International Journal of Community Medicine and Public Health
Paul D et al. Int J Community Med Public Health. 2019 May;6(5):2264-2269
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20191855

Original Research Article

Assessment of the availability of infrastructure, manpower, materials and knowledge of health care providers regarding child health care services in the sub centers of a block of Dibrugarh district, Assam

Debarshi Paul*, Gourangie Gogoi, Rupali Baruah

Department of Community Medicine, Assam Medical College and Hospital, Dibrugarh, Assam, India

Received: 09 March 2019
Revised: 16 April 2019
Accepted: 17 April 2019

***Correspondence:**
Dr. Debarshi Paul,
E-mail: debarshipaul@gmail.com

ABSTRACT

Background: The SCs are under constant criticism for their inability to deliver quality services. Every year some 12 million children of developing countries die before they reach their fifth birthday. Around 90% of mortality rate can be prevented by the improvement of health care quality.
Methods: Cross-sectional study conducted among health care providers of sub-centers in a randomly selected block of Dibrugarh district of Assam.
Results: All SCs had two health worker (female)/ANMs and a multipurpose health worker male (MPW Male). Only 20% SCs adhered to scheduled opening but 100% adhered to scheduled closing time of the health facilities. 100% of SCs were housed in government building. 70% of the SCs had motorable roads. All the SCs had a regular and good supply of BCG, OPV, measles, TT, pentavalent (90% SCs) vaccines.
Conclusions: SCs play a crucial role to decrease the morbidity and mortality of under five children in the rural areas. Full-fledged SCs with sufficient manpower, good infrastructure and good knowledge of delivery of child health care among health care providers would definitely improve the level of child health care provided to the community.

Keywords: Quality of child health care, Service input, Child health care, Sub center

INTRODUCTION

Most of the deaths of under-five children occur due to diseases which are easily treatable or preventable with proven, worthwhile interventions. If sustainable development goals (SDG) target on child survival by 2030 is achieved by all countries, an added 10 million lives of under-five children (half of them newborns) will be saved over the period 2017-2030.[1] There is a considerable gap between maternal and neonatal mortality in developed and developing countries, due to the difference in health care quality.[2]

The SCs are under constant criticism for their inability to deliver quality services. The main reasons are the non-availability of health workers, inadequate infrastructure and facilities, and insufficient supply of drugs.

Building on a conceptual framework proposed by Donabedian[3], three major aspects of care can be evaluated: the structure or service input of care delivery system, the process by which care is delivered and outcome of care. Structure or input of the care delivery system includes material, human, financial and organizational structure. Using the conceptual framework proposed by Donabedian, the present study attempts to make rational observations and assess Indian Public Health Standards regarding service input for child healthcare services at sub-centers in a block of Dibrugarh district, Assam, with the following objectives:

- To assess the infrastructure, manpower and materials available for child health care services in sub-centers of a block of Dibrugarh district.
- To assess the knowledge of child health care service among the health care providers.

METHODS

A cross-sectional study was conducted among health care providers of sub-centers in a block of Dibrugarh district of Assam, from September to November, 2017.

There are 6 blocks under Dibrugarh district. Out of these 6 blocks, 1 block was selected randomly for conducting the study. Panitola block was selected randomly. From the selected block, 50% of the total number of SCs was enlisted for the study. There are 20 SCs under the block. Thus 10 SCs were selected randomly. The selected sub-centers were visited and a predesigned and pretested proforma was used to interview the ANMs regarding the infrastructure, manpower and materials available for child health care services and their knowledge of child health care service. In the case there were 2 ANMs in one sub center, the senior ANM was interviewed.

Data was computed and analyzed using proportions.

RESULTS

All SCs had two health worker (female) /ANMs and a multipurpose health worker male (MPW Male). But only 40% SCs had contractual Safai Karmacharis (Table 1).

Only 20% SCs adhered to scheduled opening but 100% adhered to scheduled closing time of the health facilities. All ANMs were trained in RCH programme but none were trained in RMNCH+A (Table 2).

100% of SCs were housed in government building. 70% of the SCs had motorable roads. Only 20% of SCs had residential facility for ANMs. 80% SCs had electricity connection, display of IEC materials and sitting accommodations. Cleanliness was observed in all the SCs (Table 3).

Table 1: Availability of manpower at subcentres of Panitola block (expressed as percentage).

Personnel	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Health worker (female)/ANM	100	100	100	100	100	100	100	100	100	100	100
Health worker (Male)	100	100	100	100	100	100	100	100	100	100	100
Contractual Safai Karmachari	0	0	100	100	100	0	0	100	0	0	40
Total	66.6	66.6	100	100	100	66.6	66.6	100	66.6	66.6	80.0

Scoring pattern - Present/Absent= 1/0.

