Maternal and Newborn Care Practices Among the Urban Poor in Indore, India

Gaps, reasons and potential program options

August - 2007
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Gaps, Reasons and Potential Program Options

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About the Report:

This report describes maternal-newborn care practices and care of infants aged 2-4 months (feeding practices, morbidity status, immunization status and nutritional status) in urban slum dwellings of Indore city, Madhya Pradesh (India). The findings presented in this report are from a study carried out by UHRC between Dec'04-Feb’06 in 11 out of 79 slums where it’s Indore Urban Health Program is operational since April, 2003. Also discussed in this report, are reasons for following these practices, what facilitates and what hinders following optimal practices and potential program options for their improvement.

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About UHRC

The Urban Health Resource Centre is a non-profit organization working to bring about sustainable improvement in the health of the urban poor in partnership with National Government, State Governments, Municipal bodies, NGOs, community based organisations, public and private providers, academic bodies, media and urban poor communities. It provides technical assistance, generates and disseminates urban health information to address knowledge gaps on the health of people in disadvantaged slum settlements. Demonstration and research activities conducted by UHRC at diverse cities provide evidence based inputs for strengthening programming efforts of government and non-governmental agencies. UHRC advocates at various platforms for enhanced attention to the health of the urban poor.

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Untiring efforts of many UHRC colleagues helped in carrying out the study and give final shape to this report. Mr. Sandeep Kumar and Mr. Prabhat Jha coordinated the field visits at Indore and provided valuable insights and inputs. Ms. Ashima Garg, Ms. Madhvi Mathur and Ms. Kirti Sangar coordinated the data collection and compiled all field notes. Dr. S Kaushik and Dr. Praween Agarwal provided statistical input pertaining to sampling and sample size estimation for the study. Mr. Ajith Kumar designed the cover page of the report. Dr. Partho Halder gave useful suggestions on the report. Mr S.K. Kureja and Mr. Umesh Tiwari most effectively organized and coordinated all logistics related to the field work for the study. Each one of them is thanked for their invaluable contribution and energising comradership.

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Comments and suggestions from those who read this report are sincerely requested. They will certainly enrich UHRC’s efforts to learn more about issues impacting maternal-neonatal health and evolving approaches to improve maternal-neonatal survival among urban poor populations.
"Ode to a Newborn"

"Every thing in this world can wait but I cannot,
my body is tender and fragile.
I do not know what it means to be a boy or a girl,
a man or a woman.
I am new to this world, my whole being is helpless.
I need love, care and warmth.
When I grow up,
I want to contribute to this world as a capable human being.
I am no Abhimanyu but I would want to be one.
It is now that my bones and tissues are developing,
My senses are evolving,
I am a newborn – I cannot wait.

- Dr. Siddharth
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronyms</td>
<td>vii</td>
</tr>
<tr>
<td>List of Figures and Tables</td>
<td>viii</td>
</tr>
<tr>
<td>Definitions</td>
<td>ix</td>
</tr>
<tr>
<td>Executive Summary and summary table of key findings of this study</td>
<td>x-xxvi</td>
</tr>
<tr>
<td><strong>Chapter 1. Background</strong></td>
<td>1-8</td>
</tr>
<tr>
<td>1.1 Maternal-Newborn Health Challenge in India</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Maternal-Newborn Health Challenge amongst the urban poor in India</td>
<td>4</td>
</tr>
<tr>
<td>1.3 Status of Maternal-Newborn Health in urban slums of Indore, Madhya Pradesh</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Building a platform for overlaying future efforts to improve Maternal-Newborn health in Indore slums</td>
<td>5</td>
</tr>
<tr>
<td>1.5 Rationale for the present study</td>
<td>6</td>
</tr>
<tr>
<td><strong>Chapter 2. Methodology</strong></td>
<td>9-17</td>
</tr>
<tr>
<td>Research Design</td>
<td>10</td>
</tr>
<tr>
<td>2.1 Selection of Study Area</td>
<td>11</td>
</tr>
<tr>
<td>2.2 Data Collection</td>
<td>12</td>
</tr>
<tr>
<td>(a) Respondents and Sample Size</td>
<td></td>
</tr>
<tr>
<td>(b) Areas of Enquiry</td>
<td></td>
</tr>
<tr>
<td>(i) Interviewing mothers of infants 2-4 months of age</td>
<td>13</td>
</tr>
<tr>
<td>(ii) Preparation of case studies of LBW babies</td>
<td>14</td>
</tr>
<tr>
<td>(iii) Interviewing slum-based birth attendants</td>
<td>14</td>
</tr>
<tr>
<td>(iv) Interviews with mothers of newborns (0-28 days) and Hypothermia assessment in newborns</td>
<td>14</td>
</tr>
<tr>
<td>(v) Anthropometric assessment of general undernutrition amongst infants and newborns</td>
<td>15</td>
</tr>
<tr>
<td>2.2.2 Gathering Qualitative Information</td>
<td>16</td>
</tr>
<tr>
<td>2.3 Data Management and Analysis</td>
<td>16</td>
</tr>
<tr>
<td><strong>Chapter 3. Results and Discussion</strong></td>
<td>17-45</td>
</tr>
<tr>
<td>3.1 Antenatal Care: Practices, Barriers and Program Options</td>
<td></td>
</tr>
<tr>
<td>3.1.1 Establishing contact with a health provider during pregnancy</td>
<td>21</td>
</tr>
<tr>
<td>3.1.2 Preparedness for delivery and obstetric complications</td>
<td>26</td>
</tr>
<tr>
<td>3.2 Intrapartum Care: Practices, Barriers and Program Options</td>
<td></td>
</tr>
<tr>
<td>3.2.1 Place of delivery</td>
<td>32</td>
</tr>
<tr>
<td>3.2.2 Home delivery practices in slums</td>
<td>33</td>
</tr>
<tr>
<td>3.3 Postneonatal Care up to 2 months postpartum: Practices, Barriers and Program Options</td>
<td></td>
</tr>
<tr>
<td>3.3.1 Early initiation of BF</td>
<td>40</td>
</tr>
<tr>
<td>3.3.2 Prelacteal feeding</td>
<td>41</td>
</tr>
<tr>
<td>3.3.3 Exclusive BF</td>
<td>42</td>
</tr>
<tr>
<td>3.3.4 Status of postnatal visits conducted by BCBOs</td>
<td>43</td>
</tr>
<tr>
<td>3.4 Understanding home-based management &amp; care seeking practices of LBW babies by families</td>
<td>46</td>
</tr>
<tr>
<td>3.5 Care of infants in the 2-4 month period: Practices, Barriers and Program Options</td>
<td></td>
</tr>
<tr>
<td>3.5.1 BF Practices</td>
<td>57</td>
</tr>
<tr>
<td>3.5.2 Prevalence of diarrhoea/ARI/fever</td>
<td>58</td>
</tr>
<tr>
<td>3.5.3 Treatment seeking behaviour</td>
<td>59</td>
</tr>
<tr>
<td>3.5.4 Immunization Status</td>
<td>60</td>
</tr>
<tr>
<td>3.5.5 Anthropometric assessment of nutritional status of infants</td>
<td>61</td>
</tr>
<tr>
<td>3.6 Neonatal hypothermia in urban slums of Indore</td>
<td>63</td>
</tr>
<tr>
<td>3.6 Home delivery practices of slum-based traditional birth attendants: Barriers and Program Options</td>
<td>72</td>
</tr>
<tr>
<td><strong>Annexes</strong></td>
<td>I-XXI</td>
</tr>
<tr>
<td>Annex. 1 : Case studies of home based management of LBW babies</td>
<td></td>
</tr>
<tr>
<td>ACRONYMS</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>ANC</td>
<td>Antenatal Check Up</td>
</tr>
<tr>
<td>ANM</td>
<td>Auxiliary Nurse Midwife</td>
</tr>
<tr>
<td>ARI</td>
<td>Acute Respiratory Track Infection</td>
</tr>
<tr>
<td>BA</td>
<td>Birth Attendant</td>
</tr>
<tr>
<td>BF</td>
<td>Breastfeeding</td>
</tr>
<tr>
<td>BCBO</td>
<td>‘Basti’ Community Based Organization</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organization</td>
</tr>
<tr>
<td>Cms</td>
<td>Centimeters</td>
</tr>
<tr>
<td>EDD</td>
<td>Expected Date of Delivery</td>
</tr>
<tr>
<td>EHP</td>
<td>Environment Health Project</td>
</tr>
<tr>
<td>EmOC</td>
<td>Emergency Obstetric Care</td>
</tr>
<tr>
<td>GD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GM</td>
<td>Grandmother</td>
</tr>
<tr>
<td>Gms</td>
<td>Grams</td>
</tr>
<tr>
<td>IAP</td>
<td>Indian Academy of Pediatrics</td>
</tr>
<tr>
<td>IFA</td>
<td>Iron Folic Acid</td>
</tr>
<tr>
<td>Kgs</td>
<td>Kilograms</td>
</tr>
<tr>
<td>LBW</td>
<td>Low Birth Weight</td>
</tr>
<tr>
<td>M.P.</td>
<td>Madhya Pradesh</td>
</tr>
<tr>
<td>MIL</td>
<td>Mother-in-Law</td>
</tr>
<tr>
<td>MS</td>
<td>Microsoft</td>
</tr>
<tr>
<td>NFHS</td>
<td>National Family Health Survey</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
<tr>
<td>NMR</td>
<td>Neonatal Mortality Rate</td>
</tr>
<tr>
<td>NNF</td>
<td>National Neonatology Forum</td>
</tr>
<tr>
<td>NSSO</td>
<td>National Sample Survey Organization</td>
</tr>
<tr>
<td>ORS</td>
<td>Oral Rehydration Solution</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Centre</td>
</tr>
<tr>
<td>Pvt.</td>
<td>Private</td>
</tr>
<tr>
<td>RGI</td>
<td>Registrar General of India</td>
</tr>
<tr>
<td>SEARCH</td>
<td>Society for Action Research in Community Health</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package of Social Sciences</td>
</tr>
<tr>
<td>sTBA</td>
<td>Slum-based Traditional Birth Attendant</td>
</tr>
<tr>
<td>TT</td>
<td>Tetanus Toxoid</td>
</tr>
<tr>
<td>UHRC</td>
<td>Urban Health Resource Centre</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
# LIST OF TABLES AND FIGURES

## TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selected slums listed on the basis of health vulnerability and distance from the nearest government health facility</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Reasons for lack of birth preparedness in identifying a skilled birth attendant for delivery</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>Barriers and facilitators for keeping savings for birth and obstetric emergency</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>Identification of maternal complications during pregnancy/labour and newborn complications at birth/postpartum</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>Skilled attendance during home delivery in slums</td>
<td>33</td>
</tr>
<tr>
<td>6</td>
<td>Home delivery practices in slums of trained birth attendants vis-à-vis others</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>Timing of initiation of BF</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Prevalence of diarrhoea, fever and ARI amongst infants 2-4 months of age</td>
<td>59</td>
</tr>
<tr>
<td>9</td>
<td>Status of immunization amongst infants 2-4 months of age</td>
<td>60</td>
</tr>
<tr>
<td>10</td>
<td>a) Percentage of newborns assessed as warm, cold stressed and hypothermic using axillary and human touch method</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>b) Number of newborn assessed warm, cold stressed and hypothermic by human touch if axillary method was taken as gold standard</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>c) Diagnostic accuracy of human touch method when axillary method was taken as gold standard</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>d) Relative Advantage and Disadvantage using either method in the field</td>
<td>67</td>
</tr>
<tr>
<td>11</td>
<td>Factors influencing body temperature of newborns</td>
<td>68</td>
</tr>
<tr>
<td>12</td>
<td>Presence of other danger signs indicating a complication in a newborn along with hypothermia</td>
<td>70</td>
</tr>
<tr>
<td>13</td>
<td>Awareness of the sTBAs regarding pregnancy related danger signs</td>
<td>74</td>
</tr>
<tr>
<td>14</td>
<td>Awareness of the sTBAs regarding danger signs during labour</td>
<td>74</td>
</tr>
<tr>
<td>15</td>
<td>Delivery practices the sTBAs mentioned they followed</td>
<td>76</td>
</tr>
<tr>
<td>16</td>
<td>Newborn physical assessment parameters used by sTBAs</td>
<td>78</td>
</tr>
<tr>
<td>17</td>
<td>Reasons mentioned by sTBAs for timing of initiation of BF</td>
<td>79</td>
</tr>
<tr>
<td>18</td>
<td>Reasons mentioned by sTBAs for feeding prelacteals</td>
<td>80</td>
</tr>
<tr>
<td>19</td>
<td>Reasons cited by sTBAs for clean cord stump practices</td>
<td>80</td>
</tr>
</tbody>
</table>

## FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Evidence-based essential newborn care practices</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Timing of first contact with a health provider</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>Number and timing of antenatal checkups</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>Place of delivery</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>Home delivery practices in slums</td>
<td>33</td>
</tr>
<tr>
<td>6</td>
<td>Percentage of families feeding prelacteals and types of prelacteals fed</td>
<td>41</td>
</tr>
<tr>
<td>7</td>
<td>Exclusive BF practices in first two months postpartum</td>
<td>42</td>
</tr>
<tr>
<td>8</td>
<td>Number of postnatal visits made by L/BCBO b/w 0-14 days of childbirth</td>
<td>44</td>
</tr>
<tr>
<td>9</td>
<td>BF practices in 2-4 months</td>
<td>58</td>
</tr>
<tr>
<td>10</td>
<td>Preference in treatment seeking</td>
<td>59</td>
</tr>
<tr>
<td>11</td>
<td>Percent distribution of infants based on underweight status</td>
<td>61</td>
</tr>
<tr>
<td>12</td>
<td>Association between environment temperature and incidence of hypothermia</td>
<td>69</td>
</tr>
<tr>
<td>13</td>
<td>Were sTBAs actually practicing evidence-based practices they mentioned they practice?</td>
<td>76</td>
</tr>
</tbody>
</table>
DEFINITIONS

The definitions mentioned below are from cited literature. These have been used in the study with small local adaptations, where some components of a definition may have not been relevant to the study context and hence not used e.g. milk from wet nurse

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Respiratory Track Infection</td>
<td>Cough or nasal discharge present for three days or more accompanied with chest in-drawing(^1)</td>
</tr>
</tbody>
</table>
| BF                          | Requires that the infant receives: Breast milk  
Allow the infant to receive: any food or liquid including animal milk\(^2\) |
| Clean Delivery              | Delivery attended by a trained birth attendant observing principles of cleanliness (clean hands, clean surface, clean blade, clean cord tie and clean cord stump)\(^3\). |
| Diarrhoea                   | The passage of three or more watery liquid motions or >9 motions of normal consistency in 24 hours or if the mother reports ‘dast’\(^4\) |
| Exclusive BF                | Requires that the infant receives: Breast milk  
Allow the infant to receive: drops/syrups (vitamins, minerals, medicines)  
Does not allow the infant to receive: anything else\(^5\) |
| Neonatal Period             | First 28 days of life                                                                                                                                 |
| Newborn                     | Infant up to 28 days of life                                                                                                                                 |
| Predominant BF              | Requires that the infant receives: Breast milk as the predominant source of nourishment  
Allow the infant to receive: liquids (water and water–based drinks, fruit juice, ORS), ritual fluids and drops/syrups (vitamins, minerals, medicines)  
Does not allow the infant to receive: anything else (in particular, animal milk, food-based fluids)\(^5\) |
| Partial BF                  | Requires that the infant receives: Breast milk as the predominant source of nourishment.  
Allow the infant to receive: liquids (water, and water–based drinks, fruit juice, ORS), ritual fluids, drops/syrups (vitamins, minerals, medicines) and animal milk  
Does not allow the infant to receive: anything else (in particular, semi-solid or solid foods)\(^4\) |


EXECUTIVE SUMMARY

1. BACKGROUND FOR THE STUDY:
One out of every 14 newborn dies in poor slum dwellings of Madhya Pradesh (M.P.) in India. Neonatal survival is influenced much by care provided by the family before, during and after delivery, which in turn is influenced not only by mother’s beliefs, but also perceptions of her immediate family, which are context specific. Antenatal, intra-partum and postnatal practices associated with better newborn survival are well-known through evidence-based research. For promoting these practices in wider programme settings, an understanding of current practices and factors influencing them is crucial. This would help identify barriers and possible context responsive program options for improving these evidence-based practices. Hence, the present study was undertaken, keeping the following objectives in mind:

2. OBJECTIVES:
1. To understand community-level antenatal, intrapartum, and postnatal (0-2 months) practices in slum dwellings of Indore (M.P.).
2. To understand perceptions and practices of slum-based traditional birth attendants conducting home deliveries.
3. To understand incidence of cold stress and hypothermia amongst newborns using human touch method, assess its diagnostic accuracy against axillary method and study its correlation with other simple and easy to assess danger signs/symptoms of neonatal illness like lethargy and poor suckle.
4. To document positive indigenous home-level practices from families of surviving and healthy low birth weight newborns which according to them have aided in survival and rehabilitation of their baby.
5. To identify barriers and suggestive program options for improving the maternal-newborn care practices among slum dwelling urban poor of Indore (M.P.).

3. METHODOLOGY:
3.1 SELECTION OF THE STUDY AREA:
The study was carried out in the period between Dec’04 – Feb’06 in 11 of the 79 slums where UHRC-Indore (formerly EHP) program operates. The selected slums were comparative in – i) extent of health vulnerability of the population and ii) distance from the nearest government health facility.

3.2 DATA COLLECTION: In order to get information cited in the study objectives, data was collected from four groups – i) mothers of infants 2-4 months of age, ii) mothers of newborns, iii) slum-based traditional birth attendants and iv) mothers of surviving and healthy low birth weight newborns. Additionally, group discussions were also conducted with mothers of infants in each slum and slum-based health volunteers/community-based organization members activized through the UHRC project. Details of enquires made is described below:

---

7 Based on Health Vulnerability Assessment of slums carried out as part of the Indore Situation Analysis during July – Oct, 2003 and confirmed by Lead and ‘Basti’ CBOs at the time of selecting the study area.
3.2.1 Interview with mothers of infants 2-4 months of age:
- Considering a hypothesized prevalence value of 50% (for general health indicator, which results in the highest possible sample size), ±10% point accuracy, one sample method with 95% significant level and 80% power, design effect of 1.5 and non-response rate of 10%, a sample of 321 were visited and 312 interviewed in their homes.
- During household interviews, antenatal, intrapartum and postnatal care practices followed by them until their infant was 2 months of age were enquired. Their current BF practices, number of episodes of diarrhoea, fever and ARI their infant had in the last 15 days, immunization status of infant and mother’s health seeking behaviour was also enquired.

3.2.2 Interview with mothers of low birth weight newborns who were surviving and healthy:
- Since for interviewing mothers of infants 2-4 months of age, slum visits were already being conducted, this opportunity was used to also identify those LBW babies (<2.5kgs) who were surviving and currently healthy (weighed appropriate for their age) from records of slum-based health volunteers. A total of 15 such babies were available during the study period (Dec’04-Feb’06). Interview with mother and care provider was conducted in each of these 15 families to learn those household behaviours which they practiced which lead to successful rehabilitation of their LBW newborns. Case studies of these families based on the information gathered was then prepared.

3.2.3 Interview with slum-based birth traditional attendants (sTBAs):
- In each of the 11 slums, an enquiry was made from the community to identify all sTBAs. Then, those sTBAs who had conducted atleast one home delivery in the past six months were interviewed to understand their perceptions and practices related to intrapartum care. Thirty-seven such sTBAs were identified and interviewed.

All interviews were conducted by trained field investigator (post graduates - paramedical/social sciences).

3.2.4 Assessment of cold stress, hypothermia and associated danger signs in newborns:
While the field work was ongoing, the opportunity was also used to study neonatal hypothermia amongst newborns. For this, whenever a field visit was conducted to interview mothers of infants 2-4 months of age, a list of newborns was also made and field visit was conducted in homes of mothers of newborns.

During the visit, body temperature of 152 newborns was assessed by the trained field investigators using axillary method and human touch method. Axillary (underarm) temperature was measured by them using a digital thermometer (accuracy: 1.2°F/0.1°C). Newborns were classified as warm, cold stressed and hypothermic if their axillary temperature was between 36.5-37.5°C, 36-36.4°C and <36°C respectively. The same field investigators used the dorsum of their hands to assess the skin temperature at 2 sites (abdomen and soles of foot). Newborns were classified as warm, cold stressed and hypothermic if both their abdomen and sole of foot was warm, abdomen was warm and sole of foot was cold, both their abdomen and sole of foot was cold respectively.

Mean environment air temperature during hypothermia assessment was noted from an online weather report source (URL: www.wunderground.com/station/42754/2005). Months from October to March were regarded as winter months and months from April to September as summer months.

The association of newborn’s body temperature with environment air temperature and a number of selected newborn characteristics were examined. These newborn characteristics included age and weight of the baby at temperature recording, sex, poor suckling, lethargy and respiratory rate 60 or more on counting twice using a stop watch.

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3.2.5 Anthropometric assessment of general undernutrition amongst infants and newborns:

Weight of 312 infants 2-4 months of age and 152 newborns was measured using a portable hanging spring balance (Salter, 0-10kg range) using WHO guided procedures either naked or wearing light clothing.\(^\text{10}\) The general index of nutritional status i.e. weight-for-age, was calculated and expressed in standard as Z scores (WAZ) from the WHO standards 2006. WAZ compared WHO 2006 standards was calculated using the WHO anthropometric calculator computer program within ANTHROPAC 2005 PC (beta version Feb17, 2006) software\(^\text{11}\). Being more than two and three standard deviations below the WHO standards 2006 median was considered undernourished and severely undernourished respectively. Being between one and two standard deviations below the WHO standards 2006 median was considered mildly undernourished\(^\text{12,13}\).

3.2.6 Group Discussions (GDs) with CBOs and mothers of infants less than 12 months of age:

GDs were conducted with 8-10 mothers of infants less than one year of age and 4-6 'basti' CBOs in each of the 11 slums to identify barriers and potential programme options to improve evidence-based antenatal, intrapartum and postnatal practices.

3.3 DATA ANALYSIS:

Quantitative data gathered was analyzed using SPSS (version 11). Spearman’s correlation was used to find correlations between variables and \(X^2\) test was used to find out significant differences between variables. For all tests \(p\) value of \(<0.05\) was judged significant. Investigators used qualifiers for summarizing information gathered after every GD like majority/most when \(3/4\text{th}\) of the group gave a particular response, half the group and some/few when one fourth of the group gave a particular response. Information gathered from each case study was compiled as per queries made.

4. RESULTS AND DISCUSSION:

4.1 ANTENATAL CARE (N=312)

4.1.1 Establishing contact with a health provider: Practices and reasons

- 95.5% mothers mentioned that they established one or more contact with a health provider during their pregnancy either for seeking antenatal advice or antenatal care (routine check up or sickness care).
- Amongst those who established a contact, 84.0% approached a health provider in their first trimester, 6.7% in the second trimester and 4.8% in the third trimester.
- Health providers approached for seeking antenatal care/advice included\(^\text{14}\): a) ANMs during health camps in slums (45.4%), b) doctors in government institutions like Maharaja Yashwantrao (MY) and Zila Hospital (39.7%), c) doctors in private charitable institutions like Pushpkunj and Kasturba Gram (28.2%) and d) private doctors residing nearby (16%).
- Mothers mentioned that the choice of the health provider approached depended upon various interrelated factors like – low cost, proximity, knowledgeable and hospitable behaviour of the health provider towards them.

\(^{14}\) Total percentage would be more than 100% accounting for multiple responses i.e. mentioning more than one health provider with whom contact was established.
(a) Receiving 2 tetanus toxoid shots during pregnancy

- **82.0% of mothers had received 2 TT shots** during their pregnancy. This was possible perhaps due to the efforts of the NGO partners of the Indore program in ensuring that the ANM comes for immunization in these slums on monthly basis.

- Barriers to complete TT immunization included: i) pregnant women not being present in the slum at the time of an immunization camp either because they were working as maids in nearby colonies/labourers or because they had gone to their native village for delivery in the seventh month of pregnancy; ii) Infrequent visits by the ANM in a few slums and iii) reluctance of some pregnant women to take their TT shots, as they were scared of injections.

(b) Consuming 100+ Iron Folic Acid (IFA) tablets during pregnancy:

- IFA tablets were being provided through the NGO working in the slums in the UHRC program so supply side problem was not there.

- **86.2% mothers received IFA tablets.** Out of the mothers who received IFA tablets only **11.5% of them consumed IFA tablets for 3+ months during their pregnancy.**

- Reasons cited by others mothers who did consume some IFA tablets but not appropriate number of IFA tablets during their pregnancy were – i) belief that the tablet is hot and hence may lead to a miscarriage; ii) diarrhoea/nausea/vomitish feeling after eating the tablet as they did not like the taste; iii) IFA tablet was found foul smelling by them and iv) forgetting to consume the tablet due to household workload.

- Those mothers who did not eat any IFA tablet or take IFA tablets from a health provider did not perceive the need for doing so having experienced no complications in their previous pregnancy wherein no IFA tablets were eaten.

(c) Receiving at least 3 Antenatal Check Ups (ANC) during pregnancy:

- **76.6% mothers received atleast one ANC and 40.1% mothers received three or more ANC checkups during their pregnancy.**

- **70.5% mothers received their first ANC in the first trimester of pregnancy.**

- Barriers to receiving an ANC included: a) economic constraints (cost involved in transit, cost of services, loss of wages), b) time constraints (owing to burden of housework and taking care of young children) and c) hesitation in approaching a health facility alone without an escort.

4.1.2 Preparedness for delivery and obstetric complications: Practices and Reasons

(a) Identifying a trained birth attendant for delivery and obstetric complications:

- Nearly 70% mothers mentioned that while pregnant they had identified a birth attendant from whom they would seek help for delivery and related obstetric complications.

- Birth attendants identified included - trained sTBA of the slum and doctors in government/charitable hospitals. Possibly, health education through trained slum or cluster level health volunteers (LCBOs/BCBOs) contributed to the above mentioned preparedness practices.

- Lack of perceived need, economic constraints or traditional practices emerged as barriers to this practice.
(b) Identifying a health facility for delivery and obstetric complications:

- While pregnant, 64% mothers identified a health facility they would contact in event of an obstetric complication. Barriers to following this practice that emerged were: not facing any complication in pregnancy and due to poverty related constraints taking it for granted that their delivery would be conducted at home.

(c) Savings:

- More than 3/4th (76.9%) of families saved some money to incur delivery related costs and to prepare for any complications that could arise.

- In slums where SHGs were active, only 41% of mothers were aware of an SHG being present in their slum and only 15.8% mothers were members of such a group. Reasons for a large proportion of mothers not being members of SHGs included: a) Economic constraint related fear of not being able to pay money each month, b) disapproval by family members either due to meager and irregular income or lack of faith in the SHG after hearing past negative experiences from other members of the SHG.

(d) Making arrangements for transportation:

- Arrangements for transportation to prepare for an obstetric emergency were made only in 29.5% of families, as in the slums visited, tricycle ‘Rickshaws’ were available close by and private doctors resided in the vicinity.

(e) Identifying danger signs indicating a complication and seeking prompt referral:

- Out of 312 mothers 2-4 months of age interviewed, 65 mothers were not aware of any maternal complications during pregnancy. Most others mentioned excessive bleeding prior to experiencing labour pains, breathlessness with blurring of vision and severe abdominal pain suggestive of referral.

- Economic constraints, apathy on part of the family members to escort the pregnant lady to a referral facility at night, advice of the sTBA that pain is natural emerged as barriers for seeking timely emergency obstetric care.

4.1.3 Possible program options to promote evidence-based antenatal practices:

- Enabling families (pregnant women, their husbands and in-laws) perceive the benefit(s) of appropriate antenatal care practices through persuasive reinforcement of optimal practices by trained slum-based CBOs and involving early adopters as change aides in group meetings/home visits. It would also be helpful for CBOs to identify those homes where the pregnant women does not get support from her family or are extremely poor and develop some appropriate counselling mechanism for them e.g. through a progressive early adopter/relative/neighbour/an elder lady of the community so that such women can be proactively encouraged to adopt and maintain recommended behaviours. Evening weekly/monthly counselling sessions for working women can also be considered.

- CBOs need to encourage women to join SHGs to earmark a proportion of their savings as a health fund. The rules for management of SHGs to evolve as situations unfold before the group. If the BCBOs talk about the group savings approach citing a case where a family utilized the loan from the group for obstetric or medical care, then more women will certainly be motivated in joining the savings group.

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15 A Change aide is a person who complements the change agent, by having more intensive contact with the clients, and who has although less competence credibility but more safety or trustworthiness credibility. (Source: A Primer in Diffusion of Innovations Theory by Clarke R. Available at URL: http://www.anu.edu.au/people/Roger.Clarke/SOS/InnDiff.html)
- BCBOs or slum based volunteers, many of whom are illiterate can also be trained to monitor in community based monitoring of behaviours and assessing their progress. This could be through temonthly problem solving meetings wherein they should be facilitated to plan their strategies, discuss problems and draw consensus on collective solutions for improving maternal-newborn care practices in their slums. It should be left for the BCBO to decide the type of monitoring they wish to do- be it pictorial or through group discussions and something which emerges during their discussion which may have not been use till today.

- Since a large proportion of mothers rely on sTBAs for delivery related practices, who are easily accessible in the slum, there is a need to build their capacity to play an additional role of counselling pregnant women on appropriate antenatal care especially during health counselling activities of the CBOs. CBOs need to be encouraged to accept the TBAs as important allies and involve them in all meetings and activities. Take-home pictorial material available at community level with sTBAs and CBOs will be of value in promoting appropriate antenatal practices. Slum-based birthing huts managed by sTBAs and SHGs in the slum and linked to EOC facilities- public or private facilities can also be experimented with e.g. through telephone if a private midwife/practitioner is called to conduct a complicated delivery.

- Outreach camps can be further strengthened and made regular at fixed, pre-appointed place in or near the slum at a time suitable to women, especially working women. This will need to include perseverant efforts to motivate and support ANMs for the outreach sessions.

- Wherever possible, willing private qualified medical providers may be partnered with for providing antenatal services during outreach camps. Such services will enhance the community’s confidence in outreach sessions since they would note visibly enhanced quality of services.

- There is a need to foster functional linkages between the community and affordable health facilities to build mothers confidence in approaching the facility independently and CBOs initially supporting them by accompanying them to facility. This will need the complementary endeavor of encouraging the health providers to accept the CBOs as important allies.

4.2 INTRAPARTUM CARE (N=312)

4.2.1 Place of delivery (N=312):

- 72.1% of deliveries were conducted at home (of these, 56.4% were conducted in slum-homes and 15.7% deliveries were conducted in their respective native villages).
- 21.2% deliveries were conducted in government/private charitable hospitals and 6.7% at private centres.
- Home deliveries were common due to – a) traditional factors like delivering at the mothers’ house/self-delivery, b) economic constraints as home delivery costed about 50/- rupees only, c) avoiding transportation costs of reaching the health facility and d) fear of being alone during delivery in the hospital.

4.2.2 Home delivery practices in slums (N=176)

(a) Home delivery by a trained birth attendant:

- Majority (77.3%) of the home deliveries in slums were conducted by slum-based traditional birth attendants (sTBAs).
- 66.5% of home deliveries were conducted by trained birth attendants (59.1% by trained sTBAs, and others by ANM or private nurse/doctor residing nearby).
- 33.5% home deliveries were conducted by untrained birth attendants (18.2% by untrained sTBAs, 13.6% by family members and 1.7% deliveries (that too in ‘Aheerkheri’ only) were conducted without any assistance.

- 4.2
(b) Home Delivery Practices in Slums:

Clean delivery practices:
- The room where delivery was conducted was not especially cleaned prior to delivery in any family, either due to lack of time available from household chores or lack of perceived need. However, a clean cloth/washed sundried polythene/mackintosh from the DDK was laid on the delivery surface in 46% homes.
- During GDs with mothers of infants in Jeet Nagar and Sonia Gandhi Nagar, it was found that since the past year, as a consequence of the counselling sessions (by CBOs) on delivery care, and the discussion on the potential harmfulness of cow-dung flooring, some of the ‘basti’ people in these slums have started using ‘choona’ i.e. limestone paste for flooring the delivery room before delivery.
- Although 61.4% birth attendants washed their hands with soap and water prior to delivery, only 14.7% birth attendants let their hands air dry after washing their hands with soap and water prior to delivery.
- An unsterilized yet new cotton thread was used to tie the cord in nearly all families. This thread was either a thread brought especially for use as a cord tie or a puja thread (that was considered pure and clean) or nylon thread used to stitch quilts. A sterilized cord tie available from the DDK (not dipped in hot water before use) was used by 34.0% families.
- Nearly all families (96.6%) used a new blade for cutting the cord, but only 30.7% did not dip it in hot water before use. The MIL and sTBA advised that “Using a new cotton thread and dipping the new blade in hot water before using it removed the poison of blade and prevented umbilical sepsis”.
- The cord stump was left clean with no applicant in 50% of families. Common applicants used by others included warm ghee/mustard oil/coconut oil/‘sindoor’/turmeric paste/talcum powder. These applicants were applied so that the cord stump dries and falls off quickly.

Practices pertaining to warmth provision:
- Efforts were made to keep the birth room warm in 38% families on the advice of the MILs and sTBAs. Methods used to keep the birth room warm included: i) keeping a heat source like coal/wood under the bed especially in winter and ii) making cubicle around the bed where the mother laid using 1-2 ‘saris’.
- During the time interval between birth and cord tying, the newborn was laid wet and uncovered on the floor in 46% families, increasing the risk of neonatal hypothermia.
- In case, there was delay in the placenta being delivered, the newborn was covered with any old cloth, but s/he was not picked up from the floor, as the birth attendant facilitated and focused on removal of the placenta until then.
- Many (62.5%) sTBAs bathed the newborn with lukewarm water immediately after birth on advice MIL or the sTBA who believed that the baby was dirty since the past nine months hence needed to be bathed. In very few families of Yadav Nagar slum, newborns were cleaned with a dough ball (dough made by kneading wheat flour using water) dipped in vegetable oil.

Management of birth asphyxia or breathing difficulties:
- Resuscitation methods adopted when the baby did not cry at birth included: i) Hanging the baby upside down and gently slapping the baby on the face, foot and hands; ii) wrapping the baby in layers of old clothes; iii) keeping a heat source in the birth room; iv) making a noise with utensils; iii) pouring cold water on the baby’s face; v) dipping a part of the umbilical cord in warm water and milking it towards the baby and vi) removing watery debris from the baby’s nose using a straw like material.

Reasons for home delivery practices in slums
- Due to economic constraints people preferred home deliveries and sTBAs to conduct these deliveries. Delivery practices were influenced by ingrained beliefs and traditions and MILs and sTBAs
reinforced these traditions. Neither the MILs nor the sTBAs perceived any disadvantage or harm of the practices they had been promoting, as according to them the babies were active and suckling adequately. Mothers also feared that if they did not follow the prevailing practices in the community, the baby might be harmed.

- There were also situations when it was not possible to practice 5 cleans of delivery \textit{E.g.} in \textit{Ekta Nagar}, two deliveries were conducted in the auto-rickshaw while taking the pregnant woman to the hospital while one woman delivered her baby when she went to the lavatory.

