

# Towards Universal Health Coverage: Access to Maternal and Child Health Services in Hard-to-Reach Areas in a Community Development Block of a Health District, West Bengal, India

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## ABSTRACT

**Introduction:** It is well established that poor economic condition is an important contributor of barrier to accessibility. However, non financial barriers also constitute significant constraints to the equitable access of full range of health services included under national Universal Health Coverage (UHC) policies.

**Aim:** To study the accessibility of Maternal and Child Health Services in remote and hard-to-reach areas towards UHC and also to identify and synthesise non financial access barriers to accessibility of Maternal and Child Health Services and to distinguish them from financial barriers.

**Materials and Methods:** A retrospective, observational study was done using a mixed method approach in the Institute of Public health, Kalyani, Kolkata, West Bengal, India from December 2016 to May 2017. Quantitative analysis of Health Management Information System (HMIS) data along with qualitative study by Focused Group Discussion (FGD) and In-depth Interview (IDI) was performed. Two FGDs were conducted among antenatal mothers and Accredited Social Health Activist (ASHA) workers and IDI was conducted with female health supervisor of that block. The mothers who attended the Subcentre (SC) for

checkup on a particular day were asked to participate, and 10 ASHA workers who had come to the rural hospital on that day for monthly meeting were chosen for another FGD, with the help of a structured questionnaire.

**Results:** Quantitative analysis of HMIS reports revealed decreasing trend in utilisation of Maternal and Child Health Services. There were 3048 antenatal registrations in the year 2012-2013, whereas it was 2771 in the year 2016-2017. The number of institutional deliveries was 1166 in the year 2012-2013, whereas it was 471 in the year 2016 to 2017. The number of health service providers also decreased than that of the previous year. Number of skilled birth healthcare providers were 11 in the year 2012-2013, whereas it become reduced to zero in the year 2016-2017. The qualitative analysis showed financial and non financial barriers played role in service accessibility. Regarding the non financial barrier, poor communication due to inaccessible geography was the key player in accessibility.

**Conclusion:** The lack of skilled human resources as well as the poor communication due to inaccessible geographical location is the most important reason behind the poor UHC in the block.

**Keywords:** Accessibility, Barriers, Community health, Healthcare services, Utilisation

## INTRODUCTION

Universal Health Coverage means the maximum accessibility of health resources for the people of the country, which means people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, in sufficient quality. This also ensures that the use of these services does not expose the user to financial hardship [1]. Accessibility to Maternal and Child Health Services can be viewed as the ability to access and get benefit from such services provided by the health system of a country. The concept focuses on enabling access for mothers and children i.e., the vulnerable section of the society, or special needs, through the use of assistive technology. Ultimately, development in accessibility brings benefits to everyone. In this study, accessibility was seen as a multidimensional process of interaction between the health system and individuals, households and communities influenced by diverse factors.

The barriers in accessibility may be of two types, financial barriers and non financial barriers. Now, poor economic condition is an important contributor of barrier to accessibility, however it is important to note that non financial barriers constitute significant constraints to the equitable and full range of health services included under national UHC policies [2].

The dimensions of access comprise of affordability, availability and acceptability of services. All ultimately represent a set of complex factors that describe the relationship of the health system to its target population and that determine access to effective healthcare [3]. World Health Assembly Resolution 2005, urged countries to develop health financing systems to ensure all people have access to needed services, without the risk of financial ruin. A related objective of health financing policy is equity in financing i.e., households contribute to the health system on the basis of ability to pay [4]. Globally, there were significant changes over time in the incidence of catastrophic and impoverishing health expenditures, defined as Out-of-Pocket (OOP) exceeding 25% of total expenditure and OOP pushing people below the United States (US) \$1.25/day poverty line [5]. While comparing the data for 23 countries it was observed that catastrophic health expenditure was declined by half of the countries. The rate of impoverishment at US \$1.25 per day decreased by 24%, with 10 of 15 countries observing a decline [6]. In India, the share of households reporting any OOP spending first declined in 2005 compared to 2000, both in rural and urban areas by about four to five percentage points, but then increased in 2012, by more than 11 percentage points in rural areas and nine percentage points in urban areas. The decrease in the share of households reporting any OOP spending between 2000 and 2005 was mainly

due to under reporting of any inpatient expenditure. Though the rise in the share of households reporting any OOP spending post 2005 was due to increased household shares reporting OOP spending for both outpatient and inpatient care [7]. According to National Family Health Survey-5 (NFHS-5), only 10 states/ Union Territories (UTs) have reported a decline in the average OOP expenses per delivery in public hospitals. The average such expense in Meghalaya was the highest in the country while Gujarat, on the other hand, has reported the lowest. West Bengal has shown the most improvement, with the average cost per delivery at public facilities dropped from Rs 7,919 to Rs 2,683 [8].

