

# Study to assess the home-based newborn care (HBNC) visit in rural area of Lucknow: A cross-sectional study

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## ABSTRACT

**Introduction:** Home-based newborn care (HBNC) is a strategy adopted by government of India to overcome the burden of newborn deaths in the first week of life, it provides continuum of care for newborn and post-natal mothers. HBNC introduced since 2011 is centred around Accredited Social Health Activist (ASHA) and it is the main community-based approach to newborn health. **Aims and Objectives:** The objective of the present study was to assess the HBNC during HBNC visit in rural area of Lucknow, Uttar Pradesh (U.P.). **Materials and Methods:** The present cross-sectional study was carried out in the field practice area of Primary Health Centre Sarojini Nagar, Lucknow UP. A total of 200 mothers of newborn (age 03 days to 60 days) born in the catchment area of PHC Sarojini Nagar during 8 months period were included in cross-sectional study. **Results:** The result of study showed that majority of newborns got all the age appropriate home visit. None of the mothers had knowledge and awareness about the HBNC provision for home visits and the number of home visit by ASHA decreases as age of baby increases. All the ASHAs were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery. **Conclusion and Recommendation:** ASHA was found to be the major facilitator for HBNC programme. Knowledge and awareness of ASHA on importance of postnatal care needs to be enhanced via hands on training.

**Keywords:** ASHA, HBNC, neonatal mortality rate, newborn, postnatal care

## Introduction

Home-based newborn care (HBNC) is a strategy adopted by government of India to overwhelm the burden of newborn deaths in the first week of life, it provides continuum of care for newborn and post-natal mothers. HBNC introduced since 2011 is centred around Accredited Social Health Activist (ASHA) and it is that the main community-based approach to newborn health

now. The key activities in HBNC constitute the provision of care of every newborn through a series of home visit by an ASHA within the first 6 weeks of life, an examination of every newborn, extra home visit for preterm and low birth weight babies, early identification of illness/danger sign in the newborn, follow-up for sick newborn, counselling the mother on postpartum care, recognition of postpartum complication and counselling the mother for adoption of appropriate family planning.<sup>[1]</sup>

Neonatal mortality is on the decline globally with the world's neonatal mortality rate falling from 37 deaths per 1,000 live births in 1990 to 18 per 1,000 live births in 2018. The result is a drop in neonatal deaths worldwide from 5.1 million in 1990

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to 2.5 million in 2018. Most of these newborns died within the first week of life with approximately one million dying in their first day and another one million dying in the following 6 day.<sup>[2]</sup>

Despite increasing rate of institutional delivery, Neonatal Mortality Rate in India is among the highest in world. Unavailability of trained workers along with poor infrastructure is one of the major obstacles in ensuring quality health and neo-natal care. It is therefore essential that neonates are provided utmost care at the first month of life so that neonatal death could be prevented. The neonatal mortality constitutes about 75% of infant deaths in the country.<sup>[3]</sup> Under the National Rural Health Mission, several initiatives have been undertaken to accelerate the pace of reduction of child mortality. India contributes to one-fifth of worldwide live births and quite ¼ of neonatal deaths.<sup>[4]</sup> India has an Infant mortality rate of 33 per 1,000 live births while Uttar Pradesh has Infant mortality rate of 41 per 1,000 live births.<sup>[5]</sup> Infant mortality rate of Lucknow district was 44 per 1,000 live births.<sup>[4]</sup>

Most of those newborns die at home while being cared by mothers, relatives, and traditional birth attendants. Every newborn requires basic care, which has got to be provided by the mother at home. This comprises warmth, feeding support, skin to skin care, proper hygiene and identification of danger signs of newborn, and seeking help from health personnel whenever required. Therefore, all newborns get HBNC as per the perception and sociocultural behavior of the society. The World Health Organization recommendations for essential newborn care include cleanliness, initiation of breathing, thermal protection, skin to skin contact, early initiation and exclusive breastfeeding, eye care, immunization, management of illness and care of low birth weight babies. Studies have reported one-third to two-third drop of mortality among newborn after home-based care interventions. Identification of determining factors and effective up scaling of the home-based packages will prove to be of vast benefit in reducing neonatal mortality. Present study aimed at exploring the status of the home based newborn care and give an idea to primary care physician in improving newborn-care practices and quality of care at the primary health facility level.

