

Assessment of available health services as per Indian public health standards at sub-centers of Vadodara district of middle Gujarat, India

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ABSTRACT

Background: Setting standards are a dynamic process. To provide quality care at sub-centers (SC), Indian Public Health Standards (IPHS) standards are prescribed by Government of India. **Objective:** The objective of the study was to assess the availability of health services provided by SCs of Vadodara district. **Materials and Methods:** It was a cross-sectional study carried out at SCs of Primary Health Centres (PHCs) using IPHS standards as a checklist. The assessment was made by visiting 40 SCs of Vadodara district in Gujarat by a single observer. Descriptive statistics were used to present data. **Results:** About 36 (90%) of the SCs were located within the village and 38 (95%) SCs were easily accessible. The median distance of SC from PHC was 6 km. About 72.5% of SCs were having designated government building. About 52.5% SCs had a residential facility for frontline health workers. Availability for most of the drugs was very poor (below 25% age). Records of oral contraceptive pills usages were available in 34 (85%) of the SCs. The antenatal care services were improved by up to 25% in 10 SCs, while it was decreased to 25% in 13 SCs. **Conclusion:** The gaps existed in the availability of facilities and its standards at sub-centers. The availability of physical infrastructure and furniture was poor. There was worsening of the performance indicators in the majority of the components as compared to previous year records.

KEY WORDS: Sub-centers; Health Services; Maternal and Child Health Services; Indian Public Health Standards

INTRODUCTION


The launching of the National Rural Health Mission has provided the opportunity for framing Indian Public Health Standards (IPHS). To provide quality care in these sub-centers (SC), IPHS are being prescribed to provide basic primary health-care services to the community and achieve and maintain an acceptable standard of quality of care.^[1]

IPHS for health SC lays down the package of services that the SC shall provide, the population norms for which it would be

established, the human resource, infrastructure, equipment, and supplies that would be needed to deliver these services with quality. Setting standards are a dynamic process. These standards are being prescribed in the context of current health priorities and available resources.^[2]

All “Minimum Assured Services” or Essential Services at the SC should be available, which include preventive, promotive, few curative, and referral services and all the National Health Programmes. The services which are desirable are for the purpose that we should aspire to achieve for this level of the facility.^[2]

Majority of the studies in India conducted to evaluate the quality of health services have focused on individual service components. An attempt at literature search found scanty information of assessing all the components of quality of health services as a whole, at SCs. Hence, this study was

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aimed to assess the availability of health services provided by SCs of Vadodara district.

Objectives

The objectives are as follows:

- To assess health services provided by sub-centers in terms of workforce, physical infrastructure, furniture, available services, equipment, and drug supply
- To measure processes by reviewing records.

MATERIALS AND METHODS

The study was carried out at sub-centers of Vadodara district, which has been divided into seven blocks and has a total of 40 Primary Health Centres (PHCs) and 243 sub-centers. One sub-center from each PHC was randomly selected for the study. Hence, a total of 40 sub-centers were included in this cross-sectional study from April 2015 to February 2016.

Study Tools

Study tool used was the IPHS model for quality assessment, which is divided into three parts: Structure (Input), process, and output. Input and process assessments were done at the facility where service was provided whereas output assessment was done by assessing the utilization of services in terms of patient satisfaction.

Data Collection

Written permission from Chief District Health Officer was taken before starting the data collection. The Medical Officer In-Charge of the PHC was informed before data collection.

Frontline health workers (FHW) were briefed about the purpose and nature of the assessment to be carried out at the center. Assessment of the overall infrastructure of the SC was made by visiting various sections of the buildings. The availability of equipment, drugs, and essential guidelines was assessed for individual service components.

All the observations were made by a single observer at all SCs thereby maintaining consistency and eliminating inter-observer bias. The checklist had been modified to collect data on.

Input

- Workforce and their training status
- Physical infrastructure
- Furniture and Equipment: Physical verification.

Scores were given to each of the items in the furniture and equipment assessment instrument. The score ranged from 0 to maximum 1 based on the relative importance of

the item. At the end of each section, a total of the obtained scores were calculated and converted into a percentage. On the basis of this score, SCs were graded in four categories, as follows;

>75% Adequate; 51–75% Average; 26–50% Poor; <25% Very poor

- Drugs supply: Physical verification
- Maternal and child health (MCH) care services

Process

- Reviewing of records.

