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Strengthening primary health care in responding to communicable disease outbreaks: Providing policy options for Iran

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Original Article

Abstract

BACKGROUND: Primary health care (PHC) is one of the best structures for managing and responding to health-related crises. The current study was conducted with the aim to review the experiences of other countries in using the PHC system to deal with a contagious disease crisis and provide solutions for the management of communicable diseases for Iran's health system.

METHODS: This systematic review was conducted in July 2021 based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). This checklist includes the essentials for transparent reporting of scoping reviews. PubMed, Scopus, Web of Science, ProQuest, and Google Scholar were searched to identify the most important strategies for strengthening PHC in response to communicable disease disasters.

RESULTS: Based on the study inclusion and exclusion criteria, a total of 32 studies were included in the final analysis. The experiences of the countries were categorized based on the 6 health system building blocks presented by the World Health Organization (WHO) and 17 sub-categories. Experiences of the countries in strengthening PHC in responding to communicable disease crises were reported in the 3 categories of unity of command and support for primary care at the macro level, development and updating of protocols and guidelines, and involvement of PHC stakeholders in decision-making.

CONCLUSION: Health systems in each country are a function of the economic, social, cultural, and political conditions of that country, and it is very difficult to find countries with identical health systems. Therefore, the proposed policy options need to be used with caution and the circumstances of the country must be taken into account.

KEYWORDS: Communicable Diseases; Primary Health Care; Health System; Systematic Review

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Introduction

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Over the past century, all countries in the world have made noteworthy progress in preventing and controlling infectious diseases. However, these diseases still threaten human society and can have devastating effects on

global health, economy, and security through disrupting health, business, and interpersonal and social relationships.[1] The emergence and recurrence of some diseases, including SARS in 2003, swine flu (H1N1) in 2009, MERS in 2012, Ebola in 2014, and most recently the Covid-19 pandemic, pose a threat to community health.[2,4] The rapid spread of these contagious diseases around the world is a reminder of the necessity for countries to have efficient health systems for timely intervention.

Primary health care (PHC) is one of the best structures for managing and responding to health-related crises. PHC provides a vital foundation for managing emergencies and health hazards, and promoting community resilience.[5] The PHC system has an integrated structure that ranges from referrals, identification, and truthful information delivery to public to macro decision-making. This system, as a multidimensional system, can be very helpful in managing the crisis of infectious diseases.[6]

The main roles of PHC in the health system in emergencies, health-related crises, and disasters include emergency preparedness and prevention, strengthening of the flexibility of the health system, continuity of routine health services, management of diseases related to health emergencies, improvement of the quality of services provided, public-based care and community participation, multi-sectoral measures to manage health emergencies, health system recovery, and global coordination mechanisms.[7] These roles seem to work by influencing the functions of dividing and distribution of manpower, financing methods in crisis, information management, and data collection methods, involvement of the general public in political decisions, and building trust and meeting the demands of all stakeholders.[6]

Given the potential role that PHC can play in health-related crises, the purpose of this study was to review the experiences of other countries in using the PHC system to deal with the contagious disease crisis and provide solutions for Iran's health system regarding the management of communicable diseases. In addition, the ultimate goal of this study was to provide policy options to strengthen the country's PHC system in order to better respond to these crises now and in the coming years.

Methods

This systematic review was conducted in July 2021 based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (8). This checklist includes the essentials for transparent reporting of scoping reviews. PubMed, Scopus, Web of Science, ProQuest, and Google Scholar were searched with a time limitation (2011 to 2021) on July 5 and 6, 2021 to identify the most important strategies for strengthening primary healthcare in response to communicable disease disasters and provide policy options for Iran.

