination. Since healthcare systems across the globe are grossly underfunded and neglected, this has seriously affected our response against this pandemic which has ultimately resulted in huge loss of lives and collapse of socioeconomic systems. As PHC infrastructure has huge potential to effectively address healthcare and welfare needs during an outbreak, strengthening, and inclusion of PHC in pandemic response could play a vital role in stopping the transmission of virus, early detection of cases, triage of services, management of mild to moderate cases at the peripheral level and providing basic resources and adequate aid to the affected population and thereby significantly reducing the burden on secondary and tertiary health care facilities. This could prove to be an effective, low budget strategy to minimize the loss of lives and sufferings in short as well as long run. Therefore, the response strategy should utilize PHC in the best possible manner and further strengthen it to develop a resilient system to tackle future outbreaks.

Key Points

1. PHC interventions can manage mild to moderate cases (> 80% of total cases) and their contacts while only severe cases may require specialized hospital care during pandemic.
2. Effective and meticulously planned health promotion and education and risk communication measures have huge potential to curb out infodemic.
3. There is need for global coordination to approve the generic production of vaccines and drugs in future for public health welfare and to ensure its penetration.
4. There is a need to involve community in all stages of planning, design, implementation and evaluation of health services in pandemic.

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Conflicts of interest

There are no conflicts of interest.

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