

# Emergency Preparedness and Modish Practices among Primary Healthcare Delivery Systems Facilitated through Public-private Partnership Models in a South Indian Metropolitan City: A Descriptive Cross-sectional Study

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## ABSTRACT

**Background and aim:** Access to health care is supposed to be a basic human right but the present scenario of the healthcare sector in India displays a large disparity in the healthcare services provided by the public and private sectors with wide variations in the infrastructure and services delivered by both sectors. Hence, public-private partnership (PPP) in healthcare delivery is an urgent and essential component that needs attention to ameliorate this gap. The aim of this study was to assess the current practices in healthcare services provided through PPPs in Bengaluru city.

**Materials and methods:** A cross-sectional questionnaire survey was conducted among primary healthcare centers (PHC) run under PPP in Bengaluru city, Karnataka, India. The pretested self-designed structured questionnaire consisted of 18 items regarding the current practices of PPP at the primary healthcare level. Descriptive statistics were used to describe the data.

**Results:** A total of 15 PPPs at the primary healthcare level were identified and included in the study. All of the participants provided basic healthcare services, some participants (33%) provided specialized services, and some (27%) mobile healthcare services. The overall impression of the medical officers in charge interviewed was that PPPs are better than individual endeavors by both public and private sectors. They also believed that it was important to have policies and guidelines in place to monitor aspects like the functioning of the setup, risk sharing, etc.

**Conclusion:** The results indicated that all the participants were at the primary healthcare level and mostly involved in preventive practices. It is also important to look at venturing into services that provide curative services as well. Oral health, however, did not prominently feature at any point and is another area that requires attention.

**Keywords:** Emergency preparedness, Healthcare delivery, Healthcare services, Primary healthcare, Public-private partnership.

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## INTRODUCTION

Access to health care is supposed to be a basic human right and the healthcare sector is the lifeline. In India, it is one of the largest sectors and is constantly expanding. As of 2017, the Indian healthcare market stood at USD 110 billion with a compounded annual growth rate of 22%. This value is expected to jump threefold to USD 372 billion by the year 2022.<sup>1</sup> Additionally, the Indian healthcare sector is constantly undergoing change which is initiated by forward-looking policy initiatives, technological revolutions, and attempts at integrating traditional systems of medicine with modern health care. Though this is promising progress, the challenge to unify the different fragments of the healthcare sector remains. Adding to this issue is the fact that this sector operates in a largely unregulated environment with a lack of standardization and poor compliance with the regulations and guidelines.<sup>2</sup>

The National Health Mission (NHM) is the flagship health sector program in India which has been allocated INR 33,400 crore for 2020–21. The NHM has four main prongs, namely, the National Rural Health Mission, the National Urban Health Mission, tertiary care programs, and human resources for health and medical education.<sup>3</sup> In 2017, the National Health Policy put forth a vision of enabling universal health coverage to all at affordable costs with quality health care.<sup>4</sup> This would require approaching gaps, problems, and solutions in a comprehensive manner while strategically

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partnering with the private sector. This is an essential step in bridging the gap between the public and private sectors. India is ranked within the top 20 countries in the world in private spending for health care. Approximately, 82% is from personal funds, 5–10% from health insurance, and the rest is provided by employers.<sup>5</sup> This is not in the best interest of the recipients of the care as they have to bear huge costs. In light of this situation, priority should be given to help relieve this burden.<sup>5</sup>

Public-private partnerships (PPP) may be a potential solution to tackle these problems. There is no universally accepted definition for PPP. The United States National Council for PPP has described PPP as, "a contractual arrangement between public and private sectors through which public services or facilities are delivered with the sharing of resources, risks, and rewards."<sup>6</sup> PPP was first introduced in the year 1990. These partnerships are generally long-term in nature and born out of furthering shared interests.<sup>7</sup> It must be noted that for PPPs to be successful both the public and private partners should benefit and this needs to be made clear in advance. Although the common reason for a PPP is financial, it should not be considered as just an additional source of financing.<sup>8</sup> This would especially be applicable in the healthcare sector where the main motive should be to improve the value for money and quality of services provided.<sup>8</sup>