### Aims and objectives

1. To assess the status of HBNC in the study area.
2. To assess the knowledge of ASHA about HBNC.
3. To assess the problem faced by ASHA in providing HBNC.

### Methodology

A cross-sectional Study was conducted in the service area of Sarojini Nagar block PHC of Lucknow district. During 8 months period, a total of 351 deliveries occurred at PHC Sarojini Nagar, out of which only 246 deliveries were from catchment area of PHC, in which 46 mothers refused to give interview so total 200 mothers were interviewed. Interview was conducted with mothers of newborn age 03 days to 60 days. Age of child was determined either from birth certificate or from immunization

card or in case of unavailability of both; mother's word was taken as final. At each village, a central point was assumed and direction of first house was selected by rolling pencil to get random starting point for data collection. Consecutive houses having newborn and fulfilling inclusion criteria were selected and the houses not having newborn and not fulfilling the inclusion criteria were excluded. Interview was conducted with mothers to fill the interview schedule and where it was impossible to get them or there was refusal, next household was considered for the study.

All 48 ASHAs in the catchment area of PHC were included in our study for assessment of their knowledge and awareness about HBNC programme and problem faced by ASHA in providing HBNC. Status of HBNC was determined on the basis of home visit done by ASHA. A semi-structured, pre-tested questionnaire was used for study. All participants were informed regarding the purpose of study and their consent was obtained for data collection. The Ethical clearance was obtained from the Institutional Ethical Committee of the King George's Medical University UP, Lucknow (Ref No. 78<sup>th</sup> ECM II B-Thesis/P10) before commencing of the study. The statistical data was recorded and analyzed using by the SPSS Software. Obtained on 10th June 2016.

### Results

A total of 200 newborns with an age range of 03 to 60 days were included in the current study. Majority of the mothers were Hindu by religion and more than half of the mothers belonged to nuclear families. 45% of mothers were educated up to middle school and only 06% mothers were illiterate, 42.5% families belonged to lower socioeconomic class [Table 1]. The data shows that the majority of the newborns got all the age appropriate home visit and no mothers knew about the HBNC visit provision. General examination of majority of the mothers and their newborns were done. During the home visits, majority of the newborns temperature and weight were measured. ASHA washed her hands with soap and water before examining the baby in 75% of the cases [Table 2].

All the newborns who were 07 days or less in age, their weight, temperature measurement, and general examination done by ASHA on the day of HBNC visit. On the 28<sup>th</sup> day of the HBNC visit, the weight, temperature measurement, and general examination of newborns were 80, 80, and 72%, respectively. On the 42<sup>nd</sup> day of HBNC visit, more than half of newborns were weighted and temperature measured and the less than half of newborns were general examined by ASHA. These findings represented that as the number of HBNC visit increases, the HBNC services given by ASHA (weighing, temperature measurement, and general examination) decreases [Table 3]. More than half the mothers were counselled about exclusive breastfeeding, 41% on proper positioning and attachment, and 60% on frequency of breastfeeding. 58% on timing of first bath, less than half on proper wrapping of baby, only 24% about skin to skin contact, on cord care and eye care 67%, and

**Table 1: Biosocial characteristic of mother**

Characteristics	n=200	
	n	%
Religion		
Hindu	176	88
Muslim	24	12
Type of family		
Nuclear	105	52.5
Joint	95	47.5
Educational status of mothers		
Illiterate	12	6
Primary school	58	29
Middle	90	45
High school	31	15.5
Intermediate and above	9	4.5
Occupation of mothers		
House wife	196	98
Un-skilled worker	4	02
Socioeconomic status		
Class III (Middle)	7	3.5
Class IV (Upper lower class)	108	54
Class v (Lower class)	85	42.5