4.2.2 \textbf{Possible program options to promote evidence-based home delivery practices in slums}

- Enabling community members analyze the benefit of and harm of not practicing optimal behaviours through discussions using case narratives and/or use of pictorial material by CBOs.
- Refresher training of BCBOs and sTBAs on updating their technical knowledge for promoting optimal practices would be helpful as many wrong perceptions \textit{E.g.} related to resuscitation, cutting and tying the cord tie and thermal protection are still prevalent in the community.
- There is a need to engage in collective dialogue with MILs, elder ladies of the community and sTBAs to - a) assert the positive role they can play in promoting optimal delivery practices and b) discuss ways of avoiding harmful traditions such that optimal behaviours are also practiced and traditions are also given due respect \textit{E.g.} if a newborn can be cleaned with a cloth dipped in oil.

4.2.3 \textbf{Program Options for encouraging institutional deliveries:} There is a need to assess if the most approached government/private charitable health facilities are offering good quality obstetric services. Those that offer the same, their staff linkage with these slum communities can be strengthened and this staff can help the community understand procedures which will facilitate them to avail obstetric services there.

4.3 \textbf{POSTNATAL CARE UPTO 2 MONTHS OF AGE (N=312):}

4.3.1 Practices and Reasons:

4.3.1.1 Early initiation of BF:

- 54.5\% of the mothers initiated BF within an hour of childbirth. Initiation of BF was significantly less delayed amongst newborns born in slums as compared to those born in the native village perhaps due to counselling efforts of the CBOs.
- \textit{Barriers for delayed initiation of BF in 45.5\% included:}
  - The commonest reason for delayed BF initiation was either due to MILs and sTBAs advice or mothers own perception after hearing from other members of the community that milk lets down the mother’s breast after 3 days of birth.
  - Traditional beliefs like initiation of BF upon seeing the twinkling stars, at the onset of night (\textquoteleft'taraon ki chhaon mein\textquoteright) so the baby does not forget suckling and suckles adequately subsequently also prevailed in a few families especially those from backward communities of Uttar Pradesh. Initiating BF after the \textquoteleft'Chhatti Poojan\textquoteright, a religious ceremony celebrated on 6\textsuperscript{th} day after birth of a baby boy was also practised in families from Bihar.
  - Some mothers had heard of members of the community initiating BF after 24 hours of childbirth. These mothers felt that if they did not do so, the baby could possibly be harmed.
  - Mothers who initiated BF although not early but within 24 hours, for reasons other than traditional beliefs, mentioned the following reasons for doing so: (a) most commonest reason was waiting for the baby to cry to initiate BF, (b) BF was initiated once the mother-baby dyad was brought back home from the hospital in case of hospital delivery; (c) mother was in a more or less unconscious state to initiate BF soon after birth, so she did so when she was able to relaxfully do
so. (d) One mother did not initiate BF timely as she was not happy on birth of her sixth girl child.

- Three babies were in an ICU after delivery so could not be BF early and one mother mentioned that her nipples were inverted, so this prevented her to timely initiate BF

- Those mothers that initiated BF within an hour mentioned the following reasons for doing so- a) CBO members had reinforced this message to them time and again while they were pregnant; b) saw the baby crying/the baby’s dry lips so they felt that the baby was hungry; c) were aware of this practice from a TV serial aired on DD named ‘Kalyani’ and d) to prevent inadequacy of breast milk at later stage.

4.3.1.2 Prelacteal feeding and types of prelacteals fed:

- Both BF was initiated within an hour of birth and prelacteals avoided by 48.9%. A total of 38.1% mothers fed prelacteals which included: jaggery water, weak tea, honey, unboiled water, goat/cow’s milk and a traditional ‘ghutti’ made of honey and nutmeg.

- Jaggery water, ‘ghutti’ and tea were fed either as bowel cleansers and/or for providing warmth. Animal milk was fed when the mothers attempted to initiate BF, but either the baby was unable to suckle and continued to cry or the mother perceived that she was not lactating sufficiently.

4.3.1.3 Exclusive BF:

- 58.3% mothers mentioned that they exclusively breastfed their infants till 2 months of age. However, 37.2% predominantly breastfeed (i.e. they were fed non nutritional supplements like water and ‘ghutti’) and 4.5% of them partially breastfed (i.e. also fed animal milk in addition to water and ‘ghutti’ although the predominant source of nourishment was breast milk) upto 2 months of age.

- Water was fed when baby cried often/when the mother was busy/mother away from home for a while/in summer season as recommended by private doctors. ‘Ghutti’ was fed as a bowel cleaner. The common reasons for feeding animal milk was mother’s feeling of milk insufficiency or mother working outside home.

4.3.1.4 Status of Postnatal visits conducted by L/BCBOs:

- Although 75% of the mothers interviewed mentioned being visited by L/BCBOs in their homes atleast once in the first 14 days after delivery, only 42.3% of them were paid a postnatal visit by L/BCBOs within first 24 hours after childbirth. Only 28.9% mother-newborn dyads were paid at least two visits between 0-2 days and 19.9% were visited at least 3 times in the first 7 days of childbirth. During postnatal visits, the CBOs mostly counseled mothers on exclusive BF, keeping the newborn warm, timely immunization and maternal nutrition. Very few mothers were counseled on identifying danger signs of newborn illness.

- Newborns that were paid a postnatal visit by L/BCBOs in the first 14 days were more likely to be exclusively breastfed as compared to those who were not.

- Barriers to timely postnatal visits included: i) unavailability of the mother in the slum: 12.8% mothers went to their native village for or just after delivery and came back to the slum only about 2 months later; ii) until the ‘Nahan’ (normally 3 days post birth) even BCBOs avoided visiting the mother-newborn dyad and iii) some BCBOs avoid paying an early postnatal visit as some family members do not allow them to touch the baby either due to traditional reasons or caste inferiority.

4.3.2 Possible Programme Options:

- Systematic capacity building (technical and BCC skills) of active BCBO members and sTBAs, continued refreshers as well as regular supportive supervision is required.

- Health volunteers also need to be trained in lactation related counselling to support and encourage mothers to overcome – (a) the feeling that they are not lactating enough, (b) that the baby is too young to be able to suckle, (c) mothers who have problems such as sore/inverted nipples.
There is a need to arm the BCBOs with pictorial material that can enable them to - a) counsel and conduct post-natal visits as per GOI protocol\(^\text{16}\) and b) maintain records of mothers and newborns. This should also entail regular support and technical guidance as well as quality checks by qualified pediatricians or neonatologists, perhaps in collaboration with local units of IAP and NNF.

Specific strategy should be tried for mothers who migrate to native villages for delivery: perhaps a take-home pictorial card or poster and persuasive counselling that could mitigate the chance of not taking serious cognizance of advice.

MIL and other elder women of the community also need to be counseled as is being done in Aheerkheri as they are influencers of practices in the family especially those pertaining to BF initiation and without their approval, no custom can be modified at the household level.

Television programs with messages promoting timely initiation of BF and its health benefits for the baby complement program efforts and should be promoted.

There is a need to strengthen linkage of community with affordable public and private hospitals that are already accessed by slum dwellers and prepare these health facilities for a possibility of increased referral as the postnatal visits improve and result in increased identification of danger signs and consequent greater referral.

### 4.4 UNDERSTANDING HOME-BASED MANAGEMENT AND CARE SEEKING OF LBW BABIES BY FAMILIES (through 15 Case studies):

#### 4.4.1 Reasons cited by mothers for their newborn being LBW:

- A compilation of all reasons cited by mothers revealed that the community had the following reasons for feeling when a baby is born LBW: i) complications in pregnancy: anaemia, persistent diarrhoea and severe abdominal pain and/or white discharge ("safaed pani"), ii) poor diet in pregnancy, iii) premature delivery, iv) narrow interpregnancy interval, v) due to lack of awareness (benefits, where to avail from) not availing antenatal services, vi) unwilling/hesitant to avail antenatal services not having not done so in earlier pregnancies, vii) unsupportive family as a result mother gets less rest due to household chores and family members apathetic to allow her to avail of antenatal services in slum.

#### 4.4.2 Reasons families mentioned which prompted them to take extra care of their LBW baby:

- Trained slum-based volunteer identified that the baby was low birth weight (<2.5 kgs) and emphasized the need for extra care.
- Baby born in 7th/8th month of pregnancy warrants extra care.
- At birth, baby lied listless (did not move as though h/she was not breathing and his/her cry was like a murmur), looked very weak/tiny/extremely skinny and was cold to touch.

#### 4.4.3 Home-based care which families provided to ensure that their LBW babies survive:

(a) The following methods were used by these families to ensure that the baby was kept warm:

- Baby wrapped in woollens (shawl, sweater, warm cap and socks) from head to toe. Some families also left the baby wrapped in a bundle of old clothes in a cradle.
- Held the baby in close proximity with the mother, with both mothers and baby clothed (Practice of kangaroo mother care (skin-to-skin) contact was not seen/heard from mothers visited in these slums).
- Fed the baby ‘desi’ ‘ghutti’ for warmth (a powder made with nutmeg, almonds, turmeric powder and ‘kharak’) in breast milk once a day.
- Gave the baby an oil massage with peanut oil/mustard oil/coconut oil. Some also added previously warmed garlic in the oil before use.
- Did not bathe the baby everyday but once in 2-3 days to prevent baby from getting cough and cold.

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- Made a cubical in a room for the mother-newborn dyad and one family also placed a 60-watt bulb in the top-corner of the cubical so that the cubical doesn’t get damp/for warmth. Some families avoided taking the baby out of the cubical especially on a cold and breezy day.
- Indigenous heating device with coal in it was kept near the mother’s bed to keep the room temperature conducive for the newborn. However, efforts to prevent the smoke coming out of the heating source were not made.
- Coconut oil was applied on the cord stump so that it warms the stump and prevents pneumonia.

(b) BF:
- These mothers breastfed more frequently esp. when the baby cried or frowned.
- These mothers frequently breastfed since they realised that the baby got tired while suckling and was able to suck only a small amount in one feed.
- One mother also supported the baby’s chin and head helping him to take the feed feeling that – “since the baby’s jaw line is weak, it is difficult for him to take the feed”.

(c) Infection prevention:
- The baby was never left unattended or alone
- Older siblings were not allowed to play with the baby feeling they would hurt the baby.
- The baby was not taken out of the room unnecessarily.
- While working, baby’s face would be covered with thin muslin cloth in order to prevent flies and mosquitoes from touching the baby.

(d) Danger signs prompting families for seeking timely referral:
- Baby refused to take breastfed.
- Baby lying listless or sleeping all day.
- Baby was cold to touch and had cough and difficulty in breathing.
- Baby passing loose watery stools appox. every hour.
- Baby crying continuously.

(e) Social support system that enabled the mother to provide extra care:
- Family’s supportive, encouraging and positive attitude to adopt/reinforce positive practices improved mother’s self-confidence that she could improve the health of her baby.
- Social support and reinforcement by neighbours/slum-based health volunteers.

4.4.4 Possible Options:
- Indigenous household behaviours used by these families in caring for their LBW newborns are simple, culturally compatible and easy to promote in similarly poor community. Their logic of practising such behaviours can help encourage other families adopt similar behaviours. These families are able to establish a clear need for extra care and have the confidence to persevere with extra care to small (LBW) newborns. Their examples can help motivate other families.

- The common feature of having at least one supportive person to the mother will be important to influence family members of other families to provide support to the mother. Since social support systems are weaker in slum situations women’s groups could play a crucial role in providing social support.

- The methodology used in this study to identify families of surviving and healthy LBW newborns is simple for any slum-based health volunteer to use. This would enable her to identify both practices, including positive social support practices and such members from PD families who can serve as behaviour-promoters for influencing others to adopt positive behaviours.

- There is a need to develop a simple yet technically accurate algorithm(s) that can be used by L/BCBOs for – i) effectively identifying all high-risk newborns, ii) providing appropriate counselling to these families and iii) monitoring and recording the progress of these babies in their homes. Signs of monitoring and number of visits that need to be conducted would have to be delineated for the L/BCBOs.
Suggested criterion by Bang and coworkers\textsuperscript{17}, Darmstadt et al\textsuperscript{18} and NNF can be used as an initial reference for local adaptation. Including local practitioners for these trainings can also be considered.

4.5 CARE OF INFANTS IN 2-4 MONTH PERIOD (N=312)

4.5.1 BF: Practices and reasons

- Out of 312 infants, 310 infants were currently breastfed. Out of 310 infants, 82.2\% infants were breastfed 8 times or more in 24 hours and 28.1\% mothers breastfed their infant from one breast completely before switching over to the other. GDs with mothers in selected slums revealed that mothers were not aware about importance of hind milk.

- 56.7\% of infants 2-4 months of age were exclusively breastfed (EBF). Percentage of infants predominantly breastfed, partially breastfed and non-breastfed during this time were 37.8\%, 4.8\% and 0.7\% respectively.

- Infant crying even after being breastfed and other family members feeding the infant animal milk or water while mother was busy in completing household chores or away from home emerged as barriers to EBF.

4.5.1.2 Possible Program Options:

- Gentle persistence counselling of mothers and family members by trained BCBOs on importance of hind milk, managing lactation problems, and HOW rather than only WHY of EBF needs to be promoted.

4.5.2 Prevalence of diarrhoea, ARI and fever and treatment seeking behaviour:

- 67 infants suffered from diarrhoea in the past 15 days preceding the survey. Treatment for diarrhoea was sought for 36 out of the 67 infants affected mostly from private doctors like feeding ORS and/or Norfloxacin. A larger % infant were affected with fever and/or cough accompanied with difficult breathing received treatment. These families went to Zila Hospital or Pushpakunj.

- In most families, the MIL or husband decided which health provider to seek care from in times of infant’s illness and the mother would wait till her husband came home or MIL agreed to go with her for seeking care.

4.5.2.2 Program Options:

- MILs, fathers and family members who play a decisive role in care seeking owing to greater social influence and control of resources and access to knowledge about facilities/services should also be included as target groups for counselling.

- It would also be useful to foster linkage with appropriate health facilities that are - a) geographically proximate; b) affordable; c) providing unhindered social access and quality services.

4.5.3 Immunization Status of infants 2-4 months of age: Practices and reasons

- 52.7\% infants were appropriately immunized for their age (1BCG+3DPT).

- Factors that hindered timely and complete immunization included- i) mothers unavailable at the time of immunization (e.g. working mothers and mothers coming back from their native village 1-2 months after delivery); ii) mothers believing that the baby was too small or could get fever after immunization; iii) shortage of some vaccines at the monthly immunization camps held in slums; iv) mother being alone at home and no secondary caretaker to take care of other younger children

prevents some mothers to come to the immunization camp; vi) baby having fever at the time of immunization; vii) mother had lost/older siblings had torn the immunization card; viii) in times when there are less than 10 eligible children for BCG, BCG vial is not opened and viii) if for some reason visits of the ANM are infrequent.

4.5.3.2 Possible Program Options:
- Counselling of mothers to allay fears about immunization of a baby by early adopters during group meeting/home visits by BCBOs.
- Strengthen quality of outreach camps and greater dissemination of information to all about date and time (preferably suitable to mothers) for immunization.

4.5.4.1 Nutritional Status of Infants (N=191):
- Nutritional status of 191 infants 2-4 months of age was assessed using weight-for-age expressed in standard deviation units (z/SD scores) from the WHO standards 2006 median. Out of 191 infants, 23.8% of infants had their weight-for-age z scores (WAZ) < (-) 2SD of the median i.e. had moderate or severe undernutrition.
- The percentage of infants mild, moderate and severely undernourished were 33.5% 14.7%, and 8.9% respectively.
- Under nutrition significantly increased with increasing age: 15.3% infants aged 2 months, 30.8% infants aged 3 months, and 40% infants aged 4 months were undernourished (WAZ<(-2)SD) (chi-square for linear trend =7.9, p=0.004).
- Infants who were exclusively breastfed 1.3 times less likely to be underweight as compared to predominantly breastfed infants and 2.76 times less likely be underweight as compared to infants partially breastfed.

4.5.4.2 Possible Program Options
- Rewarding and learning from mothers with healthy babies, the positive behaviours practiced by them during community meetings hosted by BCBOs.
- L/BCBOs need to be trained on importance of and methods of identifying undernourished babies using available growth charts and providing them appropriate counselling and monitoring their progress. Provision of growth charts to each target family would enable the mother monitor her baby’s progress herself and in turn help her understand how optimal behaviour adoption and nutritional status are related.
- Strategies for rehabilitating severely undernourished infants can also be considered.

4.6.1 HYPOTHERMIA IN NEWBORNS (N=152):
- By the touch method, 44.7% newborns were assessed at risk of some degree of hypothermia, i.e. had either cold-stress or hypothermia. The proportion of newborns adjudged having a similar risk using axillary temperature measurement, was a little lower at 30.9%. None of the babies had severe hypothermia (body temperature <32 °C).
- Comparing the two methods, significantly higher percentage of newborns were assessed cold stressed by human touch method as compared to axillary method. Out of the 29 babies who were assessed cold stressed by touch method but warm by thermometer method, 55.1% of them were also suckling poorly.
- Diagnostic accuracy of touch method when axillary method was taken as gold standard: Out of 152, there were a total of 45 mismatched observations. The sensitivity and specificity of human touch method to correctly identify hypothermic (true positive) and non-hypothermic newborns (true negative) was 74% and 68% respectively. A likelihood ratio (LR) for a positive test result (LR+) of 2.3 (cut off >9) and negative test result (LR-) of 0.4(Cut <0.5) indicated that human touch method did not have a high diagnostic value. Field observations however showed the more likely possibility of axillary method classifying slightly more babies as hypothermic. Reasons being – sensitivity of the thermometer was 0.1°C and due to wrong positioning there was more likely possibility that it gave a
lower reading as while taking the thermometer reading the thermometer had to be placed for atleast 4 minutes, however in the field situation this was difficult to do and the beep system was followed. Both these factors could have lead to lower reading of the thermometer.

- 47% newborns (0-7 days) were hypothermic as compared to 43% newborns (8-28 days).
- A lower environment air temperature was significantly associated with a higher incidence of hypothermia (p<0.05). However, even in summer months, as many as 47% newborns were cold stressed.
- Amongst newborns who weighed less than 2.5 kgs, 46% were cold stressed and none had moderate hypothermia (by touch method).
- In the present study, weight of 110 newborns was taken using the Salter’s weighing scale and their hypothermia and suckling status was observed at the time of visit and correlated to their current weight. From a total of 110, 13 newborns weighed less than 2.5 kgs and amongst these 13 newborns, 6 were cold stressed and none had moderate hypothermia (by touch method).
- 46 babies who weighed >=2.5 kgs were also hypothermic, based on touch method assessment (40 were cold stressed and 6 newborns had moderate hypothermia). This reveals that even a baby whose weight is >= 2.5 kgs is also susceptible to hypothermia.
- 88.5% hypothermia was contributed by cold stress (i.e. 46 out of 52 hypothermic newborns had cold stress) and 65% cold stressed newborns and 83.3% of moderately hypothermic newborns also had associated danger sign like poor suckle/RR>60/lethargy.
- Out of 46 newborns who were cold stressed, 26 newborns (i.e. 56%) were suckling poorly according to the mother. Two out of six newborns suffered from moderate hypothermia also had a poor suckle.

### 4.6.2 Practical Program Options:

- Cold stress and hypothermia were more common in early neonatal period. Hence, 1st and 3rd day visits by health volunteers are crucial.
- Significant proportion of babies with cold stress also had poor suckle. This suggests that cold stress is a simple-to-detect early sign of neonatal sickness.
- It is crucial to check for cold stress/hypothermia even during summers and even for those newborns that are not low birth weight.
- For wider program applicability, more community based research is required to validate human touch method for assessing hypothermia. Close supportive supervision of health volunteers will be the key to ensure that either method is used accurately.

### 4.7.1 HOME DELIVERY PRACTICES OF SLUM BASED TRADITIONAL BIRTH ATTENDANTS (sTBAs):

- Out of 37 sTBAs interviewed, 29 had attended one or more training (s) on optimal delivery practices hosted by NGOs/doctors in government hospitals ever since they started practicing. Of these, only 15 had attended one such training in the past 12 months preceding the survey. Eight sTBAs who had not received any training mentioned – “we have been delivering babies since a decade now... we know everything.... we donot need any training”.

#### 4.7.1.1 Establishing contact with pregnant women: Practices and Reasons

- Most sTBAs reported being contacted only during labour or if pregnant women experienced complications.
- Even trained sTBAs were unaware or had forgotten the exact antenatal care related messages to counsel pregnant women with, possibly due a year or more gap in receiving training.
Although sTBAs were aware of at least one danger sign during pregnancy for advising referral, the only danger sign known to most of them was excessive bleeding before 37 weeks. As far as other danger signs are concerned, irrespective of training, level of awareness regarding other danger signs for advising referral was low.

4.7.1.2 Practicing five delivery cleans: Were trained sTBAs better off?

- Trained sTBAs were better off in practicing the evidence-based delivery practices, but they were not practicing all behaviours they mentioned they practiced.
- Dipping the cord tie and blade in water (whether hot or boiled was not really known) was universally practiced feeling this prevents umbilical sepsis.
- The sTBAs have been applying oil/turmeric paste/'sindoor' on the cord stump for traditional reasons or because they felt it has antiseptic properties, helps the cord stump soften and dry quickly. Inspite of training, they still felt that this practice is not harmful in anyway, as the babies were not affected with umbilical sepsis after applying these substances.
- Until placenta was removed, sTBAs attended to the mother and laid newborn unattended either naked or wrapped on a cloth/plastic sheet on the delivery surface (floor in most cases).
- Nearly 50% of sTBAs did not consider only dry wipe sufficient to clean the newborn after delivery. They also did not perceive any disadvantage or harm of bathing the baby with warm water as according to them none of the babies fell sick subsequently.

4.7.1.3 Postnatal care:

- sTBAs had their own ways of assessing whether the newborn was not in danger at birth. Majority of the sTBAs assessed ‘baby not crying on its own after birth’ indicative of not breathing. Few others assessed baby not breathing by placing their palm on the stomach and chest. Apart from not breathing at birth, inability to suckle, lethargy, visibly undernourished and very cold to touch were a few signs indicative of danger for them.
- Physical stimulation, mouth-to-mouth resuscitation and warmth were used to resuscitate the baby. Certain harmful methods of reviving a baby who does not cry were still practiced like lifting the baby by feet in inverted position and pouring lukewarm and cold water alternately on its back/face.
- Nearly all sTBAs were not aware about the requisite/essential physical assessments of newborn at birth (breathing, suckling and warmth). Most sTBAs did not take birth weights, but assessed for well-being by looking at its cry and comparing its size to previously delivered babies, and if they felt that the baby was LBW, or cold, or faced difficulty in breathing, they advised to seek referral. For home based care of LBW babies, few sTBAs advised frequent BF, feeding ‘Ghutti’, and keeping the baby warm.

4.7.2 Possible Program options to improve home delivery practices of sTBAs:

Capacity Building of sTBAs

- More regular training using pictorial material, which can be left with the sTBA as a reminder is required. Training should also include technical content on antenatal and postnatal care.
- sTBAs need to be taught simple techniques that can be used to effectively take care of LBW babies at home. Regular refreshers are required since this is a new subject and a new set of skills is being expected of them.
- Refresher training (3-4 hours) preferably by doctor (pediatrician and obstetrician) would help: a) reinforce messages from a highly credible source accepted with greater freedom, b) answer practical

19 Sindoor is red/vermilion powder commonly used in Indian homes as an auspicious application by way of paste. It is usually applied on the forehead or hairline during family events, festivals, or during prayer offerings.
queries of birth attendants and c) assess/monitor progress through a short-defined checklist (an obstetric and neonatal section).

**Supportive and monitoring role of slum-based and cluster-level trained health volunteers**

- CBO to play a supportive role to:
  - Facilitate early contact between pregnant woman and sTBA.
  - Support appropriate delivery practices through - a) ensuring DDK or requisite delivery material is available; b) gentle persuasive counselling; c) being present at delivery (if possible, more so in households with special problems like household with alcoholic husband or where no family member is available for supporting the mother etc.).
  - Regular monitoring and support by trained cluster level volunteers/workers (LCBOs) in ensuring that birth weights are taken by helping the sTBA understand the benefit of the same, by showing pictures of LBW babies and the problems they face.

**Linkages of sTBAs and health volunteers with health facilities**

- Linkage with health facilities where there are special neonatal care units need to be fostered so that a) the sTBA can more confidently and readily refer or better still escort cases with complications and b) seek advice from the doctor if a phone is available.
- There is a need to establish a mechanism for subsidized treatment options in for-profit facilities e.g. voucher scheme adopted by CINI-LIP project in urban slums of Kolkata and by Sewa Mandir in Rajasthan increased access to health services for women and children\(^{20,21}\).

**Linkage with Private Doctors for supporting slum MNH improvement efforts**

- Conduct MNH camps through pediatricians and obstetricians, if feasible to - a) provide technical guidance, moral support and greater credibility to trained BCBOs, b) counsel mothers and respond to queries and c) provide guidance, support and credibility to sTBAs.

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\(^{20}\) CINI, Local Initiatives Program. Communities Taking Charge of their Health.

Summary table for selected maternal neonatal care practices amongst slum dwellers of Indore that emerged through this study (2004-2006)

<table>
<thead>
<tr>
<th>Practice</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal Practices</strong></td>
<td></td>
</tr>
<tr>
<td>% mothers who had taken 2 TT shots during their pregnancy</td>
<td>82.0</td>
</tr>
<tr>
<td>% mothers who had taken 3ANCs during their pregnancy</td>
<td>40.1</td>
</tr>
<tr>
<td>% mothers who had eaten IFA tablets for 3+ months during their pregnancy</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>Preparedness for birth and obstetric complications during pregnancy itself</strong></td>
<td></td>
</tr>
<tr>
<td>% mothers who identified a trained birth attendant from whom they would conduct their delivery</td>
<td>70.1</td>
</tr>
<tr>
<td>% mothers who identified a health facility to go in event of an obstetric complication</td>
<td>64.0</td>
</tr>
<tr>
<td>% mothers who saved some money to incur delivery related costs</td>
<td>76.9</td>
</tr>
<tr>
<td>% mothers who made transportation arrangements to prepare for any obstetric complications</td>
<td>29.5</td>
</tr>
<tr>
<td><strong>Place of delivery</strong></td>
<td></td>
</tr>
<tr>
<td>% mothers who delivered in slum-home</td>
<td>54.6</td>
</tr>
<tr>
<td>% mothers who delivered in their native village</td>
<td>15.7</td>
</tr>
<tr>
<td>% mothers who delivered in a health facility</td>
<td>27.9</td>
</tr>
<tr>
<td><strong>Home delivery practices in slum-homes</strong></td>
<td></td>
</tr>
<tr>
<td>% deliveries conducted by a trained birth attendant</td>
<td>66.5</td>
</tr>
<tr>
<td>% deliveries conducted by sTBAs</td>
<td>77.3</td>
</tr>
<tr>
<td>% deliveries conducted by trained sTBAs</td>
<td>40.5</td>
</tr>
<tr>
<td>% birth attendants adopting 5 cleans during home delivery</td>
<td></td>
</tr>
<tr>
<td>clean surface</td>
<td>46.0</td>
</tr>
<tr>
<td>clean air dried hands</td>
<td>14.7</td>
</tr>
<tr>
<td>clean cord tie</td>
<td>34.0</td>
</tr>
<tr>
<td>clean blade</td>
<td>30.7</td>
</tr>
<tr>
<td>clean cord stump</td>
<td>50.0</td>
</tr>
<tr>
<td>% birth attendants adopting optimal thermal protection and BF practices at birth</td>
<td></td>
</tr>
<tr>
<td>Warm delivery room</td>
<td>38.0</td>
</tr>
<tr>
<td>Newborn wrapped until placenta was removed</td>
<td>33.5</td>
</tr>
<tr>
<td>Postponing bathing until 24 hours of birth</td>
<td>37.5</td>
</tr>
<tr>
<td>Initiating BF within an hour of birth and avoiding prelacteals</td>
<td>48.9</td>
</tr>
<tr>
<td><strong>Current BF practice : infants 2-4 months</strong></td>
<td></td>
</tr>
<tr>
<td>Exclusively breastfed</td>
<td>56.7</td>
</tr>
<tr>
<td>Predominantly breastfed</td>
<td>37.8</td>
</tr>
<tr>
<td>Partially breastfed</td>
<td>4.80</td>
</tr>
<tr>
<td>Non-breastfed</td>
<td>0.70</td>
</tr>
<tr>
<td><strong>Diarrhoea amongst infants</strong></td>
<td></td>
</tr>
<tr>
<td>% infants who suffered an episode of diarrhoea in the past 15 days preceding the survey.</td>
<td>21.4</td>
</tr>
<tr>
<td>% of infants who had diarrhea and received treatment</td>
<td>53.7</td>
</tr>
<tr>
<td><strong>Immunization status of infants</strong></td>
<td></td>
</tr>
<tr>
<td>% of infants appropriately immunized for their age (BCG +3 doses of DPT)</td>
<td>52.7</td>
</tr>
<tr>
<td>% of infants who received BCG</td>
<td>85.0</td>
</tr>
<tr>
<td>% of infants who had received DPT-I</td>
<td>80.4</td>
</tr>
<tr>
<td>% of infants who had received DPT-II</td>
<td>64.0</td>
</tr>
<tr>
<td>% of infants who had received DPT-III</td>
<td>47.8</td>
</tr>
<tr>
<td>% of infants who had received no immunization</td>
<td>0.70</td>
</tr>
<tr>
<td><strong>Nutritional Status of infants</strong></td>
<td></td>
</tr>
<tr>
<td>% of infants underweight (WAZ&lt;-2SD of WHO standard 2006 median)</td>
<td>23.8</td>
</tr>
<tr>
<td>% of infants severely underweight (WAZ&lt;-3SD of WHO standard 2006 median)</td>
<td>8.90</td>
</tr>
<tr>
<td><strong>Neonatal hypothermia amongst newborns</strong></td>
<td></td>
</tr>
<tr>
<td>% newborns hypothermic by human touch method</td>
<td>44.7</td>
</tr>
<tr>
<td>% newborns hypothermic by axillary method</td>
<td>30.9</td>
</tr>
<tr>
<td><strong>Diagnostic accuracy of human touch method when axillary method is taken as gold standard</strong></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>74.0</td>
</tr>
<tr>
<td>Specificity</td>
<td>68.0</td>
</tr>
<tr>
<td>Positive Likelihood ratio</td>
<td>2.30</td>
</tr>
<tr>
<td>Negative likelihood ratio</td>
<td>0.40</td>
</tr>
</tbody>
</table>

1 2-4 months of age
Chapter 1
Background for the Study

1.1 Maternal-newborn health challenge in India
1.2 Maternal-newborn health challenge amongst urban poor in India
1.3 Maternal-newborn health in urban slums of Indore, Madhya Pradesh (India)
1.4 UHRCs Indore Program in context for building a platform for overlaying future efforts to improve maternal-newborn health in Indore slums
1.5 Rationale for the present study and study objectives
1. BACKGROUND

1.1 MATERIAL-NEWBORN HEALTH CHALLENGE IN INDIA:

1.1.1a Maternal Mortality:
Maternal death is defined as the death of women while pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by pregnancy or its management. Maternal mortality ratio (MMR) is the number of maternal deaths per 100,000 live births in one year. Reliable estimates of maternal mortality in India are not available, but some efforts have been made to assess levels of maternal mortality using surveys, special studies or indirect estimates. Most widely quoted figures are 407 (SRS, 1998) and 540 (NFHS-2, 1998-99). India contributes 25.7% of the world’s MMR. Direct measurements (RGI and NFHS) have not shown any decline in MMR over recent years. MMR is higher amongst the poorest and central and eastern regions of India as compared to others.

1.1.1b Causes of Maternal mortality:
Globally, the most common causes of maternal deaths are hemorrhage (antepartum or postpartum), eclampsia, pre-eclampsia, infection, obstructed labour and complications of abortions. One difference is the large proportion of maternal deaths attributed to anemia in India, which is not reported by other countries. Research shows that common risk factors of maternal mortality are: mother’s age below 20 or above 35 or parity above 4, illiteracy, poor socioeconomic status, lack of antenatal checkups (ANCs), anemia, bad obstetric history and delivery by an unskilled birth attendant.

1.1.2a Neonatal Mortality:
The newborn health challenge faced by India is more formidable than that experienced by any other country in the world. It is estimated that out of 3.9 million neonatal deaths that occur worldwide, almost 30% occur in India. The current neonatal mortality rate (NMR) of 44 per 1,000 live births, accounts for nearly two-thirds of all infant mortality and translates into at least two newborn deaths every minute somewhere in this vast country. Nearly three-fourths of newborn deaths occur among low birth weight (LBW) babies. India harbors the highest number of LBW babies born each year worldwide: eight million (40%) of the total 20 million LBW babies. Over one-third of all neonatal deaths occur on the first day of life, almost half within three days and nearly three-fourth in the first week. The enormous ongoing toll of neonatal deaths is all the more disturbing in the light of the slowing momentum of the NMR decline. Compared to a 25% reduction in the NMR in the 1980s, the decline in the 1990s was only 15%. Between 1995 and 2000, there was only a negligible decrease from 48 to 44 per 1,000 live births. Irrespective of urban-rural differences in NMR, neonatal deaths are a bane of the poorest. An analysis of the NFHS-2 data shows that in India, the NMR amongst the poorest of the population is more than double the NMR of the richest percent - 60 versus 26 percent per 1,000 live births.

1.1.2b Causes of Neonatal Deaths:
Using rigorous and transparent methods, Lawn et al. have provided, for 193 countries in the year 2000,

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systematic estimates, with associated uncertainty, of the distribution of neonatal deaths for programme relevant causes. Only 2.5% of neonatal deaths had reliable cause-for-death information available through vital registration systems, primarily in well-developed countries. The distribution of reported causes varied substantially between countries and across studies. The major causes of neonatal deaths, globally were estimated to be infections (sepsis, pneumonia, tetanus and diarrhoea; 35%), preterm birth (28%) and birth asphyxia (23%).

Large-scale data for causes of neonatal deaths in urban slums in India is not available. However, such data from two rural communities is available. The study from a poor rural community in ‘Gadchiroli’ (Maharashtra) shows neonatal sepsis (NNS) including septicemia and pneumonia as the most commonest cause, figuring 52 percent of the neonatal deaths, followed by birth asphyxia (20 percent) and prematurity (15 percent)35. A more recent Baqui et al (2006)36 rural Uttar Pradesh study on causes of neonatal deaths showed that out of 1048 neonatal deaths and stillbirths, stillbirths comprised 41% of all. Of the 618 live births, 32% deaths were on the day of birth, 50% occurred during the first 3 days of life and 71% were during the first week. The primary causes of death on the first day of life (i.e. day 0) were birth asphyxia or injury (31%) and preterm birth (26%). During days 1-6, the most frequent causes of death were preterm birth (30%) and sepsis or pneumonia (25%). The proportion of deaths attributed to sepsis or pneumonia increased to 45% and 36% during days 7-13 and 14-27, respectively.

A study on causes of neonatal deaths in urban slums by Kapoor, et al 37 in Lucknow reported sepsis as a cause of death in 12.3% of cases and asphyxia and prematurity accounting for 42% and 14% of the neonatal deaths respectively. A similar study in Lucknow slums by Awasthi, et al 38 reported tetanus as the cause of neonatal deaths in 36.4% cases. In another study by Bhandari, et al 39 in urban slums of Delhi reported that sepsis contributed to 45% of neonatal mortality, asphyxia to 25% and prematurity to 20% of the mortality.

