Original Article

Gaps in facilities available at Community Health Centers/Rural Hospitals as per Indian public health standards – Study from Western Maharashtra

Supriya S. Patil[1], Rajesh A. Gaikwad[1], Tanvi N. Deshpande[1], S. R. Patil[2], P. M. Durgawale[1]

[1]Departments of Community Medicine, and [2]Microbiology, Krishna Institute of Medical Sciences, Karad, Maharashtra, India

Abstract

Background: The launch of the National Rural Health Mission (NRHM) gives us the opportunity to review the functioning and bring up the Community Health Centers (CHC) services to the level of Indian Public Health Standards and thus improve the lives of citizens. **Objectives:** Assessment of the gaps in the facilities available at Community health centers/Rural hospitals as per Indian Public health standards. **Methods:** Facility based cross-sectional study was conducted in the Satara district of Maharashtra. **Results:** This study in the majority showed that the gap in the delivery of healthcare according to IPHS. It was observed that the Funded CHCs had a better quality of services than the non-funded CHCs. The non-funded CHCs lacked essential emergency services. Along with ANC care, newborn care in the first few minutes of life is very crucial, but very little priority was given to the newborn care as those services were not as per norms. Specialists as well as paramedical and other support staff are deficient in both funded and non funded CHCs/rural hospitals (RHs). **Conclusion:** Standards were greatly influenced by funds delivered by IPHS itself. A staffing pattern is one of the important pillars in delivering various health services. A better salary, working place with continuous water supply, electricity, and cleanliness will improve the staffing pattern. Therefore, competent manpower and well-built infrastructure will help in the standard delivery of healthcare at CHC/RH and will thus serve the purpose of dispensing basic health services to every individual in the remotest areas.

Keywords: Community health centers, IPHS, Manpower

Introduction

Standards are a means of describing the level of quality, which the health care organizations are expected to meet or aspire to. Standards aim to maintain a quality of care that is fair and responsive to client needs, with emphasis on equitable services and to deliver improvements in the health and wellbeing of the population. The Bureau of Indian standards (BIS) has developed standards for hospital services for 30-bedded and 100-bedded hospitals.[1] However, these standards are considered resource management, citizen's charter, etc., peculiar to the public hospitals.

A 3-tier health care delivery system consisting of primary, secondary, and tertiary levels was established to provide basic health care services accessible at a grass-root level. Amongst it, the secondary level of health care essentially includes Community Health

Address for correspondence: Dr. Supriya S. Patil, "Jaisriram"- Plot No. 3, RS No. 2, Near Water Tank, Koyna Vasahat, Karad, Maharashtra, India.
E-mail: patil.drsupriya@gmail.com

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Centers (CHCs), constituting the First Referral Units (FRUs) and the Sub-district and district hospitals. The CHC is a 30-bedded hospital providing specialist care in medicine, obstetrics and gynecology, surgery, pediatrics, dental, and Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH). The CHCs were primarily designed to provide referral health care for cases from the primary health centers (PHCs) level and for cases in need of specialist care approaching the center directly. Four PHCs are included under each CHC thus catering to approximately 80,000 populations in tribal/hilly/desert areas and 1,20,000 populations for plain areas.[1]

The CHCs have been under radar of criticism with regard to their inability to deliver quality services. The main reasons are the lack of proper manpower, inadequate infrastructure, and facilities.[2] Hence as these centers could not execute their tasks well, the Government of India recognized the importance of health in the economic and social development and launched the National Rural Health Mission (NRHM) on April, 12th 2005 to carry out necessary architectural correction in the basic health-care delivery system. Also, to ensure the quality of services, the Indian Public Health Standards (IPHS) were set up for CHCs so as to provide a paradigm for services. These norms provide basic health needs that should be accessible to every individual living in remote areas. Therefore, the launch of the National Rural Health Mission (NRHM) gives us the opportunity to review the functioning and bring up the CHC services to the level of Indian Public Health Standards and thus improve the lives of citizens. This study was planned to assess gaps in facilities available at Community Health Centers/Rural Hospitals as per Indian public health standards in the Satara district from Maharashtra.

