

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20164327>

## Original Research Article

# A community survey of newborn care practices in rural India

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**Received:** 19 September 2016

**Accepted:** 15 October 2016

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### ABSTRACT

**Background:** There are a high proportion of home deliveries in rural India. The present study was carried out to assess newborn care practices among home births and reasons for delivering at home.

**Methods:** A community based cross sectional survey of recently delivered mothers (<6 months) with at least one living child was carried out in 28 districts of 14 states.

**Results:** A total of 4274 women delivered at home and 45.9% deliveries were conducted by untrained personnel (dais 24.0%, relatives/friends/neighbors 21.9%), trained dais 48.2% and ANMs/LHVs/doctors 5.9%. New blade was used for cutting the cord by trained dai (80.7%), untrained dais (75.5%) whereas ANMs/LHVs/doctors used either new blade (64.7%) or scissors (14.7%). Use of boiled cord tie was reported among 98.8% deliveries conducted by ANMs/LHVs/doctors, 96.6% trained dais and 96.3% untrained dais. 32.5% ANMs/LHVs/doctors, 28.3% trained dais and 26.2% untrained dais left the cord dry without any application. Main reasons for delivering at home were 'client/social/family' related (85.9%) and 'facility/provider' related (21.7%). Nearly 93.3% of the new borns were given their first bath within 24 hours of birth including 77.3% within 3 hours of birth. 38.2% mothers initiating breast feeding within 24 hours of birth and within one hour 6.0% mothers only.

**Conclusions:** There is a need for improving community awareness to promote institutional deliveries and improve health system to satisfy demands of birthing women. When home birth is inevitable, families should be encouraged to engage skilled birth attendant to provide better newborn care.

**Keywords:** Dais, Home deliveries, India, Rural

### INTRODUCTION

The fourth and fifth Millennium Development Goals aimed at reducing child and maternal mortality by 2015.<sup>1</sup> Child survival has shown some improvement globally, but progress has been slow for maternal, perinatal and neonatal health.<sup>2,3</sup> Birthing is a natural phenomenon but fraught with danger for the mother and newborn especially in developing countries. Ensuring that labour and the first 24 hours postpartum are managed by a skilled care provider is one of the keys to achieving this aim.<sup>4,5</sup>

Home deliveries contribute considerably to unacceptably high maternal and perinatal mortality especially in rural India. Several socio-cultural and economic factors interplay in the decision for place of delivery. Worldwide, India has the highest number of annual maternal and neonatal deaths including stillbirths.<sup>5</sup> Maternal mortality is on an average 18 times higher in developing countries as compared to developed countries.<sup>6</sup> Despite the existence of many national programs for improving maternal and child health, maternal mortality and morbidity continue to be at higher side, at an unacceptable level.<sup>7</sup> To reduce maternal and neonatal mortality the country's National Population Policy focuses on increasing coverage of antenatal care

and institutional deliveries; strengthening public health facilities; improving referral systems and encouraging public-private partnership.<sup>8</sup> National Family Health Survey-3 reported that, in India majority births (61%) still occur at home and less than half of total births (46.6%) receive skilled attendance at birth.<sup>9</sup>

Indian Council of Medical Research (ICMR) has been engaged in studies focusing at developing strategies for improving maternal and child health (MCH) at grass root level, ICMR initiated a project on Integrated Reproductive Health Care Delivery through its network of Human Reproduction Research Centres (HRRCs) located at Medical Colleges in various regions of the country during 1996-97. This paper presents newborn care practices and reasons for delivering at home among recently delivered women in rural areas which will be useful for policy makers and for interventional programs.