\*B G Prasad's socio-economic classification- update June 2016

**Table 2: Number of Home visits and services provided during Home visit by ASHA**

Characteristics	n=200	
	n	%
Age appropriate home visit to the newborn		
All due visit	129	64.5
Partial due visit	58	29
No visit	13	6.5
Mother's awareness about HBNC visits provision		
Yes	0	0
No	200	100
Services to be provided during home visits to the mother and newborn		
General Examination of mother		
Yes	124	62
No	76	38
General Examination of newborn		
Yes	130	65
No	70	35
Weighing of newborn		
Yes	147	73.5
No	53	26.5
Temperature measurement of new born		
Yes	147	73.5
No	53	26.5
ASHA washed her hands with soap and water before examining the baby		
Yes	151	75.5
No	49	24.5

50%, respectively. 99% of the mothers were counselled about immunization and 77% about hand washing. Counselling given to mother on danger signs, about fever and fast breathing were 96% and 78%, respectively. Only 33%, 10.5%, 4%, and 2.5% got counselling on chest in drawing, hypothermia, lethargy/

**Table 3: HBNC Services given by ASHA on 3<sup>rd</sup>, 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>, 28<sup>th</sup> & 42<sup>nd</sup> day**

Age at day of visit (in new-born days)	No. of new-born	Weighing of newborn		Temperature measurement of newborn		General examination of newborn	
		n	%	n	%	n	%
		3	4	4	100	4	100
7	12	12	100	12	100	12	100
14	16	14	87.5	14	87.5	13	81.3
21	28	26	92.9	26	92.9	22	78.6
28	39	31	79.5	31	79.5	28	71.8
42	101	59	58.4	59	58.4	45	44.6

**Table 4: Counselling given to mothers by ASHA regarding various aspects of newborn Health during HBNC visit:**

Characteristics	n=200	
	n	%
Counselling given by ASHA to mother*		
Exclusive breastfeeding	123	61.5
Proper positioning and attachment	82	41
Frequency of breastfeeding	119	59.5
Timing of first bath	115	57.5
Proper wrapping of baby	72	36
Skin to skin contact	48	24
Care of cord	133	66.5
Care of eye	99	49.5
Immunization	197	98.5
Hand washing	154	77
Counselling of mothers about Danger signs of newborns*		
Fever	192	96
Fast breathing ( $\geq 60$ breaths/min)	156	78
Chest indrawing	66	33
Flaring of nostrils	0	0
Grunting	0	0
Not taking feed	62	31
Bleeding or oozing stump	0	0
Convulsion	5	2.5
Hypothermia	21	10.5
Lethargy/unconscious	8	4
Jaundice	0	0

\*Multiple responses

unconsciousness, and convulsion, respectively during the home visit by ASHA [Table 4].

Recapitulating the knowledge and awareness of ASHA about HBNC, all the ASHAs were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery. 60% were aware that breastfeeding should be initiated within 1 h of delivery and all ASHA knew that the colostrum should be given to the newborn and the exclusive breastfeeding should be done for 6 months. Majority of ASHA told that breastfeeding should be done on demand. 73% ASHA had knowledge about the normal temperature of a newborn, 83% knew that in fever the temperature is above 97.7°F and 65% had knowledge that in hypothermia the temperature goes below

**Table 5: Knowledge and awareness of ASHA about HBNC**

Characteristics	n=48	
	n	%
No. of visits in case of home deliveries		
7	48	100
6	0	0
No. of visits in case of institutional deliveries		
7	0	0
6	48	100
Initiation of breastfeeding		
Within 1 hour	29	60.4
1 to 4 hours	19	39.6
Given colostrum	48	100
Exclusive breastfeeding	48	100
Frequency of breastfeeding		
On demand	36	75
Every 2 hours	4	8.3
6 to 8 times	8	16.6
Knowledge about temperature		
Fever (>97.7)	40	83.3
Hypothermia (<97.7)	31	64.6
Low birth weight baby	48	100
Home visit in case of LBW baby		
Up to 2 years	0	0
Don't know	48	100