Material and Methods

The study was carried out in the Satara district of Western Maharashtra. There are 11 Talukas, 1 District hospital, 2 Sub-district hospitals, and 14 CHCs/RHs (community health centers/rural hospitals). The CHCs were divided into two groups- Funded CHCs/RH$_s$ and Non-Funded CHCs/RHs. The first group constituted CHCs to whom funds were released continuously for 4 years under IPHS (Indian Public Health Standards) and the second group included CHCs to whom funds were not released since the implementation of IPHS. By giving due representation to all the talukas, three funded and three nonfunded CHCs were selected by simple random sampling technique. The data was collected by a surprise visit to the CHCs using a proforma for IPHS facility survey given by IPHS guideline 2012 for CHCs/RHs. Hospital data were collected from the records and personal inspection was done for physical infrastructure equipments, drugs, and furniture. If a particular facility was not accessed on the fixed date due to some unresolved certainties, two more visits were done to collect data subsequently. Informed consent from the respective in charge was taken, and the study was approved by the institutional ethics committee (KIMSDU/IEC/04/2014) dated 23.09.2014. The study was conducted between January and December 2015. The collected data was analyzed in Microsoft excel in 2010. Statistical tests like mean, average, standard deviation, Chi-square test, Fischer-exact test, and unpaired t-test were used.

Results

In the present study, the data was collected from a total of 6 CHCs/RHs (3 funded and 3 non- funded) situated in the Satara district from Maharashtra, India.

Amongst specialist services, only OB-GYN services were found in all funded and non-funded CHCs/RHs. While in funded CHCs Medicine 2 (66.67%), Surgery (1 (33.33%), and Pediatric 3 (100%) services were functional. Emergency services were functional in all funded and non-funded CHC$_s$/RHs. The average daily attendance in funded and non-funded CHCs/RHs was 202 (± 106.94) and 128.33 (± 65.36), respectively; however, the difference was statistically not significant ($P > 0.05$). Services like 24-hour delivery services, daily postnatal care, treatment of reproductive tract infections/sexually transmitted infections (RTI/STI) were found in all CHCs/RHs. At least one day of the week was allotted for the antenatal clinic in all funded CHCs/RHs. Full range of family planning services (including laparoscopic services) safe abortion service, emergency obstetric care was also found in all funded CHC$_s$/RH$_s$. While these services were found in only 1 (33.33%) of nonfunded CHC/RH. Only 1 (33.33%) of non-funded CHC/RH lacked newborn care services while emergency care of sick children (as per norms) was lacking in all 3 (100%) of non-funded CHCs/RHs. The average number of caesarian delivery per month performed in funded CHCs/RHs 34.3 (± 15.62) outnumbered those performed at non funded CHCs/RHs 3.33 (± 4.71) [Table 1].

The CHCs were also analyzed for investigation facilities and all the nonfunded CHCs/RHs lacked services like X-ray facility, ultrasound, necessary reagents glassware, and facilities for transport of samples (as per norms). Essential laboratory services were found in all funded and of non-funded CHCs/RHs. While in funded CHCs/RHs 2 (66.67%) had ECG facility, X-ray facility, and necessary reagent glassware for collection and transportation of samples. The blood storage facility was not found in any non-funded CHCs/RHs as compared to 2 (66.67%) out 3 funded CHC$_s$/RH$_s$. Referral services were found in all CHCs/RHs.