The search strategy for PubMed was defined based on MESH and EMTREE entry terms and free keywords, and then, adapted to the other databases mentioned above (Appendix 1). The keywords used for the search included "Primary Healthcare"[tiab] OR (Healthcare[ti] AND Primary[ti]) OR "Primary Care"[tiab] OR "primary health care"[tiab] OR "health emergencies"[tiab] OR "health emergency"[tiab] OR "strengthening primary health care"[tiab] OR "emergency and disaster preparedness"[tiab] OR "health emergencies preparedness"[tiab] OR "health surveillance system"[tiab] OR "community engagement and health emergencies"[tiab] OR "primary healthcare preparedness"[tiab] OR "emergency preparedness and response"[tiab] OR "primary health care response"[tiab] OR ("primary health care"[ti] AND "lesson learnt"[ti]) OR ("primary health care"[ti] AND experience[ti]) OR ("primary health care"[ti] AND response[ti]) OR "first care line"[tiab] OR "primary care nursing"[tiab] OR "primary

nursing care"[tiab]) AND (disaster[tiab] OR "Natural Disaster"[tiab] OR (Disasters[ti] AND Natural[ti]) OR "outbreak of disease"[tiab] OR pandemic[tiab] OR epidemic[tiab] OR endemic[tiab] OR "disaster management"[tiab] OR catastrophe[tiab] OR "Disaster Relief Planning"[tiab] OR "Disaster Relief Plannings"[tiab] OR "disaster planning"[tiab]) AND 2011:2021[dp].

To find other related studies, the reference lists of the included studies were also searched. The search strategy was confirmed by 2 members of the research team (N.S. and A.M.). Any disagreements between the researchers were resolved through discussion. Gray literature, review articles, original articles, reports, and working papers, and studies discussing strategies for strengthening primary healthcare in response to communicable disease disasters, with at least 1 reference related to this topic were included in the study. The time limitation of the study was 2011-2021, but no geographical location restrictions were considered. Availability of the full text of the article was an inclusion criterion of the study. Studies published in non-English languages and studies that did not address the empowerment of the primary healthcare system in response to communicable disease disasters were excluded from the study

Data extraction: The search results were downloaded to EndNote (version X8; Clarivate Plc, London, UK). After deleting the duplicates, 2 researchers screened the title and abstract of the documents based on the inclusion and exclusion criteria. The researchers resolved any conflict through discussion, otherwise, a third researcher decided on the inclusion of the article. The quality assessment of studies was not performed as the review was a scoping review. The full text of the included articles was read and the main finding related to the research topic was extracted. Then, an information collection form designed in Excel was used to record the details of each document. The name of the first author, publication year, geographical location of the study, the type of study, and the most important findings of the study were extracted. After searching the databases, 11,413 records were identified, of which 4,897 were duplicates. Moreover, 6516 titles and abstracts were screened based on the inclusion criteria. The most important reason for excluding studies was lack of provision of strategies to strengthen primary healthcare in dealing with infectious disease crises. Finally, 89 full texts were studied and 32 of them met the inclusion criteria (Figure 1).

Data analysis: By studying the data extraction form, the experiences of countries were extracted and classified according to the 6 main blocks of health systems based on the World Health Organization (WHO) guideline. These 6 blocks include leadership and governance, service delivery, human resources, medicines and technologies, information, and financing.[9] The directed content analysis was used for extracting and coding the results. Next, in an online expert panel, which is described in the results section, policy options for the strengthening of primary healthcare in Iran in the face of communicable disease disasters were presented.

The ethics committee of the Deputy of Research, Kurdistan University of Medical Sciences, Iran, reviewed and approved the study protocol (IR.MUK.REC.1400.215). The present study was based on secondary data and did not involve data collection at an individual level or from human subjects.

Results

A total of 32 studies met the inclusion criteria. The experiences of the countries were categorized based on the 6 building blocks of the health system presented by the WHO and 17 subcategories (Table 1).

Leadership and governance: The development of appropriate national and local health policies, laws, and protocols can play an