In West Bengal, though the rate of utilisation of government hospitals is quite high, however, different services like doctor, diagnostic tests and medicine are mostly purchased from outside of government setup. This leads to increase in OOP expenditure. Moreover, the public subsidies are mostly enjoyed by the relatively higher socio-economic classes. There is a gender discrimination observed in access and benefit from public subsidies in the state [7]. The health sector in India is at crossroads as a result of global development the overall health status of India has improved through the OOP expenditure still remain high. Access to maternal and child health services in the remote part are still not satisfactory due to inability to meet the need of community [9].

National and state government along with different non governmental organisations have taken initiatives to improve maternal health, more focus was given upon increasing institutional deliveries, early antenatal registration, compulsory four antenatal checkup, postpartum check up by home visit and increasing immunisation coverage by strengthening of routine immunisation by Janani Suraksha Yojana (JSY) [10], conditional cash transfer in mothers account, Janani Shishu Suraksha Karyakram (JSSK) [11].

One decade back the Maternal Mortality Ratio (MMR) of West Bengal was 145 (2007-2009) and is gradually decreasing from 117 (2010-2012) to 113 (2011-2013) [7,12]. But recently, according to National Family Health Survey-5 data in West Bengal, MMR is improved in comparison to NFHS-4 [13]. Similarly, the Infant Mortality Rate (IMR) also decreased from 35 in 2008 to 28 in 2014 [9,14], and as per NFHS-5, the IMR is 22 which is improved in comparison to NFHS-4 data in West Bengal [13]. The improvement is not much evident in hard-to-reach areas, hence added initiative is necessary to address the situation.

Sandeshkhali-II block, Basirhat Health District, under North 24 Paraganas, West Bengal, India, consists of many islands which are surrounded by number of rivers which make it inaccessible for a large population to reach a healthcare facility. It is very difficult for pregnant, postnatal mothers and infants to reach the hospital and subcentres in time to avail antenatal, intranatal, postnatal, child health and immunisation services due to inaccessible roads and water ways, leading to transport delays frequently. As the health facilities are inaccessible due to the geographical location, the number of home deliveries is quite high. As per the Block Programme Management Unit (BPMU) data, Sandesh Khali Rural Hospital serves 170,752 population. It has only one rural hospital, without any planned or emergency caesarean section facility, only two Primary Health Centres, 35 Subcentres, three Mobile Medical Units (MMU), two Community Delivery Centres (CDC), eight Gram Panchayats, and 48 villages. In respect of human resources, it has 35 1<sup>st</sup> Auxiliary Nursing Midwifery (ANM), 18 2<sup>nd</sup> ANM instead of 35, and 104 ASHAs in position whereas 67 lies vacant. Only two health supervisors are in position whereas the sanctioned post is eight in number, only one Public Health Nurse has to look after the whole block where number of sanctioned posts is two.

According to the information of BPMU of Sandesh Khali Rural Hospital, state government started CDC with the help of local

Non-Governmental Organisation (NGO) to reduce the home delivery and in Sandeshkhali-II blocks, three CDCs were formed, one in zila parishad building in Sandeshkhali Island, second in Korakati Primary Health Care (PHC) and the third in Monipur subcentre. Sandeshkhali Chetna Samaj Kalyan Kendra, a NGO took the initiative to operate these CDCs which were operated since 2008. These CDCs are situated in difficult areas to serve the population where home delivery is high. The CDCs provides antenatal, intranatal and postnatal care, essential new born care, essential drug and equipments. As per protocol, they ensure fully cashless deliver service and transportation service and ensure referral transport for complicated pregnancy. They also plan and implement Information, Education and Communication (IEC) activities in the community for promotion of institutional delivery. Gradually, in course of the past decade the institutional delivery in Sandeshkhali rural hospital has improved, mothers are provided with extra incentives for travelling [15]. A maternity waiting home has also started in Sandeshkhali rural hospital premises in which mother can stay for 10 days before expected date of delivery. During the stay, the mothers and accompanying persons are provided with free accommodation and food. This also plays a vital role in increasing the number of deliveries in rural hospital. This study was done to assess the accessibility of Maternal and Child Health Services in remote and hard-to-reach areas towards UHC services in Basirhat Health District of Sundarban delta, to identify and synthesise non financial access barriers to accessibility of Maternal and Child Health Services and to distinguish them from financial barriers.