Public-private partnerships in India are on the path of development. A number of such partnerships between the public and private sectors have materialized and aided in infrastructure development in various sectors.<sup>9</sup> However, PPPs in the healthcare sector are very few and there are practically none at the primary healthcare level. There are 25,650 primary health centers active in the country as of 31<sup>st</sup> March 2017.<sup>10</sup> In a lot of cases, there is inadequate infrastructure and personnel to effectively run these centers.<sup>2</sup> There are a number of PPP models that can be applied in such scenarios. These include outsourcing services, operation under contract, building own operate, building own leaseback, a private section within the public hospital, purchasing public hospitals.<sup>11,12</sup> The Government of India has been taking steps in trying to initiate PPPs in the healthcare sector and this provides an opportunity for both the private sector and non-government organizations to improve the healthcare services provided to the population. Some PPP projects in health care in India include the Shamaji Hospital, Gujarat, SMS Hospital, Jaipur, Chiranjeevi Yojana, Baghajatin General Hospital, Kolkata, Rajiv Gandhi Super-speciality Hospital, Karnataka, Yeshavini health Scheme.<sup>2</sup>

None of the existing partnerships are at the level of primary health care. A thorough literature search corroborated the previous statement as there is a lack of studies at the primary healthcare level with respect to the Indian subcontinent and only a few at the international level. Primary healthcare has the potential of maximum reach, partnerships should be targeted at this level as well. Therefore, the aim of the present study was to assess the current practices of the functioning PPPs at the primary health care level in Bengaluru city, Karnataka, India.

## MATERIALS AND METHODS

### Study Design and Study Population

This cross-sectional interviewer-administered structured questionnaire survey was conducted during the months of October and November 2019 among primary healthcare centers (PHC) run under PPP in Bengaluru city, Karnataka, India. The present study follows the STROBE statement guidelines from the EQUATOR network.<sup>13</sup>

### Study Sample

The samples were included based on the following criteria; (1) primary health care centers functioning under PPP; (2) within the Bengaluru urban district; (3) medical officers-in-charge who gave informed consent. Each sample constituted the PHC represented by the medical officer-in-charge of that PHC.

Written informed consent was obtained from all the participants. The informed consent document consisted of two parts. The first

part was the patient information sheet. The second part consisted of the written consent form. The entire document was in the English language and there wasn't any requirement to translate it into the local language.

- Fifteen such partnerships were identified within the defined geographical area and all of them were included in the study after obtaining informed consent.

### Sampling Tool

Prior to the commencement of the study, all the necessary requirements were fulfilled. Mandatory clearance was obtained from the institutional review board of KLE Society's Institute of Dental Sciences, Bengaluru. Permission to conduct the study was obtained from the chief health officer (CHO), Bengaluru urban district. Then, the list of all functioning PHCs was obtained from the central programs medical officer (CPMO), Bengaluru office.

Data was collected using 20 items self-designed closed-ended structured questionnaire. The questionnaire had three sections. The first section had questions pertaining to knowledge on the details of the partnership and how it functioned. The next section had questions pertaining to the practices of the PHCs running under PPP. A part of the second section also looked at the preparedness of the PHCs in emergency situations and how they were equipped to handle the demands in such cases. The final section discussed the attitude toward the public and private sectors. Additionally, risk sharing and PPP regulations were also discussed.

### Pilot Study and Pretesting of the Questionnaire

A pilot survey was conducted to assess the feasibility and flaws of the present study and comprehension of the questionnaire.

The questionnaire was pretested and Kappa statistics (k) was used to evaluate the test-retest reliability of the questionnaire and internal consistency was assessed by Cronbach's alpha (a) coefficients (k = 0.84), (a = 0.79).