97.7°F. All the ASHAs had knowledge about the cutoff weight for low birth weight but none of them had knowledge about the number of home visits in case of low birth weight baby [Table 5]. During the home visits, ASHAs were not able to provide HBNC care because of unavailability of medicine and cultural practices of caregivers (Not allowed house entry up to 7 days of life) in 23% and 13%, respectively. About suggestions for betterment of HBNC services, 41.7% ASHA responded that medicines should be made available and 4.2% suggested more training of ASHA were required on newborn care. In majority of HBNC visit both the community and family support were good [Table 6].

## Discussion

In the current cross-sectional study, 88% mothers were Hindu, 47.5% belonged to joint family and most of the mothers (98%) were homemakers. Similar assessments were assessed by different study in our country by some authors.<sup>[6-8]</sup> The present study assessed that 45% mothers were educated up to middle school, 54% families belonged to upper lower socioeconomic class, and 42.5% families belonged to lower socioeconomic class. Some authors in their study found that almost half of the families (51.9%) belong to lower socioeconomic class.<sup>[9]</sup> The present study revealed that 74% of mothers got counselling on newborn care in postnatal period and the maximum counselling were given on Breastfeeding (66.5%), Immunization (66.5%), and the danger signs of Newborn (51%) and the least was given on Eye care (4%) and the 102 Ambulance services (3.5%).<sup>[10]</sup> On awareness about breastfeeding, (60.4%) was aware that

**Table 6: Problem faced by ASHA during HBNC visits**

Characteristic	n=48	
	n	%
Problem faced by ASHA		
Unavailability of medicine	11	22.9
Cultural practices of caregivers not allowed house entry up to 7 days of life	6	12.5
None	32	66.7
Suggestion for betterment of HBNC services		
Medicine should be made available	20	41.7
More training of ASHA for newborn care	2	4.2
None	26	54.2
Community support during home visit		
Average	7	14.6
Good	41	85.4
Very good	0	0
Family support during home visit		
Poor	0	0
Average	7	14.6
Good	41	85.4
Very good	0	0

breastfeeding should be initiated within 1 h of delivery. All the ASHA had knowledge that colostrum should be given to the newborn and exclusive breastfeeding should be done for 6 months. Similar observations were also reported by some authors in their study.<sup>[11-14]</sup>

In current study, it was suggested that the majority of ASHA workers aware about the temperature in fever (above 97.7 F) and 64.6% had knowledge that in hypothermia the temperature goes below 97.7. It has also been observed that as the number of HBNC visit increases, the HBNC services given by ASHA (Weighing, temperature measurement, and general examination) decreases. Observations of present study corresponds with the study of Yonzon KK *et al.*<sup>[15]</sup> presented that the coverage of the home visits decreases with increasing age of the child. In the present cross-sectional study, all the ASHAs (100%) were aware about the schedule of home visit, the number of home visit in case of home delivery and institutional delivery regarding HBNC and majority of HBNC visit, both the community and family support were good, similar finding were also reported in earlier studies.<sup>[16]</sup>

## Conclusion and Recommendation

Our present study concluded that majority of newborns got all the age appropriate home visit but none of the mothers had knowledge and awareness about the HBNC provision for home visits and as the number of HBNC visit increases, the HBNC services offered by ASHA decreases. The study suggests following recommendations: Need to improve the coverage and quality of the HBNC program by improving the pace and quality of training, operationalizing an effective supportive supervisory mechanism and timely reimbursement of ASHA incentives. Health education for the community focused on newborn care practices like exclusive breastfeeding for 6 months,



proper positioning and attachment, timing of first bath, proper wrapping of baby, skin to skin contact, cord care and eye care, immunization and hand washing. The community and mother needs to be educated about danger signs of newborns.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/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.