## MATERIALS AND METHODS

A retrospective, observational study with mixed method (both quantitative and qualitative) approach was conducted in Institute of Public health, Kalyani, Kolkata, West Bengal, India, from December 2016 to May 2017. The Institutional Ethical Committee approval was obtained vide letter number SHDS/EC/167/14. After obtaining administrative permission from the Chief Medical Officer of Basirhat Health District, previous five years (2012-13 to 2016-17) secondary data was collected from Health Management Information System (HMIS) of BPMU Sandeshkhali-II Block and District Programme Management Unit, Basirhat for quantitative analysis to assess the trend of accessibility of Maternal and Child Health Services in Sandeshkhali Block-II. The said data was used to analyse the block performance and to understand the trend of change in accessibility Maternal and Child Health services. The quantitative analysis of utilisation pattern was carried out with the help of secondary data analysis which is actually collected from field level.

### Study Procedure

Qualitative study was conducted with the help of FGD and IDI. Two FGDs were conducted; one with the expectant mothers (seven in numbers) who came to avail services in a SC of the block and another with Accredited Social Health Activists (ASHA, 10 in numbers) working in different SC areas of the block. On the day of FGD, seven mothers attended for antenatal checkup in a SC. All were chosen for FGD as they were agreed to participate. Ten ASHA workers were chosen randomly from the different SCs of the block and the FGD was conducted on a monthly meeting day when all ASHA were present in the rural hospital. One IDI was conducted with a female health supervisor who was working in the same block. Written informed consent was taken from the subjects participating in the study in Bengali vernacular.

## STATISTICAL ANALYSIS

Descriptive and analytical comparison of proportions were obtained and represented in tabular format and theme based qualitative analysis were depicted with suitable diagram. Written informed

consent was taken from the subjects participating in the study in Bengali vernacular.

## RESULTS

**Quantitative analysis based on secondary data:** After analysis of last five years HMIS data of Sandeshkhali-II block it was found that antenatal (ANC) registration has decreased from 3048 in 2012-2013 to 2771 in 2016-2017 [Table/Fig-1], but there was little increase in 3<sup>rd</sup> ANC checkups from, 1847 in 2012-2013 to 2340 (in 2016-2017) [Table/Fig-2]. Also, there was a decline in the number of Tetanus Toxoid (TT) injection received by antenatal mothers [Table/Fig-3]. However, the number of antenatal mothers receiving Iron and Folic Acid Tablets (IFA) increased from 2117 in 2012-2013 to 2438 in 2016-2017 [Table/Fig-4]. The number of skilled birth attendants have decreased and over all institutional deliveries have also decreased during the assessment year. Decreasing trend (1159 in 2012-2013 to 468 in 2016-17) was also observed in postpartum care within 48 hours after delivery. Though there was increasing trend in the number of women in reproductive age group who received temporary methods, but adoption of Intra Uterine Contraceptive Device (IUCD) and male partner participation in contraception (No-Scalpel Vasectomy, NSV) were very poor during the assessment year. The number of fully immunised children gradually decreased from 2012-13 to 2016-17 and female children were found less fully immunised than their male counterpart during the assessment year [Table/Fig-5,6].

Assessment year	Number of AN registrations
2012-2013	3048
2013-2014	3155
2014-2015	2897
2015-2016	2921
2016-2017	2771

**[Table/Fig-1]:** Distribution of Antenatal (AN) Registration during 2012-13 to 2016-17 (n=14792).

Assessment year	Number of AN mothers who received three AN checkups
2012-2013	1847
2013-2014	2228
2014-2015	2216
2015-2016	2128
2016-2017	2340

**[Table/Fig-2]:** Distribution of Antenatal (AN) mothers who received three AN checkups during 2012-13 to 2016-17 (n=10759).