Data Entry and Analysis

The data were entered and analyzed using Microsoft Office Excel Worksheet 2007. Descriptive statistics were used in results.

Ethical Issues

Approval of ethical committee and PG scientific review committee (SRC, Medical College Baroda and SSG Hospital) was taken before starting the data collection.

All the staff members interviewed for the study were informed about the purpose of the study before starting the interview. For observation of actual service provision also, the staff members were explained beforehand about the nature and purpose of such observation.

RESULTS

The study was carried out at 40 out of 243 SCs of Vadodara district by random selection from each PHC.

It was found that 36 (90%) of the SCs were located within the village and 38 (95%) SCs were easily accessible. The median distance of SC from PHC was 6 km (Interquartile Range [IQR] = 5) and from Community Health Centres (CHC) was 11.975 km (IQR = 10).

About 21 (52.5%) SCs were catering to 4000–5999 population, 8 (20%) SCs had <3999 population while 11 (27.5%) SCs had more than 6000 population. The average population covered by the SCs was 5205 (median 4998 and range 1777–9908).

As per IPHS, SC should have 1 female health worker and 1 male health worker, which was found in 38 (95%) SCs. 24 (60%) SCs had contractual Safai Karmachari available. Staff nurse was not available at any of the SCs.

Female health worker had taken integrated management of childhood illness 35 (92.11%), copper-T 34 (89.47%),

neonatal 35 (92.11%), HIV 35 (92.11%), tuberculosis 38 (100%), and Integrated Disease Surveillance Programme 33 (86.84%) training. However, there was felt the need for one or other components of MCH by FHWs.

The majority (65.79%) of FHWs had been working for more than 10 years at SCs. Only one of them was appointed before 15 days of the interviewer visit. Two SCs had a vacant post for FHW and FHW of other SC was given additional charge of it.

Table 1 shows present condition of physical infrastructure of SCs. Six (15%) SCs were running at rented premises such as community hall of the panchayat, old library, Jain Dharamshala, and even at accredited social health activists (ASHA's) home. Twenty-one (52.5%) SCs had the residential facility for FHWs but only 7 (33.33%) of them were staying at SCs and 1 (2.5%) was staying in the village. None of the multi-purpose health worker (MPHW) was staying at SCs and only one of them was staying in the same village.

Table 2 shows the availability of water, electricity, and communication facilities at SCs.

Table 3 shows the availability of furniture and equipment at visited SCs. Only one SC in adequate category (more than 75% of score) while 7 (17.5%) of SCs were in very poor (<25%) category [Figure 1].

Table 4 shows that antenatal care (ANC), postnatal care, and immunization were available at almost all the SCs, but intranatal care and newborn care were available at only 2 (5%) of the SCs. (Only at these SCs deliveries were conducted).

The doctor visited SC at least once in a month at 36 (90%) of the SCs but the day and time of doctor's visit were not fixed in any of them. Lady Health Visitor (LHV) visited SC at least once in a week at 22 (55%) of the SCs. Injection tetanus toxoid, iron-folic acid (IFA) tablets, weight checkup, and blood pressure checkup were carried out at all of the SCs. Hemoglobin testing was done at 23 (57.5%) of the SCs. Urine test for protein and sugar was done in 34 (85%) of the SCs while urine test for pregnancy was done in 39 (97.5%) of the SCs.

Referral facility of complicated cases or delivery was available at all of the SCs for 24 h and ASHA/Auxiliary Nurse-Midwife would accompany them at the time of referral at all of the SCs. Facility for peripheral blood smear was available in all of the SCs.

Insertion of copper-T was done at SC in only 15 (37.5%) of the SCs and DOTS was provided by ASHA in 36 (90%) of the SCs.

Table 5 shows that availability for most of the drugs was very poor (below 25%) except for paracetamol and albendazole tablets.

