

Evaluation of Knowledge and Skills of Home Based Newborn Care among Accredited Social Health Activists (ASHA)

*SATVIK C BANSAL, **SOMASHEKHAR M NIMBALKAR, *NIKHIL A SHAH, *RISHI S SHRIVASTAV AND #AJAY G PHATAK
 Department of Pediatrics, *Pramukhswami Medical College and #Central Research Services, Charutar Arogya Mandal, Karamsad, Gujarat, India.

Correspondence: Prof Somashekhhar Nimbalkar, Professor of Pediatrics, Department of Pediatrics, Pramukhswami Medical College, Karamsad-Anand, Gujarat 388 325. somu_somu@yahoo.com
 Received: October 13, 2015;
 Initial review: January 09, 2016;
 Accepted: May 08, 2016.

Objective: We assessed the knowledge level and skills of trained ASHAs in providing home-based newborn care.

Methods: 100 ASHA from two talukas of Anand district of Gujarat participated. Knowledge was assessed using a structured questionnaire while certain skills were assessed through direct observation on mannequins.

Results: The mean (SD) knowledge score of the participants was 16.7(3.16) out of 34. The skills were satisfactory in 52%, 61%, 43%, and 68% of ASHA workers for temperature measurement, hand washing, weight measurement and skin-to-skin care, respectively. Large variability was observed in self-reported and field performance of ASHA workers.

Conclusions: Knowledge and skills of ASHA workers in this region were inadequate.

Keywords: Community Healthcare, Healthcare Quality Assessment, Neonates, Training.

Published online: June 01, 2016. PII:S097475591600010

There has been a decline in the childhood and neonatal mortality parameters of India over the years, but this reduction is comparatively slower in the neonatal group [1,2]. In an attempt to address the issue of high neonatal mortality, Government of India released Home Based Newborn Care (HBNC) guidelines in 2011; and ASHA workers were mobilized for providing maternal and immediate newborn care. The guidelines were revised in 2014 to include expectations for ASHA to make timely institutional referrals during pregnancy and home visits to promote and provide essential newborn care, identify illness, and refer infants, if needed [3]. ASHA workers were trained in these specific competencies of maternal and newborn healthcare using modules 6 and 7 of National Rural Health Mission (NRHM) [4].

A cross-sectional study was conducted to assess the knowledge level and skills of trained ASHA workers in providing HBNC.

METHODS

A cross-sectional study was conducted in Anand and Umreth talukas (sub-districts) of Anand district of Gujarat, India between May and July 2015, after acquiring permission from state healthcare authorities. The Institutional Ethics Committee approved the study. Sample size required was calculated based on results of previous studies. State healthcare authorities provided

the names of ASHA workers to be included in the survey.

A structured questionnaire consisting of 34 questions was developed by the authors using ASHA training modules 6 and 7 of NRHM. It was translated into the local language, Gujarati, and back-translated to ascertain quality of translation. The questionnaire was pre-tested on four ASHA workers who were not included in the study and were not part of the list provided.

The ASHA workers were also evaluated on their performance of the following skills: hand-washing, weight-recording, temperature-recording, kangaroo mother care (KMC) positioning, and bag and mask ventilation (BMV). The checklists used for hand-washing, measuring temperature, and weighing the baby were as per training module 6 of NRHM [4]. The checklists for BMV and KMC were prepared according to the *Navjat Shishu Suraksha Karayakam* (NSSK) manual [5].

Each participant received one point for correctly performing a step and zero points for not performing / incorrectly performing a step. Scores for each skill were calculated. Performance in a particular skill was considered satisfactory if a participant correctly performed 80% of the enlisted steps without missing any critical steps of the skill. The critical steps were determined by circulating the checklists among 10 pediatricians.

Self-reported maternal and neonatal health field performance of ASHA workers over the past one year was collected.

All the study tools used are provided in **Web Annexure 1**.

Independent sample t-test/Chi-square test were used to determine associations at the univariate level depending on the types of variables involved. The data were analyzed using Statistical Package for the Social Sciences (SPSS version 14).