1.1.3 Burden of Stillbirths:

WHO defines stillbirth as complete expulsion of product of conception after 22 weeks of gestation which does not show any signs of life, such as a heartbeat, pulsations of the umbilical cord, respiratory effort or definite movement of voluntary muscles40. Community-based studies conducted in India reveal a Still Birth Rate of 30-35 per 1,000 births, i.e. 0.8 million still births, the highest for any nation in the world. Perinatal asphyxia, prematurity and congenital malformations have been reported as common reasons for still births. The reported risk factors for still births are: no antenatal checkups, untrained birth attendants conducting deliveries, previous still births, lack of resuscitation skills on the part of birth attendants, birth weight less than 2000 grams and extremes of maternal age and parity41

1.1.4 Morbidities during the Neonatal Period:

Neonatal mortality is just the tip of the iceberg, the bulk of which is associated with neonatal morbidities. The SEARCH study provided insights into the burden of morbidities in poor rural communities. They found that 48.2% neonates suffered from one or more high risk morbidities (case fatality >10%) like neonatal sepsis, hypothermia (<95°F), birth asphyxia, BF problems etc. and 17.9% gained inadequate weight (<300g). They also found that although 54.4% neonates had indications for health care and 38 out of total 40 neonatal deaths occurred in these, only 2.6% of them received medical attention. Realizing this

magnitude of care gap, they suggested an urgent need for developing home-based neonatal care to reduce neonatal morbidities and mortality.  

1.2 MATERNAL-NEWBORN HEALTH CHALLENGE AMONGST URBAN POOR IN INDIA  

1.2.1 Magnitude of Urban Poverty:  
Out of the one billion people in India, 285.4 million live in cities. The 61st round of NSSO (2004-05) estimates the urban poor population at 808 lakhs amounting to 25.7% of the total poverty in India. However, this estimate does not reflect the true magnitude of urban poverty because of the 'un-accounted' and 'unrecognized' slums, floating population and other populations residing in inner-city areas, pavements, constructions sites, urban fringes, etc. Other estimates (Haddad et al.) put urban poor in India at about 90 million. It is said that slum populations rank among the poorest, most under-served and most vulnerable groups in terms of health. Data from the National Nutrition Monitoring Board for 5 population groups across 15 cities suggest that slum populations have the worst dietary and nutritional profiles, with only 13% of children having normal weight for age.  

1.2.2 Status of Maternal-Newborn Health amongst urban poor in India:  
In India, about 2 million births take place annually among the urban poor. Of these, 54.1% or approximately 1.1 million births take place at home in the debilitating environment and nearly 78,000 newborns die. Of the total births, 44% are born Low Birth Weight (LBW). Poor living conditions, ignorance and poverty resulting in a large number of women in slums working outside the home results in inadequate care during pregnancy and neglect of the newborn.  

1.2.3 Care and service access:  
Despite a plethora of health institutions, over 50% births amongst the urban poor continue to occur in home settings and under the supervision of untrained birth attendants. In urban slums, accessibility is not a major issue. Traditional practices, lack of perceived need for antenatal care, fear of hospitals, attitude and behaviour of the hospital staff, and the cost of hospitalization are deterrents to accessing hospital care. More so as expenses involved in arranging transport and cost of services are contentious issues for an urban poor family who have no prior financial reserves and may need to borrow money at interest rates as high as 20 percent from local money lenders. Late recognition of complications and delay in seeking medical help are also responsible for increased maternal-neonatal mortality. Pregnant women go to obstetricians or to health workers only when there is an obvious problem (i.e. a common symptom identified is bleeding) or when they need to register themselves for delivery (i.e. when a delivery in a health care facility is planned).  

Even in neonatal illness, private practitioners in the locality are the first preference for receiving health care. Their proximity, availability, behaviour and perceived competence build community’s faith in them. A large number of private practitioners frequented by the poor, however, lack formal training in neonatal care. Evidence suggests that a majority of these practitioners often misapprehend chronic diseases as common problems and the delay in diagnosis which leads ultimately to prolonged therapy and an increase in health expenditure.
When ill only 19% of neonates are taken directly to the hospital and as many as 50% families do not comply with advice for hospitalization, reasons being lack of perception that the child was gravely ill, no secondary caretaker for other siblings at home, economic reasons and unpleasant past experiences. Those arriving at hospitals are often turned away, or diagnosed, treated, or referred inappropriately.53

1.3. STATUS OF MATERNAL-NEWBORN HEALTH IN URBAN SLUMS OF INDORE (M.P.) 54

Indore is M.P.’s largest city in terms of population. Being the financial capital of the state, it exercises a great pull on adjoining hinterlands. This, coupled with natural increases in population, has led to mushrooming of slums with mixed socio-economic profiles and unhygienic living conditions. Although the city population doubled from 1971 to 1991, the slum population almost quadrupled over the same period 55, a big proportion of which is under-served for health services representing a significant need among the urban poor.

The slum assessment in Indore showed that, beginning with an official list of 438 slums, 539 slums were located. Based on a health vulnerability assessment study, out of these 539 slums, 157 were categorized as highly to moderately vulnerable while the remaining fell into the categories of less vulnerable, and marginally vulnerable 56. The total slum population of Indore is estimated over 600,000, approximately one third of the total city population of 1.8 million.

In M.P, among the urban low-income group (Low Standard of Living Index segment of NFHS-2 being taken as representative of the urban low socio-economic bracket), NMR is as high as 69.7 per 1,000 live births. IFA consumption among pregnant women is 61.1%. Similarly, only 32% pregnant women receive 2TT shots. A large number of deliveries (73.8%) take place at home and of all deliveries, 61.9% are attended by untrained birth attendants, more often, by family members and neighbours, neither of whom are likely to be adequately trained.

Even though quantitative data on birth practices for the underserved urban population is not available, GDs conducted with groups of women in the reproductive age group in Indore slums in the year 2003 have been instructive. These GDs revealed that clean birth practices such as using a new blade for cutting the cord and seeking medical care in the event of obstetric complications have improved as a result of improved access to health care facilities. However, less than desirable practices that are related more to beliefs and traditions than to access still persist. Therefore, in many families, BF is still initiated three days after delivery (a practice noted in most of rural and tribal MP), babies are still given jaggery water as a prelacteal feed and bathed immediately after birth 57.

NFHS-2 re-analysis based on standard on living index (SLI) also reveals that only 8.2% of newborns among the urban Low SLI were breastfed within an hour of birth, and 74.5% of mothers from this group discarded the first milk coming from the breast. Infants were often given water, animal milk and ‘ghutti’ during the first six months of life. This is also linked to other factors such as women pursuing outdoor vocations, inadequate flow of milk because of severe maternal undernutrition, and many children of more or less the same age groups influencing the food patterns in the house.

1.4 BUILDING A PLATFORM FOR OVERLAYING FUTURE EFFORTS TO IMPROVE MATERNAL-NEWBORN HEALTH IN INDORE SLUMS:

The USAID-UHRC’s (formerly EHP) Urban Health Program aims to learn from and develop replicable models of urban health programming for bringing sustained improvement in child health in urban slums. In Indore, the program has worked towards strengthening linkages between service providers and the

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54 Taneja S, Agarwal S. Situational Analysis for guiding USAID/EHP India’s Technical Assistance Efforts in Indore, Madhya Pradesh, India, Environment Health Project, 2004
56 Taneja S, Agarwal S. Situational Analysis for Guiding USAID/EHP India’s Technical Assistance Efforts in Indore, Madhya Pradesh, India, Environmental Health Project, 2004.
57 Taneja S, Agarwal S. Situational Analysis for Guiding USAID/EHP India’s Technical Assistance Efforts in Indore, Madhya Pradesh, India, Environmental Health Project, 2004.
community and building partnerships and capacities of the public sector, Non Government Organizations (NGOs) and Community Based Organizations (CBOs) to improve coverage and behaviour adoption for birth and newborn care, diarrhoea prevention, immunization and malnutrition prevention.

Based on the situation analysis and stakeholder consultations, it emerged that NGOs and CBOs in Indore could play complimentary roles of skills, knowledge, experience and reach. With capacity building and support, they could adequately serve the crucial functions of enhancing demand, build capacities and strengthen community linkages as part of the Urban Health Program. Consortia of NGOs and CBOs - a) would enable entry to vulnerable or difficult to reach communities, b) CBOs would be the voice of vulnerable communities, c) CBOs would remain as resources for slum communities beyond project life, d) owing to an understanding of the slum context of the city the NGOs and CBOs could better respond to specific needs of different categories of people living in the slums; e) being local and having program experience, NGOs could effectively coordinate with health providers, f) involvement of NGOs and CBOs would contribute to the vital element of community ownership and sustainability.

The purpose of the program is to promote and strengthen slum-based CBOs in the vulnerable slums identified for the program, with the NGO to receive funds (and fulfill contractual requirements), be in-charge of guiding and supervising the project through the lead CBO. The lead CBO which was constructed as a community group from one or more slums working for slum welfare for over two years would implement activities at slum level and gradually gain in capacity. Consequent to the above-mentioned process, 5 NGOs along with partner CBOs were selected and began implementing the program in 79 slums of Indore covering approximately 26,500 households or 1.5 lakh population since April, 2003.

1.5 RATIONALE FOR THE PRESENT STUDY:

The foregoing section reveals that the neonatal period is the most vulnerable period of human life. Further, reduction in the IMR would be facilitated by greater emphasis on reducing neonatal deaths and improving neonatal survival. Literature based on research studies outlines certain evidence based essential newborn care behaviours being associated with improved neonatal survival. These include – a) Antenatal care like early registration, routine ANC visits, identification and referral of high-risk pregnancies and preparedness for birth and obstetric complications.

b) Intrapartum care like clean delivery practices by a trained birth attendant and identification of newborn complications at birth and timely referral to a health facility.

c) Postnatal care like routine postnatal visits, exclusive BF, maintenance of warmth and early identification of danger signs/complications and timely referral58,59 (figure 1)60.

Promoting evidence-based behaviours related to antenatal, intrapartum and postnatal period with focus on the very young infant (i.e. 0-2 months) has also been one of the primary focus areas of the UHRC urban health program.

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Why focus on 0-2 months:

Very young infants (0-2 months) are vulnerable because, their immature immune system predisposes them to severe infections and other morbidities which can take a precipitous life-threatening course. They often reveal a poor growth trajectory because of a variety of interrelated causes like low birth weight and subsequent poor suckling and limited thermoregulatory capacity increasing the likelihood of undernutrition and morbidities like diarrhoea, ARI etc. Low birth weight growth trajectories are poorer. At family level, poor feeding and care practices after birth, lack of awareness on recognition of danger signs of illnesses (which are often subtle) further decrease their chances of survival and/or increase their chance of growing in a undernourished growth trajectory in and beyond this period.

Recent research also shows that the window of opportunity for improving nutrition is small - from before pregnancy through the first two years of life. Estimates based on WHO regions taken by Shrimpton and others (2001) the adjoining figure shows that growth faltering in Asia begins from birth itself and steeply steep down after 3 months and sharply steep down thereafter. There is consensus that the damage to physical growth, brain development and human capital formation that occurs during this period is extensive and largely irreversible. Therefore interventions must focus on this window of opportunity. Any investments after this period are less likely to improve nutrition as once an infant becomes anthropometrically undernourished he/she requires much more intense feeding and improved health to ‘catch up’ growth than if growth faltering had been prevented in the first place.

Hence, there is need to target young so that family members, especially mothers are enabled to appropriately look after themselves during pregnancy, ensure that delivery is conducted in a clean environment and thereafter take optimal care of their infants at home, promptly recognize signs of their infant’s illness and seek timely referral. Clearly, for promoting these optimal practices, an understanding of current practices and factors influencing them is imperative to help identify barriers (informational, socio-cultural and service delivery related) and possible context responsive program options to improve these practices.

Hence, the present study was conducted with the objective to:

1. To understand community-level antenatal, intrapartum, and postnatal (0-2 months) practices in slum dwellings of Indore (M.P.).
2. To understand perceptions and practices of slum-based traditional birth attendants conducting home deliveries.
3. To understand incidence of cold stress and hypothermia amongst newborns using human touch method, assess its diagnostic accuracy against axillary method and study its correlation with other

simple and easy to assess danger signs/symptoms of neonatal illness like lethargy and poor suckle.

4. To document positive indigenous home-level practices from families surviving and healthy low birth weight newborns which according to them have aided in survival and rehabilitation of their baby.

5. To identify barriers and suggestive program options for improving the maternal-newborn care practices among slum dwelling urban poor of Indore (M.P.).

Broadly, this study aimed at determining program directions in terms of - a) IEC, training, and supervision needs of CBOs and slum-based traditional birth attendants; b) identifying Maternal-Neonatal Health (MNH) service providers that may serve as potential linkages for the community to improve MNH service, access and quality and c) Outlining a preliminary intervention strategy for improving MNH amongst the urban poor of Indore, Madhya Pradesh.

So much about hard-core public health science and facts. On a humanistic note, these little bundles of life, no matter what socio-economic background they happen to belong to, are as much human as us all. They need informed, careful nurturing, warmth (psychological and physical) and care to realize their inherent potential and mature into productive adults. Some little bundles of life come into this world in a more vulnerable state (on account of low birth weight, prematurity) and require extra care to tide over the very vulnerable initial; 6 to 8 weeks of life. It is hoped that this study and the subsequent intervention trial will enable us to expand and deepen our understanding about options that may enable these little potent bundles of life grow and fructify their true potential in life.
Chapter 2

Methodology

Research Design

2.1 Selection of Study Area
2.2 Data Collection – Tools and Methods
2.3 Data Management and Analysis
RESEARCH DESIGN

Study Area

11 slums in Indore, Madhya Pradesh comparative in terms of distance from nearest govt. health facility and extent of health vulnerability of the population

(Population: 24,395)

Data Collection Process

Step 1
Identification of the target group: a) infants 2-4 months; b) newborns; c) sTBAs through target mapping of each slum or using target maps already prepared by NGOs and d) low birth weight surviving and healthy newborns identified through the LCBO records

Step 2
Making a list of the target group in each slum (along with their house no. if available) from immunization registers/record registers of the Lead CBOs

Step 3
Information gathering process adopted in each slum

GD with mothers of infants less than 12 months of age

GD with ’Basti’ CBOs *

- Hypothermia assessment in newborns
- Nutritional status assessment of newborns
- Case studies of care provided to LBW newborns by their families

In-depth interview with sTBAs who had conducted atleast 1 delivery in the past six months preceding this study

Data Management and Analysis

- Quantitative data entered in MS Excel. Data analyzed using SPSS (version 11).
- Qualifiers used for summarizing information gathered after every GD were semi-quantified based on the investigators judgment like majority/most (3/4th of the group), 50% of the group (half the group) and some/few (one fourth of the group).

* ’Basti’ CBOs are slum based women groups’ promoted/strengthened during the project and provided preliminary orientation on antenatal, intrapartum and postnatal care
2. METHODOLOGY

2.1 SELECTION OF STUDY AREA:


- These 11 slums were selected based on the following criterion:
  - These slums had a higher % of home deliveries
  - There was a lesser likelihood of mothers migrating to their native places for deliveries in these slums.
  - For operational feasibility of data collection as NGO partners of these slums namely ‘Pushpkunj’, BGMS, IDSSS and CECOEDECON agreed to provide their support in data collection for the present study.

- The selected slums were comparable in – i) extent of health vulnerability of the population as assessed by health vulnerability criterion developed by UHRC and confirmed by ‘basti’ CBOs and ii) distance from the nearest government health facility (Table 1). From table 1, it can be seen that only Triveni Nagar was least vulnerable, 3 slums namely Ekta Nagar, Bhavna Nagar and Yadav Nagar were moderately vulnerable and the remaining 7 slums were extremely vulnerable as per health vulnerability assessment. The government health facilities were within 5 kms reach for most slums.

![Table 1: Selected Slums listed on the basis of Health Vulnerability and Distance from the nearest government health facility](image)

*Residents also seek health services of Kasturba Gram, a charitable hospital.

2.2 DATA COLLECTION:

The study used both quantitative and qualitative methods of data collection. Quantitative methods were used to understand maternal and newborn care practices from mothers and slum-based traditional birth attendants- STBAs (called ‘dais’ in local terminology). Group discussions (GDs) with mothers and CBO members were conducted to identify barriers and program options to improve maternal and newborn care practices. Case studies of a total of 15 low birth weight (LBW) babies were prepared using interviews

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64 Based on information gathered from NGO partners and Lead CBOs
with mothers of surviving and healthy LBW newborns to understand from these families home-based case management strategies used for their rehabilitation.

2.2.1 Quantitative Information Gathering

(a) Respondents and Sample Size:
For gathering quantitative information to fulfill the study objectives, the sample comprised of the following groups:

- **Mothers of infants 2-4 months of age:**
  In-depth interviews were conducted with 312 mothers of infants aged 2-4 months to assess antenatal, intrapartum and postnatal practices they followed. Since there were no prior estimates of the prevalence of health indicators for the Indore slum as such, a hypothesized value of 50% for general health indicator was considered which results in the highest possible sample size. The estimation of the sample size was based on assumption that it can estimate at ±10% point accuracy. Considering one sample method with 95% significant level and 80% power, it provided an estimate of 194 samples and considering a design effect of 1.5; required sample size reached to a minimum of 292 samples for the study. Also assuming a non-response rate of 10%, finally 321 samples were visited and 312 have been interviewed.

- **Mothers of low birth weight newborns identified during the study period**
  Since for interviewing mothers of infants 2-4 months of age, slum visits were already being conducted, this opportunity was used to also identify those LBW babies (<2.5kgs) who were surviving and currently healthy (weighed appropriate for their age) from records of slum-based health volunteers. A total of 15 such babies were available during the study period (Dec’04-Feb’06). Only a small number were identified possibly due to program efforts and a number of families not available. Interview with mother and care provider was conducted in each of these 15 families to learn those household behaviours which they practiced which lead to successful rehabilitation of their LBW newborns. Case studies of these families based on the information gathered was then prepared.

- **Slum-based traditional birth attendants (sTBAs) who had conducted atleast 1 delivery in the past six months preceding the survey.**
  A total of 37 such sTBAs from the study area were identified and interviewed to understand their perceptions and practices related to intrapartum care.

- **Mothers of newborns (0-28 days) identified during the study period**
  While the field work was ongoing, the opportunity was also used to study neonatal hypothermia and other danger signs amongst newborns. For this, whenever a field visit was conducted to interview mothers of infants 2-4 months of age, a list of newborns was also made and visit was conducted in homes of mothers of newborns. A total of 152 mothers of newborns were visited and interviewed. Body temperature of these newborns and other dangers signs was assessed by trained field investigators.

All target group was identified with the help of the Lead and BCBOs using their record registers and additional transits in the slums.

(b) Areas of enquiry

In order to understand maternal and newborn care practices in the slums of Indore, information was gathered from four categories of respondents described above. The areas of enquiry among each category of respondents were as follows:
Household interviews were conducted with 312 mothers of infants 2-4 months of age using an in-depth interview schedule to assess practices carried out from pregnancy until the infant was 2 months of age. However, other ladies who are involved in delivery and infant care were also included to elicit information, when the mother was not able to provide complete information.

Aspects of enquiry included –

i) **General information:** family size, religion, educational and occupational status of the father, educational and occupational status of the mother and information about the index child like date of birth, sex and birth order.

ii) **Antenatal care** like - i) establishing contact with a trained birth attendant to seek advice/service related to maternal complications, receiving 3 antenatal checkups, 2 TT shots and at least 100 IFA tablets and ii) preparedness for birth and obstetric complications like knowledge of danger signs of maternal-newborn complications indicative of referral, saving money for delivery related expenditure, arranging for transport for preparing for delivery related complications, identifying a birth attendant and health facility for delivery in case of an obstetric complication.

iii) **Intrapartum care** such as: 5 cleans (clean surface, clean hands, clean blade, clean cord tie and clean cord stump), wrapping the newborn immediately after birth especially until cord tying, postponing bathing until 24 hours of birth, avoiding prelacteals and timely initiation of BF.

iv) **Postnatal care in the neonatal period and until the infant was 2 months of age** like provision of warmth, exclusive BF, BF from one breast completely before putting the baby onto the other and frequency of BF in 24 hours.

v) **Identification of complications** like mothers awareness about recognition of danger signs during pregnancy, delivery and newborn complications immediately after birth and preparedness and action taken during this time.

In addition to the above, two more enquiries were made during the interview. These were on:

i) **Current BF practices** followed in 2-4 month period i.e. exclusive BF, BF from one breast completely before putting the baby onto the other and frequency of BF in 24 hours.

ii) **Information about infant’s immunization status** and the number of episodes of diarrhoea, fever and ARI the infant had in the last 15 days and whether timely referral was sought.

**Definitions Used:**

*Classification of BF*\(^{66,67}\): The infant was considered exclusively breastfed (EBF) if he/she received breast milk as the only food source with no other liquids or food given except drops/syrups (vitamins, minerals, medicines). Infant described as predominantly breastfed (PBF) received breast milk as the predominant source of nourishment but also received liquids (water and water-based drinks, fruit juice, ORS), ritual fluids and drops/syrups (vitamins, minerals, medicines) but no animal milk. Those described as partially breastfed (PaBF) received breast milk, but also received liquids (water, water-based drinks, fruit juice, ORS), ritual fluids and drops/syrups (vitamins, minerals, medicines) and animal milk but no semi-solid or solid foods. The definitions of BF categories applied to 24-hours preceding the interview.


Diarrhoea was defined as the passage of three or more loose watery stools per day or a change in consistency/frequency of stool as perceived by the mother. An episode was considered to have ended on the last day with diarrhoea that was followed by three consecutive non-diarrhoea days. Episodes that lasted more than 14 days were defined as persistent.

Acute Respiratory Track Infection (ARI) was defined as cough or nasal discharge present for three days or more accompanied with chest in drawing as perceived by the mother.

Age of all infants was calculated in completed months using the date of birth records available from the immunization record register of the LCBO and confirmed from the immunization card available with the mother.

(ii) Case study preparation of surviving and healthy LBW babies:

A case study format was prepared to prepare the 15 case studies of LBW babies. Aspects enquired included: –i) How do families residing in urban slums identify that a LBW baby requires extra? ii) What extra care do they provide at home and how do they monitor danger signs? iii) In which instances do they seek referral (when and from whom)? and iv) How does the social support system contribute to rehabilitating the LBW baby?

(iii) Interviewing slum-based traditional birth attendants (sTBAs)

Interviews were conducted with 37 sTBAs who had conducted at least 1 delivery in the past six months to understand their intrapartum practices. An in-depth interview schedule was used to gather this information.

(iv) Interviews with mothers of newborns (0-28 days old) and Assessment of Hypothermia

Between Dec’ 04-Feb’ 06, trained field investigators assessed body temperature of a total of 152 newborns available during the study period using two methods – thermometer (under the axilla) and that perceived by human touch. Information about the gestational age of newborn was not known/enquired.

*By human touch method:* Field investigators used the dorsum of their hands to assess the skin temperature at 2 sites (abdomen and soles of foot). Newborns were classified as warm, cold stressed and hypothermic if both their abdomen and sole of foot was warm, abdomen was warm and sole of foot was cold, both their abdomen and sole of foot was cold respectively.

*By thermometer method:* A digital thermometer (accuracy: ± 1.2°F/0.1°C), with Accu-beep feature was used (Becton, Dickinson and Company, NewJersey). The thermometer’s tip was placed well into the baby’s underarm. The baby’s arm was folded over the chest to hold the thermometer in place and keep airway away from the underarm. For better positioning, the mother was asked to hold the baby to ensure that the reading is taken correctly and baby is also comforted. As per specifications on methodology of using this thermometer although a steep beep continued for about a minute, followed by three rapid completion beeps confirmed that the temperature measurement was complete, but using this method on newborns beeps had to be ignored and thermometer had to be held securely in place for at least 4 minutes. In present study field situation, it was difficult to hold the newborn for this long period and beep indications were followed.

Newborns were classified as warm, cold stressed and hypothermic if their axillary temperature was between 36.5-37.5°C, 36-36.4°C and <36°C respectively.

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Temperatures were measured during the day. Appropriate advice was given to the family if the baby’s body temperature was not found to be in the normal range.

Mean environment air temperature during hypothermia assessment was noted from an online weather report source (URL: www.undergroung.com/station/42754/2005). The newborn’s body temperature was tested with categorized variables - environment air temperature, age and weight of the baby at temperature recording and sex using $\chi^2$ test. Months from October to March were regarded as winter months and months from April to September as summer months.

In order to understand and assess an association between hypothermia and BF practices especially suckling, during hypothermia assessment visit field investigators also asked the mother about current BF practices (exclusiveness and optimal frequency).

Investigators also conducted a 4 minute BF observation to assess attachment and suckling. To check for attachment, all 4 signs being present were assessed: Chin touching breast, mouth wide-open, lower lip turned outward and more areola visible above than below the mouth. If the infant was taking slow deep sucks, sometimes-pausing suckling was regarded as effective72. If the baby was asleep during the visit, the mother was asked if the baby was able to attach and suckle appropriately. In such cases, in place of an observation, the mother’s assessment was considered and recorded.

Field investigators also assessed presence of other danger signs as suggested by Bang and co-workers73 apart from the above – two (baby cold to touch and poor suckling) like –

- Reduced activity level of newborn (drowsy/lethargic/unconscious/movements less than normal/restless and irritable)
- Umbilical Infection (blood/draining puss) and asked the mother if anything was applied on cord stump.
- Respiratory rate (RR) of the newborn was recorded using a second’s stopwatch. RR 60 or more on counting twice was considered a danger sign.
- Grunt or severe lower chest in drawing was also assessed based on either observation by the field investigator while counting the RR or mother if mentioned its presence.
- Presence of diarrhoea, fever (>99.5°F) and cough along with difficulty in/fast breathing based on the mother’s assessment.

(v) Anthropometric assessment of general undernutrition amongst infants and newborns:

Weight of infants and newborns wearing light clothing was measured using a portable hanging spring balance (Salter, 0-10kg range) using WHO guided procedures74. The instrument was adjusted and corrected for the “zero error” every time the weight was measured.

The general index of nutritional status i.e. weight-for-age, was calculated and expressed in standard deviation units (z scores) from the WHO standards 2006. Z scores compared WHO 2006 standards were calculated using the WHO anthropometric calculator computer program within ANTHROPAC 2005 PC (beta version Feb17, 2006) software75. Young infants who were more than two and three standard deviations below the WHO standards 2006 median were considered undernourished and severely

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undernourished respectively. Young infants who fell between one and two standard deviations below the
WHO standards 2006 median were considered mildly undernourished\textsuperscript{76,77}.

*Age of all infants* was calculated using the date of birth records available with the LCBO and expressed as
completed months for analysis.

Anthropometric criterion was restricted to weight-for-age for operational feasibility as its measurement
and recording procedures are easier to standardize and intense training for investigators is not required.

### 2.2.2 Gathering qualitative information through group discussions:

In order to identify barriers that hinder practicing evidence-based practices during the antenatal;
intrapartum and postnatal period group discussions (GDs) were conducted with 8-10 mothers of infants
less than one year of age and 4-6 ‘Basti’ CBOs in each of the 11 slums. During each GD, asking
questions, exchanging anecdotes and commenting on each others experiences and points of views were
encouraged\textsuperscript{78}. Emphasis was laid on allowing the group to identify informational, motivational, traditional
and service related barriers for each evidence-based behaviour and link barriers to suggesting potential
programme options for improving each evidence based practice. A pretested GD guide was used for this
purpose.

**Preparation and standardization of tools and techniques:**

Initially, available literature pertaining to the study was reviewed. Information gathering tools like in-
depth interview schedules, case study format and GD guides were thereafter developed for each study
sample. Tools were adapted in local terminology and local contextualization and most relevant questions
were included keeping the objectives of the study in mind. Tools developed were pre-tested and requisite
revisions were made. Tools were revised in vernacular Hindi\textsuperscript{79}. Field investigators were also trained
conducting interviews and assessment of hypothermia, taking weight measurements and counting RR rate
prior to data collection.

### 2.3 DATA MANAGEMENT AND ANALYSIS

- All quantitative data gathered was entered in MS Excel. Data was analyzed using SPSS (version 10).
  Spearman’s correlation was used to find correlations between variables and X\textsuperscript{2} (with Yates correction
  factor, when required) was used to find out significant differences\textsuperscript{80}. For all tests \( p \) value of <0.05 was
  judged significant.

- For analyzing qualitative information gathered through GDs, available responses were free listed,
  qualified and semi-quantified. Qualifiers used for summarizing information gathered after every GD
  were semi-quantified based on the investigators judgment like majority/most (3/4 th of the group), half
  the group and some/few (one fourth of the group). Information gathered from each case study was
  compiled and presented under various sections as per enquiry.

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\textsuperscript{76} Dibley MJ, Staehling NW, Neiburg P, Trowbridge FL. Interpretation of Z score anthropometric indices derived from the international growth


\textsuperscript{78} Accessed Dec 25, 2006.

\textsuperscript{79} Kitzinger J. The methodology of focus groups: the importance of interactions between research participants. Sociology of Health and Illness


(a) To compare the value of two binomial samples even if they are less than 30, chi-square test can still be applied provided correction factor,
Yates correction is applied and the expected value is not less than 5 in any cell.

(b) In a large sample, even low degree of correlation may be highly significant while in a small sample high degree of correlation may be
insignificant.
STUDY LIMITATIONS/PRACTICAL CONSIDERATIONS IN A PROGRAM CONTEXT:

- To balance optimal effort efficiency in a program context with reasonable research rigor, it was, upon review of other similar studies and study team consensus determined, that mothers of infants 2-4 months be studied. The study team recognizes that there may be recall difficulties on some of the items being assessed since retrospective data of past two months was gathered.

- Since this study is being conducted after about two years of program efforts, the findings will reflect some positive change in perceptions, practices and service access of families and providers.

- In the present study interviews of only mothers of surviving infants (2-4 months) was taken. Hence, there is some bias as those babies who died (non-survivors) what were the practices of their mothers during pregnancy upto 2 months if taken could have give the real picture of the community under study. This aspect was later realized as per Dr. AH Baqui’s review.

- The hypothermia assessment was done by the field investigator by both methods – axillary method and human touch method. However, if the mother was also asked to assess hypothermia using human touch an estimate could have been made on accuracy of the mother’s judgment to assess hypothermia.

- An estimate of exclusive BF status is based on current status of practice in last 7 days preceding the survey only and recall of mothers on practice of BF from birth. Since program efforts were ongoing there could be a possibility of the mother to lie about her breastfeeding status.

- It was recognized that the axillary thermometer reading would be lower than expected as instead of placing the thermometer under the arm for 4 minutes the beep system was followed.

- No information about the mother’s own dietary, nutritional status or daily work load was taken.

- Since taking the rectal temperature of newborn is not easy, if on a sub-sample of 50, rectal, axillary and human touch assessment could have been done in a hospital setting by pediatricians then levels of differences could have been established between these methods then conversions could be applied to compare rectal and human touch readings.
Chapter 3
Results and Discussion

3.1 Antenatal Care
3.2 Intrapartum Care
3.3 Postnatal care upto 2 months of age
3.4 Care of infant in the 2-4 month period
3.5 Understanding home-based management and care seeking practices for LBW babies
3.6 Hypothermia in Newborns
3.7 Home delivery practices of slum-based traditional birth attendants
3. RESULTS AND DISCUSSION

As mentioned in the methodology chapter, a total of 312 mothers of infants 2-4 months of age were interviewed in their respective homes to assess–

- Practices carried out in the i) antenatal, ii) intrapartum, iii) postnatal period upto 2 months and iv) their current BF practices
- Prevalence of morbidities like diarrhoea, ARI and fever amongst infants 2-4 months of age.
- In addition, nutritional status of a sub-sample of 191 infants 2-4 months of age was also assessed using weight-for-age.

**Background characteristics of these 312 respondents:** As many as eighty percent of the mothers interviewed belonged to scheduled castes or backward classes. Only 6.4% of them hailed from ‘beel’/‘adiwasi’ tribal communities. Majority of them were Hindus (97.8%), only 2.2% of them were Muslims. Illiteracy rates were high, with 68% mothers and 40.4% of fathers being illiterate.

Living conditions, not surprisingly were poor with averagely six members in each family. Currently the husband was the sole breadwinner in 88.1% families and in more than 2/3rd families he worked as a daily wage labourer (71.1%). In other families, the condition was no better; some ran a small petty business like selling fruits, fish, chemists etc (11.5%), others either worked as truck drivers or rickshaw pullers (6.4%) to sustain a living or in factories (8.0%). Only 1% were government employees. Amongst the respondents, 11.2% of these mothers worked as maids or labourers for additional income and others mentioned that they would do so when their infant turns 6-7 months. While the mother was away from home the infant was left under the supervision of mother-in-law (MIL)/elder daughter/neighbour. The birth order for these infants studied varied between 1-9, 42% of these were 3rd or greater the 3rd child of their parents.

In addition to conducting interviews with mothers of infants 2-4 months of age:

(a) One group discussion (GDs) was conducted in each of the 11 study slums with mothers of infants less than 12 months of age and ‘basti’ CBOs.

(b) Case studies of 15 surviving and healthy low birth weight newborns was prepared

(c) Hypothermia and other danger signs of neonatal illness was assessed in 152 newborns

(d) Interviews were conducted with 37 slum-based traditional birth attendants, who had conducted at least one delivery in the past six months.

**Findings of the study are presented in the following order:**

3.1 Antenatal Care
3.2 Intrapartum Care
3.3 Postnatal care upto 2 months of age
3.4 Care of infant in the 2-4 month period
3.5 Understanding home-based management and care seeking practices for Low Birth Weight babies
3.6 Hypothermia in Newborns
3.7 Home delivery practices of slum-based traditional birth attendants
**Chapter Summary**

**Background:** Amongst slum dwellers, poor antenatal care which includes lack of birth preparedness contributes to increased neonatal mortality. **Objectives:** The study identified barriers and options for improving antenatal care in slums of Indore city, Madhya Pradesh. **Methodology:** In 11 underserved slums, 312 mothers of infants (2-4 months) were interviewed to understand antenatal practices followed by them during their pregnancy. **Results:** Nearly 50% women relied on the ANM visiting the slum for antenatal care. Percentage who consumed 90+ IFA tablets, took 2TT shots and 3 ANCs was 11.5%, 82% and 40% respectively. Barriers to appropriate practices were: i) (TT shots) woman not present in the slum during the health camp, infrequent visits of ANM and fear of injection, ii) (IFA tablets) feeling that tablet can lead to a miscarriage, tablet giving a nauseated feeling and lack of perceived need, iii) (3 ANCs) economic and time constraints and hesitation in approaching a health facility alone without an escort. Birth preparedness related to identifying a trained birth attendant for delivery, making arrangements for money and transportation was seen amongst 69.6%, 76.9% and 29.5% respectively. Home delivery by sTBAs was preferred. Economic constraints, lack of awareness and apathy on part of the family members to escort the pregnant lady to a referral facility emerged as barriers for seeking timely EmOC. **Conclusion:** Options that emerge from this study for improving antenatal care in slums include – i) early pregnancy identification followed by regular counselling by slum-based health volunteers using pictorial material to all key influencers, ii) reinforcement of messages by early adopters during mothers group meetings at timings suitable to working women, iii) with ANM’s support and wherever possible private qualified medical providers support, health camps need to be organized at fixed, pre-appointed place and information transmitted to all. iv) Since women rely on sTBAs their capacity as antenatal counsellors needs to be built. v) For building mothers’ confidence in approaching the health facility community-health provider linkage with affordable health facilities would need to be fostered.