Table 1: Present condition of physical infrastructure of SCs (n=40)

Names of type of premises	SC (%)
SC building	
Designated government building for SC	29 (72.5)
SC at rented premises	6 (15)
SC at Anganwadi	4 (10)
SC at PHC	1 (2.5)
Residential facility for FHW at SC	21 (52.5)
Existing building in good condition	16 (40)
Compound wall around SC building	13 (33.33)
Good flooring	14 (35)
Good cleanliness	20 (50)
Prominent Display boards	22 (55)
Suggestion Box	0 (0)
Labor room	23 (57.5)
Deliveries carried out	2 (8.7)
Clinic room	36 (90)
Examination room	29 (72.5)

SC: Sub-centers, FHW: Frontline health workers, PHC: Primary Health Centres

Table 2: Availability of water, sanitation, electricity, and communication facilities at sub-centers (n=40)

Particulars	SC (%)
Source of water available	28 (70)
Piped water supply (n=28)	26 (92.86)
Overhead tank available	22 (55)
Disposing medical waste	40 (100)
Toilet facility available at SC	33 (82.5)
Working condition of the toilet facility	30 (90.91)
Electricity available	37 (92.5)
Backup generator available at SC	0 (0)
Communication facilities like CUG phone available	39 (97.5)

SC: Sub-centers

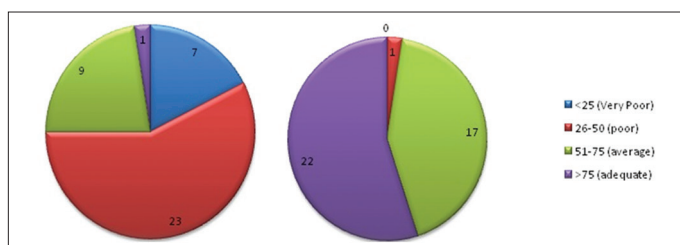


Figure 1: Average score of sub-centers for furniture and equipment

Seventeen (42.5%) of the SCs had adequate paracetamol tablets and 28 (70%) of the SCs had albendazole tablets more than average 75%. ORS, IFA tablets, Zinc sulphate tablets, Vitamin A syrup and dicyclomine tablets were below 25% of required level in 27(67.5%), 23(57.5%), 20(50%), 23(57.5%) and 27(67.5%) of SCs respectively. 39(97.5%) of the SCs had Clotrimazole, Methylergometrine Tablets

and Chloramphenicol Eye Ointment were below the average 25%. IFA syrup and Povidone Iodine Ointment was below 25% of required stock in 36(90%) and 31 (77.5%) of the SCs respectively. All of the SCs had Methylergometrine Injection and Cotton Bandage was below the average 25%.

Process Assessment

To record the process of MCH care, recording forms were checked. To assess the services of maternal care, the records

Table 3: Availability of furniture and equipment at sub-centers

Furniture		Equipments	
Items	SC (%)	Items	SC (%)
Writing table	39 (97.5)	Weighing scale (Adult)	40 (100)
Chairs	38 (95)	Stethoscope	40 (100)
Examination table	26 (65)	Hub cutter and needle destroyer	40 (100)
Fans	23 (57.5)	Weighing scale (Infant)	39 (97.5)
Labor Table	20 (50)	Weighing scale (Children)	39 (97.5)
Tube lights	18 (45)	Sphygmomanometer	39 (97.5)
Buckets	13 (32.5)	Measuring tape	38 (95)
Rubber/plastic sheet	11 (27.5)	Flashlight/Torch box-type	37 (92.5)
Water receptacle	10 (25)	Hemoglobinometer	37 (92.5)
Stools	06 (15)	Clinical thermometer oral	36 (90)
Bed side table	03 (7.5)	Foetoscope	36 (90)
Lamp	03 (7.5)	Sterilizer	28 (70)
Kerosene stove	0 (0)	Clinical thermometer rectal	6 (15)
-	-	Vaccine carrier	0 (0)
-	-	Ice pack box	0 (0)

SC: Sub-centers

were reviewed. The records (Previous year as well as a recent year) were available at 33 (82.5%) of SCs only and the records of seven SCs were not made available by FHWs even after two telephonic follow-ups.

It was found that records of oral contraceptive (OC) pills usages were available in 34 (85%) of the SCs. Sterilization forms were available only in 9 (22.5%) of the SCs while ANC cards were available at all of the SCs. There was only two SC where the deliveries were being conducted. No male sterilization was carried out in any of the SC as per the records.

There was worsening of the performance in the majority of the components as compared to previous year records. The major worsening in performance was found in female sterilization 16 (48.48%) [Table 6].