RESULTS

All 100 ASHA workers who were approached participated in the study. All belonged to the local community. The mean (SD) theory score of the participants was 16.7 (3.16) out of 34. The mean score was similar for both Anand and Umreth talukas [16.9 (3.12) vs 16.5 (3.22), $P=0.55$]. Satisfactory skills were found in 52%, 61%, 43%, and 68% of ASHA workers for temperature measurement, hand washing, weight measurement, and KMC, respectively. None of the participants demonstrated satisfactory skills in bag and mask ventilation. No significant difference was observed in any skill between the two sub-districts (**Table I**). The self-reported field performance of ASHA workers is shown in **Table II**.

DISCUSSION

This study demonstrates that the knowledge and skills of ASHA workers regarding newborn care is sub-optimal. Although the institutional delivery rate is satisfactory, it is difficult to ascribe the same to ASHA. Specifically, the

TABLE I SKILL ASSESSMENT OF ASHA WORKERS

<i>Skill station</i>	<i>Anand (n = 50)</i>	<i>Umreth (n = 50)</i>	<i>Overall (n=100)</i>
Temperature Measurement			
Mean (SD) Score (out of 9)	7.3 (1.6)	7.3 (1.4)	7.3 (1.5)
Satisfactory skills, <i>n</i> (%)	26 (52)	26 (52)	52 (52)
Handwashing			
Mean (SD) Score (out of 6)	5.2 (0.8)	4.9 (1.0)	5.0 (0.9)
Satisfactory skills, <i>n</i> (%)	31 (62)	30 (60)	61 (61)
Weight Measurement			
Mean (SD) Score (out of 10)	8.8 (0.9)	9.1 (1.0)	9.0 (1.0)
Satisfactory skills, <i>n</i> (%)	18 (36)	25 (50)	43 (43)
Kangaroo Mother Care			
Mean (SD) Score out of 5	4.0 (0.8)	3.9 (1.0)	4.0 (0.9)
Satisfactory skills, <i>n</i> (%)	32 (64)	36 (72)	68 (68)

postnatal care including identification of sick newborns, counseling for breastfeeding and KMC is sub-optimal and skin-to-skin care is not practiced adequately. Although self-reported, major variability was observed in the workload of ASHA workers.

The limitations of the study include the possibility that simulation-based skill assessment may have led to some improved performance due to Hawthorne effect. The counseling skills of ASHA workers could not be assessed. Authors were unaware how Government of Gujarat selected 100 ASHA to be included for the study. Possibility of selection bias cannot be ruled out and hence the sample may not be representative.

Previous studies also reported sub-optimal knowledge and skills of ASHAs regarding HBNC, though they lacked detailed evaluation of knowledge, and well-structured skills assessment [6-8]. More than 90% of the ASHA correctly answered questions regarding first examination of baby, early initiation of breastfeeding, timely initiation of complementary feeding, feeding of high risk babies, and care of umbilical cord. Similar finding is corroborated by studies from Maharashtra and

TABLE II SELF-REPORTED FIELD PERFORMANCE OF ASHA WORKER IN PAST ONE YEAR

	<i>Maximum*</i>	<i>Median# (IQR)</i>
Pregnant women – Identified	120	15 (12-24)
Pregnant women – registered <12 wks	118	12 (7-20)
Home deliveries	12	0 (0-0)
Hospital deliveries – Total	117	11 (8-18)
Hospital deliveries – Escorted	32	8 (3-11)
Newborns weighed on 1 st day	30	5 (0-10)
Newborns weighed within 3 days	86	6 (2-10)
Babies <2 Kg identified	92	1 (1-4)
Babies <2 Kg referred	24	1 (0-2)
Sick newborns identified	12	1 (0-2)
Sick newborns referred	15	1 (0-1)
Mothers counselled for breast feeding	118	9 (3-13)
Mothers counselled for weaning	110	2 (0-11)
Mothers counselled for KMC	95	8 (3-15)
Mothers provided ‘skin-to-skin’ care	92	4 (2-8)
Average days ‘skin-to-skin’ care provided	90	7 (2-15)
Average duration of ‘skin-to-skin’ care provided by mothers per day	4	1 (0-2)

Values are rounded to nearest integer whenever required; Minimum value zero for all indicators.