## References

1. National Rural Health Mission, Ministry of Health and Family Welfare, Government of India. Home Based Newborn Care: Operational Guidelines. Nirman Bhavan, New Delhi; 2011. Available from: [http://www.nihfw.org/pdf/NCHRC Publications/Operational Guidelines on Home Based Newborn Care](http://www.nihfw.org/pdf/NCHRC%20Publications/Operational%20Guidelines%20on%20Home%20Based%20Newborn%20Care.pdf). [Last cited on 2021 Feb 25].
2. Newborn care-UNICEF Data [Internet]. [cited 2020 Jan 29]. Available from: <https://data.unicef.org/topic/maternal-health/newborn-care/>.
3. Neonatal mortality rate India early intervention [Internet]. [cited 2020 Jan 29]. Available from: [https://data.gov.in/catalog/neo-natal-mortality-rate-india?filters%5Bfield\\_catalog\\_reference%5D=89175&format=json&offset=0&limit=6&sort%5Bcreated%5D=desc](https://data.gov.in/catalog/neo-natal-mortality-rate-india?filters%5Bfield_catalog_reference%5D=89175&format=json&offset=0&limit=6&sort%5Bcreated%5D=desc).
4. UNICEF India. The Infant and Child Mortality India Report [Internet]. unicef India. 2019 [cited 2020 Jan 29]. p. 1-13. Available from: <http://unicef.in/PressReleases/374/The-Infant-and-Child-Mortality-India-Report>.
5. Registrar, Sample Registration System, Government of India. Available from [http://censusindia.gov.in/vital\\_statistics/](http://censusindia.gov.in/vital_statistics/)
6. Baqui A, Williams E, Darmstadt G, Kumar V, Kiran T, Panwar D, *et al.* Newborn care in rural Uttar Pradesh. *Indian J Pediatric* 2007;74:241-7.
7. Chaudhary J, Dhungana GP, Ghimire H. Original research article factors affecting newborn care practices among tharu mothers in selected Village development committees of Chitwan district. *J Chitwan Med Coll* 2013;3:42-5.
8. Mahmood SE, Srivastava A, Shrotriya V, Mishra P. Infant feeding practices in the rural population of north India. *J Fam Community Med* 2012;19:130-5.
9. Bhatt B, Malik JS, Jindal H, Sahoo S, Sangwan K. A study to assess cord care practices among mothers of new borns in urban areas of Rohtak Haryana. *Int J Basic Appl Med Sci* 2015;5:5-60.
10. Deka M, Mathur BP. A study on evaluation of ASHAs for their knowledge, attitude and practice towards newborn care in RHTC area of district Jhansi in Uttar Pradesh. *Int J Health Sci Res* 2014;4:43-8.
11. Saxena S, Singh AK, Maheshwari S, Gupta SB. Appraisal of knowledge of ASHA regarding child health services provided under NHM in Bhojipura block, district Bareilly. *Int J Community Med Public Health* 2017;4:3705-11.
12. Grover K, Khanna P, Verma R, Chayal V. Assessment of home based newborn care provided by ASHA worker in a rural block of Haryana. *Int J Res Dev Pharm L Sci* 2017;6:2850-4.
13. Fathima FN, Raju M, Varadharajan KS, Krishnamurthy A, Ananthkumar SR, Mony PK. Assessment of 'accredited social health activists'-A national community health volunteer scheme in Karnataka State, India. *J Health Popul Nutr* 2015;33:137-45.
14. 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.
15. Yonzon KK, Dehingia N, Alwadhi V, Singh K, Kumar H, Bhat AA, *et al.* An assessment of home-based newborn care plus innovation in six districts of Rajasthan: A cross sectional comparative analysis. *Indian J Community Health* 2019;31:338-46.
16. Raikar AB, Singh R, Kapoor G, Kapoor V. A study to assess knowledge, practices of Asha and factors influencing provision of HBNC in Bahadurpur block of Allahabad, Uttar Pradesh. *Indian J Appl Res* 2019;9:18-20.