The ANC services were improved by up to 25% in 10 SCs, while it was decreased to 25% in 13 SCs. The condoms distribution was improved up to 25% in 6 SCs, while it was

Table 4: Availability of MCH services at sub-centers

Items	SC (%)
Antenatal care	40 (100)
Intranasal care	2 (5)
Postnatal care	40 (100)
Newborn care	2 (5)
Childcare including immunization	40 (100)
Family planning and contraception	39 (97.5)
Adolescent health care	39 (97.5)
Assistance to school health services	39 (97.5)
Facilities under Janani Suraksha Yojana	39 (97.5)
Treatment of minor ailment	39 (97.5)

MCH: Maternal and child health, SC: Sub-centers

Table 5: Availability of drugs stock at sub-centers

Particulars	% Available in drugs stock SC (n=40)			
	<25	26-50	51-75	>75
ORS	27 (67.5)	3 (7.5)	5 (12.5)	5 (12.5)
IFA tablets	23 (57.5)	14 (35)	2 (5)	1 (2.5)
Clotrimazole	39 (97.5)	0	0	1 (2.5)
Zinc sulfate tablets	20 (50)	7 (17.5)	3 (7.5)	10 (25)
IFA syrup	36 (90)	2 (5)	0	2 (5)
Vitamin A syrup	23 (57.5)	8 (20)	2 (5)	7 (17.5)
Methylergometrine tablets	39 (97.5)	0	1 (2.5)	0
Paracetamol tablets	11 (27.5)	7 (17.5)	5 (12.5)	17 (42.5)
Methylergometrine injection	40 (100)	0	0	0
Albendazole tablets	8 (20)	4 (10)	0	28 (70)
Dicyclomine tablets	27 (67.5)	1 (2.5)	4 (10)	8 (20)
Chloramphenicol eye ointment	39 (97.5)	0	0	1 (2.5)
Povidone-iodine ointment	31 (77.5)	6 (15)	1 (2.5)	2 (5)
Cotton bandage	40 (100)	0	0	0

IFA: Iron-folic acid, SC: Sub-centers

decreased to 25% in 9 SCs. The OC pills distribution was improved by up to 25% in 5 SCs, while it was decreased to 25% in 13 SCs. Female sterilization was improved up to 50% in 7 SCs, while it was decreased to 25% in 8 SCs.

DISCUSSION

It was found that half of SCs were catering acceptable norms for the population. Few SCs had too less population, while most SCs had too much population. The average population covered by the SCs was 5205 (median 4998 and range 1777–9908). Majority of the SCs were located within the village and were easily accessible. The median distance of SC from PHC was 6 km (IQR = 5) and from CHC it was 11.975 km (IQR = 10). It was found that majority of SCs had a designated government building while few SCs were running at Anganwadi, PHC or rented. Half of the SCs had a residential facility for FHWs but only a few of them were staying at SCs and none of the MPHWS was staying at SCs, only one MPHWS was staying in the same village. For equipment available at SCs, 55% of SCs fell into more than 75% of the score while 42.5% into average (51–75) category and none of the SCs had percentage score for equipment <25%. In the current study, it was found that doctor visited SC at least once in a month at most of the SCs but day and time of doctor's visit were not fixed in any of them. LHV visited SC at least once in a week at most of the SCs.

A similar study conducted by Reddy *et al.* in Chittoor (Andhra Pradesh) it is 4833^[3] and Pal *et al.*^[4] in Mandla district found that average population covered by each SCs was 3600. This issue needs to be addressed at the country and new SCs need to be established as per the IPHS.^[4] The median distance of SC from PHC and CHC was quite similar to the study by Reddy *et al.* in Chittoor district.^[3] It was found that out of 34 SCs studied, half of SCs were housed in government buildings and the remaining half were being operated in rented buildings. Out of 17 SCs housed in government buildings, 41.2% were in designated government buildings, and few were in the government buildings of other departments. Out of 41.2% SCs housed in designated government buildings, only 26.4% were in good condition, with a residential facility with all amenities for FHW and room with all equipment for health-care delivery.^[3] As per IPHS, the SCs should provide a residential facility for FHWs. In other similar studies conducted by Nair *et al.* in Kerala^[5] and Pal *et al.* in Mandla^[4] found that only in 54.4% and 27.5% of SCs had own building, respectively, only 31.1% and 75.7% health workers were staying in SCs or the SC village. This is bound to impair the level of functioning of the respective SCs. FGD conducted with health workers, the reasons mentioned were, poor condition of quarters, SC away from villages, hampering education of children, has to stay away from family and no separate rooms in old SCs.^[6] A study conducted in Lucknow by Roy *et al.* found that compound wall all around was present in 62.5% of the SCs.