Assessment year	Number of AN mothers who received at least 1 <sup>st</sup> dose of TT	Number of AN mothers who received TT 2 <sup>nd</sup> dose or booster
2012-2013	2895	2634
2013-2014	2943	2885
2014-2015	2628	2545
2015-2016	2586	2499
2016-2017	2516	2491

**[Table/Fig-3]:** Distribution of Antenatal (AN) mothers who received at least first dose and 2<sup>nd</sup> dose or booster dose of Tetanus Toxoids (TT) during 2012-13 to 2016-17.

Assessment year	Number of AN mothers who received 100 Iron and Folic acid (IFA) tablets
2012-2013	2117
2013-2014	2298
2014-2015	2351
2015-2016	2358
2016-2017	2438

**[Table/Fig-4]:** Distribution of Antenatal (AN) mothers who received 100 Iron and Folic acid (IFA) tablets during 2012-13 to 2016-17 (n=11562).

Assessment year	IUCD at facility	Number of oral pills (cycles distributed)	Number of condom pieces distributed	Number of centchroman (weekly) pills distributed	Number of emergency contraceptive pills distributed
2012-2013	201	13243	27673	0	0
2013-2014	545	11942	31255	0	0
2014-2015	614	12405	11468	0	0
2015-2016	482	12650	27481	0	0
2016-2017	339	15224	30201	0	0

**[Table/Fig-5]:** Distribution of contraceptives by women of reproductive age group in last 5 years in Sandeshkhali-II Block.  
IUCD: Intra uterine contraceptive device

Assessment year	Skilled Birth Attendant (SBA) Trained (Doctor/ Nurse/ANM)	Non SBA (Trained traditional birth attendant/ relatives etc.,)	Number of mothers paid janani suraksha yojana incentive for home deliveries	Deliveries conducted at facility
2012-2013	115	1166	112	91
2013-2014	0	1110	18	0
2014-2015	0	843	103	26
2015-2016	0	713	32	0
2016-2017	0	471	35	0

**[Table/Fig-6]:** Human resources, Institutional deliveries and Janani Suraksha Yojana (JSY) payment given in last five years in Sandeshkhali-II Block.

**Qualitative analysis based on Focused Group Discussion (FDG) and In-depth Interviews (IDI):** Two separate FGDs were arranged in Sandeshkhali subcentre-2 with seven antenatal mothers and in Sandeshkhali Rural Hospital (RH) with 10 ASHA workers. Six out of seven antenatal mother, and all the ASHA workers agreed that financial as well as on non financial barriers both play an important role in accessibility of health services. They also agreed that the only rural hospital was not well communicated to the other parts of the block by road or water ways owing to the fact that it was located in a riverine belt comprising of many islands. The condition of roads was poor and in majority of the locality waterways were the only mode of communication. A 24 hours service was not available especially at night time. Weather also played an important role in transportation. Being stormy, the summer and rainy season water transport remained closed. For these reasons, home delivery was high. The only way to reach the SC was by walk or motorised van. Furthermore, due to the same reason, it became increasingly difficult for pregnant women and children to attend antenatal checkups and immunisation sessions. They were hopeful that the maternity waiting home in the premises of rural hospital would benefit them. OOP expenditure remained high even though they used to get free service from SC and rural hospitals because of no cashless transport facilities (Nischai-Yaan and Matri-Yaan) were available. There was also delay in Janani Suraksha Yojana (JSY) payment for institutional delivery as well as home delivery. Cleanliness in hospital area was poor. The behaviour of some nursing staffs was not satisfactory but privacy was well-maintained. Doctor-patient conversation time was just satisfactory. Following an IDI with one female health supervisor, the same finding was obtained. As per the supervisor, a poor transport system was a significant constraint. As one CDC was situated in Sandeshkhali Island, most of the mother prefers that CDC for delivery. They do not want to cross the river though they supposed to reimbursed cash after discharge for transport cost. The high OOP expenditures in rural hospital were another constrain for them. The other reason for non dependence on rural hospital was lack of care of sick new born children. The only sick neonatal intensive care unit was non functional. There was also non availability of caesarean section delivery facility in that hospital [Table/Fig-7].