**Key Words:** urban slum, antenatal practices, birth preparedness

Antenatal care refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. Ideally, antenatal care –

i) Should provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care and related issues

ii) Should monitor a pregnancy for danger signs of complications, detect and treat pre-existing and concurrent problems of pregnancy.

The Reproductive and Child Health Programme recommends that as a part of antenatal care, women receive two doses of tetanus toxoid vaccine, at least 100 iron-folic acid tablets or syrup to prevent and treat anaemia and at least three antenatal checkups that include blood pressure checks and other procedures to detect pregnancy complications.81

For the present study, information was collected from 312 mothers of infants 2-4 months of age on antenatal care sought by them during their pregnancy. They were asked about the health providers with whom they established contact and timing for the first contact.

They were probed on – i) ANC they received and their timings, ii) number of IFA tablets received and consumed, iii) number of TT shots received, iv) preparedness for delivery and obstetric complications like - (a) identifying a trained birth attendant, (b) keeping savings for delivery, (c) awareness regarding danger signs indicating a complication and d) taking preparedness measures like identifying a health facility to seek care in times of complication(s) and arranging for transportation for timely reaching the identified health facility.

Barriers and facilitators for each recommended behaviour were sought from mothers of infants and ‘basti’ CBOs through GDs.

Results from each of the above enquires have been discussed in this section.

5.1.1 Establishing contact with a health provider during pregnancy:

- Nearly all (95.5%) mothers mentioned having established at least 1 contact with a health provider for an antenatal checkup (ANC) and/or for receiving TT shots/IFA tablets during their pregnancy (84% approached a health provider in their first trimester, 6.7% in the second trimester and 4.8% in the third trimester).
- Only 4.5% mothers did not establish any contact with a health provider during the course of their pregnancy (figure 2).
- Health providers approached for seeking antenatal care/advice included: 
  a) ANMs during health camps in slums (45.4%),
  b) doctors in government institutions like Maharaja Yashwantrao (MY) and Zila Hospital (39.7%),
  c) doctors in private charitable institutions like Pushpkunj and Kasturba gram (28.2%) and
  d) private doctors residing nearby (16%).
- Economic constraints and attitude of the health provider towards the slum dwellers affected choice of the health provider to a larger extent as compared to distance of the health facility.

3.1.1.1 Receiving 2 tetanus toxoid shots during pregnancy:

Neonatal tetanus is most amongst newborns who are delivered in unhygienic environments and when unsterilized instruments are used to cut the umbilical cord. Tetanus typically develops during the first or second week of life and is fatal in 70-90% of cases. Neonatal tetanus is a preventable disease. According to the National Immunization Schedule, a pregnant woman should receive two doses of TT vaccine, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant. Re-inoculation is recommended every three years. If two doses were received less than three years earlier, a single booster injection is recommended. Two doses of tetanus toxoid (TT) vaccine given one month apart during early pregnancy are nearly 100% effective in preventing tetanus amongst both to the mother and her baby as immunity against tetanus is transferred to the foetus through the placenta when the mother is vaccinated.

In the present study, out of a total of 312 mothers of infants 2-4 months of age interviewed:

- 82% of mothers had received 2 TT shots/TT booster during their pregnancy.
- 9.0% mothers had received 1 TT shot during their pregnancy.
- 9% mothers had not received any TT shots.
- 77.2% of mothers had received their first TT shot/TT booster before the completion of their 5th month of pregnancy (i.e. before 25 weeks).

Barriers:

- Working mothers leave early for work: Attending an immunization camp for a pregnant woman from a poor family who was working as a labourer or a maid in nearby colonies meant loss of wage for that day which was crucial for survival of her family and more important to her as compared to receiving a TT shot or an ANC.

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82 Total percentage would be more than 100% accounting for multiple response i.e. mentioning more than one health provider with whom contact was established.


Delivery in native village: Many pregnant women, especially first-time pregnant women go to their native village in the seventh month of pregnancy for delivery. As a result, they miss out on immunization and complete ANCs.

Infrequent visits by the ANM in a few slums: Infrequent visits by ANM for immunization purpose since the past 5-6 months e.g. in Yadav Nagar (Name of ANM: Jyoti) prevented pregnant women from this slum from receiving 2 TT shots. It is important to note here that the same ANM comes to this slum for conducting home deliveries and charges Rs. 500 per delivery.

Some pregnant women usually take their TT shots very reluctantly as they are scared of injections.

Possible Program Options:

- Strengthen and make regular the outreach camps at fixed, pre-appointed place in or near the slum at a time suitable to the women. This will need to include perseverant efforts to motivate and support ANMs for the outreach sessions.

- Wherever possible, willing private qualified medical providers may be partnered with for providing antenatal services during outreach camps. Such services enhance the community’s confidence in outreach sessions since they would note visibly enhanced quality of services.

- Encourage and motivate women and other family members through sustained group counselling via community platforms such as CBOs/mothers groups. E.g. Jyoti, Paardi community lady and a mother of an infant from Aeerkheri slum mentioned that she took her TT shots despite this not being a practice in her caste. She and other women from difficult communities who are practicing optimal behaviours self-efficaciously can be involved as change aides for promotion of optimal behaviours.

3.1.1.2 Consuming 100+ Iron Folic Acid (IFA) tablets during pregnancy:

Iron deficiency anemia is a major threat to safe motherhood and health and survival of infants because it contributes to low birth weight, lowered resistance to infection, impaired cognitive development and decreased work capacity. Data from two recent well-conducted community-based studies indicate that in India, about one-third of all newborns are low birth weight

Provision of iron and folic acid (IFA) tablets to pregnant women to prevent nutritional anemia forms an integral part of the safe motherhood services offered as a part of the RCH program. The program recommendation is that pregnant women consume at least 100 tablets of IFA during pregnancy. However, findings from NFHS-2 (1998-99) for urban slum dwellers of MP, suggests that only 61.1% pregnant women consumed the required number of IFA tablets.

In the present study, out of a total of 312 mothers interviewed:

- 86.2% mothers received IFA tablets. Out of the mothers who received IFA tablets, although 76.2% of mother consumed 20 or more IFA tablets, only 11.5% of them consumed IFA tablets for 3+ months during their pregnancy.

Barriers:

- Perceived side effects: Reasons cited by mothers for not consuming appropriate number of IFA tablets included – i) belief that the tablet is hot, leads to diarrhoea and may subsequently lead to a miscarriage and ii) a feeling of dizziness/nausea/palpitation after eating the tablet.

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- **Foul smell:** Despite being aware of its health benefits, many pregnant women refrained from consuming IFA as they found it foul smelling.

- **Lack of perceived need:** Those mothers who did not eat any IFA tablets (3.0%) or those that did not take IFA tablets from the health provider (9.3%) during their contacts mentioned that they did not perceive the need as they neither ate any IFA tablets in their past pregnancy nor did they experience any complications in their past/recent pregnancy.

- **Inadequate monitoring and reinforcement of benefits:** It was found that 30-40 IFA tablets were given by the health provider during each of these contacts in three rounds so in instances when either pregnant women mentioned that they did not eat the IFA tablets previously received or did not want these tablets as they would not eat them anyway, they were not given IFA tablets by the health provider.

- **Forgetfulness:** some women mentioned – “there is too much work at home and no time to think of oneself, so we forget eating the tablet”.

Possible Program Options:

- IFA consumption meets similar resistance in most similar efforts. While there is no clearly established/tested strategy that can improve IFA consumption, sustained, persuasive counselling including peer counselling through early adopters may be helpful.

- Someone progressive in the family needs to be identified to take the responsibility of ensuring that the pregnant woman consumes her daily dose of IFA tablets at a fixed time. 
  
  **E.g. 1.** One mother from *Jeet Nagar* reported consuming all the IFA tablets given to her during her pregnancy, as her supportive husband ensured that she had her tablets on time and also accompanied her for ANCs.

  **E.g. 2.** In *Sonia Gandhi Nagar*, a daughter-in-law of the sTBA who is also an active BCBO member not only consumed IFA regularly during her pregnancy and but also actively promoted consumption of IFA. She reported no side effects or perceived difficulties on consumption of IFA. Repeated contact with qualified provider (who perhaps counseled effectively) provided the impetus to have the prescribed dose of IFA.

  These ladies were very confident and had family support. Such early adopters can be encouraged to motivate other women to consume iron since they will be able to help the other pregnant women overcome their fears/anxiety such as feeling of nausea.

- The women, who did not consume adequate number of IFA, were those who received less support from their families. Hence, it will helpful for CBOs to identify such special attention households and develop some appropriate mechanism through relative or neighbour to enhance support to the woman so that she could be proactively encouraged to adopt and maintain behaviours.

- Continued persuasion/counselling by an elder community lady whose opinion is respected and who is acceptable among the community can also be effective

- There is a need to build counselling skills of ANMs, AWWs, CBO members as well as their technical knowledge regarding the risks of iron-deficiency anemia and possible practices to reduce IFA side-effects, e.g. drinking extra water (at least one glass-full) with each IFA tablet.

- Picture community based monitoring of IFA consumption have been effective in some programs. BCBOs, most of whom are illiterate can also monitor optimal behaviours using pictorial community based monitoring and thus act as a platform to add quality in effectively monitoring behaviour change. However, what ever form of monitoring is used it should be developed by the community group themselves-be it picture monitoring or monthly group discussions. E.g. CBO members use kantha embroidery for monitoring behaviours in Bankura district of West Bengal.

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- Constant encouragement from CBOs during meetings to mothers who are consuming IFA tablets is also essential. A few mothers consumed most to all the 90 IFA received and mentioned repeated counselling and encouragement at meetings as the reason for consuming them (GD with mothers of infants in Ekta Nagar).
- Specific dietary counselling of - i) increasing overall intake of protein and carbohydrate, which in requisite amounts can provide good amounts of iron; and ii) increasing intake of iron rich foods that can also be assimilated easily may be piloted through pictorial counselling material.
- Whenever possible ANC camps for a cluster of slums, by medical doctors (who are effective communicators also) can also be organized.

3.1.1.3 Receiving at least 3 Antenatal Check Ups during pregnancy:
The number of antenatal checkups and the timing of the first check-up are important for the health of the mother and the outcome of pregnancy. Guidelines in the RCH programme require that each pregnancy be registered in the first 12-16 weeks\(^{90}\). Accordingly, the first ANC should take place at least during the second trimester of pregnancy.

Studies on the timing of the initial ANC, however, show that even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality\(^ {91}\).

In the present study, only 23.4% mothers did not receive any ANC, 40.1% mothers received at least three ANC checkups and 70.5% mothers received their first ANC in the first trimester of pregnancy (Figure 3).

### Figure 3: Number and Timing of Antenatal Checkups (ANCs)

<table>
<thead>
<tr>
<th>NUMBER OF ANCs</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage</strong></td>
<td>23.4</td>
<td>12.8</td>
<td>23.7</td>
<td>24.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIMING OF FIRST ANC</th>
<th>No ANC</th>
<th>1st Trimester</th>
<th>2nd Trimester</th>
<th>3rd Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage</strong></td>
<td>23.4</td>
<td>70.5</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

**Barriers:**
The reasons for not establishing the first contact with a health provider in the first trimester included –
- Most pregnant women did not perceive the need to approach a health provider until they faced a complication like excessive pain in the abdomen, bleeding and foetus malpresentation.
- Economic constraints (cost involved in transit, cost of services, loss of wages)
- Additional time required to visit a health facility, resulting in pending household work, loss of daily wages for those who were working and fear of leaving young children unsupervised back home during that time.

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Fear/apprehension of not receiving courteous attention on going to a health facility alone without an escort as the husband and /or MIL was away for work or not willing to go along.

Many women do not go outside the slum for antenatal checkups as a general practice. Even if the pregnant women (daughters-in-law) want to go for the same, they are discouraged by the elders of their home.

_E.g.1_ During a GD with mothers of infants in Triveni Nagar and Annabhav Sathe Nagar, some mothers revealed that she could not take a single ANC as nobody from home agreed to accompany them out of the health facility. As a result most women approached the sTBA of the slum first who in most cases advised to go to a referral facility only if they experienced a complication (like malpresentation or excessive pain in abdomen).

**Women from Pardi Community conduct their own delivery - a tradition: harmful yet practiced**

In Pardi Communities of Aheerkheri slum, a pregnant woman is pressured to follow an age-old custom to conduct her own delivery without any assistance from a family member or a trained birth attendant. Post-delivery, nearly unconscious she removes the placenta herself in whichever way she can, ties and cuts the umbilical cord haphazardly, then bathes the baby and takes a bath herself, groaning in pain and stress. Until then, no one nears or touches the mother or baby as until then they are regarded as impure. Women acknowledge it's an unmanageable task, but considering it's a custom in their community, they involuntarily follow it. The CBO members of Aheerkheri mentioned that although many women from this community have started attending community meetings CBOs conduct, but most of them still follow this custom.

### Possible Program Options:

**Through counselling by community health volunteers**

- **Stimulating the need for change:** Women who donot perceive the need to contact a health provider, they, their MILs and husbands need to be counseled of its benefits like – _i_) awareness about complications, _ii_) registration at an institution results in benefit of receiving timely and attended care at odd hours, _iii_) clean and safe delivery at minimal cost by specialized doctors. Health education and counselling by peer educators who they would trust more easily would be useful.

- **Reaching out to working mothers:** The operational feasibility of evening weekly/monthly counselling sessions for working women can be considered.

- **Early adopters can serve as counselors for others:** Benefits of optimal practices can be reinforced through early adopters (i.e. women who had adopted the optimal behaviours, felt that they benefited from it and wished to continue practicing it) to late adopters/laggards during group meetings would be useful to motivate them to practice these behaviours e.g. women who had eaten 80 or more IFA tablets during their pregnancy explain the benefits they perceived after eating them to pregnant women who for whatever reason donot eat them.

- **Constant Reinforcement by CBO members:** Constant reinforcement to mothers from ‘Pardi’ communities regarding optimal practices by CBO members, as one or two mothers of these communities have started taking TT shots in immunization camps.

- **Pictorial material** available at community level with sTBAs and CBOs will be of value in promoting appropriate practices.

**Through strengthening community-health provider linkage**

- Strengthen quality and regularity of outreach camps and involve private qualified providers in these camps.

- **Active Participation of ANM:** The participation of the ANM needs to be sought to establish early contact with pregnant women and reinforce its importance during her monthly visits to the slums.

- **Building functional linkages** between the community and affordable health facility providing quality services to build their confidence in approaching the facility independently.

- **Building capacity of sTBAs** to play the additional role of counselling pregnant women for consumption of IFA, appropriate diet/nutrition and preparedness for delivery and complications.
3.1.1.4 Other Antenatal Care practices (as revealed through GDs):

**Adequate Diet:** Nutritional needs increase immensely during pregnancy period as the expectant mother not only has to nourish herself but also the growing foetus; for development of maternal organs such as uterus, placenta and the breast tissue and to build up body reserves to be utilized at the time of delivery and subsequently during lactation. Inappropriate nutrition during pregnancy leads to extreme outcomes such as low birth weight baby and premature birth (less than 37 weeks of gestation) etc.

- Through GDs with mothers of infants and CBOs, it was revealed that they too believed that if a pregnant woman is looked after well, a healthy baby is born. However, diet of most pregnant women remained the same as in the non-pregnancy period i.e. a two-meal pattern or a even reduced one owing to – i) morning sickness and ii) perception that increased intake would be harmful for the baby. Variety in food groups was restricted due to economic constraints.
- Food fads related to hot and cold foods were observed. As revealed through GDs in Aheerkheri, ‘Cold’ foods were not given to pregnant women.
- Pregnant women consumed rice in their staple diet and considered it good for the growth of the baby (GD with mothers, Annabhav Sathe Nagar).

**Rest**

- It was believed that if a pregnant woman takes rest, her baby will grow up to be lazy. BCBO members are trying to change this belief and convince women to take some rest during day time (GD with basti CBOs Aheerkheri) and are also advising pregnant women to think of happy and good thoughts (GD, with basti CBOs, Jeet Nagar).
- The pregnant women in a few slums also complained that they have to walk a considerable distance to fetch water and do not receive any help from their family in completing household chores. Though they agreed that a pregnant woman should not exert herself physically, they reported that it is very difficult to practice this without family’s support. So the only option that remains for a pregnant woman is to take care of herself on her own.
- Women live in severe financial constraints. Some women also work as daily wage labourers or maids in households for additional income. Most men have a drinking problem and use all the money for liquor (GD, with basti CBOs, Sonia Gandhi Nagar).

**Barriers:**

- Lack of co-operation of family members and apathy on the part of the women owing to increased workload, economic constraints and lack of awareness.

**Possible Program Options:**

- Including other members of the family in community meetings like husband and MILs. *E.g.* In Jeet Nagar, one of the benefits of including the MILs in regular meetings is that some MILs have started listening to the CBO members’ advice (GD with mothers of infants, Jeet Nagar).

3.1.2 Preparedness for delivery and obstetric complications:

In most parts of India, childbirth is perceived as a normal event. Pregnancies are often not acknowledged until there are visible signs (6-7 months). Advance household preparation for potential obstetric emergencies or “preparedness” for anticipated normal birth is not common, although some form of preparation for the routine needs of new mothers and newborns traditionally take place. Lack of awareness of the danger signs of obstetric emergencies and lack of appreciation of the need for rapid and appropriate response when emergencies occur are major contributing factors in many maternal and newborn deaths.

Despite good ANC, obstetric complications leading to death can arise and once they do a sTBA cannot handle them at home as for them surgical interventions, antibiotics, and blood transfusions are required.
Thus, only if obstetric complications are identified early and handled timely at First Referral Units only then maternal deaths can be averted\textsuperscript{92}. For this, at community level a set simple preventive measures preventing delay in receiving prompt care needs to be promoted.

Based on the above, the concept of prevention of “delays” was developed to address maternal and neonatal mortality\textsuperscript{93}. While WHO suggests "three delays", some experts spilt the first delay into two and therefore describe four delays i.e.:

1) Household level delay in identification of the complication
2) Delay in deciding to seek care
3) Delay in reaching health care facility due to transportation and referral system difficulties; and
4) Delay in receiving care after arrival at a health facility\textsuperscript{94,95}.

It is now globally acknowledged that programmes that aim to reduce maternal and newborn deaths must prioritize interventions that specifically address issues preventing these delays, key elements of which include:

- Identifying a trained birth attendant for delivery
- Identifying an appropriate health facility for delivery and/or obstetric care
- Keeping savings (either individual or through funds) for birth-related expenses
- Making transport arrangements for facility-based birth or in case of obstetric emergency
- Identifying companion to accompany to facility

The current situation in Indore slums, pertaining to preparedness for birth and obstetric complications as observed in the present study is described below:

3.1.2.1 Identifying a trained birth attendant for delivery:

- 69.6% mothers mentioned that during their pregnancy, they had identified a birth attendant whom they would seek help from for delivery or obstetric complications. Possibly, health education through trained slum or cluster level health volunteers (LCBOs/BCBOs) contributed to this practice.
- Preferred birth attendants by the majority included- trained sTBA of the slum and doctors in government/charitable hospitals. Few others chose a private nurse who paid home visits to them for antenatal care and delivery.
- Mothers who faced a problem in the previous delivery, mothers who feared that in event of an obstetric complication, they would be unattended if contact was not established with a health provider for delivery and first time mothers were likely to identify a skilled birth attendant in advance.

Barriers:

- Reasons mentioned by 30.4% (n=95) mothers who did not select a birth attendant for delivery during their pregnancy were either lack of perceived need, economic constraints or traditional practices (Table 2).
Table 2: Reasons for lack of preparedness in identifying a birth attendant for delivery

<table>
<thead>
<tr>
<th>Lack of Perceived Need:</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Normally the sTBA of the slum only conducts the delivery so prior selection is not required”</td>
<td>38 (40.0)</td>
</tr>
<tr>
<td>“There is not need to establish contact, my MIL-relative only conducts deliveries”</td>
<td>24 (25.3)</td>
</tr>
<tr>
<td><strong>Economic and Transportation Constraints:</strong></td>
<td></td>
</tr>
<tr>
<td>“STBA of the slum is good, cost-effective, she lives close by, known to conduct good deliveries, visits us frequently”</td>
<td>14 (14.7)</td>
</tr>
<tr>
<td><strong>Traditional practices:</strong></td>
<td></td>
</tr>
<tr>
<td>“In our community (Pardi), women conduct their delivery themselves”</td>
<td>3 (3.2)</td>
</tr>
<tr>
<td>“I had planned to go for delivery to my mother’s home”</td>
<td>16 (16.8)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95 (100.0)</td>
</tr>
</tbody>
</table>

3.1.2.3 Identifying a health facility for delivery and obstetric complications:

- 63.8% of mothers had identified a health facility that they would seek help from in event of an obstetric complication.

- The choice of the health facility depended more on economic reasons, proximity and behaviour of the doctor towards the ‘basti’ people.

- Health facility identified included: Zila/MY and Kasturba/ Pushpunj private charitable hospitals (39.7%) < Doctors in private nursing homes/practioners (24.1%).

**Barriers:**

- 36.2% of mothers who did not identify a health facility in advance mentioned that they did not face any complication and knew that their delivery would be conducted at home.

3.1.2.2 Savings:

- More than 3/4th (76.9%) of families saved some money during the course of pregnancy to incur delivery related costs to prepare for any unseen complication(s). For others (23.1%), delivery expenses were met mostly by borrowing money from neighbours.

- Reasons cited by mothers for saving or not saving money are cited in table 3.

Table 3: Barriers and facilitators for keeping savings for birth and obstetric emergency

<table>
<thead>
<tr>
<th>Barriers</th>
<th>n (%)</th>
<th>Facilitators</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“We are daily wage labourers so it’s difficult to save money”:</td>
<td></td>
<td>“So that if I am admitted to the hospital, I am attended because there you have to pay money first”</td>
<td>40 (16.7)</td>
</tr>
<tr>
<td>“I had saved money but it got used up in household purchases”</td>
<td>41 (56.9)</td>
<td>“Some money needs to be given to the sTBA so its wise to save money”</td>
<td>43 (17.9)</td>
</tr>
<tr>
<td>“Husband spends all money saved on liquor”</td>
<td>20 (27.8)</td>
<td>“We saved money so that we need not borrow money from anybody and if there is a problem we can go to the hospital”</td>
<td>154 (64.2)</td>
</tr>
<tr>
<td>“MIL / FIL / Husband must have saved money - I don't know as I didn't not save any money”</td>
<td>14 (18.2)</td>
<td>“Because it was first baby”</td>
<td>3 (1.2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72 (100.0)</td>
<td><strong>Total</strong></td>
<td>240 (100.0)</td>
</tr>
</tbody>
</table>
SHGs\(^{96}\) were not active in all slums. The findings of the present study revealed that in slums where SHGs were active, only 41% mothers were aware of an SHG being present in their slum. However, out of 41% mothers who were aware about an SHG being present in the slum, only 15.8% were members of such a group and reasons cited by them for being members of such a group was – “Zarurat padnae par paisae mil jatae hai (in times of need we can easily borrow money on interest)”.

Reasons cited by mothers for not joining an SHG included –
- Economic constraint related fear of not being able to pay money each month.
  *E.g. 1* Two more women wanted to be members but they are unable to save money as their husbands took away all money to buy alcohol and also did not allow them to join the group (GD, Jeet Nagar).
- Disapproval by family members either due to meager and irregular income, lack of faith in the SHG (“Samay par paisa nahi mila to kya karengae (in times of need if we don’t get money what shall we do then)”) or hearing past negative experiences from other members of the SHG (“Bai –Bai mein larai chalti hai (women in SHG don’t work in cohesion)”;
  “interest zyada lagatae hai (the interest on loan is very high)”)

*In Yadav Nagar and Annapurna Thanae* at the moment, the ‘basti’ does not have an SHG as nobody is willing to pool in their savings.

*In Aheerkheri although* earlier there was an SHG but it disintegrated gradually (GD, with basti CBOs, Aheerkheri).

### 3.1.2.4 Making arrangements for transportation:

Arrangements for transportation to prepare for an obstetric emergency were made only in 29.5% of families, as in the slums visited tricycle ‘Rickshaws’ were available close by and private doctors resided in the vicinity.

*E.g. 1:* In Ekta Nagar, for transport, the basti women/CBO members use a local Auto (three-wheeler transport) available in the basti itself.

### 3.1.2.5 Identifying danger signs indicating a complication and seeking prompt referral:

 Mothers of infants 2-4 months of age were asked about complications that according to them signal danger to – i) mother during pregnancy, ii) mother during labour/postpartum and iii) newborn at birth. The findings presented in table 4 and are discussed below:

- **i) Maternal complications during pregnancy:**
  - Out of 312 mothers, 65 mothers were not aware of any maternal complications during pregnancy. Most others mentioned excessive bleeding prior to experiencing labour pains (n=102), breathlessness with blurring of vision (n=45) and severe abdominal pain (n=69) suggestive of referral.

- **ii) Maternal complications during labour:**
  - 67 mothers were not aware of any maternal complications during labour/delivery. Most mentioned that either slow progress of labour >12 hours possibly due to malpresentation accompanied with severe abdominal pain or early rupture of bag of water a suggestive sign to seek referral.

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\(^{96}\) SHG (Self-Help Groups) are common in Indore owing to a history of such interventions among slum communities. The SHGs in the program slums are typically women’s groups where all members (10 – 20) save about Rs 20 to 50 each month in a common group fund. In some instances, such a savings group fund has also been used for providing loans for pregnancy or delivery related complications.
iii) Newborn complications:

- 57 mothers were not aware of the signs that signal that a newborn is in danger at birth/postpartum. Most mothers mentioned that lethargy, difficulty in breathing accompanied with grunting and/or baby being cold to touch as danger signs suggestive of referral. Others mentioned that if a newborn – has umbilical sepsis and is small sized /thin then newborn is in danger.

**Table 4: Awareness of mothers regarding maternal complications during pregnancy, labour and delivery and newborn complications at birth/postpartum (N=312) (Multiple responses)**

<table>
<thead>
<tr>
<th></th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Maternal complications during pregnancy</td>
<td></td>
</tr>
<tr>
<td>Bleeding from the vagina before 37 weeks</td>
<td>102</td>
</tr>
<tr>
<td>Severe pain in the abdomen</td>
<td>69</td>
</tr>
<tr>
<td>Breathlessness (especially with blurring of vision and/or paleness/a feeling of constant weakness)</td>
<td>60</td>
</tr>
<tr>
<td>Swelling on face/body</td>
<td>29</td>
</tr>
<tr>
<td>Early rupture of bag of water</td>
<td>19</td>
</tr>
<tr>
<td>Reduced foetal movements</td>
<td>6</td>
</tr>
<tr>
<td>High fever</td>
<td>9</td>
</tr>
<tr>
<td>Mal-presentation</td>
<td>3</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>65</td>
</tr>
<tr>
<td>B. Maternal complications during labour/delivery</td>
<td></td>
</tr>
<tr>
<td>Slow progress of labour &gt;12 hours possibility due to malpresentation and/or severe pain in abdomen</td>
<td>151</td>
</tr>
<tr>
<td>Excessive bleeding from the vagina</td>
<td>87</td>
</tr>
<tr>
<td>High fever accompanied by blurring of vision</td>
<td>19</td>
</tr>
<tr>
<td>Fits/Burring of vision</td>
<td>20</td>
</tr>
<tr>
<td>Severe pain in abdomen</td>
<td>20</td>
</tr>
<tr>
<td>Early rupture of bag of water</td>
<td>3</td>
</tr>
<tr>
<td>Absent or reduced foetal movements</td>
<td>3</td>
</tr>
<tr>
<td>Retained placenta</td>
<td>4</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>67</td>
</tr>
<tr>
<td>C. Newborn Complications during birth/postpartum</td>
<td></td>
</tr>
<tr>
<td>Newborn is small in size/thin/skinny</td>
<td>8</td>
</tr>
<tr>
<td>Lethargic</td>
<td>139</td>
</tr>
<tr>
<td>Does not accept feeds</td>
<td>63</td>
</tr>
<tr>
<td>Cold to touch</td>
<td>37</td>
</tr>
<tr>
<td>‘Jaraoli’ (baby turns yellowish blue/blue at birth and stiffens)</td>
<td>44</td>
</tr>
<tr>
<td>Difficulty in breathing (grunt or severe chest in drawing)</td>
<td>117</td>
</tr>
<tr>
<td>Umbilical sepsis</td>
<td>1</td>
</tr>
<tr>
<td>Baby cries all day</td>
<td>4</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>1</td>
</tr>
<tr>
<td>Very high fever</td>
<td>-</td>
</tr>
<tr>
<td>Don’t know</td>
<td>57</td>
</tr>
</tbody>
</table>

**Barriers:**

- Although complications are recognized, most women-centered complications are not regarded as danger signs by the mothers and their social milieu, as a result there is delay in seeking referral.
- Economic constraints, apathy on part of the family members to escort the pregnant lady/mother to a referral facility at night were others reasons for delay in care seeking.
Possible Programme Options:

- Encourage SHGs or women’s groups to earmark a proportion of their savings as a health fund; the rules for management of which can be facilitated to evolve as situations unfold before the group.
- If the BCBOs discuss the subject of a contingency fund for maternal and infant health emergencies with the women and talk about the group savings approach citing a case where a family utilized the loan from the group for medical care, then more women will certainly be motivated to join the SHG.

*Example 1: In Sonia Gandhi Nagar,* BCBOs realized that to promote the cause of newborn health in the community, community members must invest in the health SHG in the ‘basti’ on monthly basis. This would help take care of the current shortage of IFA tablets, ORS packets and diarrhoeal medicines. Presently, there are 3 functioning SHGs in this ‘basti’ with a monthly contribution of Rs. 50 by each member. It appears that more women may also be willing to get included in this process and found it an important mechanism to provide for contingency reserves in event of medical emergency for mother or baby. The rules of their effective management can be passed on to other slums where SHGs have disintegrated e.g. in Aheerkheri.

- Group discussions on complications during pregnancy are needed as the level of awareness of the mothers as well as the sTBAs on this issue is low. Pictorial cards, video films and case narrations can be used during discussions to ease understanding.
- Since a large proportion of mothers rely on sTBAs who are easily accessible in the slum itself, systematic training of sTBAs for - a) counselling mothers for adequate birth preparedness; b) skills to enable families detect danger signs; c) knowledge and skills to counsel effectively for appropriate antenatal care at home and check-up at facility; d) ensuring clean delivery at home; e) involving them in promoting early initiation of breast feeding.
- Fostering poor slum dwellers linkages with nearby health facilities or private doctors willing to provide affordable services to enable them to gain access to quality care. This will need the complementary endeavor of encouraging the health providers to accept them as important allies.
Chapter Summary

Background: Over 50% births in slums occur at home, mostly in poor hygienic conditions and under untrained assistance. Understanding home birth practices in slums and their influencing factors is crucial for implementing contextual programs to improve care at birth, which is known to prevent over one-third neonatal deaths. Objectives: The study identified barriers and options for improving home birth practices in slums of Indore city, Madhya Pradesh. Methodology: In 11 underserved slums, 312 mothers of infants (2-4 months) were interviewed on following five cleans during delivery and thermal protection at birth, timely initiation and exclusive BF. Reasons for each practice were ascertained through group discussions in each slum. Results: Of all deliveries, 72.1% were conducted at home. Of these, 56.4% were conducted in slum-homes and 15.7% in native villages. Of slum-home births, 77.3% births were conducted by slum-based traditional birth attendants (sTBAs). Only 40.5% sTBAs had received training in the preceding year. Further, clean delivery surface, clean hands, clean cord tie, clean blade and clean cord stump was practiced by 46%, 14.7%, 34%, 30.7% and 50% respectively. Warming of birth room, appropriately wrapping the newborn until cord-tying and postponing bathing (for 24 hrs) was practiced in 38%, 54% and 37.5% families respectively. BF was initiated within an hour of birth and prelacteals avoided by 48.9%. Home births were preferred owing to mother’s fear of being alone during hospital delivery, confidence in sTBAs, economic and transportation constraints and lack of preparedness of family to escort woman in labour to health facility. Home birth practices were influenced by traditions and beliefs reinforced by mother-in-law and sTBAs. Mothers feared that if they did not follow the norm in the community their newborn could be harmed. Conclusion: Options that emerge from this study for improving intrapartum care in slums include – i) early pregnancy identification followed by regular counselling by trained slum-based health volunteers, ii) reinforcement of messages by early adopters during mothers group meetings, iii) periodic competency-based training of sTBAs and iii) strengthening community linkage and partnership with nearby/affordable health facility and helping them understand procedures for availing obstetric services.

Key Words: urban slum, birth practices, home delivery.

Over one-third of all newborn deaths occur on the first day of life much due to inappropriate care at birth and the first critical hours after birth. This problem is more formidable in urban slum context because over 50% deliveries continue to occur at home. More than two-thirds these home-deliveries are conducted by untrained birth attendants.

In the present study, in-depth interviews were conducted with 312 mothers of infants 2-4 months of age available during the study period. Their most recent delivery practices were enquired, like— i) practice of 5 cleans during delivery, ii) thermal adequacy at birth and iii) timely initiation of BF and avoiding prelacteals. Barriers and facilitators for each recommended behaviour were sought through GDs with mothers and ‘basti’ CBOs. Results from each of these enquires have been described in this section.

3.2.1 Place of delivery:

- 72.1% of deliveries were conducted at home (of which, 15.7% deliveries were conducted in their respective native villages) (figure 4).
- 21.2% of deliveries were conducted at government/private charitable hospitals and 6.7% at private centres.
- Home deliveries were common due to – a) traditional factors like delivering at the mothers’ house/self-delivery, b) economic

Figure 4: Place of delivery (N=312)

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constraints as home delivery costed less than 50/- rupees, c) avoiding transportation costs of reaching the health facility and d) fear of being alone during delivery in the hospital.

3.2.2 Home delivery practices in slums (N=176)

**Delivery by trained birth attendant:**
- Majority of the home deliveries were conducted by sTBAs (77.3%).
- 18.2% deliveries were conducted by untrained sTBAs.
- Only 66.5% of home deliveries were attended by trained birth attendants (BA) (table 5).
- Family members conducted 13.6% home deliveries.
- Three deliveries were conducted without any assistance.

<table>
<thead>
<tr>
<th>Delivery Attendant</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trained</strong></td>
<td></td>
</tr>
<tr>
<td>Private Nurse</td>
<td>117</td>
</tr>
<tr>
<td>Private doctor</td>
<td>1</td>
</tr>
<tr>
<td>ANM</td>
<td>4</td>
</tr>
<tr>
<td>sTBA</td>
<td>104</td>
</tr>
<tr>
<td><strong>Untrained</strong></td>
<td></td>
</tr>
<tr>
<td>Family members-mother-in-laws/mother</td>
<td>59</td>
</tr>
<tr>
<td>Self</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>176</td>
</tr>
</tbody>
</table>

**Table 5: Type of birth attendance during home delivery in slums**

Home Delivery Practices in Slums:
- The delivery practices carried out in slum-homes are depicted in figure 5 and are briefly discussed below:

**Clean Delivery Practices**

Clean Delivery Surface
- Home deliveries were conducted on the floor of the room in nearly all families (93.2%).
- The room where delivery was conducted was not especially cleaned prior to delivery in any family, due to lack of time available from household chores or lack of perceived need. However, a washed sundried cloth/ polythene/mackintosh from the DDK was laid on the delivery surface in 46% homes.
In 27.8% homes an old unwashed cloth was used as a delivery surface and in 26.2% homes delivery was conducted on an unclean and uncovered floor.