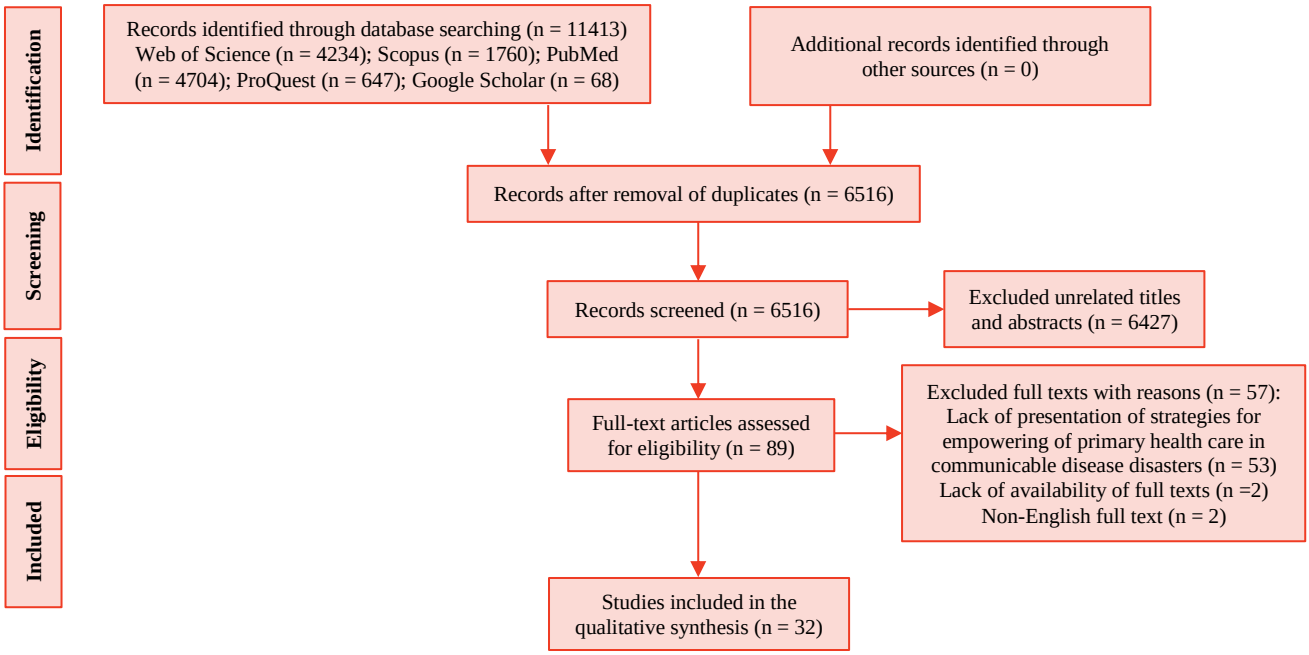

Figure 1. The study selection process

important role in strengthening and supporting PHC.[7] The experiences of different countries in strengthening PHC in responding to communicable disease crises were reported in 3 categories, including unity of command and support for primary care at the macro level, development and updating of protocols and guidelines, and involvement of primary health care stakeholders in decision-making. In some countries, the establishment of a national disaster management center or public health emergency was recommended for the coordination and communication of policies and strategies.[10] The experiences of some other countries have emphasized issues such as the continuous development and updating of the guidelines, and executive instructions as well as relationships with the community.[10,14] Moreover, involving PHC stakeholders in decision-making was recommended in the form of some experiences, including the presence of representatives of PHC providers (such as family physicians) in committees of planning and responding to the pandemic, involvement of local, regional, and national stakeholders in each stage of planning and implementing strategies,[15,16] and community participation in all stages of planning, designing, implementing, and evaluating health services.[17]

Health service delivery: Service provision or delivery is the most well-known function of the health system and its main input for population health promotion. Some of the necessary features of health services include accessibility, comprehensiveness, continuity, quality, and coordination.[9] Some countries have considered these features in providing PHC services in times of communicable disease crises. The review of literature performed in this study showed that various strategies have been proposed by some countries to increase physical and cultural access to health care, the most important of which were the establishment of vaccination centers on holidays to expedite vaccination in pandemics,[18] the establishment of mobile units,[19] the activation of 24-hour centers,[19] and the establishment of independent fever clinics for screening.[20]

Table 1. Summary of the global experiences in strengthening primary health care in crisis based on the six health system building blocks