Table 2: Adherence to scheduled opening and closing time of the health facilities and in-service training of health care providers for child health care services (expressed as percentage).

Time	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Opening time	0	0	100	0	0	100	0	0	0	0	20
Closing time	100	100	100	100	100	100	100	100	100	100	100
RCH training	100	100	100	100	100	100	100	100	100	100	100
RMNCH+A training	0	0	0	0	0	0	0	0	0	0	0
Total	50.0	50.0	75.0	50.0	50.0	75.0	50.0	50.0	50.0	50.0	55.0

Scoring pattern– Opening and closing as per schedule (yes/no) – 1/0, Training received/not received = 1/0.

Table 3: Availability of infrastructure at subcentres of Panitola block (expressed as percentage).

Infrastructure	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Government building	100	100	100	100	100	100	100	100	100	100	100
Motorable roads	100	100	0	100	100	100	0	100	100	0	70
Residential facility for ANMs	0	0	0	0	100	0	0	0	100	0	20
IEC materials	100	100	0	100	100	100	0	100	100	100	80
Sitting accommodations	100	100	0	100	100	100	0	100	100	100	80
Electricity	100	100	0	100	100	100	0	100	100	100	80
Cleanliness	100	100	100	100	100	100	100	100	100	100	100
Water supply	100	100	0	100	100	100	0	100	100	0	70
Toilet	100	0	0	100	0	0	0	100	100	0	40
Vehicle	0	0	0	0	0	0	0	0	0	0	**0**
Total	80.0	70.0	20.0	80.0	80.0	70.0	20.0	80.0	90.0	50.0	64.4

Scoring pattern - Present/Absent = 1/0.

Table 4: Availability of equipments and vaccines for immunization service in the subcentres of Panitola block (expressed as percentage).

Records/equipments	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Immunization card	100	100	100	100	100	100	100	100	100	100	100
Immunization register	100	100	100	100	100	100	100	100	100	100	100
Vaccine carrier	100	100	100	100	100	100	0	100	100	100	90
Ice packs	100	100	100	100	100	100	100	100	100	100	100
BCG	100	100	100	100	100	100	100	100	100	100	100
Pentavalent	100	100	100	100	100	100	0	100	100	100	90
OPV	100	100	100	100	100	100	100	100	100	100	100
Measles	100	100	100	100	100	100	100	100	100	100	100
TT	100	100	100	100	100	100	100	100	100	100	100
Diluents	100	100	100	100	100	100	100	100	100	100	100
Autodisable syringes	100	100	0	100	0	100	0	100	100	100	70
Disposable syringe and needle	100	100	100	100	100	100	100	100	100	100	100
Total	100	100	91.7	100	91.7	100	75.0	100	100	100	95.8

Scoring pattern - Present/Absent = 1/0.

Table 5: Availability of drugs for management of ari and diarrhoea and vitamin a supplementation at subcentres of Panitola block (expressed as percentage).

Drugs	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Cotrimoxazole	100	100	100	100	100	100	100	100	100	100	100
Paracetamol suspension	100	100	0	100	100	100	0	100	100	100	80
ORS	100	100	100	100	100	100	100	100	100	100	100
Zinc sulphate tablets	100	100	0	100	100	100	0	100	100	100	80
Vitamin A solution	100	100	100	100	100	100	100	100	100	100	100
Total	100	100	60	100	100	100	60	100	100	100	92.0

Scoring pattern - Present/Absent = 1/0.

Table 6: Knowledge of health care providers for newborn care practice (expressed as percentage).

Knowledge	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Conducting delivery	100	100	100	100	100	100	100	100	100	100	100
7 cleans during delivery	100	0	0	100	0	100	0	0	100	0	40
Provision of warmth	100	100	100	100	100	100	100	100	100	100	100
Measures if newborn fail to cry	100	100	100	100	0	100	0	100	100	100	80
Time of initiation of Breast feeding	100	100	100	100	100	100	100	100	100	100	100
Referral of baby <1500 gm	100	100	100	100	0	100	100	100	100	100	90
EBF duration	100	100	100	100	0	100	100	100	100	100	90
Total	100	90	90	100	42.8	100	71.4	90	100	90	85.7

Scoring pattern – Knowledge Present/Absent = 1/0.