## METHODS

The study was carried out through a network of 28 Human Reproduction Research Centers (HRRCs) located in the medical colleges of 14 selected states. Each HRRC purposively selected one district in consultation with the district health authorities. Using a three stage stratified sampling design<sup>10</sup>, women who delivered at home and had a living child of age less than six months were interviewed at their homes by trained female interviewers. Diagrammatic representation of the selection of the study population is shown in (Figure 1). Pre-tested questionnaires translated into regional languages at the respective HRRCs were used for the survey. The questions pertained to the newborn care practices among home births and reasons for delivering at home. The probable responses were listed for each question with provision of open ended response in the instrument to minimize the interview time. Only volunteered responses were recorded. Newborn care practices of different providers during home births were analyzed. Data analysis was done using percentages and Chi rates. Chi square test was used to find the association between attributes using SPSS (Version 15.0).

## RESULTS

A total of 7633 women with at least one living child of age less than six months were found in the selected 28 Districts of 14 states of the country. Among these, 56.0% (n=4274) women delivered in their own homes, 14.5% (n=1104) in private hospitals or clinics and 29.5% (n=2255) utilized government facilities for delivery. The background characteristics of respondents are shown in Table 1.

The majority of women reported reasons for delivering at home were social and/or family related (85.9%) including 'it is convenient/safe' (35%), 'this is not first delivery' (29.5%), 'trained dai easily available' (24.8%), 'uncomplicated pregnancy' (21.5%), 'husband/family

member decided' (19.4%), 'wanted to be with family' (10.5%), 'previous delivery also there' (4.5%). In addition 21.7% gave reason related to facility/provider related as 'have to pay other places' (8.9%), 'ANM said it can be done at home' (7.4%), 'health centre is located too far' (6.5%), 'centre not clean' (1.8%), 'no female doctor at PHC/CHC' (1.7%), 'inadequate facilities at PHC' (1.0%), 'staff at PHC/CHC not nice' (0.8%) (Table 2).

**Table 1: Background characteristics of respondents (n=4274).**

Characteristics	n (%)
<b>Age (years)</b>	
<20	294 ( 6.9)
20 - 24	1506 (35.2)
25 - 30	1865 (43.6)
>30	609 (14.2)
<b>Mean±SD</b>	25.8±5.0
<b>Age at marriage (years)</b>	
<18	2113 (49.4)
18 - 20	1759 (41.2)
21 - 23	329 (7.7)
>23	73 (1.7)
<b>Mean±SD</b>	17.7±2.2
<b>Age at first Conception (years)</b>	
<18	961 (22.5)
18 - 20	2301 (53.8)
21 - 23	799 (18.7)
>23	213 (5.0)
<b>Mean±SD</b>	19.2±2.4
<b>Parity</b>	
1	922 (21.6)
2	1236 (28.9)
3	975 (22.8)
>3	1141 (26.7)
<b>Mean±SD</b>	2.8±1.6
<b>No. of living children</b>	
1	1000 (23.4)
2	1280 (29.9)
3	987 (23.1)
>3	1007 (23.6)
<b>Mean±SD</b>	2.7±1.5

Out of 4274 home deliveries, 45.9% (n=1962) were conducted by untrained personnel including dais (24.0%) and relatives/friends/neighbors (21.9%), trained dais (48.2%) and ANMs/LHVs/doctors (5.9%) also provided delivery services at home. New blade was used for cutting the cord by both trained dai (80.7%) and untrained dais (75.5%) whereas ANMs/LHVs/doctors used either new blade (64.7%) or scissors (14.7%). On the other hand, use of boiled cord tie was reported among 98.8% deliveries conducted by ANMs/LHVs/doctors, 96.6% trained dais and 98.8% untrained dais. All the

three categories of birth attendants used some kind of cord dressing (pure ghee/oil, talcum powder, gentian violet, mercurochrome, cow dung) but only 32.5% ANMs/LHVs/doctors, 28.3% trained dais and 26.2% untrained dais left the cord dry without any application. Bathing the baby within first two hours after birth was reported by 69.8% ANMs/LHVs/doctors, 69.5% trained dais and 80.0% untrained dais. The data indicates that although ANMs/LHVs/doctors receive periodic training, they are deficient in good newborn care practices. Trained dais were better than the untrained dais, these differences were statistically significant ( $p < 0.001$ ) (Table 3).