- During GDs with mothers of infants in Jeet Nagar and Sonia Gandhi Nagar, it was found that since the past year, as a consequence of the counselling sessions by CBOs on delivery care and discussions on the potential harmfulness of cow-dung flooring, few people in these slums have started using ‘choona’ i.e. limestone paste for flooring the delivery room before delivery. A similar innovation was noticed in some ‘bastis’ in Indore in the year 2003, where they were using saw-dust mixed with a form of yellow mud for flooring the delivery room’s floor instead of cowdung paste (GD with mothers of infants in Jeet Nagar and Sonia Gandhi Nagar).

Clean Hands

- Although 61.4% birth attendants washed their hands with soap and water before conducting the delivery, only 14.7% of them let their hands air-dry after washing with soap and water prior to delivery.

Clean cord-tie

- An unsterilized yet new cotton thread was used to tie the cord in most families. This thread was either a thread brought especially for use as a cord tie or a thread used during puja (holy prayers) (that was considered pure and clean) or nylon thread used to stitch quilts. It was a common practice to dip the cord-tie in hot water before use. The study has considered use of a new blade or new thread as “clean” if it was not dipped in water before use. A clean cord tie was used only by 34.0% families.

- Reasons cited by some for not using the cord tie available in the DDK was – “yeh raesham ka daga hota hai, jo khul jata hai aur phir naal puk jaati hai (the thread available in the DDK is slippery and the knot often opens leading to swelling on the cord stump)”. The new thread was dipped in water before use for preventing tetanus, as advised by sTBA.

Clean cord-cutting instrument

- Nearly all (96.6%) families used a new blade for cutting the cord, but only 30.7% did not dip it in hot water before use. The MIL and sTBA advised that “Using a new cotton thread and dipping the new blade in hot water before using removed the poison of blade”. Though this practice was carried out with a good intention, it could possibly increase the newborn’s susceptibility to sepsis.

- From a GD in Annabhav Sathe Nagar with BCBOs it was revealed that the cord is placed on a coin and then cut with a blade by some birth attendants for traditional reasons.

Clean Cord stump

- The cord stump was left clean with no applicant in 50% of families. Common applicants used included warm ghee (saturated milk fat)/mustard oil/coconut oil/Sindoor\(^{99}\)/turmeric paste/talcum powder. These applicants were applied so that the cord stump dries and falls off quickly.

- Through GDs with mothers in Aheerkheri slum, it was found that oil is heated and applied on the cord stump consecutively for three days after birth. In case of inflammation/swelling, dry omum seeds are roasted, powdered and mixed with this oil before applying on the cord stump. In the ‘Paardi’ community it is considered essential for the cord to fall off in the first three days and not longer than 10 days after birth. Oil is supposed to accelerate this process. Also, it was believed that this practice helps to prevent swelling of the cord stump because the newborn is bathed immediately after birth due to which the cord swells, and to heal it, oil is applied. Most sTBAs reinforced this practice (GD with mothers of infants, Aheerkheri).

Practices pertaining to warmth provision:

- 38% families made efforts to keep the birth room warm on the advice of the MIL and sTBA. Methods used to keep the birth room warm included: i) keeping a heat source like ‘angeethi’ (traditional heating source made of cowdung cakes and/or charcoal) under the bed especially in winter and ii)

\(^{99}\) Sindoor is red/vermilion powder commonly used in Indian homes as an auspicious application by way of paste. It is usually applied on the forehead or hairline during family events, festivals, or during prayer offerings.
making cubicle around the bed where the mother laid using 1-2 ‘saris’ (6 metres long drape of most Indian ladies).

- During the time interval between birth and cord tying, the newborn was laid wet and uncovered on the floor in 46% families.

- In many instances, when there was delay in the placenta being delivered, the newborn was covered with any old cloth, but s/he was not picked up from the floor. From most GDs, it was revealed that, until the placenta is removed the birth attendant focused on the mother, as it was believed that the soul of the mother resides in the placenta. It was also feared that undelivered placenta could move upwards in the chest and choke the women.

- Many (62.5%) birth attendants bathed the newborn with lukewarm water immediately after birth. In these families this practice was carried out advice of either the MIL or the sTBA who insisted that, as the baby was dirty since the past nine months saying “Nau maheene narak main kaat kar aaya hai”. Some MILs insisted bathing the baby to remove the vernix. Through GDs in Aheerkheri, it was found that in ‘Banjara’ and ‘Pardi’ communities, this tradition was more stringent. A recent community based, cross-sectional survey in a resettlement colony (a type of urban slum) of Delhi by Rahi et al (2006) on 82 mothers of newborns also showed that 56.1% deliveries were home deliveries, 91.3% of which were conducted by sTBAs and bathing the newborn immediately after birth was seen in 82.6% of home deliveries.

- In some families, newborns were cleaned with a dough ball (dough made by kneading wheat flour using water) dipped in oil (GD with mothers of infants, Yadav Nagar).

Were slum-based trained Birth Attendants following appropriate home delivery practices better than untrained birth attendants/family members?

It can be seen from table 6, that trained birth attendants were practicing optimal delivery practices related to postponing bathing and 5 cleans significantly better as compared to others.

Management of birth asphyxia or breathing difficulties:

- According to the mothers, all babies cried on their own at birth. In instances, when the baby did not cry on its own traditional methods of making the baby cry included:
  - Hanging the baby upside down and gently slapping the baby on the face, foot and hands.
  - In ‘banjara’ communities, if the baby did not cry until cord tie, the baby was wrapped in layers of cloth and kept near a heat source and a noise was made with utensils until the baby began to cry.
  - Some sTBAs in Piplia Rao slum poured cold water on the newborn’s face to make the baby cry.
  - Trained sTBAs of Aheerkheri and Bhavna Nagar slum dipped the umbilical cord in warm water and continued milking it towards the newborn until the newborn cried.
  - ‘Longabai’, a trained sTBA from Annapurna Thane slum mentioned – “before cord tying I ensure that the baby cries, and if he doesnot cry, then I place the baby on the mother’s chest, so that the baby gets warmth until it cries. One reason why the baby doesnot cry is because the womb is warm and suddenly the newborn comes in a cold environment, it feels so cold that it can’t even cry”.
  - ‘Seemabai’, a trained sTBA, of Triveni Nagar mentioned- “when one baby did not cry at birth and slapping the baby or milking the cord did not make any difference, I removed water from the nose of the baby using a pipe like material (“Nali daal kar naak se pani nikala tha”) and the baby began crying”.

---

Table 6: Home delivery practices in slums of trained birth attendants' vis-à-vis untrained birth attendants/family members/self delivery (N=176)

<table>
<thead>
<tr>
<th>Delivery Practices</th>
<th>n</th>
<th>Trained (N=117)</th>
<th>Untrained (N=59)</th>
<th>Total (N=176)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clean Delivery Surface</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Covered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washed and sun dried cloth</td>
<td>20</td>
<td>70</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Polythene: clean &amp; sun dried/new</td>
<td>17</td>
<td>11</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>DDK</td>
<td>33</td>
<td>24</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td>Unclean cloth/polythene: not washed and sun dried</td>
<td>27</td>
<td>22</td>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>(b) Uncovered Delivery Surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean hands – Birth Attendant washed her hands with soap and water prior to delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washed with soap and water</td>
<td>81</td>
<td>27</td>
<td>108</td>
<td>0.004</td>
</tr>
<tr>
<td>Washed hands with water only</td>
<td>9</td>
<td>6</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Did not wash</td>
<td>24</td>
<td>22</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Don’t know/Don’t remember</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Clean hands – Birth Attendant Air dried her hands after washing them with soap and water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air dried</td>
<td>24</td>
<td>2</td>
<td>26</td>
<td>0.005</td>
</tr>
<tr>
<td>Dried using her ‘Dhoti’</td>
<td>19</td>
<td>5</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Dried using an old cloth available at home</td>
<td>31</td>
<td>13</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Don’t know/Don’t remember</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>The Birth Attendant ensured that the birth room was warm</td>
<td>47</td>
<td>20</td>
<td>67</td>
<td>NS</td>
</tr>
<tr>
<td>No</td>
<td>70</td>
<td>39</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>Not leaving the baby naked until cord tie</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baby held in hands of the nurse/family member</td>
<td>17</td>
<td>71</td>
<td>86</td>
<td>0.01</td>
</tr>
<tr>
<td>Baby laid on a cloth/polythene on the floor</td>
<td>54</td>
<td>164</td>
<td>218</td>
<td></td>
</tr>
<tr>
<td>Baby laid naked on the floor</td>
<td>46</td>
<td>35</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td>Wrapping the baby (top and bottom) with a cloth irrespective of whether held in hands or on the tuat/cloth/polythene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>39</td>
<td>20</td>
<td>59</td>
<td>NS</td>
</tr>
<tr>
<td>No</td>
<td>78</td>
<td>39</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>Using a sterilized cord tie</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Thread dipped in warm water before use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New thread (brought)</td>
<td>27</td>
<td>18</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Old thread available at home</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Puja thread available at home</td>
<td>20</td>
<td>17</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>New thread dipped in boiling water before use, but for &lt; 20 min</td>
<td>11</td>
<td>2</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>(b) DDK thread not dipped in water before use</td>
<td>52</td>
<td>8</td>
<td>60</td>
<td>0.00009</td>
</tr>
<tr>
<td>Using a sterilized blade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New blade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dipped in water before use</td>
<td>83</td>
<td>33</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>Not dipped in water before use</td>
<td>32</td>
<td>22</td>
<td>54</td>
<td>NS</td>
</tr>
<tr>
<td>Old blade</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Not bathing the newborn at birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>48</td>
<td>110</td>
<td>0.004</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
<td>13</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Keeping the cord stump clean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>63</td>
<td>25</td>
<td>88</td>
<td>NS</td>
</tr>
<tr>
<td>No</td>
<td>50</td>
<td>38</td>
<td>88</td>
<td></td>
</tr>
</tbody>
</table>

NS= Non-significant

101 “Trained” refers to those slum based birth attendants who reported having received training conducted by the respective program NGO with health experts and accredited nurses as trainers. This was corroborated with the NGO records.
**Barriers**

- **Economic constraints and deliveries in native village:** Due to economic constraints people preferred home deliveries and sTBAs to conduct these deliveries. It was found that nearly 50% of deliveries that occur in the native village were conducted by untrained birth attendants (TBA or the mother), so in spite of the pregnant woman being aware about optimal practices, she had lesser autonomy in making decisions in the presence of her mother and the TBA.

- **Delivery after sunset or during night:** Panic during labour especially if the pregnant lady was alone at home at the time of labour or labour pains were experienced after sunset on the onset of night prevented using a clean delivery surface and ensuring that the birth attendant washed her hands prior to delivery.

- **Ingrained beliefs:** Mothers feared that if practices that were prevalent in the community were not followed the baby may be harmed, so they bathed the newborn, dipped the cord tie and blade in hot water before using and did not leave the cord stump clean. The sTBAs in most slums were promoting these practices.

- **Did not perceive any disadvantage of current behaviours:** Neither the MILs nor the sTBAs perceived any disadvantage or harm of current practices they had been promoting e.g. baby not getting umbilical sepsis after applying oil on the cord stump. Hence, more research is required to ascertain the relationship between application of oil/sindoor/tumeric/talcum powder and occurrence of umbilical sepsis.

- **Sterilized thread provided in the DDK could not be used:** The community did not prefer the sterilized cord tie available in the DDKs provided by NGO BGMS as they witnessed a few cases when even after tightly tying the cord tie, it opened as it was very slippery and subsequently lead to pus in the cord stump.

- **CBO members were not convinced:** CBO members in Aheerkheri, Jeet Nagar, Bhavna Nagar still counselled the mothers and sTBAs to dip the blade and cord-tie in boiling water before use. This practice may have been promoted with a good intention considering many families were not using a sterilized cord tie or blade, but whether the blade and cord tie is boiled in water for about 20 minutes is the question. Research is required to assess whether dipping a new blade or thread in hot/boiling water significantly increases incidence of umbilical sepsis.

- **Dominance of elders:** Mothers did not wish to take a risk of not following traditions reinforced by the MILs either because of the fear of the MIL or thinking that the baby would fall ill or die if traditions were not followed. This was especially true for bathing the baby immediately after birth and applying turmeric paste /sindoor/ on the cord stump.

- **Decision making-MIL’s domain:** Decision making for delivery related practices was the MILs domain, the sTBA wanting to be paid for her work, did as the MIL insisted. This could be another reason why even trained sTBAs were not following optimal practices stringently.

- **Believing that babies born in hospitals are also bathed:** CBO members in Yadav Nagar, Annabhav Sathe Nagar and Bajranj Nagar emphasized that MILs do not agree with postponing bathing at least 24 hours after birth as they felt that babies born in hospitals are also bathed. The sTBAs are especially asked by MILs to bathe the baby immediately saying- “you will not be paid money for your job if you donot bathe the baby”.

- There were situations when it was not possible to practice 5 cleans of delivery

  *E.g.* Two deliveries had to be conducted in the auto rickshaw while taking the pregnant woman to the hospital while one woman delivered her baby when she went to the lavatory (GD with mothers of infants: Ekta Nagar).

- In Annabhav Sathe Nagar, only women from the ‘Matang’ / ‘Maang Samaaj’ work in the ‘basti’ as sTBAs and anything that they approve of or do becomes a social custom and enjoys the social sanction of the community *e.g.* applying turmeric/kumkum on the cord, not dressing the baby in clothes for the first 4-5 days after birth, bathing the baby immediately after birth, sprinkling a glass of cold water over the baby immediately after birth etc (GD with mothers of infants, Annabhav Sathe Nagar).
Thirst for a male child

Thirst for a male child made pregnant women follow irrational beliefs. A woman who has had a baby boy preserves the cord. A pregnant woman, who has had only baby girls until then, is given this to eat by mixing it in ‘halwa’ (a traditional sweet prepared with flour, clarified butter and sugar etc.) so that she is able to conceive a male child (GD with mothers of infants, Jeet Nagar).

Possible Program Options:

- **Enabling community members analyze the benefit of and harm of not practicing optimal behaviours:** There is a need to enable the community to relate not practicing optimal practices to harmful consequences by discussing with them case narratives of pregnant women/newborn deaths they witnessed in the past in their slum to stimulate them to gauge the cause of the deaths and possible action that could have prevented the deaths.

- **Collective dialogue with elder ladies of slum:** Traditions, reinforced by elder women in the slum, prevented practice of optimal behaviours especially, postponing bathing until 24 hours of birth. Collective dialogue with elder ladies of the slum on ways of avoiding these traditions needs to be discussed such that optimal behaviours are also practiced and their traditions are also given due respect. Such discussions also need to assert the positive role they can play in promoting optimal delivery practices.

- Through discussion on possible options/alternatives for this practice, it emerged that a newborn can be cleaned with a cloth dipped in oil, in order to wipe away the thin and dirty film (‘phoolan’) over the baby’s skin (GD, Bhavna Nagar)

Regular refreshers of the community workers are extremely pertinent. A recent study by Baqui et al (2007)\(^{102}\) in Barabanki and Unnao district of Uttar Pradesh showed that a woman was more than twice likely to receive antenatal home visit from AWWs if the AWW had better knowledge. Also initiation of BF, cord care and thermal care as well as taking the newborn for a health check up to a skilled provider in the first week of life was found to be better amongst mothers who were visited by AWWs and ANMs who had better knowledge.

Program Options for encouraging institutional deliveries

- There is a need to assess if the most approached government/private charitable health facilities are offering good quality obstetric services. Those that offer the same, their staff linkage with these slum communities can be strengthened and they can help them understand procedures which will facilitate them to avail obstetric services there.

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\(^{102}\) Baqui AH, Williams EK, Rosecrans AM, Agrawal PK. Effect of knowledge of service providers on essential newborn health care: a study from rural India. Abstracts in proceedings of 11th Annual Scientific conference of ICDDR,B, Dhaka, Bangladesh, 4-6th March, 2007; pp 159.
3.3 POSTNATAL CARE UPTO 2 MONTHS OF AGE (N=312)

Chapter Summary

Background: In the first 2 months of life since immune system is immature it predisposes infants to severe infections which can take a precipitous life-threatening course. Poor caregiving practices adopted by families further decrease their chances of survival. Objectives: The study identified barriers and options for improving postnatal care in 0-2 months in slums of Indore city, Madhya Pradesh. Methodology: Retrospective data on BF practices and whether a health worker visits the family in the first two months postpartum was collected from 312 mothers of infants 2-4 months of age through household interviews. Results: BF was initiated within an hour of birth and prelacteals avoided by 48.9%. Infants exclusively, predominantly and partially breastfed up to 2 months of age were 58.3%, 37.2% and 4.5% respectively. Barriers to appropriate BF practices were faulty perceptions, traditional beliefs, lactational problems (no milk, inverted nipples) and wrong advice by private un-qualified medical practitioners. The slum-based health volunteers who paid 1, 2, 3 home visits during 0-1, 0-2 and 0-7 days were 42.3%, 28.9% and 19.9% respectively. Barriers to timely postnatal visits included: mothers going to their native village for or just after delivery and due to traditional reasons neither did family members allow nor did health volunteers prefer to touch the newborn until ‘sootak’ Conclusion: Options that emerge from this study to improve care during this period include: i) capacity building including training on lactation related counselling of slum-based health volunteers and TBAs as well as continued refresher and their supportive supervision. Specific strategy to be tried for mothers who migrate to native villages for delivery. ii) There is a need to arm the CBOs with pictorial material and specific technical algorithms to follow while conducting postnatal visits. This will entail regular support and technical guidance by qualified pediatricians/neonatologists, perhaps in collaboration with local units of IAP and NNF.

Key words: urban slum, BF

According to the child survival data published in lancet in 2003, promotion of exclusive BF in 0-6 months and continued BF for 6-11 months is the single most effective intervention that reduces under-five mortality by 13-15%103. A recent study from rural Ghana104 (based on 10,947 breastfed singleton infants) has shown that initiation of breastfeeding within the first hour of birth could reduce neonatal mortality by 22%. This effect was seen independent of exclusive breastfeeding. This means that in India if all mothers were enabled to initiate breastfeeding within an hour of birth, 2.5 lakh neonates annually could potentially be saved from death.

How early initiation of breastfeeding decreases neonatal mortality? 105, 106

Reasons: First, the lower rate of mortality in early initiators could occur because mothers who suckle their offspring shortly after birth have a greater chance of successfully establishing and sustaining breastfeeding throughout infancy. Second, prelacteal feeding with nonhuman milk antigens may disrupt normal physiologic gut priming. Third, early human milk is rich in a variety of immune and nonimmune components that may accelerate intestinal maturation, resistance to infection, and epithelial recovery from infection. Total protein and immunoglobulin levels also decrease markedly over the first days of life (concentrations are highest on day 1, half by day 2, and slowly decrease thereafter). Finally, promotion of warmth and protection may reduce the risk of death from hypothermia during day 1 (especially in preterm infants).

The effect of skin-to-skin and suckling contact immediately after birth increases the median duration of breastfeeding by 2 ½ months107. In a sample of Norwegian infants, 69% of those who were suckled at birth were still being nursed at the age of 3 months, compared to only 47% of those who were first suckled after six hours108. It was also found that babies who were first fed within 30 minutes of birth were likely to remain breastfeeding for longer109. Furthermore, the routine administration of prelacteal feeds

interferes with both the mother’s confidence and hence the let-down reflex, and suckling stimulation and prolactin production, and it reduces protection from infection\textsuperscript{110,111,112}.

Breast fed babies also have 8 IQ points higher than non breastfed infants. However, BF practices are affected by a number of factors, some of which hinder the baby to benefit from this god gift.

Retrospective data on BF practices followed in the first two months postpartum was collected from mothers of infants 2-4 months of age through household interviews. Information was collected on: i) whether BF was initiated within an hour of childbirth and prelacteals were avoided and ii) whether the newborn was exclusively breastfed until 2 months of age\textsuperscript{113}. Mothers were also asked whether a health worker visited her after delivery and if so, when did she visit and what did the health worker discuss during the visit. The findings from these enquiries are briefly discussed below:

### 3.3.1 Early initiation of BF:

WHO recommends that BF should be initiated within an hour of birth and nothing should be given to the infant before beginning to breastfeed\textsuperscript{114}. However, in the present study, only \textbf{54.5\% of the mothers initiated BF within an hour of birth}. Both BF was initiated within an hour of birth and prelacteals avoided by 48.9\%. Findings also revealed that initiation of BF was less delayed amongst newborns born at home in slums as compared to those born in the native village or institutions \textit{(table 7)}.

<table>
<thead>
<tr>
<th>Age of newborn</th>
<th>Newborn delivered at home (N=225)</th>
<th>Newborn delivered in an institution (N=87)</th>
<th>Total (N=312)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slums (N=176)</td>
<td>Native village (N=49)</td>
<td></td>
</tr>
<tr>
<td>(\frac{1}{2}-&lt;1 \text{ hour} )</td>
<td>109** (61.9)</td>
<td>17** (34.7)</td>
<td>170 (54.5)</td>
</tr>
<tr>
<td>1~&lt;6 hours</td>
<td>23 (13.1)</td>
<td>18 (20.7)</td>
<td>50 (16.0)</td>
</tr>
<tr>
<td>6~&lt;24 hours</td>
<td>17 (9.7)</td>
<td>9 (10.3)</td>
<td>33 (10.6)</td>
</tr>
<tr>
<td>24~&lt;36 hours</td>
<td>8 (4.5)</td>
<td>5 (5.7)</td>
<td>18 (5.8)</td>
</tr>
<tr>
<td>36~&lt;48 hours</td>
<td>1 (0.6)</td>
<td>1 (1.2)</td>
<td>3 (1.0)</td>
</tr>
<tr>
<td>2~&lt;3 days</td>
<td>4 (2.3)</td>
<td>1 (1.2)</td>
<td>9 (2.9)</td>
</tr>
<tr>
<td>3~&lt;4 days</td>
<td>5 (2.8)</td>
<td>6 (6.9)</td>
<td>13 (4.2)</td>
</tr>
<tr>
<td>4~&lt;5 days</td>
<td>6 (3.4)</td>
<td>1 (1.2)</td>
<td>11 (3.5)</td>
</tr>
<tr>
<td>5days</td>
<td>3 (1.7)</td>
<td>2 (2.2)</td>
<td>5 (1.6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>176 (100.0)</td>
<td>87 (100.0)</td>
<td>312 (100.0)</td>
</tr>
</tbody>
</table>

**Newborns born in slums were more likely to be initiated BF timely as compared to newborns born in Native villages. The differences were statistically significant (p=0.001)

**Barriers for delayed initiation of BF included:**

- The commonest reason for delayed BF initiation was either due to MILs and sTBAs advice or mothers own perception after hearing from other members of the community that milk lets down the mother’s breast after 3 days of birth.
- “First milk is harmful as it gets accumulated in the stomach wall” was another reason for delaying BF initiation up to 3 days of birth by two mothers.


- Traditional beliefs like initiation of BF upon seeing the twinkling stars, at the onset of night (‘taraon ki chhaon mein’) so that the baby does not forget suckling and suckles adequately subsequently also prevailed in a few families especially those from backward communities of Uttar Pradesh. So irrespective of day when BF was initiated, BF was initiated at the onset of night.

- Two families initiated BF after ‘Chhatti Poojan’, a religious ceremony celebrating the birth of a baby boy.

There was significant delay in initiation of BF of newborns delivered in their mother’s native village. Possibly, because nearly 50% (48.9% to be exact) of deliveries in the mother’s native villages were attended by untrained attendants and the above mentioned traditional customs were more common there.

- Since other members of the community were initiating BF after 24 hours, mothers felt that if they did not do so, the baby could possibly be harmed.

- Mothers who initiated BF although not early, but within 24 hours for reasons beyond traditional beliefs mentioned the following reasons for doing so: (a) waiting for the baby to cry to initiate BF, (b) baby was delivered in an institution, BF was initiated once the mother-baby dyad were brought back home; (c) mother was in a more or less unconscious state to initiate BF soon after birth, so she did so when she was able to relaxfully do so and (d) One mother did not initiate BF timely as she was not happy on birth of her sixth girl child.

- Three babies were in an intensive care unit after delivery so could not be BF early and one mother mentioned that her nipples were inverted, so this prevented her to timely initiate BF

- Mothers that initiated BF within an hour mentioned the following reasons for doing so- a) CBO members had reinforced this message to them time and again while they were pregnant; b) they saw the baby crying so they felt that the baby was hungry; c) were aware of this practice from a TV serial aired on DD named ‘Kalyani’ and d) to prevent inadequacy of breast milk at later stage (“so that milk nodules donot close”).

3.3.2 Prelacteal feeding and types of prelacteals fed:

- 38.1% mothers fed prelacteals to their newborns (figure 6a). Type of prelacteals fed included: jaggery water, weak tea, honey, unboiled water, goat & cow’s milk and a traditional ‘ghutti’ made from honey and nutmeg (figure 6b).
Barriers to avoiding prelacteals

- Prelacteals like jaggery water, ‘ghutti’ and tea were fed customarily either as bowel cleansers and/or for providing warmth by most mothers. Others did so for traditional reasons on advice of their MIL/mother/sTBA.

- Home-made ‘Ghutti’ was prepared by boiling nutmeg, almonds and dried dates in cow’s milk/honey. This mixture was then dried. Whenever required, this mixture was blended in mother’s milk/honey water and fed to the baby.

- Water was fed to quench the thirst of the baby (on seeing the baby’s dry lips or the baby crying).

- From GDs conducted in Yadav Nagar, mothers informed another interesting reason for feeding goat milk especially in Bihari families. They mentioned: “it is believed that a goat eats 36 types of leaves, so if the newborn is fed goat milk as an initial feed, it would safeguard the newborn against 36 types of illnesses”.

- Animal milk was also fed when the mothers attempted to initiate BF, but either the baby did not suckle and continued to cry or milk did not let down according to the mother. Many of these mothers felt that milk lets down the breast after the ‘Nahan’. ‘Nahan’ is a religious ceremony when the mother was bathed for the first time after delivery by the sTBA, normally held 3 days after birth.

- In case of a caesarian delivery in a hospital delivery, until BF is initiated few doctors advice giving ‘Saanchi’ milk (cow’s milk available in packets) to the newborn (GD, with basti CBOs, Annapurna Thane).

3.3.3 Exclusive BF:

- WHO recommends that infants should be exclusively breastfed (EBF) for the first six months i.e. infant receives mother’s milk as the only source of nourishment and is not fed anything else, with the exception of drops and syrups in form of vitamins, minerals and medicines\textsuperscript{115}.

- Infants aged 0-5 months who are not exclusively breastfed have seven-fold and five fold increased risk of death from diarrhoea and pneumonia, respectively as compared to those who are exclusively breastfed\textsuperscript{116}. At the same age, non-exclusive rather than exclusive breastfeeding results in more than two-fold increased risk of dying from diarrhoea or pneumonia\textsuperscript{117}.

- Figure 7 presents the BF practices during 0-2 months.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{exclusive_bf_practices.png}
\caption{Exclusive BF practices in 0-2 months}
\end{figure}


It is appreciable that 58.3% mothers mentioned that they EBF their infants till 2 months of age. However, 37.2% mothers predominantly breastfeed (i.e. they were fed non nutritional supplements like water and ‘ghutti’) and 4.5% mothers breastfed (i.e. also fed animal milk in addition to water and ‘ghutti’ although the predominant source of nourishment was breast milk) upto 2 months of age (figure 7).

**Barriers to exclusively BF infants upto 2 months of age**

- Reasons for feeding water included – baby crying even after being breastfed/when the mother was busy/mother away from home for a while.
- ‘Ghutti’ was fed as a bowel cleaner.
- The reasons for feeding diluted cow’s milk 1-2/day was a feeling of insufficient breast milk. Five out of the 14 mothers used a plastic bottle for feeding animal milk.
- From GDs with BCBO in Yadav Nagar, it was evinced that during postnatal visits they too advice mothers to feed jaggery water in the first three days after birth for regularizing the newborn’s bowels and for warmth.
- In Ekta Nagar the CBO members mentioned that they stock Vitamin A and ORS also. Babies are given water during a diarrheoal episode, to prevent dehydration and mothers are advised to give their babies water during summers, to prevent dehydration. Some women said that even private doctors recommend feeding water to babies (GD with mothers of infants, Aheerkheri)

**3.3.4 Status of postnatal visits conducted by BCBOs:**

- Although 3/4th (75.0%) of the mothers interviewed were visited in their homes atleast once in the first 14 days after delivery by L/BCBOs, only 42.3% of them were visited with 24 hours.
- Only few (28.9%) mother-newborn dyads were paid at least two visits between 0-2 days and even fewer (19.9%) were visited at least 3 times in the first 7 days of childbirth (figure 8).
- Thus, we are missing an opportunity to promote optimal practices such as warmth, early initiation of BF, exclusive BF, getting the exact birth weight and identifying newborn complications early.
- During these visits the CBOs mostly counseled mothers on exclusive BF, keeping the newborn warm, timely immunization and maternal nutrition. **Very few mothers were counseled on identifying danger signs of newborn illness.**
- It was also found that **newborns paid a postnatal visit by a L/BCBO in the first 14 days were more likely to be EBF as compared to those who were not.**
- During GDs with BCBOs, it was also revealed that most of them were not aware about most newborn complications and appropriate preventive and curative counselling on home-based care to give to prevent or manage newborns in such situations.
**Barriers:** The key reasons for lack of 100% coverage of the mothers at the time of postnatal visits were as follows:

- **Unavailability of the mother in the slum:** 12.84% mothers went to their native village for or just after delivery and came back to the slum only 2-3 months later. Also, 1.3% mothers delivered in the hospital and came to the slum only 7-8 days after delivery. These mothers hence, could not be paid a postnatal visit in the first 7 days.
- **0.3% families were non-cooperative and did not allow the BCBO in their house.**
- **In Piplia Rao,** the BCBOs mentioned that until 5 days of birth the newborn is regarded as impure, so even they avoid visiting/touching mother-newborn dyad till then.

**Lead CBOs voicing options to improve the quality of postnatal visits**

**Perceived Need for being trained in management of sick and undernourished infants**

Ranjana, the Lead CBO of Bhavna Nagar requested – “we donot know what counselling to give to mothers of sick and malnourished newborns and infants, apart from referring them to a health facility, being fully aware that they would not go until their baby is gravely sick. We wish to know some simple techniques to take care of these babies at home or simple medicines, which even we could prescribe so that these babies would be cured faster. In this way, faith of the mothers in us would also increase, because as of now we only go and ask a few questions during the postnatal visit and are not able to answer queries of such mothers”. Lead and Basti CBOs of Sonia Gandhi Nagar and Annapurna Thanae also opined the same.

- In **Bajrang Nagar,** BCBO members did not prefer to go for an early postnatal visit for ‘sootak’ reasons because their family members don’t like their going. They also mentioned - “we don’t get paid anything and the NGO people had come to take back the chairs and other furniture they had provided but we refused to give it back”. Also, in this slum, migrants from Uttar Pradesh have their own customs and are not ready to change them. Women from these families do not participate in meetings too, due to which they are unable to access information.
In Annapurna Thanae, BCBO members face rude behaviour by suspecting community members. Some community people observe ‘chhua chhut’ (untouchability) and do not appreciate BCBO members visiting their homes as BCBO members are from lower castes.

In Jeet Nagar, CBO members do not have a weighing scale. They normally borrow it from BCBOs of Sonia Nagar and weigh the newborn as per its availability. Similarly, in Yadav Nagar, there is only one weighing machine available for two slums - Chiraar Mohalla and Yadav Nagar. Sometimes, if the machine is not available in the slum, there is delay in weighing the baby.

In Triveni Nagar, the BCBO member group was formed only one month back so they have not yet started conducting postnatal visits.

In Bhavna Nagar, limited number of CBO members and no cluster allotment for each BCBO prevents covering the entire ‘basti’ because of its large size.

In Aheerkheri, ‘Paardis’ are nomadic and go away to ‘melas’ (exhibitions/ festivals) for as long as six months every year, which delays timely immunization, and poses difficulty in tracking and monitoring. Also, in the ‘paardi’ community, the mother and the newborn are not allowed to be met by anyone for the first five days.

Possible Programme Options:

- Systematic capacity building (technical and BCC skills) of active BCBO members and sTBAs and continued refreshers as well as regular supportive supervision is required.
- Arming the BCBOs with pictorial material that can enable them to - a) counsel, b) conduct post-natal visits as per government of India (GOI) protocol and c) maintain records of the mother and newborns. This will entail regular support and technical guidance as well as quality checks by qualified pediatricians or neonatologists, perhaps in collaboration with local units of IAP and NNF.
- Foster/strengthen linkages with affordable public and private hospitals that are already accessed by slum dwellers and prepare these health facilities for a possibility of increased referral as when the postnatal visits improve they would result in increased identification of danger signs and consequent greater referral.
- Specific strategy to be tried for mothers who migrate to native villages for delivery: perhaps a take-home pictorial card or poster and persuasive counselling that mitigate the chance of not taking serious cognizance of advice.
- Mothers-in-law also need to be counseled as is being done in Aheerkheri and Jeet Nagar as they are key influencers in the family and without their approval, no custom can be modified at the household level.
- ‘Radio Mirchi’ and television programs with messages promoting timely initiation of BF and its health benefits for the baby should be propagated as they compliment program efforts and some women now give colostrum to the baby (GD with mothers of infants, Aheerkheri). Similarly, film viewing is also awaited by most community members E.g., ‘basti’ CBOs in Annapurna Thanae mentioned, “Everyone is excited about a film viewing session that ‘Neeta Madam’ is about to organize.

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Chapter Summary

Background: In urban slums of India, 44% newborns are born Low Birth Weight (LBW). Many LBW neonates fall ill but donot get optimum treatment due to hesitation/fear in approaching a health facility and lack of social support. This often leads to death of such newborns. In this context, it is worth learning from those urban slum dwelling poor families who have rehabilitated their LBW newborns by practising indigenous household behaviours so that these behaviours can be promoted in the rest of the community. Objectives: The study aimed to learn from families of surviving and healthy LBWs residing in urban slums of Indore those household behaviours which they practiced which lead to successful rehabilitation of LBW newborns. Methodology: In 11 slums of Indore city, those LBW babies (<2.5kgs) who were surviving and currently healthy (weighed appropriate for their age) were identified from records of slum-based health volunteers. A total of 13 such babies were available during the study period (Dec '04-Feb '06). Families were probed on how did they identify that their LBW baby required extra care, what extra care they provided at home, in which instances did they seek referral and social support that contributed to rehabilitation. Results: Families identified newborns with birth weight <2 kgs, visibly skinny or premature newborns as needing extra care since at birth they were listless and cold, had a weak cry, sucked poorly and were morbidity prone. Extra care provided to these newborns at home included – i) warmth (wrapping, proximity, oil massage, traditional warming methods), ii) BF (frequent feeds and supporting chin), iii) infection prevention (avoiding taking baby out in open, keeping baby dry and clean, avoiding outsiders or children pick up baby, covering baby’s face with thin muslin cloth in order to prevent flies and mosquitoes from touching the baby). Danger signs prompting families for seeking referral were baby crying continuously, refusal to take the feed, lying listless, chest in-drawing and loose watery stools every 5-10 minutes. Mother’s self-confidence that she can improve the health of her baby and family’s supportive, encouraging and forwarding attitude to adopt/reinforce positive practices facilitated rehabilitation. Conclusion: Such simple household practices used by poor slum families in identifying and managing LBWs can be promoted by community health volunteers and positive deviants themselves (through their personal experiences) during postnatal visits. Emphasis needs to be laid on building LBW mother’s self-confidence and encouraging family members supportive attitude.