[Table/Fig-7]: Causes of poor access to Maternal and Child Health Services.

## DISCUSSION

On quantitative analysis of HMIS reports it was found that most of the maternal and child health services utilised by the beneficiaries showed a decreasing trend. In this study, it was shown that human resources (the number of service providers) also decreased than the previous year. A cross-nationally comparable data on human resource on health findings from 68 countries found that most of the countries faced acute shortages of highly skilled health personnel, and large variations persisted within and across countries in workforce distribution [16].

The antenatal registration gradually decreased but there was a light of hope because the pregnant women, once registered came back for subsequent follow-up and this number saw a rise in the studied three ANCs. Same was observed in another study (India) where the use of full antenatal care among young mothers significantly increased from 27%-46%, and from 9%-28% in Empowered Action Group (EAG) states during 1992-2016. Skilled Birth Attendant utilisation was 88% and 83%, respectively during 2015-2016 which showed an increment of 20% and 50% since 1992 in India and EAG states [17].

Though government adopted free drug policy, JSY, JSSK, were not fully accessible to the beneficiaries due to the geographical location, poor connectivity by roads and water ways to the health facility. In addition, this geographic location was prone to unpredictable weather i.e., heavy rain falls, storm and cyclone, enhancing the negative impact on the service utilisation.

Regarding non financial barriers, the geography of this area plays a major role in accessibility. The quantitative analysis revealed that there was less skilled manpower available as the year progressed. The doctors, nursing staff and technicians are probably less interested to be posted in this hard-to-reach area due to poor communication facility. So, there was a persistent crisis in availability of human resources. The transportation barrier in road and water ways make the scenario more difficult. The only rural hospital is not sufficient enough to provide curative services to the entire population of the block due to its geographical location and transport barrier. The number of CDC decreased to two in 2017 from three in 2012. As a result, there was overall decrease in institutional deliveries. Number of fully immunised children gradually decreasing due to inaccessibility of the subcentres from remote areas and number of outreach camp or Village Health and Nutrition Day (VHND) sessions were insufficient. As the only Sick New Born Stabilisation Unit

(SNSU) was non functional at RH, sick new born always need to be referred at higher centre.

A dedicated transport facility is required at each island to transport mothers by road and through waterways. A good intersectoral coordination and cooperation is very much required for that. A strong referral transport chain must be built to ensure the transport of complicated deliveries to the higher centre. More availability of MMUs and their integration with PHCs and VHNDs might help in close monitoring and communication. As there is no facility for caesarean section, hence in a 24/7 emergency caesarean section facility must be started. Regarding the JSY delay, the cause must be recorded against the beneficiary and it should be promptly dealt with by the concerned medical officer of the PHC. As this block is situated in hard-to-reach areas of Sundarbans delta, it is challenging for the government to cover all the population with all service provisions without financial hardship. So, the involvement of NGOs is essential to expand the services and cover all the population. Addressing the declining human resources in a hard-to-reach area, appropriate financial and non financial incentive scheme might be helpful to attract such skilled workers. Even Private Public Partnership (PPP) model may be a good option which can be tried. Without arranging alternate service provision, CDC service is to be continued while maintaining the quality of care, providing technical and financial support, continuous monitoring, and supportive supervision. Maternity waiting home is a good initiative and will have a good impact on increasing institutional delivery, leading to a decrease in maternal and infant mortality in that area.

However, it should be kept in mind that only improving the RH, may not be beneficial to the people of the entire block. So, situation need to be addressed more sensibly by strengthening the two existing Primary Health Centres with 24/7 days normal delivery and cashless referral transport for pregnant mothers and sick under-five children like all other citizens in other parts of the state. The only SNSU needs to make functional and sustainable.

## Limitation(s)

The study was conducted with a mixed method approach. The quantitative data was record based. Qualitative part was conducted with the help of FGD and IDI. A prospective study may be a better alternative in this case along with involvement of more stake holders while conducting qualitative component.

## CONCLUSION(S)

There was poor access to maternal and child health services in Sandeshkhali-II block. The geographical location and the natural barriers make it difficult for the mothers in outlying islands to reach the rural hospital. No dedicated transport facility to carry the mothers, high OOP expenditure and delay in JSY payment, lack of skilled human resources is also contributory factors for lower utilisation of services.

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