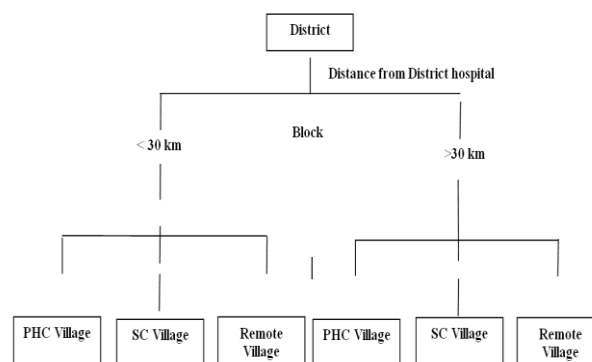
**Table 2: Reasons for having delivery at home (n=4274).**

Multiple response	n (%)
Client/Social/Family related	3672 (85.9)
It is convenient/safe	1498 (35.0)
This is not first delivery	1259 (29.5)
Trained dai easily available	1058 (24.8)
Uncomplicated pregnancy	917 (21.5)
Husband/family members decided	831 (19.4)
Wanted to be with family	449 (10.5)
Previous delivery also at home	191 (4.5)
Facility/Provider related	1653 (21.7)
Have to pay at other places	380 (8.9)
ANM said it can be done at home	315 (7.4)
Health centre too far	279 (6.5)
Centre not clean.	79 (1.8)
No female doctor at PHC/CHC	71 (1.7)
Inadequate facilities at PHC	42 (1.0)
Staff at PHC/CHC not nice	35 (0.8)

Multiple spontaneous responses were elicited with regard to the measures used to the keep the newborn baby warm which included 'keeping baby next to mother' (61.5%), 'wrapping/dressing appropriately' (52.6%), 'wrapped in cotton/cloth' (48%), 'lighting Angithi/stove' (12.4%), 'hot water bottle' (3.2%) and 'no need felt' (2.2%). Nearly 93.3% of the new born were given their first bath within 24 hours of birth including 77.3% who were bathed within 3 hours of birth. 38.2% mothers reported initiating breast feeding within 24 hours of birth. Initiation of breast feeding within one hour was reported by 6.0% mothers only. Birth weight was reported to be recorded for 10.8% home deliveries.

Overall, 37.6% (n=1609) reported ANM home visits during postnatal period. Services provided by ANM during the postnatal visits related to neonate included 'advice on immunization' (52.1%), 'advice on breast feeding' (35.6%), and 'advice on cord care' (31.1%), 'weighing the baby' (8.6%) and 'examination of cord' (36.6%) was reported. Maternal services included 'general examination' (52.8%), 'breast examination'

(27.0%), 'perineal examination' (19.8%) and 'advice on family planning' (34.2%) (Table 4).



**Figure 1: Diagrammatic representation of the selection of the study population.**

## DISCUSSION

Most maternal deaths seem to occur between the third trimester and the first week after the end of pregnancy.<sup>11,12</sup> Various reasons have been cited for choosing to deliver at home such as lack of finances, difficulty in arranging transportation, distance of health facility, inadequate services offered at the facility, ignorance etc.<sup>13</sup> Cultural indifference towards women has been highlighted in a study from rural Bangladesh where nearly 60% of pregnant women with life threatening complications were not provided medical care.<sup>14</sup> Prolonged labour, misuse of oxytocic drugs, haemorrhage, genital tract injuries, newborn asphyxia, hypothermia, infection and even death of mother and newborn are encountered in home births. These emanate from failure to recognize danger signs in the mother or newborn, influence of family in making critical decisions regarding use of drugs, seeking of timely medical help and use of traditional birth practices.<sup>15</sup>

The present study was carried out in rural areas of 28 districts from 14 states of India. In our study, out of 7633 women, 4274 (56.0%) had delivered at home and the rest of them had institutional deliveries. A study from Gadchiroli, India revealed that large number of women (94%) gave birth at home.<sup>16</sup> The study conducted in Nepal, revealed that 94% of women gave birth at home.<sup>17</sup>