Categories and subcategories
1. Leadership and governance
1-1. Unity of command at the macro level
Creating legal frameworks to support PHC centers in epidemics (11, 12)
Establishment of a national center for public health emergency management to coordinate and communicate policies and strategies (10)
1-2. Development and updating of protocols and guidelines
Continuous development and updating of guidelines and executive instructions (10-14)
Development of protocols for transparent communication with the community (11, 12)
1-3- Involvement of PHC stakeholders in decisions
Presence of representatives of PHC providers (such as family physicians) in epidemic planning and response committees (14)
Involvement of local, regional, and national stakeholders in each stage of planning and implementing of strategies (17)
Community participation in all stages of planning, designing, implementing, and evaluating of health services (17)
2. Health service delivery
2-1. Increasing access
Establishment of vaccination centers on holidays to expedite vaccination in pandemics (18)
Establishment of mobile units (19)
Increasing the number of test centers (19)
Activation of 24-hour centers (19)
Home drug delivery services (24)
Setting up community-based clinics for patient triage (14)
2-2. Increasing the comprehensiveness of services
Establishment of suitable communication and referral to hospitals (19)
Selection of PHC teams as the first contact with patients from treatment planning to vaccination (14)
2-3. Continuity of services
Provision of telephone and online counseling and follow-up services (using eHealth technologies) for patients (11, 13, 18, 22-27, 29, 30)
Prioritization of the type of primary care counseling for the elderly during the pandemic in order to reduce in-person visits and increase telephone and Internet appointments (31)
Establishment of community care teams consisting of social workers and health workers to visit and follow patients with non-communicable diseases, especially the elderly and high-risk individuals (27)
Involvement of PHC and public health providers to facilitate further coordination, communication, and cooperation in order to promptly and comprehensively respond to the H1N1 influenza epidemic where physical locations, services, and staff were provided by teams of family physicians and PHC providers and funded by the public health structure (2)
Establishment of daily reporting systems for influenza-like illness (ILI) (32)
2-4. Improving the quality of services
Division of PHC centers in terms of disease transmission into high-risk, low-risk, and no risk sections (While performing basic services such as acute care, chronic disease management, child development assessment, and vaccination were performed in the green areas without risk.) (33)
3. Health workforce
3-1. Adequacy of health workforce
The use of family physicians in times of crisis due to the familiarity of the community with them and public trust in them (21, 34)
Recruitment and organization of volunteer forces (19)
Transference of human resources to the required areas (19)
Employment of skilled epidemiologists at national, provincial, and local levels (20)
Provision of support staff or financing of the recruitment of personnel (12)
3-2. Education and retraining
Revision of development and educational curricula of health and medical disciplines and inclusion of disease epidemiology units in them (20)
Specialized training of disease and preventive protocols to PHC personnel and teams (12, 35-37)
3-3. Increasing the morale and motivation of the staff

Provision of mental health services to provide emotional support and prevent burnout (36)
Provision of personal protective equipment such as shields, surgery face masks, and special clothing (36)
Compensation for appropriate service of human resources, including job security, and compensation for salaries and benefits (11, 13, 24)
4. Health system financing
4-1. Financing the services that can be provided
Using PPI (11, 19)
Supporting PHC centers by maintaining the funding and budgets of PHC centers in times of crisis (36)
4-2. Creating appropriate financial incentives for PHC providers
Reforming PHC provider payment mechanisms, including performance-related incentives, in the PHC system to motivate manpower (13)
Compensation for appropriate service of human resources, including job security and compensation of salaries and benefits (11, 13, 36)
4-3. Ensuring that all members of the community have access to health care
National plan for the protection of individuals in crisis (20)
Providing comprehensive and free PHC to poor and vulnerable families (20)
Full reimbursement of the costs of diagnostic tests by social insurance companies or the government even if prescribed by private doctors and performed in private laboratories (27)
5. Access to essential medicines and equipment
5-1. Availability of and access to essential medicines and medical equipment
Addition of one million doses of oseltamivir to drug storage (antiviral) (10)
Ensuring home drug delivery for time periods longer than 4 weeks (13)
5-2. Development of standards, guidelines, and national regulations, supply, and storage, and appropriate distribution systems
Development of protocols for the management of drugs and equipment donated from local, national, or even international sources (20)
Development of a number of protocols to ensure access to essential medicines in times of crisis, including protocols for the management of medicines and equipment donated from local, national, or even international sources (20)
Existence of a supply chain to obtain, store, and distribute supplies in required quantities before and during emergencies (20)
Existence of cooperation agreements or mutual assistance agreements with suppliers and carriers, local pharmacies, and other health facilities in the network of local or regional hospitals (20)
Designing of an "Emergency Supply Chain Management System" to ensure access to basic medical supplies and medicines based on uninterrupted forecast (11)
6. Health information system
6-1. Collecting patients' information
Creating a strong information and communication system for patient registration (11, 13, 38, 39)
Investing on and creating a platform and tele-medicine infrastructure in the centers (13, 14, 20)
Development of mobile-based infrastructures and applications (13)
6-2. Using the collected information
Launching EHR (20)
Using patients' registry data for follow-up (11, 13, 38, 39)