An obstetrician and gynecologist were appointed in all CHCs/RHs (funded and nonfunded). While pediatrician was appointed in all 3 (100%) of funded CHCs/RHs as compared to 1 (33.33%) of nonfunded CHC/RH. General surgeon post was vacant in all of CHCs/RHs. Only 1 (33.33%) funded CHCs had a physician, and anesthetist post was filled in only 2 (66.67%) of funded CHCs/RHs. No CHCs/RHs had public health program manager, eye surgeon, general duty officers (Medical Officer) as per guidelines. Most of the supportive staff in funded as well nonfunded CHCs/RHs were understaffed as per norms (IPHS revised guidelines 2012) except for ophthalmic assistant (i.e. 1 per CHC/RH) and OT Assistant staff, which were found

Table 1: Availability of assured medical services at the CHC/RH

Assured Medical services	Funded CHC/RH *n* (%)	Non-Funded CHC/RH *n* (%)
Specialist Services		
Medicine	2 (66.67)	0
Surgery	1 (33.33)	0
Obstetrics/Gynecology	3 (100)	3 (100)
Pediatrics	3 (100)	0
Emergency services (24 Hours)	3 (100)	3 (100)
OPD Services		
Total OPD (Average per day)	202 (± 106.94)	128.33 (± 65.36)
Maternal And child Health		
Ante-natal Clinics (Average per week) Post-natal Clinics (Average per week) 24 - hour delivery services	1.33 (± 0.47)	0.83 (± 0.23)
Emergency Obstetric Care	6	6
Average Number of cases of caesarian delivery	3 (100)	3 (100)
	3 (100)	1 (33.33)
Separate septic labor room available	34.33 (± 15.62)	3.33 (± 4.71)
Full range of family planning services including Laparoscopic Services	0	2 (66.67)
Safe abortion services Treatment of STI/RTI Emergency care of sick children	3 (100)	1 (33.33)
New-born care	3 (100)	1 (33.33)
	3 (100)	3 (100)
	3 (100)	0
	3 (100)	2 (66.67)

to be as recommended in all funded and nonfunded CHCs/RHs. Non funded CHCs lacked nursing staff, dresser, pharmacist, radiographer, data entry operator, and clerk [Table 2].

All of CHCs/RHs funded and nonfunded were situated within 4 h of traveling distance from district headquarters. Out of 3 nonfunded CHCs/RHs, 2 (66.67%) had private laboratory/hospital/nursing home in nearby vicinity as compared to all of funded CHCs/RHs. 2 (66.67%) of 3 funded CHCs/RHs and 1 (33.33%) of 3 nonfunded CHC/RH had a charitable hospital in the nearby vicinity. All CHCs/RHs funded and non-funded CHCs/RHs had their own designated government building. The average area of building in funded and non-funded CHC_s/RH_s is 1708 (± 211) and 1560 (± 37) sq ft., respectively. Funded CHCs/RHs i.e., had completed construction while most non-funded CHCs/RHs are incomplete or undergoing construction. All funded CHCs/RHs and 2 (66.67%) nonfunded CHCs/RHs had compound wall/fence all around, walls were wellplastered and floor in good condition.

The OPDs in all CHCs/RHs had registration counters, pharmacy, separate public utilities for male and female, OPD rooms/cubicles, and adequate no. of windows in the room. 2 (66.67%) of both funded and non-funded CHCs/RHs had separate functioning family welfare clinic. All CHCs/RHs except 1 of nonfunded CHC/RH had waiting rooms for patients. While the suggestion box was found in 2 (66.67%) of funded CHCs/RHs, and 1 (33.33%) of nonfunded CHC/RH. The IPD in all funded CHCs/RHs and 2 (66.67%) nonfunded had functioning emergency rooms and separate male and female wards. Similarly, beds for females in funded and non-funded are 14.33 (± 0.94) and 8 (± 2.9), respectively. The operation theatre in all funded CHC_s/RH_s and 2 (66.67%) nonfunded CHCs/RHs had functioning equipment with adequate space and working air conditioners. They were regularly fumigated and had emergency/generator facility. All funded CHC/RH displayed days of sterilization in a week. Nonfunded CHC/RH did not display such board/notification. Cleanliness was found in all funded CHCs/RHs and in only 1 (33.33%) nonfunded CHC/RH [Table 3].