A cross-sectional study was undertaken in South 24 Parganas district, West Bengal to study the delivery practices and revealed 89.36 % were home deliveries.<sup>18</sup> A cross-sectional descriptive study was conducted in an urban slum of Aligarh, reported that the majority of women (67%) preferred to have delivery at home.<sup>19</sup> The most common reason for home delivery was stated as being family tradition (42%). Economic constraint was also a common reason for avoiding institutional delivery, as even in the government hospitals, medicines and

investigations were not free (30%). Other reasons for preferring home delivery included rude behavior of hospital personnel (7%), nobody to take care of the home

during their absence (13%), fear of hospitals (4.8%), and other reasons (3.2%).

**Table 3: Newborn care practices by category of birth attendants (n = 4274).**

Newborn care practices	ANM/LHV/ Doctor (n=252) n (%)	Trained Dais (n=2060) n (%)	Untrained dais/ relatives/friends/ neighbours (n=1962) n (%)	p value
<b>Cord Cutting instrument</b>				
New blade	163 (64.7)	1662 (80.7)	1482 (75.5)	p<0.001
Scissors	37 (14.7)	165 ( 8.0)	39 ( 2.0)	
Old blade/knife/Sickle	10 ( 4.0)	103 ( 5.0)	158 ( 8.0)	
Don't know	42 (16.7)	130 ( 6.3)	283 (14.4)	
<b>Use of boiled cord tie</b>				
Yes	249 (98.8)	1989 (96.6)	1889 (96.3)	p=0.22
No	1 (0.4)	17 ( 0.8)	12 ( 0.6)	
Don't know	2 (0.8)	54 (2.6)	61 (3.1)	
<b>Cord dressing used</b>				
None	82 (32.5)	584 (28.3)	515 (26.2)	p<0.001
Pure ghee/oil	42 (16.7)	848 (41.1)	683 (34.7)	
Cow dung	1 ( 0.4)	26 ( 1.3)	11 ( 0.6)	
Talcum powder	18 ( 7.1)	102 ( 5.0)	108 ( 5.5)	
Gentian Violet/ mercurochrome	65 (25.8)	224 (10.8)	149 ( 7.6)	
Don't know	44 (17.5)	276 (13.4)	496 (25.3)	
<b>Bathing baby within</b>				
0-2 hrs	176 (69.8)	1432 (69.5)	1569 (80.0)	p<0.001
3-6 hrs	12 ( 4.8)	116 ( 5.6)	161 ( 8.2)	
>6 hrs	64 (25.4)	512 (24.9)	232 (11.8)	

**Table 4: Services provided by ANM during postnatal period (n=1609).**

Multiple response	n %
<b>Maternal</b>	
General examination	849 (52.8)
Perineal examination	319 (19.8)
Breast examination	435 (27.0)
Dietary advice to mother	455 (28.3)
Advice on family planning	550 (34.2)
<b>Neonatal</b>	
Weighing the baby	138 (8.6)
Examination of cord	589 (36.6)
Advice on breast feeding	572 (35.6)
Advice on cord care	501 (31.1)
Advice on immunization	838 (52.1)
<b>First visit of ANM (days)</b>	
0-2	536 (33.3)
3-7	391 (24.3)
>7	682 (42.4)
<b>Not visited by ANM</b>	2665 (62.4)

In our study the major reasons, as mentioned by women for delivering at home were social and/or Family related (85.9%) including low risk perception. In addition 21.7%

gave facility/provider reasons such as high economic costs, poor quality of services and care in facilities. In a study in rural area of Maharashtra, 85% of 2861 deliveries were conducted at home.<sup>20</sup> Another study conducted in West Bengal showed that only 26% of mothers delivered in institutions.<sup>21</sup>

According to a study by Khan et al in Aligarh district of Uttar Pradesh, 96.5% of the deliveries at home were assisted by a local dai or relative and none of the mothers knew whether the dai who conducted their delivery was trained or untrained.<sup>22</sup> In the present study 45.9% (1962) home deliveries were conducted by untrained personnel including dais (24.0%) plus relatives/friends/neighbours (21.9%), trained dais (48.2%) and ANMs/LHVs/doctors (5.9%) provided delivery services at home.