PHC: Primary health care; PPI: Public-private partnership; HER: Electronic health record

Moreover, to increase the comprehensiveness of services of physicians or PHC teams as the first contact with patients, a wide range of activities from treatment planning to vaccination,[14,21] and finally, referral to hospitals was done.[19]

One of the important features of health services in times of pandemics is the continuity of services. The literature review showed that the experiences of some countries in this regard were provision of counseling and follow-up services over the phone and online (using eHealth technologies) for patients,[12,13,22-30] prioritization of the type of primary care counseling for the elderly during the pandemic in order to reduce in-person visits and increase telephone and Internet appointments,[31] establishment of community care teams consisting of social workers and health workers to visit and follow patients with non-

communicable diseases, especially the elderly and high-risk individuals,[27] and participation of PHC and public health providers to facilitate further coordination, communication, and cooperation in order to promptly and comprehensively respond to the H1N1 influenza epidemic, where physical locations, services, and staff were provided by teams of family physicians and PHC providers and funded by the public health structure.[32] Furthermore, in order to ensure the quality of care and to control infection in some countries, PHC centers were divided into 3 parts of high-risk, low-risk, and no risk in terms of disease transmission while performing basic services such as acute care, chronic disease management, child development assessment, and vaccination were performed in green areas without risk.[33]

Health workforce: Every health care structure needs sufficient, knowledgeable and motivated manpower to achieve its health goals.[9] Some studies in this review indicated that, in times of crisis, family physicians were used because of the familiarity of the community with them and public trust in them.[34] Specialized training of PHC personnel and teams,[12,35-37] revision of development and educational curricula of health and medical disciplines, and inclusion of disease epidemiology units in them[20] were the other reported manpower-related policies. Moreover, in some studies, policies such as the provision of mental health services to provide emotional support and prevent burnout,[36] the provision of personal protective equipment such as shields, medical masks, and special clothing,[36] compensation for appropriate services including job security and compensation in the form of salaries and benefits[11,13,36] were proposed for the manpower involved in epidemics.

Health system financing: The purpose of health financing is to fund services which can be presented to create appropriate financial incentives for providers, and to ensure that all members of the community have access to health care.[9] In the examined studies, policies such as the use of private sector potentials,[11,19] lack of reduction of funds and budgets of PHC centers in times of crisis,[36] and government investment in PHC technology to improve the quality of virtual care[14] in order to ensure sustainable financing of PHC centers were observed. Strategies such as reforming provider payment mechanisms, including performance-related incentives, were also used in the PHC system to motivate manpower. In terms of ensuring access to PHC for individuals in the community, projects such as the national plan for the protection of people in the event of crises,[20] provision of comprehensive and free PHC to poor and vulnerable families,[20] and full reimbursement of the costs of diagnostic tests by social insurance companies or the government even if prescribed by private doctors and performed in private laboratories[27] were implemented by some countries.

Access to essential medicines and equipment: A well-functioning health care system provides equitable access to essential medical products, and safe, efficient, and cost-effective vaccines and technologies of quality through the development of national standards, guidelines, and regulations; moreover, an appropriate distribution system guarantees the support of the rational use of drugs, goods, and equipment through guidelines and strategies.[9] Some countries have developed a number of protocols to ensure access to essential medicines in times of crisis, including protocols for the management of medicines and equipment donated by local, national, or even international sources[20] and a memorandum of understanding between suppliers, carriers, and local pharmacies to ensure the supply of medicines and equipment.[20] Some countries also took measures to ensure access to medicines during the Covid-19 pandemic, such as adding to the drug stock (antiviral),[10] having a supply chain

to obtain, store, and distribute required supplies in certain quantities before and during emergency situations,[20] and ensuring drug delivery for 4 weeks or longer.[13]