Table 6: Record review of maternal care services

Services	SC (n=33)						Total	
	Improvement			Worsening				
	<25 (Mild)	26-50 (Moderate)	51-75 (Good)	>75 (Very Good)	<25 (worse)	26-50 (less worse)	51-75 (medium worse)	>75 (worst)
ANC women screened	10 (30.3)	5 (15.15)	0	1 (3.03)	13 (39.4)	3 (9.09)	1 (3.03)	0
Condoms distribution	6 (18.18)	3 (9.09)	2 (6.06)	2 (6.06)	9 (27.3)	2 (6.06)	1 (3.03)	0
OCP distribution	5 (15.15)	1 (3.03)	2 (6.06)	2 (6.06)	13 (39.4)	2 (6.06)	0	0
Female Sterilization	3 (9.09)	7 (21.21)	0	7 (21.2)	8 (24.2)	7 (21.21)	0	1 (3.03)
					16 (48.48)	13 (39.39)	17 (51.51)	16 (48.48)

ANC: Antenatal care, SC: Sub-centers

The examination room was present in 81.2% of the SCs, but clinic room and labor room were present in 62.5% and 50% of the SCs, respectively. In none of the SCs where the labor room was present, the deliveries were conducted. Prominent display board in local language was seen in mere 18.8% of the centers and not even a single SC was found to be equipped with suggestion/complain box.^[7] The findings of the present study are consistent with these studies. Regarding the reasons behind not conducting deliveries, FHWs (30) said that PHCs/CHCs were in the vicinity of SCs, so they referred patients there for deliveries. The other reasons were that no staff was staying at SCs (26) and poor condition of labor room, but from the clients point of view, doctor was not available at SC for deliveries, and nearby good private hospital was available.^[6] A similar study conducted by Roy *et al.* in Lucknow found that the most common reason for not conducting deliveries was the absence of electricity (100%) followed by absence of resident staff (87.5%).^[7] A similar study conducted by Reddy *et al.* in Chittoor district (Andhra Pradesh [AP]) found that the source of water was available at 82.4% of the SCs. Proper disposing of medical waste was done at only 14.7% of the SCs. Electricity was available in 79.4% of SCs and communication facilities like mobile phones at all of the SCs.^[3] Pal *et al.* study also found the same results, except regular water supply, in 35% of SCs.^[4] In a study conducted by Reddy *et al.* in Chittoor district (AP), SCs were graded and ranked according to available physical facilities and basic amenities. They found that only 26.4% were good, 23.5% average, and 50.1% were poor.^[3] In a study conducted by Pal *et al.* at Mandala SCs were graded 10% as good, 42.5% as average, and 47.5% as poor.^[4] Roy *et al.* in Lucknow^[7] and Das and Amir in Aligarh^[8] found that 75% and 57.2% in ANC registration and immunization, respectively. Reddy *et al.* in Chittoor^[3] (AP) found out that only 8.8% of the SCs were being visited once in a month on a fixed day by the medical officer. The supervisors (male or female health assistants) were regularly visiting only 61.7% of SCs, whereas in the Kerala study conducted by Nair *et al.*,^[5] 58.9% of the SC were visited by a medical officer every month.

The present study has included at least one SC from all PHCs of the whole district and reported the present condition of health services at SCs. More studies are required from other districts to get a true picture of the state.

Recommendations

The basic distribution of population for SCs to be regulated as per the norm, for better functioning and supervision of the SCs. Up gradation of SCs is required as per IPHS norms in terms of residential facilities for workers, number of rooms, water supply, and communication facilities.

Special attention should be given to the provision of functional labor rooms. For services to be delivered optimally, particularly if we consider institutional deliveries,

FHW should stay at the village where the SC is located, given the fact that provision for her stay has been made at every SC. To improve supervision of sub-centers, medical officers must be impressed on to submit their monthly tour programs in advance, and respective tour notes to the SCs.

CONCLUSION

There were gaps in the available facilities and IPHS standards at sub-centers. The availability of physical infrastructure and furniture was poor. Labor room was available only at half of the SCs and deliveries carried out at only a few of them. The availability of arrangements for Biomedical waste, Electricity and Communication facilities were good, but the facility for water supply was not adequate. The availability of equipment was good except for rectal thermometer and sterilizer. The availability of MCH services was good except for intranasal and newborn care. The availability of drugs and consumables was very poor. There was worsening of the performance indicators in the majority of the components as compared to previous year records.

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