WHAT THIS STUDY ADDS?

- The knowledge and skill set of ASHA workers is insufficient to provide adequate home-based newborn care.

West Bengal [6,7]. Although the mean score of the ASHA workers in all the skill sets was good, except for bag and mask ventilation, they missed one or more critical steps leading to unsatisfactory result. Similar observation was reported by Stalin, *et al.* [8] for weight measurement.

The Gadchiroli trial demonstrated the feasibility and effectiveness of female community health worker in providing HBNC almost two decades ago [9]. Health workers from local community may enhance outreach as well as cultural linkage between communities and health delivery systems, but various personal, professional, organizational, and external environmental factors may influence their expected performance [10,11]. Proper training of health workers is the backbone for successful implementation of HBNC. Simpler, smaller modules highlighting the most important points and frequent refresher courses with constant supportive supervision needs to be assessed through implementation research to inform policy. Good logistic support, improved work environment, along with timely and adequate incentives may enhance the performance of ASHAs. Considering the complexity of the health delivery system, a dedicated female health worker for maternal and newborn care can be tried on an experimental basis.

Acknowledgement: Ms Nisha Fahey for language edit of the manuscript.

Contributors: SB: designed the study, collected the data, wrote the paper, and approved the final manuscript; SN: conceived the study, designed the study, gave critical inputs to the paper, and approved the final manuscript; NS: collected data, gave inputs to the paper, and approved the final manuscript; RS: conceived the study, collected data, revised the manuscript for important intellectual content and script and approved the final manuscript; AP: designed the study, analyzed and interpreted the data, wrote the paper and approved the final manuscript; SN: will be the guarantor for the paper.

Funding: None; *Competing interest:* None stated.

REFERENCES

1. PHFI, AIIMS, and SC- State of India's Newborns (SOIN) 2014- a report. (Eds) Zodpey S and Paul VK. Public Health Foundation of India, All India Institute of Medical Sciences and Save the Children. New Delhi, India. Available from: www.newbornwhocc.org/SOIN_PRINTED%2014-9-2014.pdf. Accessed January 1, 2016.
2. National Health Mission. State-wise progress under NRHM (National Rural Health Mission) Status as on 31.3.2015. available from: <http://nrhm.gov.in/component/content/article.html?id=405>. Accessed January 1, 2016.
3. National Health Mission. Revised Home Based New Born Care Operational Guidelines 2014. Available from: <http://nrhm.gov.in/nrhm-components/rmnch-a/child-health-immunization/child-health/guidelines.html>. Accessed January 1, 2016.
4. National Health Mission. ASHA Training Modules. Available from: <http://nrhm.gov.in/communitisation/asha/resources/asha-training-modules.html> Accessed January 1, 2016.
5. National Health Mission. Navjaat Shishu Suraksha Karyakram. Available from: <http://nrhm.gov.in/nrhm-components/rmnch-a/child-health-immunization/child-health/guidelines.html>. Accessed January 1, 2016.
6. Biswas AB, Mukhopadhyay DK, Mandal NK, Panja TK, Sinha N, Mitra K. Skill of frontline workers implementing integrated management of neonatal and childhood illness: experience from a district of West Bengal, India. *J Trop Pediatr.* 2011;57:352-6.
7. Shrivastava SR, Shrivastava PS. Evaluation of trained Accredited Social Health Activist (ASHA) workers regarding their knowledge, attitude and practices about child health. *Rural Remote Health.* 2012;12:2099.
8. Stalin P, Krishnan A, Rai SK, Agarwal RK. ASHAs involvement in newborn care: a feasibility study. *Indian Pediatr.* 2011;48:897-9.
9. Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. *Lancet.* 1999;354:1955-61.
10. Ramji S. Integrated Management of Neonatal and Childhood Illness (IMNCI): implementation challenges in India. *Indian Pediatr.* 2006;43:1029-31.
11. Sharma R, Webster P, Bhattacharyya S. Factors affecting the performance of community health workers in India: a multi-stakeholder perspective. *Glob Health Action.* 2014;7:25352.