Health information system: The health information system provides the basis for national and local decision-making and has 5 main functions, including the production, collection, analysis, communication, and use of data.[9] Some countries invested in infrastructures of tele-medicine in PHC centers,[13,14,20] others had experiences in data collection and production through creating a strong information and communication system for the registry and tracking of patients,[11,13,38,39] creating mobile-based infrastructures and apps,[13] and launching electronic health records (EHR).[20]

Policy options to strengthen Iran's PHC system during a pandemic: At this stage, the experiences of different countries to strengthen PHC were reviewed based on the 3 indicators of necessity, alignment with upstream documents, and the ability to be implemented in an online panel of specialists with the presence of 9 academic and executive experts in the field of health (including 3 experts of health services management, 3 experts of health economics, 2 experts of health policy, and 1 expert of health in disasters and emergencies), The solutions agreed upon by the majority and separated by the 2 main cores of the health system as policy options to strengthen the PHC system in Iran are presented in figure 2.

Discussion

There are many ways to reduce the consequences of health crises throughout the world, one of which is the appropriate and optimal use of PHC.

The PHC system can be helpful in a pandemic crisis as a multidimensional system through providing an integrated structure ranging from referral activities to provision of accurate information to health policymakers. Due to the crucial role of PHC in the management of infectious disease in relation to reducing the workload of hospital staff, reducing health costs, and improving the health status of the population,[40] this study reviewed the experiences of other countries in using the PHC system to deal with a pandemic in order to design and implement better interventions to respond to future crises using the 6 health system building blocks introduced by WHO.

The results of present study showed that in field of service delivery, some countries have used different policy options in crisis situations. The top 4 of these policy options were access, comprehensiveness, continuity, and quality of health care services. In each of these dimensions, various interventions have been used during health crises, such as the Covid-19 pandemic; for example, establishing vaccination centers on holidays to expedite vaccination in pandemics,[19] establishing mobile units,[19] increasing the number of testing centers,[19] and activating 24-hour call centers[19] and home drug delivery services[24] are the measures taken in different countries in order to provide services. However, it should be noted that service delivery is the most well-known function of a health system, and people judge a health system as good or bad based on this function. In health care delivery, the PHC is an important and fundamental part of the health sector and according to a book published by the WHO in 2008 entitled "Primary Health Care: Now More Than Ever", the PHC is the main key to and one of the ways of achieving universal health coverage in all countries regardless of their socio-economic development. An important note is that PHC should not be considered as an antithesis to hospitals, but should be considered as a coordinator of services at all levels of the health system. Another important note is that although PHC is an inexpensive service, it requires significant investment. The positive feature of PHC is the provision of more health outcomes than other departments for an equal budget.[6]