### Data Collection

A single trained interviewer explained the purpose and process of the survey to the participants and recorded their responses through the interview method. Before the interview, a convenient date and time were scheduled with the officer-in-charge. The interviewer checked that appropriate response for all the questions in the questionnaire was obtained for completeness. The period of the interviews was from October to December 2019.

### Data Compilation and Analysis

The data from the responses were compiled and entered into a master table using Microsoft Excel 2010. The statistical analysis included simple descriptive statistics computed in Microsoft Excel 2010.

## RESULTS

Responses were obtained from the medical officers in charge of 15 PHCs functioning under PPP in the Bengaluru urban district.

Table 1 shows the mode of operations of the PPPs. All 15 (100%) of the medical officers-in-charge were able to correctly identify that their PHCs functioned under a PPP. The majority [11 (73.3%)] of the PHCs were funded by the central or state governments. The remaining were funded by non-government organizations (NGOs). Most [9 (60%)] of the PHCs were based on the joint venture model while the remaining were run on a contractual basis.

**Table 1:** Knowledge about the private partnership, funding, and services provided

	<i>N (%)</i>	<i>Total N (%)</i>
1. Does your institution/organization have a public-private partnership?	15 (100)	15 (100)
• Yes	0 (0)	
• No		
2. What is your source of funding?	9 (60)	15 (100)
• Government (central/state/local)	0 (0)	
• Banks (nationalized/private)	0 (0)	
• Nongovernment organizations	6 (40)	
• Charitable trusts	0 (0)	
• Private companies		
3. On what model does the public-private partnership run?	9 (60)	15 (100)
• Contractual	0 (0)	
• Build-operate-transfer (BOT)	0 (0)	
• Demand/supply-side financing	6 (40)	
• Joint ventures	0 (0)	
• Franchising		
4. Does your institution/organization provide healthcare services to the general public?	11 (73.3)	15 (100)
• Yes	4 (26.7)	
• No		
5. If yes, do you have a written reference policy that outlines the healthcare services provided to the public?	11 (73.3)	15 (100)
• Yes	4 (26.7)	
• No		
6. Types of healthcare services provided	15 (100)	15 (100)
• Primary healthcare services	15 (100)	
• Screening and referral healthcare services	5 (33.3)	
• Specialized healthcare services	4 (26.7)	
• Mobile healthcare services		

**Table 2:** Emergency preparedness and provisions of handle altered demands

	<i>N (%)</i>	<i>Total N (%)</i>
7. Do you feel your center is equipped to handle an emergency situation?	3 (20)	15 (100)
• Yes	12 (80)	
• No		
8. Do you have a separate stock of instruments, materials, and medications for use during unforeseen circumstances?	4 (26.7)	15 (100)
• Yes	11 (73.3)	
• No		
9. Is there a provision to create extra space if there is a need to increase the volume and capacity of services?	2 (13.3)	15 (100)
• Yes	13 (86.7)	
• No		
10. Has any emergency drill ever been conducted in your center?	0 (0)	15 (100)
• Yes	15 (100)	
• No		

All 15 establishments provided primary healthcare services to the general public. This included basic screening for diseases, immunization and vaccinations, consultation and advice on health issues. In addition, some [5 (33.3%)] also provided specialized

healthcare services in the form of evening clinics attended by specialty doctors including cardiologists, pulmonologists, gynecologists, etc. A few of them [4 (26.7%)] also provided mobile healthcare services. This comprised of mobile eye clinics and mobile breast cancer screening units used mainly during outreach programs. In this study, 11 (73.3%) of the PHCs had a written reference policy that outlines the services that are provided.

Table 2 looks at the state of emergency preparedness and available measures to handle such situations. Only 3 (20%) felt that they would be in a position to handle an emergency situation. In addition, very few [11 (73.3%)] had an emergency stock of instruments, materials, and medications for use during unforeseen circumstances and even fewer [2 (13.3%)] had a provision to create extra space if there was a need to increase volume and capacity of services. None of the participants had ever conducted or participated in any emergency drills.