Both funded and non-funded CHC_s/RH_s had functioning labor room, and deliveries were routinely conducted. Walk-in coolers, walk-in freezers, ice lined refrigerators were found in all funded CHCs/RHs, while only 1 (33.33%) non-funded CHC/RH had walk-in coolers and freezers and 2 (66.67%) had ice-lined refrigerators. All CHCs/RHs had deep freezers and refrigerators, which were functioning. Bio-medical *wastes* (BMW) waste disposal as per norms is followed in all CHC_s/RH_s except 1 (33.33%) non-funded CHC/RH. Sanitary Sewage disposal for liquid waste was found in all CHCs/RHs. Laundry facility was available in funded CHCs/RHs and 1 (33.33%) nonfunded CHCs/RHs while telephone facility is available in all funded CHCs/RHs and 2 (66.67%) nonfunded CHCs/RHs [Table 4].

Discussion

The observations in this study were compared to recommended norms as per the Revised IPHS guidelines 2012.

Except for OB-GY, specialist services were not available in any of the non-funded CHCs/RHs, since the care of the antenatal mother is a priority objective of the public health system in India efforts had been made to fill up this post. But the care of the child was also not up to the mark in some CHCs/RHs. Thus, it could be concluded that the orientation of patients to good services available at funded CHCs will increase the OPD attendance.

Table 2: Availability of Manpower at the CHC/RH

Average Staff per CHC/RH	Funded Average staff per CHC/RH *n* (%)	Non-Funded Average staff per CHC/RH *n* (%)
Clinical Manpower		
General Surgeon	0 (0)	0 (0)
Physician	1 (33.33)	0 (0)
Obstetrician/Gynecologist	3 (100)	3 (100)
Pediatrics	3 (100)	1 (33.33)
Anesthetist	2 (66.67)	0 (0)
Public Health Program Manager	0 (0)	0 (0)
Eye Surgeon	0 (0)	0 (0)
General duty officers (Medical Officer)	0 (0)	0 (0)
Support Manpower		
Nursing Staff	0 (0)	0 (0)
Public Health Nurse	0 (0)	0 (0)
ANM	0 (0)	0 (0)
Staff Nurse	1 (33.33)	0 (0)
Nurse/Midwife	2 (66.67)	2 (66.67)
Dresser	0 (0)	0 (0)
Pharmacist/compounder	1 (33.33)	0 (0)
Lab. Technician	3 (100)	1 (33.33)
OT Attendant	3 (100)	3 (100)
Radiographer	1 (33.33)	0 (0)
Ophthalmic Assistant	3 (100)	3 (100)
Statistical Assistant/Data entry operator	1 (33.33)	0 (0)
Registration Clerk	0 (0)	0 (0)

Table 3: Physical Infrastructure at CHC/RH

Physical Infrastructure	Funded *n* (%)	Non Funded *n* (%)
OPD Complex		
Registration counters	3 (100)	3 (100)
Pharmacy	3 (100)	3 (100)
Separate utilities for males and females.	3 (100)	3 (100)
Suggestion/complaint box	2 (66.67)	1 (33.37)
Adequate no. of windows	3 (100)	3 (100)
Family Welfare Clinic	2 (66.67)	2 (66.67)
Waiting room for patients	3 (100)	2 (66.67)
IPD Services		
Emergency Room/Casualty	3 (100)	2 (66.67)
Separate wards for males and females	3 (100)	2 (66.67)
No. of beds: Male	14 (± 1.4)	8 (± 2.9)
No. of beds: Female	14.33 (± 0.94)	8 (± 2.9)
Operation Theatre		
Operation Theatre used for obstetric/gynecological purpose	3 (100)	2 (66.67)
Working air conditioner	3 (100)	2 (66.67)
Fumigation done regularly	3 (100)	2 (66.67)
Days of sterilization in a week displayed on the public notice	3 (100)	0 (0)