Immunization card and registers were maintained in all the SCs. All the SCs had a regular and good supply of BCG, OPV, measles, TT, pentavalent (90% SCs) vaccines (Table 4). All SCs had supply of Cotrimoxazole, ORS and vitamin A solution and 80% had zinc sulfate tablets and paracetamol suspension (Table 5). All ANMs (100%) were trained in conducting delivery and knew about time of initiation of breast feeding. Whereas 90% knew about referral of baby <1500 gm and only 40% knew about 7 cleans during delivery (Table 6). 82% and 85.7% of the ANMs had an overall knowledge about management of ARI (Table 7) and management of diarrhoea (Table 8) respectively. 90% of the ANMs had knowledge about Vitamin A supplementation service (Table 9).

Table 7: Knowledge of health care providers about management of ARI (in percentage).

Knowledge	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Meaning of ARI	100	100	100	100	100	100	100	100	100	100	100
Classification of ARI	100	0	0	100	0	0	0	100	100	0	40
Treatment of ARI	100	100	100	100	100	100	100	100	100	100	100
Danger signs of pneumonia	100	100	0	100	0	100	0	100	100	100	70
Prevention of pneumonia	100	100	100	100	100	100	100	100	100	100	100
Total	100	80	60	100	60	80	60	100	100	80	82.0

Scoring pattern – Knowledge Present/Absent = 1/0.

Table 8: Knowledge of health care providers about management of diarrhoea (in percentage).

Knowledge	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Definition of diarrhoea	100	0	0	100	100	0	0	100	100	0	50
Classification of dehydration	100	100	0	100	100	100	100	100	100	100	90
Treatment of diarrhoea	100	100	100	100	100	100	100	100	100	100	100
Role of antibiotics	100	0	0	100	100	0	0	100	100	100	60
Feeding practice during diarrhoea	100	100	100	100	100	100	100	100	100	100	100
ORS preparation	100	100	100	100	100	100	100	100	100	100	100
Prevention of diarrhoea	100	100	100	100	100	100	100	100	100	100	100
Total	100	71.4	57.1	100	100	71.4	71.4	100	100	85.7	85.7

Scoring pattern – Knowledge Present/Absent = 1/0.

Table 9: Knowledge of health care providers for vitamin A supplementation service (in percentage).

Knowledge	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	Mean
Importance of Vit. A	100	100	100	100	100	100	100	100	100	100	100
Supplementation with Measles immunization	100	100	100	100	100	100	100	100	100	100	100
Schedule of subsequent doses	100	100	100	100	100	0	100	100	100	100	90
Symptoms of Vit. A deficiency	100	0	100	100	100	0	100	100	100	100	80
Prevention of deficiency	100	0	100	100	100	0	100	100	100	100	80
Total	100	60	100	100	100	40	100	100	100	100	90

Scoring pattern – Knowledge Present/Absent = 1/0.

DISCUSSION

All SCs had two health worker (female) /ANMs and a multipurpose health worker male (MPW Male). In a study by Reddy et al, all the SCs had at least one health worker (female).[4] Two HW (F) and one MPW (M) were available in 16 (47.0%) and 11 (32.3%) SCs, respectively. In a study conducted by Nair et al in Kerala, they found that only 56.4 % of SCs had two HW(F).[5]

In the study conducted by Reddy et al, out of 34 SCs, 17 (50%) SCs were housed in government buildings and the remaining 17 (50%) were being operated in rented buildings.[4] The present study shows that 100% of SCs were housed in government building. According to DLHS-4, in Assam, nearly 75% of SCs have their own government building.[6] Whereas, few other studies done by Jain et al and Patil et al found 66.7% and 55% SCs respectively were housed in government buildings.[7,8]

As per IPHS, the SCs should provide residential facility for auxiliary nurse midwives (ANMs); this study found that only 20% of SCs had residential facility for ANMs which is quite similar to the study by Reddy et al where 26.4% of SCs have residential facilities for ANMs.[4] In similar studies conducted in Kerala, Mandla and facility survey India, it was found that only in 54.4%, 27.5%, and 30% of SCs had own building, out of these only 31.1%, 75.7%, and 30% female health workers were staying in SCs or in the SC village.[5,9,10]

Present study shows 70% of the SCs had motorable roads while in the study conducted by Reddy et al, all the SC buildings were located in easily accessible area within the village with motorable roads.[4]

In the study by Reddy et al, on the whole, none of the SCs had delivery kits and deliveries were not being conducted in any of the SCs which is similar to the present study.[4]

All the SCs had a regular good supply of BCG, OPV, measles, TT, pentavalent (90% SCs) vaccines while in the study by Reddy et al, all the SCs had good supply of OPV, DPT, DT, TT, and Hepatitis B vaccines from the PHC, but BCG and measles vaccines were regularly supplied to only 26 (76.4%) SCs.[4]