Table 3 shows the perception of PPPs in relation to the government sector, private sector, and integration of the two. All 15 of the medical officers-in-charge felt that a PPP is better than a government initiative. Additionally, the majority [9 (6%)] believe that the private sector was not in itself superior at providing healthcare services. All 15 of them also agreed to the fact that a PPP would help to reduce the establishment and operation cost for health care services, with 12 (80%) also agreeing that a PPP will improve the access and reach of the public to health care services including cost benefits.

Table 4 discusses points on risk-sharing and hurdles which were experienced during the course of the PPP. A large majority [13 (87%)] stated that there was no written statement on risk sharing between the partners. The majority [12 (80%)] felt that it

was important to have such a written statement on risk sharing. A few of the partnerships [4 (27%)] mentioned that they had faced some hurdle in the efficient functioning of the partnership. These included difficulty in negotiations between partners and a lack of policy on sharing responsibilities between partners. Lastly, all 15 felt that it is important to have a government regulation to guide and monitor the establishment and running of PPPs.

In this particular study, all 15 (100%) of the PHCs included were for non-profit.

## DISCUSSION

The discrepancy in supply and demand in the healthcare sector has been a long-standing issue. It has been previously suggested that PPPs can be seen as social experiments that can potentially tackle

seemingly indomitable health problems and provide alternative solutions.<sup>14</sup> Therefore, it is of great value to understand the concept of PPP and how it can be beneficial. The results of the present study seem to suggest that the majority of the participants (medical officers in charge of the respective PHCs) are aware of the fact that they are a part of a PPP. However, they make up only a small fraction of the 85 odd primary Health care centers present in the Bengaluru urban district. Therefore, it can be suggested that awareness drives would be a good way to bring about a greater understanding of the concept of PPP. As the Government of India pushes for more partnered ventures with the private sector, greater awareness and knowledge would better aid this interest.

A sound established primary healthcare system is of paramount importance when it comes to sudden, unexpected circumstances. It should ideally form the base of the emergency response.

**Table 3:** Attitude toward the public and private sectors

	<i>N (%)</i>	<i>Total N (%)</i>
11. Do you believe that a public-private partnership is better than government initiatives? • Yes • No	15 (100) 0 (0)	15 (100)
12. Do you believe that the private sector is in itself superior at providing services? • Yes • No	6 (40) 9 (60)	15 (100)
13. Do you believe that a public-private partnership will reduce the establishment and operation costs for health care services compared to individual endeavors? • Yes • No	12 (80) 0 (0)	15 (100)
14. Do you believe that a public-private partnership will improve access and reach of the public to healthcare services? • Yes • No	12 (80) 3 (20)	15 (100)
15. Do you feel that public-private partnership has cost benefits for the public? • Yes • No	12 (80) 3 (20)	15 (100)

**Table 4:** Risk sharing and hurdles experienced during the course of the PPP

	<i>N (%)</i>	<i>Total N (%)</i>
16. Is there a written statement on risk-sharing between the public and private partners? • Yes • No	2 (13.3) 13 (86.7)	15 (100)
17. Do you feel a written statement on risk-sharing between the public and private partners is important? • Yes • No	12 (80) 3 (20)	15 (100)
18. Do you feel there are hurdles in the efficient functioning of the public-private partnership? • Yes • No	11 (73.3) 4 (26.75)	15 (100)
19. Does your institution/organization derive any profit from the public-private partnership? • Yes • No	0 (0) 15 (100)	15 (100)
20. Do you feel it is important to have a government regulation/Policy to guide and monitor the establishment and running of public-private partnership? • Yes • No	15 (100) 0 (0)	15 (100)

Health professionals should be trained with community-based views so that adequate care can be provided ranging from prevention to response to recovery.<sup>15</sup> As the focus is reshifted to primary healthcare as per recent World Health Reports, it has been suggested that comprehensive primary services may positively impact health in developing countries, in addition to providing better emergency management and response.<sup>16</sup> However, the present study has revealed that the participants have poor preparedness for potential emergency situations. It is likely that under unforeseen circumstances these establishments will be overwhelmed. Therefore, this is an area that needs urgent attention and should be developed on a priority basis.