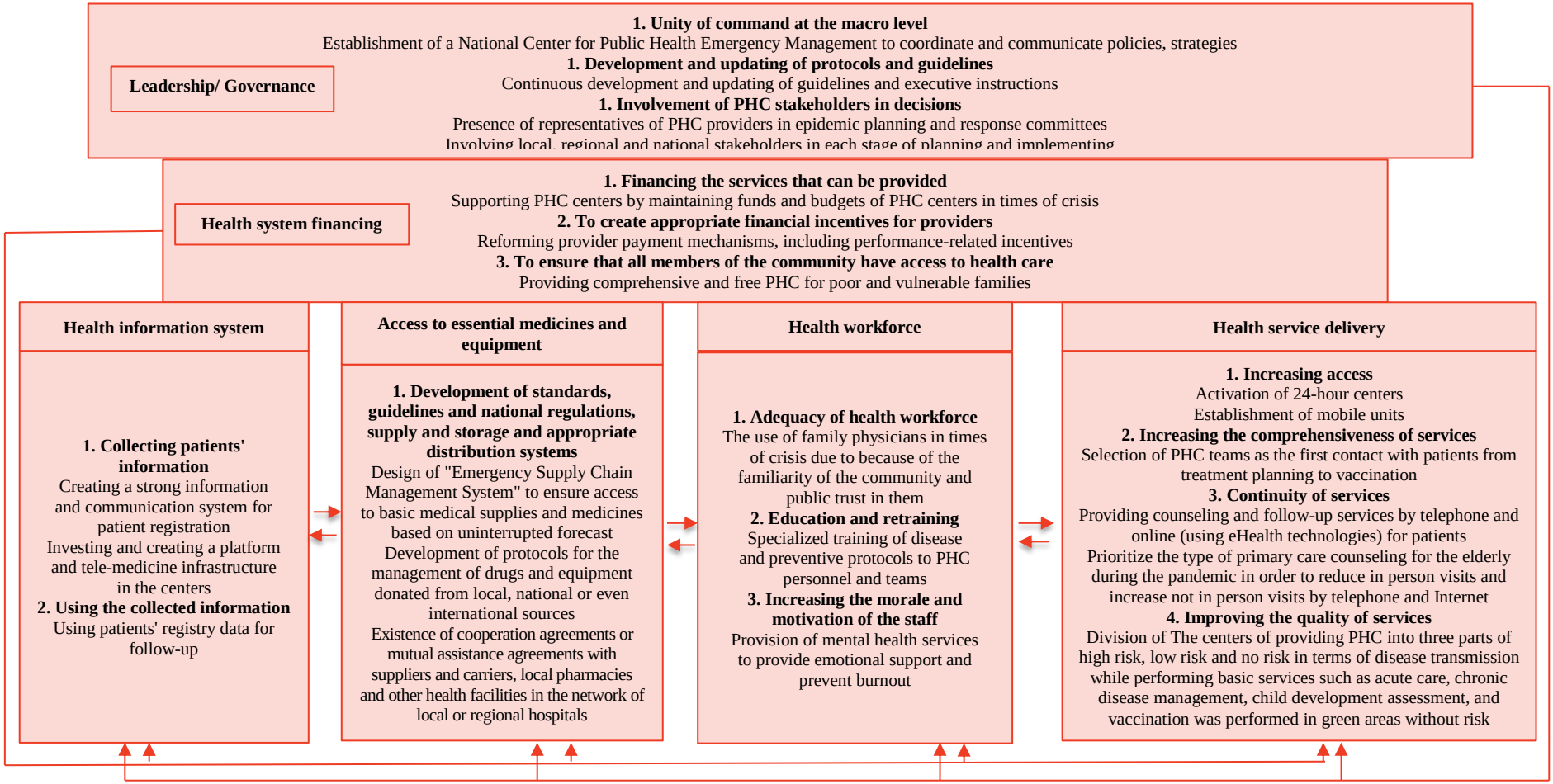

Figure 2. Policy options for strengthening Iran's primary health care system in communicable disease crises based on the six health system building blocks

Another positive point of PHC that should be considered at the time of providing the services is the diagnosis of the patient. According to William Osler, "It is very important for the physician to know who is patient rather than to know what symptoms the patient has." In fact, when people are the core of service delivery, they participate in managing their health and that of their community, thus leading to continued service delivery and increased satisfaction of patients and even care providers.

These issues are clearly important in PHC, as they may be helpful in the provision of services during health crises.[40] Currently, one of the main challenges that policymakers are faced with is the staggering increase in health spending on the one hand, and the limited financial resources due to the low economic growth of countries on the other hand. For instance, we can point to the numerous economic problems and challenges of the Iranian health system during the Corona epidemic due to sanctions.[41]

Therefore, health systems must move towards painless control of health system costs, and one of the ways to painlessly control costs is the suitable use of PHC in the structure of health services delivery. Therefore, one of the important functions of the health system is the issue of adequacy and sustainability of health care financing in critical situations. Various approaches to this issue have been proposed in previous studies. For instance, in the study by Lahariya in India, it was suggested that reforms in provider payment mechanisms, including performance-related incentives in the PHC system, may be helpful.[13] Moreover, Hasani et al. in their study in Oman suggested the use of a public-private partnership (PPI).[25]

Conclusion

Health systems in each country are a function of the economic, social, cultural, and political conditions of that country, and it is very difficult to find countries with identical health systems. Accordingly, different countries use different ways for service provision, financing, stewardship, and payment mechanism depending on their circumstances. Therefore, applying the strategies applied in other countries to strengthen PHC may have different consequences in the Iranian health system. Therefore, the proposed policy options need to be used with caution and the circumstances of the country must be taken into account.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

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