Regular water supply and electricity were present in 70% and 80% of all SCs respectively, whereas in a study conducted by Pal et al it was found to be 35% and 56% respectively.[9]

In facility survey of India, they found that 10–50% of the SCs conducted deliveries.[10] In the present study, none of the SCs were conducting deliveries which is similar to study conducted by Reddy et al.[4]

All ANMs (100%) were trained in conducting delivery and knew about time of initiation of breast feeding. Whereas 90% knew about referral of baby <1500 gm and only 40% knew about 7 cleans during delivery. Similar results were obtained by Malhotra et al and Berhe et al regarding overall knowledge of newborn care practice.[11,12] 82% and 85.7% of the ANMs had an overall knowledge about management of ARI and management of diarrhoea respectively. 90% of the ANMs had knowledge about vitamin A supplementation service.

CONCLUSION

The present study was taken up to assess some useful inputs regarding the existing level of infrastructural, manpower and material facilities at SCs. SCs play a crucial role to decrease the morbidity and mortality of under five children in the rural areas. Sufficient manpower with a good knowledge of child health care services would definitely improve the level of child health care provided to the community. Full fledged SCs with all basic facilities will encourage workers to stay there, and deliver their duties in away which could improve the services. The presence of ANM all 24 hours at the SCs is essential for the people to avail the health services round the clock.

ACKNOWLEDGEMENTS

We are indebted to the District Health Authority, Dibrugarh district, Assam, for giving us permission to conduct the study. We also thank all the study participants without whom the study would not be possible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. The UN Inter-agency Group for Child Mortality Estimation. Levels & Trends in Child Mortality. UNICEF, Unicef, WHO, World Bank Group, United Nations Population Division; 2017.
2. Austin A, Langer A, Salam RA, Lassi ZS, Das JK and Bhutta ZA. Approaches to improve the quality of maternal and newborn health care: an overview of the evidence. Reproductive Health. 2014;11(2).
3. Donabedian A. Evaluating the Quality the quality of medical care. Milbank Memorial Fund. 2005;83:691-729.
4. Reddy NB, Prabhu GR, Sai TSR. Study on the Availability of Physical Infrastructure and Manpower Facilities in Sub-centers of Chittoor District of Andhra Pradesh. Indian Journal of Public Health. 2012;56(4)290-2.
5. Nair VM, Thankappan KR, Vasan RS, Sarma PS. Community Utilisation of Subcentres in Primary Health Care - An analysis of determinants in Kerala. Indian J Public Health 2004;48:17-20.
6. International Institute for Population Sciences. District Level Household and Facility Survey (DLHS-4): Assam. Mumbai: Government of India, Ministry of Health and Family Welfare; 2012-2013.
7. Jain S, Singh JV, Bhatnagar M, Garg SK, Chopra H, Bajpai SK. Evaluation Of Physical Facilities Available At Subcentres In District Meerut. Indian J Community Med. 1999;24(1).
8. Patil SK, Shivaswamy MS. Assessment of sub-centres of Belagavi district according to Indian public health standards 2012 guidelines: a cross sectional study. IJCMPH. 2017;4(6):1938-42.
9. Pal DK, Tiwari R, Kasar PK, Sharma A, Verma S, Gautam P, et al. Regional Medical Research centre for Tribals. Jabalpur: Publications Proceeding of National Symposium on Tribal Health. Available at: http://www.rmrct.org/files_rmrc_web/ centre's publications/NSTH_06/NSTH06_24.DK.Pal.pdf. Accessed on 15 January 2017.

10. Ram F, Paswan B, Singh LL. District Level Household & Facility Survey (Under Reproductive and Child Health Project). Publication: National facility report DLHS II. Facility Survey 2003.
11. Malhotra S, Zodpey SP, Vidyasagaran AL, Sharma K, Raj SS, Neogi SB, et al. Assessment of Essential Newborn Care Services in Secondary-level Facilities from Two Districts of India. J Health, Population Nutr. 2014;32(1):130–41.
12. Berhe AK, Tinsae F, Gebreegziabher G. Knowledge and practice of immediate newborn care among health care providers in eastern zone public health facilities, Tigray, Ethiopia, 2016. BMC Pediatrics. 2017;17:157.

Cite this article as: Paul D, Gogoi G, Baruah R. Assessment of the availability of infrastructure, manpower, materials and knowledge of health care providers regarding child health care services in the sub centers of a block of Dibrugarh district, Assam. Int J Community Med Public Health 2019;6:2264-9.