Key Words: urban slum, low birth weight, home-based care

3.4.1 Background:

(a) The Burden: Low birth weight (LBW), defined as a birth weight<2500g, is indisputably a very important indirect cause of death in neonates the world over. WHO estimates that 16% of newborns or nearly 20 million, are born LBW each year. Overall estimates indicate that around eight million LBW babies are born in India every year, i.e. around 40 percent of the global burden of LBW infants. Over three-fourth of LBW newborns in India are full term. The incidence of preterm newborns in India ranges from 11-14 percent. In urban slums, despite proximity to health institutions, in urban slums of India, 1.1 out of 2 million births take place at home. Of the total births, 44% are born LBW.

(b) Contribution of LBW to overall neonatal mortality and morbidity: NNF (2000) reported that nearly 3/4th of newborn deaths occur among LBW babies. LBW babies are at a higher risk of asphyxia, sepsis, hypothermia and feeding problems. LBW babies lag behind in somatic growth and have sub-optimally

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121 Bhargava SK, Sing KK, Saxena BN. ICMR task force national collaborative study on identification of high risk families, mothers and outcome of their off-springs with particular reference to the problem of maternal nutrition, low birth weight, perinatal and infant morbidity and mortality in rural and urban slum communities. Summary, conclusions and recommendations, New Delhi: Indian Council of Medical Research, 1990.
developed humoral and cellular immunity. Common illnesses like diarrhoea, respiratory infections, measles and skin diseases are more severe and of a longer duration in these babies\(^\text{124}\).

(c) Identifying LBW babies: Although a number of surrogate markers of LBW have been tested in the hospital and community setting including mid-arm, chest, mid-thigh and calf circumference and foot length, no conclusive recommendations have emerged for a marker that could be used in the program setting. As of today, weighing the infant at birth is suggested as the gold standard for identifying LBW. Literature reveals that weight of newborn taken within the first week after birth can be used as a predictor of birth weight\(^\text{125}\).

(d) Efforts to improve survival of LBW babies in India: In India, over-two third of deliveries occur at home. Many LBW babies born in this setting donot get optimal treatment and die at home. However, this group of babies is potentially salvageable in the home as well as in a first–level health facility setting using simple and low-cost measures and they represent a target population for interventions. Only a small fraction of LBW babies need to be cared for in a better-equipped centre. Series of published scientific articles by Bang and coworkers (Gadchiroli, Maharashtra) has demonstrated that survival of LBW babies can be improved and they can be managed effectively at home through simple, low cost interventions involving village health workers identifying LBW babies and those at ‘high risk’ within 1-6 hours of birth and repeated home visits by them in these homes for providing supportive counselling on provision of warmth, frequent BF, prevention and management of superficial infection, assessing danger signs and suggesting referral and managing BF problems and sepsis\(^\text{126}\).

Experiences of Daga et al\(^\text{127}\) in community-based management of LBW babies in Dahanu (Maharashtra) has also been documented. Here, Anganwadi worker (AWW) was trained to ensure that, (i) borderline LBW (upto 2000gms) /preterm baby was kept warm at home and (ii) a very small baby (<2000gms) was referred to hospital. AWW was expected to make a home visit on the day of birth, assess the size of the baby from footprint and look for whether baby is feeding well on the breast, is active and soles of the feet are pink and warm. The re-warming was done by giving warm fermentations using multilayered cloth held about 5 cms over a hot plate or a ‘chullah’. Thermocol boxes were use to transport sick neonates to referral centers. If the baby was preterm or low birth weight or had a foot length between 6.5 and 7 cm, repeat home visits were made to assess the BF progress, the baby’s activity level and warmth (warm and pink feet). Neonatal mortality rates progressively declined from the pre-programme level of 57.1 (1987) to 33.6% (1990).

In an uncontrolled study by Pratinidhi et al\(^\text{128}\), community health guides identified high-risk newborns within 48 hours of delivery at home. Follow ups were made on day 8 and day 29. A field medical officer identified high-risk neonates (low birth weight, premature, neonates with feeding problems, history of prolonged and difficult labour, neonatal illness) and supervised domiciliary management. This included advising mothers on wrapping the babies in several folds of clean used ‘sari’, minimal handling, increasing room temperature using traditional methods and frequent BF. Domiciliary care of LBW newborns included: heating the room by keeping burning coals under the ‘carpoui’ (wooden cot woven with ropes), humidity was increased by keeping some water always on boil or by drying clothes inside the room. Neonatal mortality declined from 51.9 to 38.8/1000 live births between 1981 and 1982.

Slum-specific data: Data from Delhi\(^\text{129}\) reported adequate growth in LBW babies counseled for exclusively breastfeeding for the initial six months. Data from Kolkatta\(^\text{130}\) too, reported better weight


gain and lower incidence of diarrhoea and respiratory track infections and lower mortality rate for LBW babies EBF.

(e) Careseeking practices: In an underserved community certain barriers, which could have a social, economic, cultural or logistical base, delay care seeking for sick neonates. In rural Maharashtra[131], a study showed that less than 5 percent of newborns suffering from a major illness were taken to a provider outside the home for medical care. Studies by Bhandari et al[132], in urban slums of Delhi reported that families consult a primary care provider close to their home for a sick newborn but often do not accept referrals. In their study for infants aged 0-2 months, even when free hospital care and transportation was made available, of the infants advised admission, caretakers complied only in a quarter of the cases.

The Present Study: If LBW and preterm births cannot be prevented through any short-term measure, it is imperative to develop approaches to manage such LBW neonates by preventing and treating co-morbidities through home based management. This approach could undoubtedly improve the survival of these babies.

Intervention studies on home-based management of LBW babies in urban slums are very few. At this stage, before developing an intervention package for such babies, it would be crucial to understand from mothers of LBW babies whose specific practices enabled them to rehabilitate their baby. Findings from these enquiries would reveal simple and affordable methodologies that some families have evolved to avert newborn morbidities and thus, improve survival of their LBW newborns. Since, these practices would be indigenous and not extraneously derived; they would have a greater possibility to be affordable and acceptable by the wider community because their peers are already practicing them.

Keeping this context in mind, an attempt was made to learn from families of surviving and healthy LBWs residing in urban slums of Indore, Madhya Pradesh (India) those household behaviours which they practiced which lead to successful rehabilitation of LBW newborns. In the 11 study slums, those LBW babies (<2.5kgs) who were surviving and currently healthy (weighed appropriate for their age) were identified from records of slum-based health volunteers. Mother and care provider were interviewed. Aspects enquired included: How did you identify that the baby required extra care? What extra care did you provide at home? In which instances did you seek referral? Who all supported/advised you? A case study of the family including all aspects enquired was prepared. While the focus was to prepare case studies of LBW who have rehabilitated. However, case studies of those LBW babies still struggling to survive were also included.

A total of 15 such case studies were compiled and learning summarized. Presented below are excerpts from 4 case studies, the detailed 15 case studies are annexed (Annex. 1).

3.4.2 Selected Case studies:

1. What made ‘Anjali’, a Low Birth Weight baby, turn roly-poly in 3 months?

Usha Bai resides in Jeet Nagar, a slum in Indore district, Madhya Pradesh with her husband and in-laws. She belongs to a ‘Balai’ (socio-culturally backward caste) family who are natives of ‘Neemarkheri’ village in Madhya Pradesh. Both she and her husband are illiterate. Her husband, the only breadwinner in her family works as a daily wage labourer. She is a housewife and has 3 children- 4 year old son, 3-year-old daughter and a 3 month-old roly-poly daughter, Anjali who at 3 months weighs 4.5 kgs. Neighbours and slum children wait to play, hug and kiss Anjali as according to them she is active, chubby and not cranky. But, was Anjali as chubby at birth as she is today? Unfortunately Not. At birth, Anjali, weighed only 2 kgs. Described below are excerpts from our discussion with Usha Bai on problems she faced and practices she followed which helped rehabilitate Anjali.

**Reason cited for the neonate being low birth weight (LBW)**

Usha Bai suffered from persistent diarrhoea from the second trimester of her pregnancy. Her husband had taken her to Maharaja Yashwantrao (MY), the ‘big’ hospital attached to Indore Medical College, for treatment of diarrhoea. She received medicines from MY, but her illness showed no remission. She actively attended community meetings held in the slum, followed a two meal pattern due to meager resources, had taken 2TT shots, consumed more than 60 iron-folic acid tablets and had gone to MY for antenatal checkups regularly. She felt that possibly due to her poor diet and persistent diarrhoea that Anjali was born LBW.

**How was the risk to the neonate identified?**

Usha Bai said - “At birth Anjali looked tiny and listless and did not even cry on her own immediately after birth. Jassobai, a sTBA had milked Anjali’s umbilical cord a number of times for resuscitation. When the lead slum based health volunteer (LCBO) came the next day and weighed her she identified her as LBW. All this did scare me. LCBO advised my mother-in-law (MIL) to ensure that I breastfeed frequently and exclusively, wrap the baby and if the baby still lied listless, to call her and together they would seek advice from MY. We are poor and cannot afford a private hospital, but my MIL is very wise, she had saved two thousand rupees for my delivery as she thought in a complication she would have to take me to the hospital. So we were not tensed as we had money in case we needed to seek referral for Anjali in Kasturba gram or MY Hospital. All of us knew that Anjali needed extra care, but we were prepared to provide it”.

**Extra Care provided to the baby**

**BF:** Usha Bai’s MIL provided both emotional and physical support to her. She did not allow her to do any household work until Anjali turned two months and did all of it herself. She also took care of her older grandchildren to allow Usha Bai get some rest. She advised Usha Bai to keep Anjali clean and dry, breastfeed exclusively, patiently and frequently especially when Anjali cried or frowned. Usha said- “When I felt that Anjali was sleeping for a long time, I would put her on my breast while she was asleep. Anjali did not have a poor suckle so I did not have to make extra efforts to make her suckle except to breastfeed more frequently. I have learned in community meetings that mothers milk has everything a baby needs and nothing additional not even water need be given”.

**Preventing Infections:** “I never left Anjali alone and did not allow my older children to play with her fearing that they may hurt her. Just after she would urinate, I would clean her and change her wraps”, Usha Bai continued.

**Warmth:** Since Anjali was born in peak summer, no extra effort was made to keep her warm, although Anjali was given an oil massage once a day only after she completed one month as Usha (“Anjali was so tiny and weak I felt her weak bones would break with a massage so I started giving her a massage when she turned 1 month only).”

**Monitoring danger signs:** Since birth, Anjali suffered from only one episode of diarrhoea that too when she was 3 months old. Initially, Usha Bai exclusively breastfed, but when the diarrhoea did not improve, then her MIL advised to take Anjali to a private doctor nearby. On the doctor’s advice, Usha Bai fed ‘ghutti’ until she felt Anjali was passing stools of thicker consistency. Thereafter, she exclusively breastfed. Usha Bai felt that fast breathing, diarrhoea, baby crying continuously would be indicative for seeking referral for Anjali.

**Who supported mother and gave advice?** Overall, keeping Anjali dry and clad, BF often and exclusively and promptly responding to danger signs played the trick in rehabilitating her and all this would have not happened without the support of the MIL.

**This case study points out** that despite poverty and illiteracy, a receptive mother religiously following simple home-based practices can ensure survival of a LBW baby. Further, if older women like MILs in the family are supportive, encouraging and have a forwarding attitude to adopt/reinforce positive

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133 Community meetings are hosted by slum based health volunteers (trained under the UHRC-India project) each month. In these meetings messages related to antenatal, intra-partum, post-partum and childhood immunization along with their importance are discussed with pregnant and lactating women. Each month one health topic is discussed with the objective to motivate mothers to adopt it.
practices these efforts are complimented. The role of private medical practitioners, unqualified in most cases cannot be ignored (here, he advised feeding ‘ghutti’) as they are the one most approached due to their proximity and low fee. Updating and counselling private medical practitioners on recommended practices would also go a long way in ensuring survival of such vulnerable newborns.

2. Mother teaches her daughter indigenous practices to keep the baby warm

It was a cool and breezy morning of July’05 owing to heavy monsoons. We reached almost drenched in Sonia Gandhi Nagar a slum in Indore for our field visit to homes of newborns. It was heartening to learn some traditional methods adopted by a socio-culturally backward ‘Balai’ family to keep their low birth weight (LBW) newborn warm. A discussion with the family revealed interesting findings.

Sunita is 20 years old, a housewife, her husband a daily wager and none of the two are literate. She has come to her mother’s home for delivery, this being her first one. Here, it’s an eight member joint family, staying in an one room tin sheltered home, with one cubical for each family and a common cooking area.

Reason cited for neonate being LBW: Sunita was underweight and knew little about what care needed to be taken during pregnancy. Her in-laws were not very supportive either and did not ensure she ate well in pregnancy or received TT shots, IFA tablets or take antenatal checkups. In her last trimester of pregnancy, as her health deteriorated, she came to her mother’s home so that she can be cared for.

How was the risk to the neonate identified? Her baby was delivered at home by a trained sTBA. Sunita’s mother said: “The baby looked so small, cold and weak at birth; we were scared that the baby would die” (The birth weight according to the LCBO’s records was 2100g). That’s why all of us are taking extra care of the baby so that the baby doesn’t die”.

Extra Care provided to the baby:

BF: Sunita’s mother and her ‘Bhabhi’, advised her to – i) be with the baby all day, ii) exclusively and frequently breastfeed (as advised by the LCBO) and iii) urgently respond to the baby’s cries and frowns.

Warmth: In one corner of the cubical, Sunita lay with her 17-day-old son, who was wrapped in two layers of a cotton cloth and a shawl in close proximity to her. In one top-corner of the cubicle, a 60 watt bulb was placed to provide warmth and prevent the cubicle from getting cold or damp and the baby was given an oil massage once a day.

Preventing Infections: Sunita’s mother advised her to avoid taking the baby out of the cubical or giving the baby in hands of outsiders (research team was also not allowed to touch the baby).

Monitoring danger signs: Sunita mentioned that although the baby doesn’t suckle poorly, but often goes to sleep while BF. In these instances, Sunita gives the baby’s checks and toes a slight pinch to wake him up so that he could breastfeed longer. “My Bhabhi has advised to feed the baby a ‘desi’ ‘ghutti’, a powder prepared of almonds, Bal Jeevan ‘Ghutti’ and ‘Karak’ for providing extra warmth and helping my baby gain weight. I will start that soon”, Sunita mentioned. During our visit, the soles and abdomen of the baby were warm to touch and axillary temperature was 36.7°C. The baby did not look lethargic, had not suffered from any morbid condition since birth and weighed 2.250 kgs (gained 150 gms in 17 days).

Who supported the mother and gave advice? Sunita’s mother and ‘Bhabhi’ supported her in providing extra care and gave her their timely advice.

This case study points out that even a poor family does make a conscious affordable effort using their traditional wisdom/logic to provide extra care to their LBW baby. A supportive family and willingness of the mother to work harder for the baby facilitates these efforts.
Rekha Bai resides in Bhavna Nagar, a slum in Indore (Madhya Pradesh) with her husband and in-laws. Both she and her husband have studied up to 5th std. Her husband being a truck driver is present at home only on weekends. She is a housewife and has four children – 6, 4, 2 year old sons and a 7-day-old baby boy. On our first visit to Rekha’s home she informed that her youngest baby (Vivek) was premature by one month and at birth weighed 1.75 kgs, was very small in size and had a shriveled skin. Rekha Bai was very depressed to see her “ugly” baby (cited by her) and said – “I was very careless with my health during my pregnancy that is why my baby was born like this. But you see next time you come, I will make my baby gol-matol”. We visited Rekha when Vivek was 8 months (weight: 7 kgs). A detailed discussion Rekha on both our visits with helped us understand problems faced by her in taking care of Vivek and what all she did to rehabilitate him.

**Reason cited for the neonate being LBW. In Rekha’s words…**

I had severe abdominal pain throughout my pregnancy. In my second trimester, I went with my husband for examination to Kasturba gram, a charitable hospital. Doctors there mentioned that both the baby and I were weak and prescribed IFA tablets and some other multivitamins. Although I ate the multivitamins, I did not eat IFA tablets (“they smelled, lead to diarrhoea and nauseous feeling when eaten”). My mother-in-law (MIL) also did not want I eat IFA tablets or take TT shots. She said- “during our time we did not eat these tablets or take TT shots, you need not do so”). Ranjana, the slum-based community health volunteer (LCBO) used to come many times to counsel me about benefits of timely immunization, diet, rest and IFA tablets, but I never listened to her thinking that if I do, my MIL would fight with me and when my husband comes back from his tour he would beat me up. I ate two meals a day and with my three children and household work taking most of my time, I did not take adequate rest. I used to groan in pain, but what to do no one at home helped me in household chores.

Then, in my eight month of pregnancy, while I was routinely fetching two buckets of water from the hand pump far away, I started experiencing severe pain in my abdomen. I continued to walk quickly towards home and began to bleed. I was so nervous, more so because my husband was away. On reaching home, I informed my MIL of my condition. She said it’s quite normal in pregnancy and called the sTBA residing nearby. The sTBA on seeing me bleed and my bag of water leak said that the baby would be born and so did he.

**How was the risk to the neonate identified?**

At birth, Vivek’s cry was delayed by 5-10 minutes and he lied listless as though he was not breathing. From birth itself, he was not able to suckle well. His chin did not touch my breast for taking my feed. I was very nervous and scared. I thought he would die. My MIL suggested that breast milk would let down after 2-3 days so she advised I feed jaggery water. As a neonate, he sweated while BF (“while taking feed he would sweat, cry, breathe very rapidly”).

**Extra Care provided to the baby**

**BF:** I tried to breastfeed small and frequent sips and breastfeed exclusively in the first month, as Ranjana, LCBO advised. But later, I started feeding ‘desi ghutti’ made of almonds and nuts in my milk against Ranjana’s advice as I felt that Vivek wasn’t gaining enough weight. It’s warm and also eases digestion. My neighbours also re-assured me that ‘ghutti’ is good and would do no harm.

**Warmth:** I always kept Vivek well wrapped in two layers of shawl, a cap on the head and socks. I insisted that my husband got red oil for massaging Vivek so that his bones become strong. Very reluctantly he did so.

**Infection preventions:** I was very regular with seeking all immunizations for Vivek. I did not allow other older babies to play with Vivek and was particular about keeping him clean and dry.

**Monitoring danger sins:** Ranjana told me to take Vivek to the doctor when he was one month old as he was not gaining weight in the initial month. But I did not go as my husband assured me that Vivek would get OK at home only and moreover we did not have the money to pay the doctor’s fee.
Today Vivek is 8 months old, and eats mashed food from the family pot in addition to breast milk. A few days back he got diarrhoea so the mother went to Kasturba gram to seek advice and medicines.

**Who supported mother and gave advice?** It was only the mother’s will power and added emotional support and regular advice given by Ranjana and her neighbours which helped the baby recover. Her husband is an alcoholic. Being a truck driver he pays a visit home once in 10 days. She says she doesn’t receive any cooperation from her in-laws.

**This case study brings out** the pertinent role a LCBO can play by counselling mothers of LBWs in households where the mother does not get adequate emotional and physical support of her family members. In a desperate attempt to make their baby healthy such stressed mothers keep trying home remedial options suggested by neighbours (like ‘ghutti’) which may cause more harm that good. Hence, it’s imperative for LCBOs to repeatedly counsel such anxious mothers and re-emphasize the positive and negative consequences of adopting a behaviour along with imparting the message.

### 4. SurajBai struggles to ensure survival of her children

‘Surajbai’ is 22 old. She resides in Triveni Nagar, a slum in Indore (Madhya Pradesh) with her husband, Jagdesh and three sons (5 years, 2 years and 2 months). Her family is ‘Balai’ by caste and natives of Nemad district. Both she and her husband are illiterate. Two years back, the couple used to reside in Bhavna Nagar with their in-laws. Jagdesh worked as a Kabariwala and Surajbai a ragpicker. The two of them also worked as daily wagers for additional income. But then, their in-laws died in a road accident and since the couple could not afford the rent of that slum they shifted to Triveni Nagar. Subsequent to this, Jagdesh started suffering from some form of mental illness and slowly he stopped going for work. The only breadwinner now was Surajbai. Life had been tough on her. One year after her marriage she had a son in her lap and subsequently two more. She continued to juggle between working outside home, completing household chores and care-giving, while pregnant and otherwise. While at work she left her three sons in the custody of her husband. Her youngest son weighed only 1.600 at birth but at 2 months weighed 4.7 kgs, nearly thrice the birth weight. We had a discussion with busy Surajbai to understand how this miracle happened.

**Reason cited for the neonate being LBW**

During pregnancy, Surajbai left early morning while her family was asleep to pick polythenes, then came back to cook and feed her two children. Thereafter, she left her kids with her husband and went off for daily waging. No TT shots, No ANC checkups for her as she was never there in the slum when the ANM came and asking her to improve her diet would mean (“give me the money and I would eat”) so Neetu, the LCBO advised her to atleast eat IFA tablets given free of cost. Surajbai used to eat the tablet in the morning just before leaving for work. But, on her way while she went for rag-picking she vomited out and felt very giddy on one or more occasions so she stopped having IFA tablets. Throughout her pregnancy she worked and possibly lack of rest, poor diet and inappropriate care led to her baby being born LBW.

**How was the risk to the neonate identified?**

The baby was delivered by an untrained sTBA. When Neetu came to pay a postnatal visit she was horrified to see the baby look so tiny weighing only 1.6kgs and advised Surajbai not to resume her work atleast for the next 1-2 months and breastfed frequently and exclusively and keeping the baby warm.

**Extra Care provided to the baby**

**BF:** After delivery, Surajbai did not resume work for the one month. What ever money she saved while pregnant was used for survival. She breastfed the baby frequently and on demand. She also attached the baby well and patiently fed from one breast before putting the baby to the other. She had realized that the baby sleeps longer like this so this helps her complete other household work. She also fed exclusively as anyway she couldn’t effort buying any supplements.
Preventing Infections: After the baby turned a month old, the baby was left in the custody of older siblings and Surajbai would only go for rag picking in the morning and come back and take care of her children.

Warmth: The baby was given a warm mustard oil massage once in a day and left wrapped in a bundle of old clothes in a cradle made of cloth attached to the cot. The one room home was kept warm with a traditional heating source.

Monitoring danger signs: The baby passed loose stools in the first month. But Surajbai said it was normal. Thereafter, the baby did not show any signs of diarrhoea, pneumonia and did not need to be taken to a doctor.

Who supported mother and gave advice? The LCBO came to pay postnatal visits to keep a check on Surajbai and call her to get the baby immunized. Surajbai too followed the advice. She feels that BF frequently, exclusively and attaching the baby well on the breast played the trick in the baby’s rehabilitation.

Who supported mother and gave advice? It was only the LCBO’s frequent advice and Surajbai’s confidence that she can ensure her children survive well, played the trick in the baby’s rehabilitation.

This case study points out that despite all challenges like poverty, single handed in earning for the family and caring for her children, Surajbai managed it all. She used her time, advice she got from the community health worker by BF appropriately and ensuring her baby is warm and attended and was self-confident that she would be able to rehabilitate the baby. The care-giving role played by very young older siblings in the case also cannot be ignored. Working mothers like Surajbai need empathetic support and more regular counselling so that they can avail of health services provided free of cost.

NOTE: ALL THE 15 CASE STUDIES HAVE BEEN DESCRIBED IN DETAIL IN ANNEX. 1

3.4.3 Summarizing Learning(s) from 15 case studies:

3.4.3.1 Compilation of reasons cited by mothers for their newborn being LBW:

- **Complications in pregnancy:** anaemia (swelling on hands and feet, pallor, fatigue and breathlessness), persistent diarrhoea from early pregnancy, severe abdominal pain and/or white discharge (**Safaed pani**) and groaning in pain but seeking no referral due to lack of money or family support.

- **Poor diet in pregnancy:** 1-2 meals a day and no protein rich diet due to meager resources, large family size and nauseous feeling thus vomiting out what ever was eaten.

- **Premature delivery**

- **Frequent pregnancies with a narrow interpregnancy interval**

- **Lack of awareness regarding antenatal services:** First time pregnant women are unaware about what care needs to taken in pregnancy. No elders to seek advice from and hesitation on how to communicate with others for those women who were unable to communicate in Hindi.

- **Unwilling/hesitant to avail antenatal services:** e.g. not having done so in earlier pregnancies, not wanting anyone to know about the pregnancy due to a narrow interpregnancy.

- **Unsupportive family:** In-laws were not very supportive to ensure antenatal care or unemployed husband beating up wife.

- **Increased work load** (“I worked as a daily wage labourer all through my pregnancy; “I managed my children, cooking and related household chores alone with no support from anyone; I routinely fetched two buckets of water from the hand pump far away even in severe abdominal pain”)


Superstitions: feeling that womb is cursed by some bad omen (“Shayad hawa ka chakkae tha”).

3.4.3.2 How was risk to the neonate identified?

Families identified babies of normal gestational age but with birth weight ≤2 kgs and those born in the 7th and 8th month of pregnancy as ‘high risk’ newborns. According to them these babies:

At birth are:
- Visibly skinny
- Look very weak (‘admari’)
- Have a loose skin (“Chamri main sal pari hoti hai”)
- Are very small in size (“Tiny and scary. We were feeling afraid to even hold and clean him as there was hardly any flesh on his body. Guddia/putla jaissa lagta tha/hathaeli mein sama gayi thi”)
- Lie listless (‘sust’/don’t move as though not breathing)
- Cold (“neela pad gaya tha”)

After birth:
- When these babies breathe their nasal’s flare
- While BF they sweat and get tired very fast.
- Cannot suckle or weak suckle because their chin/jaw-line is not well-developed.

Few families had not perceived the baby ‘at risk’ as they felt all babies are born like this only. The doctor/slum volunteer identified on weighing and assessing the baby.

3.4.3.3 Extra Care provided to LBW babies:

The type of care provided to LBW babies by families included:

(a) BF:
- Frequency: BF as and when the baby cries or frowns. Feeding frequent small sips (14-15 times/24 hrs). Sometimes, if they felt that the baby is sleeping for a long time, they put the baby on the breast while the baby was asleep.
- Patience: BF patiently. One mother supported the baby’s chin and head while BF as according to her the baby got tired fast, started crying and then he became breathless.
- In instances, when the baby went to sleep while taking feed they gave the baby’s checks and toes a slight pinch to wake him up so that he could breastfeed longer.
- Some of them felt that breast milk has everything a baby needs, nothing additional not even water need be given. Many others fed water often in summer as they saw the baby’s lips dry often. Some mothers fed ‘Ghutti’ considering it good for warmth, diarrhoea prevention/cure or weight gain.
- Mothers avoided eating spicy food to prevent the baby from getting diarrhoea via her milk and eat wheat porridge for improving lactation.

(b) Infection prevention
- Never left the baby alone
- Did not allow older children to play with the baby as they could hurt the baby.
- Avoided taking the baby out of the room in open until very necessary or giving in hands of outsiders.
- Just after the baby urinated, cleaned the baby and changed his/her wraps
- While completing household work left the baby in lap of adolescent siblings or in a ‘Jhula’ (cradle made of old sari) or covered the baby’s face with a thin muslin cloth in order to prevent flies and mosquitoes from touching the baby.
(c) Keep the baby warm

- Baby wrapped in woollens (shawl, sweater, warm cap and socks) from head to toe. Some families also left the baby wrapped in a bundle of old clothes (some previously warmed them) in a cradle made of cloth under the cot.
- Held the baby in close proximity with the mother ("Jaisae murgi apnae chooso ko dekti hai" /Chipta kar raktae hai”)
- Fed the baby ‘desi’ ‘ghutti’ for warmth in breast milk once a day
- Gave the baby an oil massage with mustard/peanut/coconut oil. Some also added previously warmed with garlic in it ("tael bacchae ko halwaan banata hai kyoki usko pi-pi kar bacchae ki khaal moti ho jaati hai….tael garm hota hai jissae bacchae ko khasi aur jukham nahi hota”).
- Did not bath the baby everyday but once in 2-3 days to prevent baby from getting cough and cold.
- Made a cubical in a room for the mother-newborn dyad and placed a 60-watt bulb in the top-corner of the cubical so that the cubical doesn’t get damp/for warmth and avoided taking the baby out of the cubical especially on a cold and breezy day.
- To provide warmth to the newborn, indigenous heating device with coal in it was kept near the mother’s bed to keep the room temperature conducive for the newborn.
- Coconut oil was applied on the cord stump so that it warms the stump and prevents pneumonia.

(d) Danger signs prompting families for seeking timely referral

- Baby crying continuously
- Poor suckling or refusal to take the feed
- The baby looks visibly cold (“Bachcha neela par jata hai”)
- Baby lied listless (“sust”)
- The baby has a difficulty in breathing (“sai-sai awaaz karta/unchi saans kheenchta hai”)
- Chest indrawing (“pasli chal rahi hai”)

3.4.3.4 Who supported the mother and gave advice:

Enabling factors included:

i) Family support especially by husband and other women of household in reinforcing positive practice, aiding in household chores and caring for older children.

ii) Similar message reinforcement by others: neighbours, private doctors from whom advice is sought and community health volunteers.

iii) Mother herself religiously practicing positive practices, having strong will power, being progressive to learn more for the betterment of her children and believing that she could help baby recover.

iv) These families are able to establish a clear need for extra care and have the confidence to persevere with extra care to small (LBW) newborns. Their examples can help motivate other families.

Barriers included:

i) Lack of family’s especially MILs emotional and physical support to the mother in taking extra care of LBW baby.

ii) In the quest to make the baby look healthier, these family members seek medical advice from unqualified doctors residing in the slum, who recommend feeding the baby needless medicines that may worse the baby’s condition. It’s important to note here, that private practitioners reinforce feeding ‘ghutti’ and water.
iii) Families are fairly able to identify danger signs of pneumonia, and adopt traditional methods to keep the baby warm. Referral is sought with much delay due to constraints related to income, transport and escort.

3.4.4 Possible Programme Options:

- The methodology used to identify these families who have surviving and healthy newborns in this study is simple for any slum-based health volunteer to use. This would enable her to identify both practices, including positive social support practices and such members from these families who can serve as behaviour-promoters for influencing others to adopt behaviours.

- The common feature of having at least one supportive person to the mother will be important to influence family members of other families to provide support to the mother. Since social support systems are weaker in slum situations women’s groups play a crucial role in providing social support.

- There is a need to develop a simple yet technically accurate algorithm that can be used by L/BCBOs for – i) effectively identifying all high-risk newborns during postnatal visits, ii) providing appropriate counselling to these families, through simple home-based management messages aided through pictorial material, iii) monitoring and recording the progress of these babies in their homes, signs of monitoring and number of visits that need to be conducted would have to be delineated for the L/BCBOs. Learnings from Bang and coworkers\textsuperscript{134} and Darmstadt et al\textsuperscript{135} can be used as an initial reference. Including local practitioners for these trainings can also be considered.

- Including discussion of methods of identification and management of high-risk newborns at home during group meetings hosted by CBOs with pregnant women, mothers and elder ladies of the families and narrations of success stories by early adopters will help in building confidence of mothers to adopt and maintain healthy practices.

3.5 CARE OF INFANTS IN 2-4 MONTH PERIOD

Summary

**Background:** Following appropriate BF, caring and health seeking practices and, seeking timely immunization for ones infant ensures his good nutritional status. **Objectives:** The present study identified barriers and options to improve care-giving during infancy (2-4 months). **Methodology:** In-depth interviews were conducted with 312 mothers of infants 2-4 months of age to assess their current BF practices (in last 24 hours), morbidity status of their infant (in the last 15 days), infant’s immunization status and family’s health seeking behaviour. Weight of infants was measured using a portable Salter’s scale using WHO guided procedures. Nutritional status ascertained using weight-for-age expressed in z scores from WHO standards 2006 median. **Results:** 82.2% infants were breastfed 8 times or more in 24 hours, 28.1% mother’s breastfed their infant from one breast completely before switching over to the other and 56.7% of infants were exclusively breastfed (EBF). Infant crying even after being breastfed and other family members feeding a supplement while mother was busy in completing household chores or away from home emerged as barriers to EBF. 21.5% infants suffered from diarrhoea and treatment was sought for 11.5% of them. Private doctors were preferred for seeking health advice. Only 52.7% infants were age-appropriately immunized. Barriers to timely immunization included- i) mothers unavailable in the slum during the health camp, ii) mothers believing that the baby was too small or could get fever after immunization or mere apathy for going to the health camp, iii) infrequent visits of ANM or shortage of supply. The percentage of infants mild, moderate and severely undernourished were 33.5%, 14.7% and 8.9% respectively. Infants EBF had better nutritional status. **Conclusion:** Options that emerge from this study to improve care-giving during this period include- i) gentle persistence counselling of mothers and family members by trained CBOs during home visits and group meetings. Counselling key influencers and decision makers, ii) strengthening quality of outreach camps, iii) rewarding and learning from mothers with healthy babies during community meetings hosted by BCBOs and iv) fostering community linkage with affordable health facilities to ensure quality treatment seeking behaviour.

**Key words:** BF, immunization, nutritional status

The World Health Assembly [2001]\(^{136}\) has recommended that infants should be exclusively breastfed in the first six months of life. The protective effects of exclusive BF in reducing infantile diarrhoea and improving nutritional status have also been documented through studies conducted in developing countries including India\(^{137,138}\). However, in a deprived environment, despite a mothers best intentions towards feeding and caring, a complete interplay of factors like her ignorance, deeply embedded cultural beliefs, working outside home and leaving the baby alone or under the supervision of older children, unwillingly leads to the classic picture of a undernourished infant, a picture not very uncommon in an urban slum population.

In order to understand barriers and suggest possible options to improve feeding and care in this period in an urban slum population, mothers of infants 2-4 months of age were asked whether they were BF as recommended by WHO and reasons for the same. Findings of these enquiries are briefly presented below:

### 3.5.1 BF practices:

- **BF practices at 2-4 months are presented in figure 9.** Out of 312 infants, only 310 infants were currently breastfed. Out of 310 infants, 82.2% infants were breastfed 8 times or more in 24 hours and **only 28.1% mothers breastfed their infant from one breast completely before switching over to the other.** GDs with mothers in selected slums revealed that mothers were not aware about importance of hind milk.

- **56.7% of infants were exclusively breastfed (EBF).** Percentage of infants predominantly breastfed and partially breastfed were 37.8% and 4.8% respectively.