Most of the CHCs/RHs had dedicated antenatal and postnatal clinics. There was an average more than one antenatal clinic per week in funded CHCs/RHs, and in nonfunded CHCs/RHs it was less than one/week suggestive of the bis-a-month antenatal clinic. On the contrary, each CHC had daily postnatal clinics. The secondary referral center should have emergency obstetric care, and it was available in all funded CHCs/RHs and in only one nonfunded CHC/RH. Reasons could be a lack of anesthetist, functional OT, equipment, and drugs. Laproscopic tubectomies decrease the hospital stay, but laproscopic services were available in only 1 nonfunded CHCs/RHs. Emergency care of sick children was typically deficient in all nonfunded CHCs/RHs, and also newborn care was found in only 2 (66.67%) nonfunded CHCs/RHs due to lack of a pediatrician and essential equipment in nonfunded CHCs/RHs. A study conducted in Belgavi also showed the presence of emergency services (100%) in all the CHCs but only 60% had emergency care of sick children and only 30% had laproscopic family planning services.[3] The newborn care stabilization unit provides intensive care to a newborn prior to appropriate transfer to the maternity ward. All Funded CHCs had newborn care while one nonfunded CHC lacked it. According to the study conducted by Sodani *et al*. in funded CHC of a district, it was observed that none of the CHCs had fully equipped facility-based newborn care services (including newborn corner and newborn care stabilization unit).[4]

ECG, X-ray, and ultrasound facilities are the most important investigations during emergencies, which were present in 2 (66.67%) funded CHCs while all non-funded CHCs/RHs lacked X-ray and ultrasound facilities and only 1 (33.33%) CHC/RH had ECG facility. In a study conducted by Sodani *et al*.[4] reported that the majority of the CHCs (69.2%) had X-ray facility, while, only three CHC/RH (23.1%) had ECG facility.[4] The blood storage facility was lacking CHCs , which was found similar to study in Sheikhpura.[5]

An obstetrician and gynecologist were appointed in all CHCs/RHs (funded and non-funded) and the pediatrician was appointed in all funded CHC_s/RH_s as compared to 1 (33.33%) of nonfunded CHC/RH. Clinical as well as support manpower were deficient in funded and non funded CHCs. General surgeon and general duty officer post was vacant, and anesthetist post was filled in only 2 (66.67%) of CHCs/RHs. No CHCs/RHs had public health program manager, eye surgeon, general duty officers (Medical Officer) as per guidelines. A study from Chandigarh Tricity found no physician, pediatrician, general surgeon and anesthetist at CHCs in Mohali, while only 35% and 78% of drugs were available at CHCs in Chandigarh and Panchkula, respectively.[6] Another study by Bakhshi (2014) *et al*. also showed gaps in the recommended IPHS norms and the percent staffing pattern at CHCs.[7] The gap percentage was 50.67 for a general surgeon, 55.75 for general duty officer while it was 87.6 for the anesthetist.

Pharmacists, ophthalmic assistants were available in funded CHCs consistent with a study from Tamil Nadu in which all CHCs had a pharmacist and 92.3% (12 out of 13 CHCs) had ophthalmic assistants.[8]

Table 4: Other facilities available at CHC/RH

Other facilities available	Funded CHC/RH *n* (%)	Non Funded CHC/RH *n* (%)
Labor Room		
Labor room available	3 (100)	3 (100)
deliveries carried out in the labor room	3 (100)	3 (100)
Cold Chain		
Walk-in coolers	3 (100)	1 (33.37)
Walk-in freezers	3 (100)	1 (33.37)
Ice lined freezers	3 (100)	2 (66.67)
Deep freezers	3 (100)	3 (100)
Refrigerators	3 (100)	3 (100)
Waste disposal		
BMW Waste disposal as per norms	3 (100)	2 (66.67)
Sanitary sewerage system	3 (100)	3 (100)
Telephone(functioning)	3 (100)	2 (66.67)