In a study on delivery practices in west UP, in 43% deliveries the cord cutting instrument was not sterilized. Blade was the commonest (90.8%) cord cutting instrument.<sup>23</sup> Another community based survey conducted in urban slum of Delhi, revealed that unsterile threads were used in 71.7% of home deliveries.<sup>24</sup> Nothing was applied to the cord in 63% of home deliveries. Findings from our study were that new blade was used for cutting the cord by both trained (80.7%) and untrained

dais (75.5%) whereas ANMs/LHVs/doctors used either new blade (64.7%) or scissors (14.7%). A cross-sectional descriptive study from an urban slum revealed that umbilical cord was cut by a new blade in 59.9% of the cases and by traditional objects such as the edge of a broken cup in 40.1% of the cases.<sup>18</sup> Similar study from Birbhum district of West Bengal, India, a clean instrument was used to cut the cord in 86.78% of home deliveries, a clean cord tie was used in only 24.89% cases. In 36.36% home deliveries, something was applied on the cord stump.<sup>25</sup>

A cross-sectional survey of home based neonatal care practices in Makwanpur district, Nepal, indicated" a razor blade in 56% births, of which 33% was described as clean described as clean. The umbilical stump was usually left undressed (73%). The most common application was oil (18%).<sup>26</sup> In our study use of boiled cord tie was reported in majority by the use of cord dressing in the form of pure ghee/oil, telcum powder, gentian violet/mercurochrome, cow dung was reported in majority births.

This study has limitation as the respondents were women who had given birth within the last 6 months of the survey and there was 6-25% no response. Information collected from birth attendants or direct observation would be more useful.

## CONCLUSION

There is a need for improving community awareness to promote institutional deliveries and improve health system to satisfy demands of birthing women. When home birth is inevitable, families should be encouraged to engage skilled birth attendant to provide better newborn care.

## ACKNOWLEDGEMENTS

Project Co-Investigators were P. Bhatia, Kasturba Hospital, New Delhi; Kurus J. Coyaji, KEM Hospital, Pune; Kalyani Das, KG Medical College, Lucknow; K.C.De, Eden Hospital, Kolkatta; Durga Gahlot, SP Medical College, Bikaner; Sarala Gopalan, PGIMER, Chandigarh; A. Goswami, Medical College, Gauhati; Maya N. Hazra, Medical college, Baroda; S. Khajuria, Medical College, Jammu; B S Kodkany, JLN medical College, Belgaum; Sujaya Kumari, IOG, Chennai; Marry Mahendru, KMC, Chennai; Tara Mathur, SMS medical College, Jaipur; Gita Ganguly Mukherjee; RG Kar Medical College, Kolkatta; K. Mukherjee, MLN Medical College, Allahabad; S. Nagarathinam, Medical College, Madurai; V.I. Nalini, Sat Medical College, Thiruvananthapuram; Asha Oumachigui, JIPMER, Pondicherry; M.N. Pal, Medical college, Goa; Uma Rani, KGH, Chennai; Shanti Roy, Medical College, Patna; A Senthamil Selvi, RSRM Hospital for Women & Children, Chennai; Usha Sharma, LLRM Medical College, Meerut; A.N. Shrotri, BJ Medical College, Pune; V.K. Singh,

GSVAM Medical College, Kanpur; H. L. Swain, SCB Medical College, Cuttack; Shanti Yadav, Safdarjung Hospital, New Delhi; Kusum Zaveri, JJ Group of Hospitals, Mumbai.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Dhillon BS, Singh S, Chandhiok N, Shekhar C. A community survey of newborn care practices in rural India. *Int J Reprod Contracept Obstet Gynecol* 2016;5:4275-80.