- **55.9%, 54.6% and 65.2% infants 2, 3, 4 months were EBF.**

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\(^{136}\) WHA. 2001: Fifty Fourth (54th) world health assembly resolution on infant and young child nutrition, 18\(^{th}\) May 2001.


Figure 9: BF practices in 2-4 months

N=312

- EBF=Exclusively breastfed
- PBF-W= Predominantly breastfed (water only)
- PBF-W+= Predominantly breastfed (water and ‘ghutti’)
- Partial BF= Partially breastfed (fed animal milk +water and/or ‘ghutti’)
- NBF= Not breast fed

Barriers to EBF:
- Baby crying even after being breastfed
- Supplements fed when the mother was busy with household work
- Mother away from home for a while and secondary caretakers feeding supplements when the baby cried.
- Following the trend of neighbours feeding supplements

Possible Program Option:
- Gentle, persistence counselling of mothers and families regularly by trained BCBOs is needed. They also need to be trained in lactation related counselling to support and encourage mothers to overcome – (a) the feeling that they are not lactating enough, (b) that the baby is too young to be able to suckle and (c) problems such as sore/inverted nipples.

3.5.2 Prevalence of diarrhoea, ARI and fever
- Mothers of infants 2-4 months of age were asked about number of episodes of diarrhoea, fever and cough with rapid breathing the infant had in the last 15 days. The findings are presented in table 8 and briefly discussed below:
- 67 infants suffered from diarrhoea. Treatment for diarrhoea was sought for 36 out of the 67 infants affected from private doctors/govt. doctors like feeding ORS and/or Norfloxacin.
- A larger % infant were affected with fever and/or cough accompanied with difficult breathing received treatment. These families went to Zila Hospital or Pushpkunj.
- A larger % of infants non-EBF suffered from diarrhoea (25% vs. 18.6%).

Enquiry about whether the episode of diarrhoea was acute or persistent was not made.
Table 8: Prevalence of diarrhoea, fever and ARI amongst infants 2-4 months of age (n=312)

<table>
<thead>
<tr>
<th>Illness</th>
<th>N (%)</th>
<th>Sought medicine from a doctor (private/govt/private charitable)</th>
<th>Nothing only BF</th>
<th>Gave medicine available at home</th>
<th>Started 'ghutti'</th>
<th>Massage with Dada</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EBF</td>
<td>Continued PBF/PaBF/NB F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Diarrhoea</td>
<td>67</td>
<td>36</td>
<td>14*</td>
<td>15</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>* Fever</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>* Fever and cough</td>
<td>22</td>
<td>13</td>
<td>1</td>
<td>-</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>* Cough</td>
<td>43</td>
<td>21</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>* Cough with rapid breathing (ARI)</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>* Cold</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

* Out of 67 infants affected with diarrhoea, 33 were being EBF. Out of 33 EBF infants affected with diarrhoea, 14 were not given any medicine and continued EBF, 2 were given ‘ghutti’ and 17 infants were given medicine from a doctor.

3.5.3 Treatment seeking behaviour:

- When the mothers were asked about the family member whom they first approach when their infant is ill for seeking advice, mothers mentioned their MILs and/or their husband.
- The preferred choice of health provider in times of obstetric complications or during infant illnesses for families is depicted in figure 10. Proximity, low cost of treatment, health provider giving personal attention and his behaviour towards the community affected choice of the health provider apart from the health provider/institution being famous.

![Figure 10: Preference in treatment seeking (N=312)](image_url)

**Barriers to treatment seeking:**

- When the mothers were enquired about who decides whom/where/when to seek care in times of obstetric complications or when the infant was ill, it was found that in most families, the husband or MIL decided the health provider to seek care from and the mother would wait till her husband came home or MIL agreed to go with her for care-seeking.
Program Options:

- Engagement of MILs and fathers who play a decision making role in care seeking owing to greater social influence and control of resources and greater knowledge or access to sources of knowledge about facilities/services
- Linkage with appropriate health facilities that are - a) geographical proximate; b) affordable; c) providing unhindered social access and providing quality services

3.5.4 Immunization Status:

- Overall 52.7% infants received all age-appropriate immunizations (table 9).

<table>
<thead>
<tr>
<th>Immunization</th>
<th>N</th>
<th>% Immunized as per age</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>Yes</td>
<td>{262/308} x100 = 85%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>4</td>
</tr>
<tr>
<td>DPT I</td>
<td>Yes</td>
<td>{243/302} x100 = 80.4%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>4</td>
</tr>
<tr>
<td>DPT II</td>
<td>Yes</td>
<td>{116/181} x100 = 64%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>4</td>
</tr>
<tr>
<td>DPT III</td>
<td>Yes</td>
<td>{22/46} x100 = 47.8%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>4</td>
</tr>
<tr>
<td>Completely immunized as per age</td>
<td>Yes</td>
<td>{157/298} x100 = 52.7%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>4</td>
</tr>
</tbody>
</table>

Barriers to timely immunization:

- Factors that hindered timely and complete immunization included-
  - Mothers unavailable at the time of immunization (e.g. working mothers and mothers coming back from their native village 1-2 months after delivery).
  - Reasons which mothers mentioned for not getting their baby immunized when their was an immunization camp and they were present in the slum were – a) “there was a marriage in our house so I was busy”, b) “I had guests over so I had to entertain the guests” and c) “I had a lot of household work to complete”; d) Mother’s belief that their baby was too young to be immunized or could get sick after immunization and e) Mother’s fear after hearing from neighbours that the baby gets fever after immunization.
  - Shortage of some vaccines at the immunization camps held in slums. Some mothers did mention that they took their babies for immunization but there was no DPT/BCG vaccine on that day, so the nurse/ANM requested them to come the next month.
  - If on the day of immunization, the mother was alone at home and there was no secondary caretaker to take care of other younger children, she often refused to come to the immunization venue.
  - If the baby was having fever/was ill at the time of an immunization camp, mothers did not allow their baby to get immunized (“Vaise hi bemar hai...teekae se kuch ho na jayae”).
  - Mother had lost the immunization card/lef it in it their ‘Maikae’ or older siblings had torn the immunization card.
  - In times when there are less than 10 eligible children for BCG, BCG vial is not opened.
  - If for some reason visits of the ANM are infrequent, immunization for that month is missed.

Possible Programme Options:

- Counselling of mothers to allay fears about immunization of a baby and discuss benefits of timely immunization and not immunization alone.
- Strengthening quality of outreach camps and greater dissemination of information to all about date and time (preferably suitable to mothers) for immunization.
- In Yadav Nagar, some kind of arrangement needs to be made with the ANM so that she visits the ‘basti’ regularly. She mentions that unless there are 70-80 children for immunization gathered at one place in the ‘basti’, she will not come. She is not willing to cover all the ‘basti’ lanes on her own and has also had verbal arguments with ‘basti’ residents in the past on one or more occasions.
- There is a dire need for an ANM to visit Yadav Nagar’s adjoining basti- Saket Nagar. It has around 30 hutments of rag pickers. These residents are very poor with little access to any health facilities. They do not go to Chacha Nehru Hospital for immunization as it costs them Rs. 5/-, which is equivalent to half a kilo of rice for them. Immunizations camps need to be initiated in this ‘basti’ with immediate effect.

3.5.5 Anthropometric assessment of nutritional status of Infants:

In this study, 191 infants were weighed on a Salter spring balance using WHO guided procedures and then data on weight was expressed as weight-for-age standard deviation units (Z scores) from the WHO standards 2006 median. Infants whose weight-for-age was < -2 SD and <-3SD of the median were considered undernourished and severely undernourished respectively. The findings are presented in figure 11 and briefly discussed below:

- Out of 191 infants, only 23.8% of infants had their weight-for-age z scores < (-) 2SD of the median i.e. had moderate or severe under nutrition.
- The percentage of infants mild, moderate and severely undernourished were 33.5% 14.7%, and 8.9% respectively.
- Under nutrition significantly increased with increasing age: 15.3% infants aged 2 months, 30.8% infants aged 3 months, and 40% infants aged 4 months were undernourished (WAZ<(-2)SD) (chi-square for linear trend =7.9, p=0.004).
- Infants exclusively breastfed 1.3 times less likely and 2.76 times less likely be underweight (WAZ<-2SD) as compared to infants predominantly and partially breastfed.

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The link between malnutrition and infant feeding has been well established. An analysis of 10 longitudinal community-based studies of children U5 years showed that being underweight conferred an additional risk of mortality from infectious diseases. The authors estimated undernutrition has been directly or indirectly responsible, for 60 per cent of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. Further, children who are mildly underweight have a two fold higher risk of death than those who are better nourished. Similarly the risk of death increases to 5-8 fold in moderately to severely underweight children. 

4.3.4.2 Possible Program Options

- Rewarding and learning from mothers with healthy babies the positive behaviours practiced by them during community meetings hosted by BCBOs.
- L/BCBOs need to be trained on importance and methods of identifying undernourished babies using available growth charts and providing them appropriate counselling and monitoring their progress.
- Provision of growth charts to each target family would enable the mother monitor her baby’s progress herself and in turn understand how optimal behaviour adoption and nutritional status are related.
- Strategies for rehabilitating severely undernourished infants can also be delineated for BCBOs.

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3.6 NEONATAL HYPOTHERMIA IN URBAN SLUMS OF INDORE

Chapter Summary

Background: Hypothermia is now recognized as a causal factor for neonatal deaths. It is hence, important to study hypothermia using a simple method that can be used by community health workers and mothers at home. Objectives: To examine the relative advantage and diagnostic accuracy of human touch assessment as a method of assessing neonatal hypothermia in community-based newborn care programs. Methodology: The study was carried out in 11 slums of Indore, India. Body temperature of 152 newborns born between December, 2004 – Feb, 2006 was assessed by trained field investigators in slum homes using WHO recommended method. Axillary temperature was measured with digital thermometer (accuracy: 0.1 °C). Newborns were classified as warm, cold stressed and hypothermic if axillary temperature was between 36.5-37.5 °C, 36-36.4 °C and <36 °C respectively. Investigators used dorsum of hands to assess skin temperature at abdomen and soles of feet of newborns. Newborns were classified as warm, cold stressed and hypothermic if both abdomen and sole were warm, abdomen warm and sole cold, both abdomen and soles were cold respectively. Other danger signs indicating neonatal illness like poor suckling, lethargy and increased respiratory rate (>60 beats per minute) were also observed. Methods for assessing hypothermia were compared and association between body temperature and other danger signs was assessed. Results: By the touch method, 55.3%, 38.8% and 5.9% newborns were assessed as warm, cold stressed and hypothermic. The proportion of newborns adjudged warm, cold stressed and moderately hypothermic by axillary method was 69.1%, 21.7% and 9.2% respectively. When axillary method was taken as the gold standard the sensitivity and specificity of human touch method was 74% and 68% respectively. More newborns were assessed cold stressed by human touch method as compared to axillary method. Human touch method assessment showed that 88.5% hypothermia was contributed by cold stress and 65% cold stressed and 83.3% hypothermic newborns also had one or more other danger sign of neonatal illness. Conclusion: Training slum-based health volunteers in identifying cold stress and other danger signs during postnatal visits can help early recognition of neonatal illness. Simple home-based practices for providing extra warmth to sick newborns can be life saving. For wider program applicability, more community based research is required to validate human touch method for assessing hypothermia.

Key Words: urban slum, neonatal hypothermia, human touch assessment, axillary method

3.6.1 Background:

Magnitude of the problem: Neonatal hypothermia is a common yet understated problem in newborns. Hospital-based studies have established that if newborns that are asphyxiated at birth or affected with neonatal sepsis also have hypothermia, their chances of survival are much less. It is known that neonatal hypothermia is a causal factor for neonatal deaths. Early recognition of hypothermia by the mother or health worker/volunteer is crucial in instituting timely corrective action to reduce the severity of hypothermia and improve neonatal survival. If morbidity is identified early in the continuum of cold stress to hypothermia, then warming measures can be instituted early by the family, saving the baby from pathophysiological tribulations caused by hypothermia.

Methods of assessment: In India, neonatal hypothermia has been assessed by recording skin temperature and core temperature. Estimating core temperature using a rectal probe has been usually been limited to hospital settings. At community level, field workers have assessed neonatal hypothermia by measuring the skin temperature (under the axilla) using a digital thermometer, clinical thermometer, thermospot and human touch assessment. Use of thermospot to assess body temperature of newborns by community health workers is relatively new and restricted to an intervention trial in a population of 105,000 in Shivgarh, rural Uttar Pradesh, India Uttar Pradesh and research study in Delhi. SEARCH experience in training...
semi-literate field workers in Gadchiroli\textsuperscript{148} in monitoring hypothermia using digital thermometers (under the axilla) shows that these workers can adequately assess hypothermia.

**Use of Human touch method in field:** The Rural Neonatal Care Project, in Dahanu, district Maharashtra, during 1987-1990, trained sTBAs and AWWs in identifying a hypothermic newborn using human touch method and suggesting simple contextual methods of warming the newborn and continuing follow up visits to assess the BF progress, the baby’s activity level and warmth (warm and pink feet)\textsuperscript{149}. In Nepal, the use of human touch method by health workers to detect hypothermia was examined in 250 newborns. Palpation of the feet showed fair interobserver agreement (kappa = 0.4-0.7) and high sensitivity (>80%) but low specificity (36%-74%) compared with axillary thermometry. They conducted that traditional birth attendants should feel an infant's feet to detect hypothermia\textsuperscript{150}.

**Comparison and correlation between methods of assessment:**

Hospital based studies have reported a good correlation between rectal and axillary temperature\textsuperscript{151,152}. Since routine monitoring of rectal temperature in term health infants is unsafe, estimating axillary temperature is preferred in field being simpler although less accurate and takes longer.

Hospital based studies have shown a correlation between body temperature assessed by thermometer and human touch method and suggested that physicians and trained assistants can judge the temperature of a newborn baby with reasonable accuracy, simply by touching the baby\textsuperscript{153,154}.

Singh et al (1992) reported 100 % sensitivity of diagnosing skin temperature of <36°C by touching the abdomen and 90% specificity. They suggested that with training and experience, human touch could accurately predict the temperature of abdomen or sole of foot with an accuracy of ±0.5°C\textsuperscript{155}. Unfortunately there has been no research on comparisons between any of these methods in field setting by field workers and on how accurately mothers can assess neonatal hypothermia by touch method.

While thermometers for assessing newborn’s body temperature would remain the long-term ideal approach, it would take a long time to have them available for the entire rural /urban slum community all across India. Urban slum specific studies assessing hypothermia in newborns and testing the reliability of human touch method vs. axillary method are few. Hence, the present study was conducted.

**3.6.2 Methodology:**

Between Dec’04 to Feb’06, trained field investigators (postgraduates in social sciences) assessed body temperature of a total of 152 newborns using human touch and thermometer (under the axilla) method during day time using standard procedures as delineated in the methodology section of this report. Mean environment air temperature on the day of assessment was noted from an online weather source.

Newborns were classified as warm, cold stressed and hypothermic if both their abdomen and sole of foot was warm, abdomen was warm and sole of foot was cold, both their abdomen and sole of foot was cold respectively\textsuperscript{156}. Newborns were classified as warm, cold stressed and hypothermic if their axillary

The newborn’s body temperature was tested with categorized variables - environment air temperature, age and weight of the baby at temperature recording, sex and presence of other danger signs indicating newborn illness like poor suckling, lethargy and RR 60 or more. Months from October to March were regarded as winter months and months from April to September as summer months.

3.6.3 Findings:

Incidence of hypothermia:

By the touch method (which is a simple to learn method for illiterate or semi-literate women), 44.7% newborns were assessed at risk of some degree of hypothermia, i.e. had either cold-stress or hypothermia. The proportion of newborns adjudged having a similar risk using thermometer method was a little lower at 30.9% (Table 10). The differences between newborns adjudged to have some form of hypothermia (mild+moderate) using either method was statistically significant (p=0.01). None of the babies had severe hypothermia (body temperature <32°C). Comparing the two methods, as compared to thermomemter method, significantly higher percentage of newborns were assessed cold stressed and fewer as warm by human touch method (p<0.05).

### Table 10a: Percentage of newborns assessed as warm, cold stressed and hypothermic using axillary and human touch method (N=152)

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Thermometer Method</th>
<th>Human Touch Method</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm</td>
<td>105 (69.1)</td>
<td>84 (55.3)</td>
<td>0.01</td>
</tr>
<tr>
<td>Hypothermic</td>
<td>47 (30.9)</td>
<td>68 (44.7)</td>
<td>0.01</td>
</tr>
<tr>
<td>Mild hypothermia-Cold Stressed</td>
<td>33 (21.7)</td>
<td>59 (38.8)</td>
<td>0.001</td>
</tr>
<tr>
<td>Moderate Hypothermia</td>
<td>14 (9.2)</td>
<td>9 (5.9)</td>
<td>NS</td>
</tr>
<tr>
<td>Total</td>
<td>152 (100.0)</td>
<td>152 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

* Chi-square/Fisher’s test. NS = Non-significant.

**Did Human touch method correctly pick up all hypothermic and cold stressed newborns? (Table 10b)**

- As depicted in table 10b, 72 warm babies, 23 cold stressed babies and 5 hypothermic babies assessed by temperature method was also assessed similarly by human touch method. 100 out of 152 observations were matched.

### Table 10b: Number of babies correctly assessed as hypothermic by human touch method if temperature method was considered as gold standard (N=152)

<table>
<thead>
<tr>
<th>By Human Touch Method</th>
<th>By Temperature Method</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Warm</td>
<td>Mild Hypothermia</td>
</tr>
<tr>
<td>Warm</td>
<td>72</td>
<td>10</td>
</tr>
<tr>
<td>Mild Hypothermia</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>(Cold Stressed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothermic</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>33</td>
</tr>
</tbody>
</table>

- Out of the 105 babies* adjudged warm as per temperature method, 29 newborns were adjudged as cold-stressed and four was adjudged moderately hypothermic by touch method.
- Out of 33 babies who were adjudged cold stressed by thermometer method 10 were assessed as warm by human touch method.

Out of 14 babies which temperature method assessed as moderately hypothermic, 2 babies were assessed warm and 7 were assessed cold stressed by human touch method.

<table>
<thead>
<tr>
<th>Human Touch Method Result</th>
<th>Hypothermia</th>
<th>No Hypothermia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>35(True +ve)</td>
<td>33(False +ve)</td>
<td>68</td>
</tr>
<tr>
<td>Negative</td>
<td>12(False -ve)</td>
<td>72 (True –ve)</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>105</td>
<td>152</td>
</tr>
</tbody>
</table>

- When temperature method was taken as the gold standard, the diagnostic accuracy of touch method was as follows: Out of 152, there were a total of 45 mismatched observations. The sensitivity and specificity of human touch method to correctly identify hypothermic (true positive) and non-hypothermic newborns (true negative) was 74% and 68% respectively. A likelihood ratio (LR) for a positive test result (LR+) of 2.3 (cut off >9) and negative test result (LR-) of 0.4(Cut <0.5) indicated that human touch method did not have a high diagnostic value.

Possible Reasons for difference:

Either Human touch method did not adequately pick all up hypothermic babies (possibly owing to error in judgement on part of the investigators) or the more likely possibility that digital thermometer may classified more no. of babies as hypothermic. It is also useful to note here the reasons for this difference – i) accuracy of the digital thermometer was 0.5°C and due to wrong positioning there is more likely possibility that it gave a lower reading as while taking the thermometer reading the thermometer had to be placed for atleast 4 minutes, however in the field situation this was difficult to do and the beep system was followed. This could have led to lower reading of the thermomometer.

Hence, reliability checks for the accuracy of digital thermometer need to be carried out more often. There is also a need to conduct timely intra and inter observer checks after every 5 measurements while using both these methods.

Overestimation of cold stress by human touch method Axillary temperature assessment can be taken as a representative of the core temperature and touching the sole with the dorsum helps in assessing the temperature of the peripheral parts of the body. The beginning of hypothermia is from the peripheral portions, which is indicated by phenomenon called mild hypothermia also called cold stress. Out of the 29 babies who were assessed cold stressed by touch method but warm by thermometer method, 55.1% of them were also suckling poorly. These 55.1% of babies could have had the potential of developing further signs of neonatal morbidity, and need extra effort at warmth and BF to help them survive. However, would have not been identified as sick/at risk using temperature method. This signifies the importance of touch method for assessing the baby’s warmth.

As observed in this study, it may over-estimate incidence of cold stress. This would imply that these children would be provided extra warmth which would be beneficial to the baby and in any event of no harm. The hypothermic children (from temperature method) who were not picked up by the human touch method is suggestive of more training to investigators and to community based volunteers who will assess cold-stress and hypothermia in the community.

---

Factors contributing to hypothermia:

The findings are presented in table 11 and briefly discussed below:

(a) Early vs. late neonatal phase:

More number of newborns in the early neonatal phase were hypothermic as compared to those in late neonatal phase. These figures underscore the crucial role of newborn care in the first week of life and a large scope for improvement in thermal protection. Community based studies from district Ambala (Haryana)\textsuperscript{159} and Gadchiroli (Maharashtra)\textsuperscript{160} have also assessed hypothermia in newborns through axillary body temperature and reported highest incidence in the first 24 hours after birth.

Physiologically, maximum cases of hypothermia are found in the first 24 hours of life as during this period the newborn is facing a dual challenge of coping with a drop in body temperature (from after leaving the warmth of the womb (38°C), limited metabolic heat production as during the first few hours of life, oxygen production and heat production may be less than anticipated due to limited fat stores\textsuperscript{161}. Thus, a newborn that is not thermally protected in the first 10-20 minutes may loose enough heat for the body temperature to fall by 2-4°C and be exposed to adverse consequences of hypothermia\textsuperscript{162}.

(b) Environment Temperature:

A low environment unquestionably increases heat loss due to radiation and increases the newborn’s susceptibility to hypothermia. Earlier workers have reported a higher incidence of neonatal hypothermia in winter months as compared to summer months as well\textsuperscript{163,164} and when environment

---


### Table 11: Factors influencing body temperature of newborns

<table>
<thead>
<tr>
<th>Characteristic of newborn</th>
<th>Total No.</th>
<th>Human Touch Method (n)</th>
<th>Axillary Method (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Warm</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>Age of baby (days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-7</td>
<td>44</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>8-14</td>
<td>42</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>15-21</td>
<td>29</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>22-28</td>
<td>37</td>
<td>22</td>
<td>14</td>
</tr>
</tbody>
</table>

Inference: From either method, more newborns in the early neonatal phase were hypothermic as compared to those in late neonatal phase. Although differences were not statistically significant.

<table>
<thead>
<tr>
<th>Season</th>
<th>Total No.</th>
<th>Human Touch Method (n)</th>
<th>Axillary Method (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Warm</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>Winter months (Dec- Feb)</td>
<td>97</td>
<td>55</td>
<td>36</td>
</tr>
<tr>
<td>Summer months (April- Oct)</td>
<td>55</td>
<td>29</td>
<td>23</td>
</tr>
</tbody>
</table>

Inference: Even in summer months, as many as 47% newborns were cold stressed when touched (soles were cold to touch). Amongst these 47%, axillary temperature of 11% did not report hypothermia.

<table>
<thead>
<tr>
<th>Mean Environment Temperature for the day (°C)</th>
<th>Total No.</th>
<th>Human Touch Method (n)</th>
<th>Axillary Method (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Warm</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>&lt;15</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>15-&lt;20</td>
<td>19</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>20-&lt;25</td>
<td>48</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>25-&lt;30</td>
<td>45</td>
<td>31</td>
<td>13</td>
</tr>
<tr>
<td>30-35</td>
<td>37</td>
<td>21</td>
<td>15</td>
</tr>
</tbody>
</table>

Inference: There was a significant association between lower environment temperatures and incidence of hypothermia (p<0.01).

<table>
<thead>
<tr>
<th>Sex</th>
<th>Total No.</th>
<th>Human Touch Method (n)</th>
<th>Axillary Method (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Warm</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>Male</td>
<td>80</td>
<td>47</td>
<td>28</td>
</tr>
<tr>
<td>Female</td>
<td>72</td>
<td>37</td>
<td>31</td>
</tr>
</tbody>
</table>

Inference: Higher percentage of males were hypothermic as compared to females (p=0.05).

<table>
<thead>
<tr>
<th>Weight (in gms)</th>
<th>Total No.</th>
<th>Human Touch Method (n)</th>
<th>Axillary Method (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Warm</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>Missing</td>
<td>42</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>&lt;2000</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2-&lt;2,500</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2.5-3,500</td>
<td>31</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>&gt;3000</td>
<td>66</td>
<td>35</td>
<td>27</td>
</tr>
</tbody>
</table>

Inference: 47% babies whose weight was less than 2.5 kgs were hypothermic. More number of babies, with normal weights at the time of assessment were cold stressed. Possible reason for this was not wrapping these babies well, as they did not look undernourished.
temperatures are <20 degrees C\textsuperscript{165}. However these authors also showed that incidence of hypothermia (<36.5 degrees C) was high in both low birth weight and normal birth weight infants (49.2%, (361/733) and 43% (418/971), respectively\textsuperscript{166}.

In the present study, a lower mean environment temperature was significantly associated with a higher incidence of hypothermia (p<0.05) (figure 12). However, as depicted in table 11, \textit{even in summer months, as many as 41\% newborns were cold stressed when touched} (soles were cold to touch.) and \textit{8\% moderately hypothermic}. In the study conducted by pediatricians in AIIMS neonatology unit in the month of May where room-air temperature was controlled between 26-28°C as many as 76\% newborns were under cold stress and 6\% under moderate hypothermia\textsuperscript{167}. These findings reveal an important implication that hypothermia can occur in summer too in tropical country like India wherein temperatures in summer months can be soaring as high as 30-40 °C.

\begin{center}
\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure12.png}
\caption{Association between environment temperature and incidence of hypothermia (mild and moderate combined)}
\end{figure}
\end{center}

\textit{(c) Association of hypothermia with: body weight and other signs of risk like poor suckling and lethargy (based on human touch assessment):}

- In the present study, out of 152 newborns that were assessed for hypothermia, 110 of them were weighed using the salter’s weighing scale. Their suckling and activity status was also observed. The findings are presented below:

\textit{Body weight}

- As noted from table 11, out of 110 newborns, 13 newborns weighed less than 2.5 kgs. Amongst these 13 newborns, 6 were assessed cold stressed and none of these had moderate hypothermia.


Out of 110 newborns, 97 newborns weighed >2.5 kgs at the time of assessment, out of these 97 newborns, 40 were cold stressed and 6 newborns had moderate hypothermia at the time of assessment. Thus 46 newborns who although weighed >2.5 kgs had some form of hypothermia (i.e. either cold stress or moderate hypothermia).

Also 52% (24 out of 46) hypothermic newborns were not suckling well according to the mother. It is known that a newborn consumes energy for the following: (a) maintenance of body temperature, (b) basic physiological functions, (c) suckling milk and (d) growth. If the baby has to spend more energy on functions (a) to (c), then there will be less energy available for growth. Thus, even babies weighing >=2.5 kgs are prone to hypothermia and this may affect their growth status. Controlling for weight of the newborn, it was found that hypothermic (cold stressed or moderate hypothermia) babies were more likely to have a poor suckling.

**Poor suckling and lethargy**

Were cold stressed/hypothermic babies (by touch) more likely to have a poor suckle?

<table>
<thead>
<tr>
<th>Associated danger sign(s)</th>
<th>Body Temperature using Human touch method n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of newborn &gt;2.5 kgs</td>
<td>Warm (N=58)</td>
</tr>
<tr>
<td>None</td>
<td>23 (39.7)</td>
</tr>
<tr>
<td>RR &gt;59</td>
<td>8 (13.8)</td>
</tr>
<tr>
<td>Lethargy</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Poor suckle</td>
<td>9 (15.5)</td>
</tr>
<tr>
<td>Poor suckle + RR &gt;59</td>
<td>4 (6.9)</td>
</tr>
<tr>
<td>Lethargy + RR &gt;59</td>
<td>2 (3.4)</td>
</tr>
<tr>
<td>Lethargy + Poor suckle</td>
<td>1 (1.7)</td>
</tr>
<tr>
<td>Lethargy + RR &gt;59 + Poor suckle</td>
<td>2 (3.4)</td>
</tr>
</tbody>
</table>

**Weight of newborn 2-<2.5 kgs**

| None                      | 2 (3.4) | 1 (2.2) | - |
| RR >59                    | 1 (1.7) | 1 (2.2) | - |
| Poor suckle               | 1 (1.7) | 1 (2.2) | - |
| RR >59 + Poor suckle      | 1 (1.7) | 1 (2.2) | - |
| Lethargy + RR >59 + Poor suckle | - | 1 (2.2) | - |

**Weight <2 kgs**

| None                      | 1 (1.7) | - | - |
| Poor suckle               | 1 (1.7) | - | - |
| Lethargy + Poor suckle    | - | 1 (2.2) | - |

Total 58 (100.0) 46 (100.0) 6 (100.0)

Poor suckle indicative of possible hypoglycemia

The results are presented in table 12. It can be noted from the table, 88.5% hypothermia was contributed by cold stress (i.e. 46 out of 52 hypothermic newborns had cold stress) and 65% cold stressed newborns and 83.3% of moderately hypothermic newborns also had associated danger sign like poor suckle/RR>60/lethargy.

Out of 46 newborns that were cold stressed, 26 newborns (i.e. 56%) were suckling poorly according to the mother. Two out of six newborns suffered from moderate hypothermia also had a poor suckle.

However, data did not reflect a correlation between hypothermia and lethargy. This could be due to two reasons:
- Either the investigators were not able to observe/probe from the mother whether her baby’s activity level (‘Sust’/’Nidhaal’ or less active) effectively from the mother.
- Or scenario 2: The mother busy with household work and the cold stressed/hypothermic baby lying on a ‘carpoui’ – either asleep or playing. The mother attends to this baby when the baby...
cries, pacifies the baby through BF and then continues with her work. There could be a possibility of a lethargic baby being interpreted as a baby asleep.

**Rapid Breathing (Respiratory Rate (RR)>60 beats per minute)**

- 15/46 cold stressed newborns and 3/6 moderately hypothermic newborns had RR >60. Out of newborns who had RR>60 50% had hypothermia and 53% sucked poorly. Of these, 33% were both hypothermic and had a poor suckle.

**Possible Program Options:**

- Neonatal hypothermia affects more than half of all newborns in many developing countries, yet few studies have evaluated its contribution to neonatal mortality, identified avoidable risk factors, or evaluated interventions to prevent or improve recognition or management of hypothermia. Cold stress contributes to the bulk of neonatal hypothermia. Early identification of cold stress is a crucial measure for improved neonatal survival since it is unequivocally known that restoration of thermal control of the newborn through a) skin-to-skin contact, b) warm room, c) warming through conduction and radiation and other simple household measures can within a few hours restore the baby’s warmth leading to the following benefit: Conservation of vital energy which is during cold stress or hypothermia lost in maintenance of temperature and utilization of energy thus saved for -a) suckling, which provides more calories and helps the newborn move up the positive nourishment and growth cycle and b) growth of physical and neural tissues.

**Practical Programming Options:**

- Assessing grunting, RR using a stop watch, hypothermia using a thermometer/thermospots requires both vigorous training and recurring expenditures like validating technique, repairing cost and purchasing new instruments when misplaced/lost by community health workers.

- Cold stress and hypothermia were more common in early neonatal period. Hence, 1st and 3rd day visits by health volunteers are crucial. Significant proportion of babies with cold stress also had poor suckle. This suggests that cold stress is a simple-to-detect early sign of neonatal sickness. Studies show that hypothermia and poor suckle are danger signs of neonatal illness and their presence together is indicative of neonatal sepsis168.

- It is crucial to check for cold stress/hypothermia even during summers and even for those newborns who are not low birth weight.

- For wider program applicability, more community based research is required to validate human touch method for assessing hypothermia. Close supportive supervision of health volunteers will be the key to ensure that either method is used accurately.

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Chapter Summary

**Background:** In slums of Indore, about 3/4th home deliveries are conducted by slum-based traditional birth attendants (sTBAs). sTBA’s role is pertinent as for most families she is the one first approached for delivery and a potential link for ensuring timely EmOC. Practices of sTBAs differ owing to training, skills and traditional beliefs.

**Objective:** The study aimed to study perceptions and practices of sTBAs to identify gaps and suggest options for improving intrapartum care provided by sTBAs.

**Methodology:** In 11 underserved slums of Indore city, sTBAs who had conducted at least 1 delivery in the past six months (n=37) were interviewed. **Results:** Only 40.5% sTBAs had received a training in the preceding year. sTBAs were mostly contacted during labour (86.5%) and their antenatal care awareness was also low. Practices that were a matter of concern were: i) universally dipping the cord tie and blade in water before use, ii) applying oil, turmeric and ‘sindoor’ on cord stump (51.3%), iii) leaving the newborn wet and unattended until placenta expulsion (30%), iv) bathing at birth (38%) and v) not providing BF initiation support (54%). Three sTBAs reported lifting the baby by feet in inverted position and pouring water for resuscitation. sTBAs did not perceive any disadvantage of these practices as according to them none of the babies fell sick subsequently. **Conclusion:** There is a need for - i) regular capacity building of sTBAs using pictorial material, which can be left with them as a reminder. Training should include technical content on antenatal and postnatal care. Practical hospital-based hands-on training whereby paediatrician/obstetrician can monitor sTBA’s progress is needed; ii) slum-based health volunteers need to be encouraged to play a supportive role for early contact between pregnant woman and sTBAs, support delivery and provide gentle persuasive counselling to sTBAs; iii) community linkage and partnership with health facilities where there are special obstetric care and neonatal care units need to be fostered and iv) willing private doctors need to be engaged for conducting health camps in slums, providing technical guidance, counselling mothers and sTBAs and patiently responding to their queries.

**Key Words:** urban slum, slum-based birth attendants, intrapartum care

It is estimated that in urban slums of Indore, about 13,000 deliveries are conducted at home. Of these, about 8,600 deliveries are conducted by untrained birth attendants, family members, neighbours or alone. The role of slum-based birth attendants is pertinent as they are often the first ones approached for seeking advice in times of antepartum and postpartum complications and assistance in delivery. Although a trained slum-based birth attendant alone cannot prevent a death once a complication arises, however, she is an important link between the community and health institutions and can prevent the delay in receiving timely emergency obstetric care (EmOC) by – i) promptly recognizing the danger sign of the problem, ii) facilitating families in deciding to seek care, iii) escorting the case and iv) ensuring that the women with a complication receives timely care.

Perceptions, practices and competence of slum-based birth attendants (sTBAs) (also called ‘dais’) differ owing to regional differences, skills acquired through training and traditional beliefs in context to antenatal, perinatal and postnatal care. A deeper understanding of these differences would help identify gaps and suggestive options for improving newborn care in these communities.

Hence, in the present study, sTBAs, who had conducted at least one delivery in their community in the past six months preceding the enquiry, were interviewed using a pretested interview schedule. A total of 37 such sTBAs from 11 slums in Indore were identified. Their experience, perceptions and practices on the following behaviours was enquired– i) establishing contact with pregnant women, ii) following 5 cleans of delivery and iii) postnatal care. This section briefly discusses the findings of this enquiry.

### 3.7.1 Background, Experience and Training:

- All 37 sTBAs interviewed were illiterate, middle-aged women having 5 years or more of professional experience. They belonged to scheduled or backward class and were traditionally regarded as socially inferior. Attending deliveries was their part-time generation old occupation. Their main occupation was manual labour.