In many instances, governments worldwide have been able to garner the private sector into investing in public services and utilities.<sup>17</sup> The nature and amount of investment in a healthcare system do have a role in determining its efficiency and effectiveness.<sup>18</sup> Many studies conducted in countries of varying economic development have shown that PPP can have a beneficial effect on the overall health care services that can be provided.<sup>19,20</sup> The observations made from the data collected in this study are in line with the suggestions and conclusions made by the former studies. Hence, it is safe to assume that a successful partnership between the public and private sectors can yield multiple benefits to both parties as well as to the general public who should be the prime focus of these services.

However, it must be noted that these partnerships and Ventures come with challenges and hurdles of their own. A study conducted by Jensen and colleagues observed that the term PPP has a multitude of designs and interpretations which can be attributed to the fact that there is no authoritative definition of the term. They suggested that partnership had a burden of its own and may assume complete equality in all respects which may not be the case.<sup>21</sup> Furthermore, a review that looked at PPP in the healthcare sector in India discusses the potential barriers that were experienced during the formation of such partnerships. Concerns such as shortages in infrastructure, capacity development and delivery of services which exist cannot be mapped alone by the government. And increased participation from the private partners is required to bridge the gaps. Another point of concern is about quality being consistent over time.<sup>22</sup> This is another path where the private partners need to be proactive in collaboration with the government. Findings from the present study also echo these points through the responses of the participants.

Finally, another point raised in the present study talks about the need for proper policies and guidelines to be in place for the development of such PPP. A Study conducted by Gharaee and colleagues also mentioned the fact that developing an appropriate policy could potentially improve the quality and quantity of primary Health care provided in the East Azerbaijan province of Iran. Additionally, they observed that political and economic support were the most crucial underlying factors to the success of the proposed plan.<sup>23</sup> Hence, clear-cut policies favoring PPPs would give an incentive for private partners to collaborate with the public sector.

The present study does have its set of limitations. Firstly, the small sample size and limited geographical coverage do hamper the generalizability of the results. Secondly, since there was only a single interviewer collecting all the data, fatigue bias could have potentially crept in during the recording of the responses. Thirdly, another potential source of bias could have been due to the Hawthorne

effect as the interviewees were aware that they were part of a study. Another limitation was that there wasn't any comparison with other facilities that were not running under the PPP model.

The present study attempted to look at the current situation of PPP at the primary Health care level in Bengaluru city, Karnataka, India. It is difficult to directly compare this study due to the scarcity of the available literature on similar studies. PPP in healthcare at all levels should receive more attention and more studies need to be conducted to assess the current situation and look for recommendations and solutions to improve the existing setup and infrastructure. Furthermore, comparison studies can also be done between establishments that run under PPP with exclusive public and/or private setups. There is also a pressing need for such studies to be conducted in the Indian context. Studies such as the present study can also be conducted across various taluks, districts, and states in India so that adequate comparisons can be made about the facilities in different parts of the country.

## CONCLUSION

Article 25 of the United Nations' Universal Declaration of Human Rights in 1948 states that all individuals have the right to an adequate standard of living so as to maintain their own and their family's health and well-being.<sup>24</sup> The PHC is a basic unit when it comes to the upholding of this right and should be given its due attention during the development of health infrastructure. The present study shows that there is a potential to better develop the primary healthcare system through PPP. The government should take a more proactive role in promoting PPPs at all levels of healthcare to get the best out of both the public and private sectors. Another observation was that oral health didn't feature in any of the services provided. That is one area that also deserves attention as it is intimately involved with general health. To conclude, the successful establishment and running of PPPs require a long-term commitment. There is a need to continue these efforts so that future prospects are bright.

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