In the present study, the paramedical staff was understaffed whereas in a study by Patil SK, Shivaswamy MS all the CHCs had nursing staff, pharmacist, laboratory technician, ward boys, OPD attendant, and sweepers.[3]

Most of the CHCs are located at a distance less than 4 hrs from district headquarters and in the vicinity to a private laboratory/Hospital/Nursing home, suggesting that in case of a breakdown of any services these private facilities could be approached and there would be minimal damage to the health of the patient in such situations. In this study, all the CHCs had a designated building, whereas a study in Himachal Pradesh showed that 85% of CHCs had their own building.[9] The average area of the building was comparable in both funded and nonfunded CHCs/RHs, but the construction of the building was incomplete in most nonfunded CHCs/RHs. On the other hand almost all CHCs/RHs irrespective of funds availability had a compound/fencing wall around, well-plastered walls, and flooring in good condition.

Most of the OPDs and IPDS in CHC/RH irrespective of funds had services up to norms. All CHC_s/RH_s except 1 of nonfunded CHC/RH had waiting rooms for patients. While the suggestion box was found in 2 (66.67%) of funded CHC_s/RH_s and 1 (33.33%) of nonfunded CHC/RH. In a study conducted in Ahemdabad, waiting room for patients and complain box was found in 42.85% CHCs.[2] The average number of beds of male and female were more funded as compared to nonfunded CHC/RH (though not statistically significant). All funded and 2 (66.67%) of non-funded CHCs/RH had a functioning operational theater. According to the study conducted by Sodani (2011) *et al*.[4] in funded CHC, 100.0% had operation theater fully equipped and functional, whereas a study in Himachal Pradesh showed that 43% of CHCs had OT, and only one CHC (14.3%) was fully equipped.[4,9] For better utilization of family planning services, days of sterilization in a week be displayed on public notice outside the operation theater, which was not found in our study results. The nonfunded CHC/RH were unclean as compared to funded CHC/RH; reasons might be understaffing.

Well-equipped labor room with all necessary provisions is the backbone of antenatal and postnatal services, and this was done on priority basis in all CHCs irrespective of funds provided by the public health department, which was similar to study where labor room was present in the majority (85.7%) CHCs and was functional in all of them.[9] However, according to a study from nationally representative 2012–2014 District Level Household and Facility Survey it was found that about 30% of primary health centers (PHCs) and 5% of CHCs reported not offering any intrapartum care.[10] Functioning walk-in coolers, freezers, and ice-lined freezer were present in all funded CHCs/RHs while were deficient in nonfunded CHCs/RHs, most of the deficient CHCs/RHs had nonfunctioning/damaged equipment. Another study showed that 100% of CHCs had OT, labor room, laboratory, and cold chain facility.[2]

This study in the majority showed that the gap in the delivery of healthcare according to IPHS standards was greatly influenced by funds delivered by IPHS itself. It was observed that the funded CHCs had a better quality of services than the nonfunded CHCs. The nonfunded CHCs lacked essential emergency services. Along with ANC care, newborn care in the first few minutes of life is very crucial, but very little priority was given to the newborn care as those services were not as per norms. A staffing pattern is one of the important pillars in delivering various health services. A study from Maharashtra has reported that the availability of funds under Indian Public Health Standards has increased the quality of health care at primary health centers and thus patient satisfaction.[11] A comprehensive assessment of primary healthcare can be achieved by integrating personnel performance with that of center performance.[12] A better salary, working place with continuous water supply, electricity, and cleanliness will improve the staffing pattern.

Conclusion

CHC/RHC forms the backbone of the Indian healthcare delivery system by ensuring equitable and accessible delivery of health care to the remote and rural areas, thereby enabling "health for all" an achievable goal. Competent manpower including primary care physicians and well-built infrastructure will help in the standard delivery of healthcare at CHC/RH and will thus serve the purpose of dispensing basic health services to every individual in the remotest areas. Focusing on a community needs assessment approach and improving the level of care will also improve the level of access to the government health services by the community.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given his/her/their

consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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