- Only 29 sTBAs had attended one or more training(s) on optimal delivery practices hosted by NGOs/doctors in government hospitals.
In these trainings, most sTBAs informed, they learned about 5 cleans of delivery and identification of complications during labour that were suggestive of advising referral at a health facility. Five sTBAs did not remember what they learned. Although most of these sTBAs were satisfied with these training, a few of them who had attended a refresher one year back mentioned – “nothing new was taught, we had learned about 5 cleans earlier as well”

**Barriers:**

**Out of the 29 sTBAs who attended at least one training on above-mentioned practices, only 15 of them had attended such a training/refresher in the past 12 months preceding the survey.**

Eight sTBAs who had not received any training, mentioned – “we have been delivering babies since a decade… we know everything…. we donot need any training”.

**Possible Program options:**

- If refreshers/training programs are offered by NGOs biyearly/yearly, there is a need to motivate sTBAs to attend these trainings. Concerted efforts on enhancing technical quality and methodology used for these trainings can help sTBAs value, await and attend them. For improving the technical quality, sessions with senior pediatricians and neonatalogists can be arranged. For improving the methodology, participatory action planning can be used so that sTBAs make their milestones for behaviour change, which would be assessed in the next refresher training. **Practical hands on skill enhancement during hospital visits are critical.**

- The knowledge and skills of TBAs need to be tested and trained continuously. E.g. SEARCH in Gadchiroli district (Maharashtra), have classes each month and an oral exam after that. The TBA must score 9 out of 10, each month or else she fails. A SEARCH trained TBA is a major asset in a village. The whole village waits for the TBAs result and it is mortifying for her if she fails. Even fifty-year old TBAs work hard to pass the test. This approach adopted by SEARCH may be adapted to a slum health program setting. Adaptation will make such an approach more widely acceptable.

**3.7.2 Establishing contact with pregnant women for antenatal care counselling:**

**a) Perceptions of sTBAs:**

- All trained sTBAs and 6 untrained sTBAs mentioned pregnant women need to take extra care during pregnancy. They were however not aware about exact number of TT shots or IFA tablets pregnant women should receive and their benefits.

- Few trained (n=8) and 1 untrained sTBA mentioned that pregnant women should establish contact with a health provider from the first trimester onwards for receiving TT shots and assessment of foetal growth and foetal movements. Others mentioned that only if there is a complication like excessive pain or excessive swelling on hands and/or feeling of reduced foetal movements do they need to establish contact with a health provider in the second or third trimester, otherwise they should do so for delivery only.

**b) Practices in the community:**

- Most sTBAs (n=16) were contacted once the pregnant woman started experiencing labour pains for delivery. A few trained (n=13) and 3 untrained sTBAs reported that pregnant woman contacted them in their third trimester for seeking advice in event of complications like reduced foetal movements and excessive abdominal pain. A few woman (n=5) also contacted trained sTBAs in the first trimester to confirm their pregnancy.

**c) Ability to recognize pregnancy related complications and advice referral:**

- Once approached by a pregnant woman in times of complication(s), most sTBAs advised referral to a doctor the family found suitable. However, were the sTBAs able to promptly recognize the danger signs indicating a problem? The findings, as depicted in table 13, revealed that although sTBAs were aware of at least one danger sign during pregnancy for advising referral, the only danger sign known

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to most of them was excessive bleeding before 37 weeks. As far as other danger signs are concerned, irrespective of training level of awareness regarding other danger signs for advising referral was low.

Table 13: Awareness of the sTBAs regarding danger signs in pregnancy (N=37)

<table>
<thead>
<tr>
<th>Danger sign</th>
<th>Trained (N=29)</th>
<th>Untrained (N=8)</th>
<th>Total (N=37)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive bleeding from the Vagina &lt; 37 weeks</td>
<td>18 (62.0)</td>
<td>6 (75.0)</td>
<td>24 (64.8)</td>
</tr>
<tr>
<td>High fever</td>
<td>1 (3.4)</td>
<td>0 (0.0)</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>Anemia:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Breathlessness (especially with blurring of vision and/or paleness)</td>
<td>2 (6.9)</td>
<td>0 (0.0)</td>
<td>2 (5.4)</td>
</tr>
<tr>
<td>• A feeling of constant weakness</td>
<td>4 (13.8)</td>
<td>5 (62.5)</td>
<td>9 (24.3)</td>
</tr>
<tr>
<td>• Swelling over face/body</td>
<td>4 (13.8)</td>
<td>0 (0.0)</td>
<td>4 (10.8)</td>
</tr>
<tr>
<td>Leaking of the amniotic fluid from the vagina &lt; 37 weeks</td>
<td>5 (17.3)</td>
<td>2 (25.0)</td>
<td>7 (18.9)</td>
</tr>
<tr>
<td>Severe pain in abdomen</td>
<td>4 (13.8)</td>
<td>1 (12.5)</td>
<td>5 (13.5)</td>
</tr>
<tr>
<td>Absent or reduced foetal movements</td>
<td>3 (10.4)</td>
<td>0 (0.0)</td>
<td>3 (8.1)</td>
</tr>
<tr>
<td>Malpresentation</td>
<td>4 (13.8)</td>
<td>1 (2.5)</td>
<td>5 (13.5)</td>
</tr>
</tbody>
</table>

Figures in parentheses indicates percentages

(d) Ability to recognize complications during labour and recommend referral:

Malpresentation and excessive bleeding from the Vagina < 37 weeks were most recognizable danger signs (Table 14). Overall, level of awareness of sTBAs regarding other labour related danger signs for advising referral was although low, irrespective of whether being trained or not.

Table 14: Awareness of the sTBAs regarding danger signs during labour (N=37)

<table>
<thead>
<tr>
<th>Danger sign</th>
<th>Trained (N=29)</th>
<th>Untrained (N=8)</th>
<th>Total (N=37)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive bleeding from the Vagina &lt; 37 weeks</td>
<td>13 (44.8)</td>
<td>5 (62.5)</td>
<td>18 (48.6)</td>
</tr>
<tr>
<td>Fits</td>
<td>4 (13.8)</td>
<td>0 (0.0)</td>
<td>4 (10.8)</td>
</tr>
<tr>
<td>Slow progress of labour &gt;12 hours</td>
<td>8 (27.6)</td>
<td>5 (62.5)</td>
<td>13 (35.1)</td>
</tr>
<tr>
<td>Severe pain in abdomen</td>
<td>4 (13.8)</td>
<td>0 (0.0)</td>
<td>4 (10.8)</td>
</tr>
<tr>
<td>Absent or reduced foetal movements</td>
<td>2 (6.9)</td>
<td>1 (12.5)</td>
<td>3 (8.1)</td>
</tr>
<tr>
<td>Malpresentation</td>
<td>22 (75.9)</td>
<td>7 (87.5)</td>
<td>29 (78.4)</td>
</tr>
</tbody>
</table>

Figures in parentheses indicates percentages

Barriers:

- Most sTBAs were being contacted only during labour or if pregnant women experienced complications. Women traditionally did not perceive sTBAs as a health educator for antenatal care.

The findings of the present study are contrary to the observation of some earlier studies which reported significant involvement of the TBAs in rendering antenatal care. Kumar, had observed that the trained TBAs increasingly recognize and refer ‘at risk’ pregnancies to the health centre, keep a record of vital information on birth weight, sex of the baby, outcome of pregnancy and administration of tetanus toxoid on pictorial cards given to them, thus providing significantly useful antenatal care. However, in concordance with the present study findings, other workers have also mentioned insignificant role of the TBAs in rendering antenatal care.

• sTBAs were either unaware or have forgotten the exact messages to counsel pregnant women with, possibly due a year or more gap in receiving a training.
• sTBAs could identify some complications but, they were not able to relate the prevention of these complications to each evidence based behaviour and counsel pregnant women accordingly.
• The sTBAs did not appreciate the problem of high maternal mortality because a sTBA conducting 2-3 deliveries a month was less likely to come across a maternal death in ten years.

Sajan Bai, fears taking her cases to Charitable Institutions

Sajan Bai, a trained sTBA from Bhavna Nagar said- "A pregnant women was in labour for more than 12 hours, she was in a lot of pain, I spent my time and money and took her to Kasturba Gram, a private charitable hospital. Near the bed where the nurse laid the pregnant woman, another nurse brought 4 boys, they seemed like medical graduates. The nurse started taking their tutorial classes by demonstrating body parts of the pregnant woman. The lady was groaning in pain but no one was hearing that. After some time a nurse came and suggested we go to another hospital, as they could not deliver the baby. "Just because we are poor don't we have any self respect, you all are treating us like dummies for demonstration and not attending to us", I shouted at all the nurses, told them to shift my case in another room and I then delivered the baby there. I now fear taking my cases to these hospitals, and in whichever way I can, I conduct a delivery in the slum only".

Possible Program Options:

• There is a need to keep sTBAs technically updated on ongoing basis so that they impart technically correct and complete messages and henceforth pregnant women take their counselling seriously having learned they are regularly updated with recent information. The training programme should adopt useful components like open sessions of discussion, encouraging sTBAs articulate their beliefs and practices on each topic, use of pictorial aid and assessing their pre-training status of sTBAs. Existing training modules and IEC material developed and used by NGOs can be locally tailored and thereafter used. Follow up and monitoring of assimilation of training content of the sTBAs is essential.

• Early contact of pregnant women through sTBAs should be encouraged through counselling both parties.

• There is also a need to foster linkage with government or charitable hospitals so that if the sTBAs escort their case, timely referral is sought and this in turn would help accord faith of the community in them.

3.7.3 Delivery practices:

3.7.3.1 Preparedness for delivery:

• Most sTBAs (n=32), when called for delivery, advised the family to make a few preparations till they reached their home. Most of these preparations were related to cleaning the surface where delivery would be conducted, heating some water and placing a new blade and thread in it (n=30).

• sTBAs carried a DDK made available to them by their respective NGOs for delivery (n=22) and a few others carried a new blade and thread only (n=3). Of these, only a few mentioned that they washed their hands with soap and water before leaving their home (n=12). Some sTBAs also mentioned that they go as it is for delivery when called (n=14).

173 (a) sTBA training manual. On safe delivery and essential newborn care developed by UNICEF-U.P. in association with the department of women and child development U.P.
(b) CARE-India. Training of the Traditional Birth Attendants (Module for trainers), 2002
(c) Training manual on home-based newborn care developed by SEARCH, Gadchiroli

174 Video films: (a) Puranviram: A film developed by CARE-India to discuss the four social delays that lead to maternal newborn deaths; (b) Sun Ree Behna: A film developed by UNICEF (1995) and used by ICDS for conveying messages on care during pregnancy up to five years postpartum. (c) Nani si Jaan: Developed by SEARCH, Gadchiroli

IEC: (a) CARE-India- A flipbook "Mother and Infant Survival Project- Picture book. Messages to Prevent Newborn Deaths at Community Level; (b) CARE-India. Flash cards for depicting pictorial messages for care during pregnancy and safe delivery.

175 BGMS had provided an aluminum box to each sTBA in their slums. This box contained a weighing machine, thread, gloves, a new blade and a mackintosh sheet.
3.7.3.2 Practicing 5 cleans of delivery:

- sTBAs were asked about the practices they follow during delivery and these findings were then compared to table 6 to analyze whether trained sTBAs were actually practicing evidence-based delivery practices they mentioned they practice. The findings are presented in table 15 and Figure 13 and are briefly discussed below:

**Table 15: Delivery practices the sTBAs mentioned they followed (N=37)**

<table>
<thead>
<tr>
<th>Behaviours sTBAs mentioned they practice</th>
<th>Trained (N=29)</th>
<th>Untrained (N=8)</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing their hands with soap and water before delivery</td>
<td>27</td>
<td>6</td>
<td>0.0006</td>
</tr>
<tr>
<td>Using a DDK</td>
<td>20</td>
<td>1</td>
<td>0.01</td>
</tr>
<tr>
<td>Ensuring that the delivery surface is clean</td>
<td>26</td>
<td>6</td>
<td>0.29</td>
</tr>
<tr>
<td>Making arrangements to keep the birth room warm</td>
<td>21</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>Not leaving the baby uncovered on the floor until cord tie</td>
<td>22</td>
<td>6</td>
<td>1.00</td>
</tr>
<tr>
<td>Using a new cord tie (but dipped it in hot water before use)</td>
<td>27</td>
<td>3</td>
<td>0.002</td>
</tr>
<tr>
<td>Using a new blade for cutting the cord</td>
<td>27</td>
<td>8</td>
<td>1.00</td>
</tr>
<tr>
<td>Not applying anything on the cord stump</td>
<td>15</td>
<td>3</td>
<td>0.6</td>
</tr>
<tr>
<td>Counselling for initiating BF within an hour of birth</td>
<td>10</td>
<td>0</td>
<td>0.01</td>
</tr>
<tr>
<td>Postponing bathing the newborn after birth</td>
<td>22</td>
<td>1</td>
<td>0.002</td>
</tr>
</tbody>
</table>

*Chi-square test/Fisher’s test

From responses of sTBAs presented in table 14, trained sTBAs were significantly better off in practicing the following evidence-based practices – i) using a DDK, ii) not leaving the baby uncovered until cord tie, iii) not applying anything on the cord stump after tying and iv) counselling mothers on early initiation of BF. But was this really the case? Figure 13 provided insight into this issue. Figure 13, explains very clearly that even trained sTBAs were not practicing all behaviours they mention they practiced.

![Figure 13: Were trained birth attendants actually practicing evidence-based practices they mentioned they practice?](image-url)

3.7.3.3 Methods adopted by sTBAs for ensuring that placenta is removed completely:

- The sTBAs capitalized on the forces of gravity and the woman’s own body to assist a normal birth. The most common action taken by most sTBAs was asking the mother to apply pressure downwards, while the sTBA held the woman’s waist tightly.
A few harmful practices to ease the removal of the placenta were also seen in a few slums: for example, in Triveni Nagar, ‘Gopa Bai’, an untrained sTBA advises drinking a cup of ash water so that the woman vomits and this helps the placenta to be removed. ‘Seema Bai’ takes out the placenta with her hands. ‘Kalabai’, a trained sTBA of Sonia Gandhi Nagar advises drinking mustard oil or black tea to ease the removal of the placenta. Some sTBAs also rubbed a shoe on the mother’s stomach and other put hair into the mother’s mouth (so that the mother vomit) for assisting delivery.

Barriers:

- Dipping the cord tie and blade in water (whether hot or boiled was not really known) was universally practiced. Possibly some of these trained sTBAs may have learned this practice during training with NGOs, as also confirmed during GDs with CBO members in Aheerkheri, Jeet Nagar and Bhavna Nagar slums.
- Many sTBAs (37.8%) advised and applied coconut/mustard oil/turmeric paste/’sindoor’ on the cord stump for traditional reasons or because they felt it has antiseptic properties, helps the cord stump soften and dry quickly. Inspite of training, even trained sTBAs still felt that this practice was not harmful in anyway, as the babies were not affected with umbilical sepsis after applying these substances.
- sTBAs considered removal of placenta instrumental in mother’s survival, so until it was removed they attended to the mother.
- In the present study, 47% of sTBAs did not consider only dry wipe and wrap sufficient to clean the newborn after delivery (“dirt of the past 9 months has accumulated on the body, only bathing with warm water can remove it”, they mentioned). ‘Kala Bai’ of Sonia Gandhi Nagar, first, cleaned the baby with a paste of turmeric powder and soft mud and then bathed the baby with warm water. Some (n=10) sTBAs also massaged the baby with oil and then bathed with warm water, according to them the baby did not catch cold in this fashion and can be cleaned as well.
- sTBAs were habitual in practicing a particular behaviour in particular manner, so they continued old practices inspite of being repeatedly reinforced optimal practices. ‘Genda Bai’ of Aheerkheri, mentioned- “I still dip the blade in warm water - Zehar nikal jata hai (to remove its poison). We have learned that do not apply anything on the cord stump, but I still apply as I feel nothing happens when a little oil is applied” she said.

Possible Program Options:

- L CBOs/BCBOs reinforcing the benefits of and possible harmful consequences of not practicing evidence-based optimal behaviours in group meetings not only to pregnant women but also to elder ladies of house and sTBAs who would be involved in delivery so that each group can present their views and the same message is being promoted by all.
- L CBOs/CBOs need to be enabled to effectively use the information they receive on the postnatal visits related to 5 cleans of delivery as a platform to assess and monitor the sTBAs and counsel them accordingly.

3.7.4 Postnatal care:

3.7.4.1 Physical assessment of newborn:

- sTBAs had their own ways of assessing whether the newborn was not in danger at birth. Majority of the sTBAs assessed ‘baby not crying on its own after birth’ indicative of not breathing. Few others assessed baby not breathing by placing their palm on the stomach and chest.
- Apart from not breathing at birth, inability to suckle, lethargy, visibly undernourished and cold to touch were a few signs indicative of danger (Table 16).
Table 16: Newborn Physical assessment parameters used by sTBAs

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Multiple responses n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loud cry at birth</td>
<td>21 (56.7)</td>
</tr>
<tr>
<td>Does not breathe or faces a difficulty in breathing (on touching the stomach and chest to hear the heartbeat/feeling the breath from the mouth)</td>
<td>6 (16.2)</td>
</tr>
<tr>
<td>Does not have a difficulty in suckling</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>Is active (moves hands and feet/not lethargic)</td>
<td>4 (10.8)</td>
</tr>
<tr>
<td>Is not visibly undernourished (small, stick like, wrinkled skin)</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>Baby’s hands and feet are not cold to touch/not shivering</td>
<td>4 (10.8)</td>
</tr>
</tbody>
</table>

Crying at according to most sTBAs was indicative of breathing. Common methods used for making the baby cry:

(a) Provision of warmth: Some sTBAs mentioned that the baby is warm and well insulated in the mother's womb. From this comfortable environment baby comes out naked, and finds itself in a much cooler environment and cannot adjust to it and is thus unable to breath, so if provided a little warmth the baby would breathe and subsequently cry. The sTBAs adopted the following methods to warm the baby:

- Ensuring that the baby cries before tying and cutting the cord, by placing part of the umbilical cord in warm water and milking it towards the baby.
- Wrapping the baby in warm clothes.
- Applying a paste of a leaf named ‘Akau’ on the chest, which according to them is very warm and applying it on the chest would provide the newborn warmth and providing warmth would help the baby cry.
- However, trained sTBAs like ‘Seema bai’ (Triveni Nagar) and ‘Pyari bai’ (Jeet Nagar) and an untrained sTBA ‘Gopabai’ (Annabhavae Sathe Nagar) poured cold water and/or lukewarm water on the baby’s face/back for making the baby cry.

(b) Physical Stimulation:

- Gently patting the sole and face of the baby
- Making a loud noise with utensils
- Cleaning the baby’s mouth either by pouring water or inserting a finger.

(c) Mouth-to-mouth resuscitation:

- ‘Resham bai’, a trained STBA from Jeet Nagar mentioned that if breathing is not established after providing warmth, one can also give mouth-to-mouth resuscitation

Barriers:

- All sTBAs are not aware about the requisite/essential physical assessments of newborn at birth (breathing, sucking and warm).
- Certain harmful methods of reviving a baby that does not cry were still practiced.

Possible Program Options:

- If asphyxiated newborns at birth also have hypothermia, their chances of survival are much less\(^\text{176}\). Hence, methods like hanging the newborn upside down and pouring cold water on the face and back should be discouraged, by explaining the sTBAs in simple terms the physiology of hypothermia. All sTBAs need to be trained on 3-4 signs which they need to assess to check the baby is OK.

3.7.4.2 Taking the birth weight and assessing complications:

- 62% of trained sTBAs mentioned that baby’s with a birth weight <2.5 kgs are considered weak. However, a few of them were either not aware what should be the normal birth weight should be.
- Most sTBAs (n=25) did not take birth weights, but assessed the baby more by looking at his/her cry and comparing the baby’s size to the previously delivered babies. If they felt that the baby was a LBW, some (n=13) advised to take the newborn to the doctor immediately. Most others advised frequent BF, advised mother to eat nutritious food, and keep the baby warm (n=22). Two sTBAs, one of whom was trained even advised to give ‘ghutti’.

Barriers:

- Many sTBAs were not taking the birth weights and are not aware about the cut-off for LBW babies.
- Very few sTBAs knew about appropriate home-based extra care and management of LBW babies.

Possible Program Options:

- Constant monitoring by LCBO in ensuring that birth weights are taken by helping the sTBAs understand the benefit of the same, by showing pictures of LBW babies and the problems they face.
- sTBAs need to be taught simple techniques that can be used to effectively take care of LBW babies at home, using pictorial material. Regular refresher is required since this is a new subject and a new set of skills is being expected of them.
- Linkage with health facilities where there are special neonatal care units need to be fostered so that when sTBAs advice referral and escort their case, timely care is sought.

3.7.4.3 Postnatal Counselling:

**Warth**: Nearly all sTBAs (n=35) felt that keeping the baby warm was necessary. Methods these sTBAs advised to keep the baby warm included- i) wrapping the baby with seasonally appropriate clothes (n=24), ii) not allowing direct breeze in the room where the baby is laid, by keeping the door closed, hanging a curtain around the area where the baby is laid, and keeping a heated ‘chulla’ in the room (n=3), iii) allowing the baby be in mothers lap most of the time and advising the mother to breastfeed frequently (n=8).

**BF**: Most sTBAs (n=31) mentioned that they advice initiation of BF as soon as possible, preferably within an hour of childbirth. For mothers who delivered before sunset, few sTBAs mentioned that they advised initiation of BF after sunset (within 6-12 hours). These sTBAs believed that if BF was initiated upon seeing the twinkling stars, at the onset of night (‘taraon ki chhaon mein’) the newborn does not forget suckling and suckles adequately subsequently. Few other sTBAs advised BF initiation after the first ‘Nahan’ (table 17).

<table>
<thead>
<tr>
<th>Reasons (Verbatim responses)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As soon as possible, preferably within an hour of childbirth</td>
<td></td>
</tr>
<tr>
<td>“First milk, prevents infection”</td>
<td>22 (59.5)</td>
</tr>
<tr>
<td>“Helps increased breast milk flow and prevents blocked ducts”</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>“Baby is hungry hence needs to be breastfed early”</td>
<td>3 (8.1)</td>
</tr>
<tr>
<td>“I was taught this in training, I donot remember the benefit though”</td>
<td>4 (8.1)</td>
</tr>
<tr>
<td>“I don’t know, the nurse advised me to do so”</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>Initiate BF after 2/3 days</td>
<td></td>
</tr>
<tr>
<td>“Milk is secreted only after 2/3 days”</td>
<td>3 (8.1)</td>
</tr>
<tr>
<td>Initiate BF after seeing the twinkling stars on the onset of night</td>
<td></td>
</tr>
<tr>
<td>“To seek blessings of the stars so that the baby can suckle adequately subsequently”</td>
<td>2 (5.4)</td>
</tr>
<tr>
<td>“To discard the sticky milk which, if fed can lead to constipating the baby’s stomach”</td>
<td>1 (2.7)</td>
</tr>
</tbody>
</table>
Infection prevention: Feeding prelacteals can lead to serious infection, diarrhoea and subsequent undernutrition. However, many sTBAs were advising feeding prelacteals like jaggery water, ‘ghutti’, water and diluted animal milk. Reasons cited by them for doing so are presented in table 18.

Table 18: Reasons mentioned by sTBAs for feeding prelacteals

<table>
<thead>
<tr>
<th>Advice: Prelacteals should be avoided</th>
<th>Reasons (Verbatim responses)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reasons:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Can cause infection”</td>
<td>8 (22.9)</td>
<td></td>
</tr>
<tr>
<td>“I was taught this in trainings I attended”</td>
<td>14 (37.8)</td>
<td></td>
</tr>
<tr>
<td>“Breast milk has all the nutrients”</td>
<td>3 (8.1)</td>
<td></td>
</tr>
</tbody>
</table>

Any application on the cord stump can also lead to serious infection. In the present study, many sTBAs (n=14) were advising applying warm coconut/mustard oil and/or neomycin powder on the cord stump daily 1-3 times a day until it falls off. This according to them facilitated the cord stump dry and fall off faster. Most sTBAs (n=23) however, did not advice the mothers for applying any applicant on the cord stump. Verbatim responses leaving the cord stump clean are cited in table 19.

Table 19: Reasons cited by sTBAs for advising to leaving the cord stump clean (N=23)

<table>
<thead>
<tr>
<th>Advice: Nothing should be applied on the cord stump</th>
<th>Reasons (Verbatim responses)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reasons:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Can cause infection”</td>
<td>6 (26.1)</td>
<td></td>
</tr>
<tr>
<td>“Cord stump dries on its own”</td>
<td>4 (17.4)</td>
<td></td>
</tr>
<tr>
<td>“I used to apply earlier but after attending training/advice of LCBO, now I don’t”</td>
<td>11 (39.0)</td>
<td></td>
</tr>
<tr>
<td>“Nobody applies so I too don’t”</td>
<td>2 (8.7)</td>
<td></td>
</tr>
</tbody>
</table>

Summary of options to improve home delivery practices in slums:

At present, it is neither possible to have hundred percent institutional deliveries nor to have a doctor or nurse conduct these at home. Perhaps the most practical and cost effective intervention is to build the skills of the sTBAs and those involved in delivery.

Capacity Building of sTBAs and other slum based birth attendants

- More regular training using pictorial material, which can be left with the birth attendant as a reminder is needed. Training should include technical content on antenatal, intrapartum and postnatal care.

- sTBAs need to be taught simple techniques that can be used to effectively take care of LBW babies at home using pictorial material. Regular refreshers are required since this is a new subject and a new set of skills is being expected of them.

- Regular review/refresher training (3-4 hours) preferably by doctor (pediatrician and obstetrician) to: a) reinforce messages from a highly credible source accepted with greater freedom, b) answer practical queries of birth attendants, c) assess/monitor progress through a short-defined checklist (an obstetric and neonatal section)

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Supportive and monitoring role of slum-based and cluster-level trained health volunteers: CBO to play a supportive role to:

- Facilitate early contact between pregnant woman and sTBA.
- Support appropriate delivery practices through: a) ensuring DDK or requisite delivery material is available; b) gentle persuasive counselling; c) being present during delivery (if possible, more so in households with special problems like household with alcoholic husband or where no family member is available for supporting the mother etc.).
- Ensuring that birth weights are taken by sTBAs.

Linkages of sTBAs and health volunteers with health facilities

- Linkage with health facilities where there are special neonatal care units need to be fostered so that a) the sTBA can more confidently and readily refer or better still escort cases with complications and b) seek advice from the doctor if a phone is available. Slum-based birthing huts managed by SBAs linked to EOC facilities- public or private can also be experimented with.
- There is a need to establish a mechanism for subsidized treatment options in for-profit facilities e.g. voucher scheme adopted by CINI-LIP project in urban slums of Kolkata and by Sewa Mandir in Rajasthan increased access to health services for women and children \(^{178,179}\).

Linkage with Private Doctors for supporting slum MNH improvement efforts

- Conducting MNH camps through pediatricians and obstetricians if feasible is required to - a) provide technical guidance, moral support and greater credibility to trained BCBOs, b) counsel mothers and respond to queries and c) provide guidance, support and credibility to sTBAs.

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\(^{178}\) CINI, Local Initiatives Program. Communities Taking Charge of their Health.

Annexes

Annex.1: 15 Case studies of LBW babies
# Annex. 1

## A. CASE STUDIES OF REHABILITATED LOW-BIRTH WEIGHT BABIES:

<table>
<thead>
<tr>
<th>Case Study A1: What made ‘Anjali’, a Low Birth Weight baby, turn roly-poly in 3 months?</th>
</tr>
</thead>
</table>

Usha Bai resides in Jeet Nagar, a slum in Indore district, Madhya Pradesh with her husband and in-laws. She belongs to a ‘Balai’ (socio-culturally backward caste) family who are natives of ‘Neemarkheri’ village, district Nemad, Madhya Pradesh. Both her husband and she are illiterate. Her husband, the only breadwinner in her family works as a daily wage labourer. She is a housewife, has 4-year-old son, 3-year-old daughter and a 3 month-old roly-poly daughter, Anjali who weighs 4.5 kgs. Neighbours and slum children wait to play, hug and kiss Anjali as according to them she is active and not cranky. But, was Anjali as chubby at birth as she is today? Unfortunately Not. “Anjali, weighed only 2 kgs at birth, looked very weak, lied listless for about an hour after birth and did not cry on her own immediately after birth. Jassobai, a trained birth attendant of the slum had milked Anjali’s umbilical cord a number of times to make her cry”. Usha Bai sadly recalled.

### Reason cited for the neonate being low birth weight (LBW)

Usha Bai suffered from persistent diarrhoea from the second trimester of her pregnancy. Her husband had taken her to Maharaja Yashwantrao (MY), the ‘big’ hospital attached to Indore Medical College, for treatment of diarrhea. She received medicines from MY, but her illness showed no remission. She actively attended community meetings held in the slum, followed a two meal pattern due to meager resources, had taken 2TT shots, consumed more than 60 iron-folic acid tablets and had gone to MY for antenatal checkups regularly. She felt that possibly due to her poor diet and persistent diarrhea that Anjali was born LBW.

### How was the risk to the neonate identified?

Usha Bai said - “Anjali lying listless for an hour after birth and the lead community based organization (LCBO) member, a UHRC-India project trained health volunteer, identifying her as LBW, did scare me. LCBO advised my mother-in-law (MIL) to ensure that BF was initiated the next half hour, to breastfeed frequently, wrap the baby and if the baby still lied listless, to call her and together they would seek advice from MY. “We are poor and cannot afford a private hospital, but my MIL is very wise, she had saved two thousand rupees for my delivery as she thought in a complication she would have to take me to the hospital. So we were not tensed as we had money in case we needed to seek referral for Anjali in Kasturba gram or MY Hospital. All of us knew that Anjali needed extra care, but we were prepared to provide it”.

### Extra Care provided to the baby

**BF:** Usha Bai’s MIL provided both emotional and physical support to her. She did not allow her to do any household chores until Anjali turned two months and did all of it herself. She also took care of her older grandchildren to allow Usha get some rest. She advised Usha Bai to keep Anjali clean and dry, breastfeed exclusively, patiently and frequently especially when Anjali cried or frowned. “When I felt that Anjali was sleeping for a long time, I would put her on my breast while she was asleep. Anjali did not have a poor suckle so I did not have to make extra efforts to make her suckle except to breastfeed more frequently”. Usha Bai proudly mentioned her reason for exclusive breast feeding – “I have learned in community meetings that mothers milk has everything a baby needs and nothing additional not even water need be given”.

**Preventing Infections:** “I never left Anjali alone (“24 gantae uskae paas hi rehti thi”) and did not allow my older children to play with her fearing that they may hurt her. Just after she would urinate, I would clean her and change her wraps (“Aisa nahi ki patak diya, ya kaam kay bad bacchae ki safai kari”), Usha Bai continued.

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180 Community meetings are hosted by slum based health volunteers (trained under the UHRC-India project) each month. In these meetings messages related to antenatal, intra-partum, post-partum and childhood immunization along with their importance are discussed with pregnant and lactating women. Each month one health topic is discussed with the objective to motivate mothers to adopt it.
**Warmth:** Since Anjali was born in peak summer, no extra effort was made to keep her warm, although Anjali was given an oil massage once a day after she completed one month (“Darr lag raha tha ki agar jaldi malish karaegae to uski haddi toot jayegi).

**Monitoring danger signs:** Since birth, Anjali suffered from only one episode of diarrhoea that too since the last 5 days only (when she was 3 months old). Initially, Usha Bai exclusively breastfed, but when the diarrhoea did not improve, then her MIL advised to take Anjali to a private doctor nearby. On the doctor’s advice, Usha Bai fed ‘ghutti’ until she felt Anjali was passing stools of thicker consistency. Thereafter, she exclusively breastfed. Usha Bai felt that fast breathing, diarrhoea, baby crying continuously would be indicative for seeking referral for Anjali.

**Who supported mother and gave advice?** Overall, keeping the baby dry and clad, BF often and exclusively and promptly responding to danger signs played the trick in rehabilitating Anjali and all this would have not happened without the support of the MIL. “Ab to acchi ho gayi hai. Merae Doodh aur Saas kae sahyog se hi sab hua hai”. Usha Bai concluded with a smile.

*This case study points out* that despite poverty and illiteracy, a receptive mother religiously following simple home based practices can ensure survival of a LBW baby. Further, if older women like MILs in the family are supportive, encouraging and have a forwarding attitude to adopt/reinforce positive practices these efforts are complimented. The role of private medical practitioners, unqualified in most cases cannot be ignored (here, he advised feeding ‘ghutti’) as they are the one most approached due to their proximity and low fee. Updating and counselling private medical practitioners on recommended practices would also go a long way in ensuring survival of vulnerable newborns.

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**Case study A2: Mother teaches her daughter indigenous practices to keep baby warm**

It was a cool and breezy morning of July’05 owing to heavy monsoons. We reached almost drenched in Sonia Gandhi Nagar a slum in Indore for our field visit to homes of newborns. It was heartening to learn some traditional methods adopted by a socio-culturally backward ‘Balai’ family to keep their low birth weight (LBW) newborn warm. A discussion with the family revealed interesting findings.

Sunita is 20 years old, a housewife, her husband a daily wager and none of the two are literate. She has come to her mother’s home for delivery, this being her first one. Here, it’s an eight membered joint family, staying in an one room tin sheltered home, with one cubical for each family and a common cooking area.

**Reason cited for neonate being LBW:** Sunita was underweight and knew little about what care needed to be taken during pregnancy. Her in-laws were not very supportive either and did not ensure she ate well in pregnancy or received TT shots, IFA tablets or took antenatal checkups. In her last trimester of pregnancy, as her health deteriorated, she came to her mother’s home so that she can be cared for.

**How was risk to the neonate identified?** Her baby was delivered at home by a trained slum-based birth attendant. Sunita’s mother said-“Firstly, after three of marriage, Sunita had given birth to a baby. The baby looked so small and weak at birth; we were scared that the baby would die”(The birth weight according to the LCBO’s records was 2100g). That’s why all of us are taking extra care of the baby so that the baby doesn’t die”.

**Extra Care provided to the baby:**

**BF:** In one corner of the cubical, Sunita lay with 17-day-old son, who was wrapped in two layers of a cotton cloth and a shawl in close proximity to her. Sunita’s mother and her ‘Bhabhi’, advised her to – i) be with the baby all day, ii) exclusively and frequently breastfeed (as advised by the LCBO) and iii) urgently respond to the baby’s cries and frowns.
Warmth: In one top-corner of the cubicle, a 60 watt bulb was placed to provide warmth and prevent the cubicle from getting cold or damp and the baby was given an oil massage once a day.

Preventing Infections: Sunita’s mother advised her to avoid taking the baby out of the cubical (“Kulla mein nahi rakna”) or giving the baby in hands of outsiders (research team was also not allowed to touch the baby).

Monitoring danger signs: Sunita mentioned that although the baby doesn’t suckle poorly, but often goes to sleep while BF. In these instances, Sunita gives the baby’s checks and toes a slight pinch to wake him up so that he could breastfeed longer. “My Bhabhi has advised to feed the baby a ‘dest’ ‘ghutti’, a powder prepared of almonds, Bal Jeevan ‘Ghutti’ and ‘Karak’ for providing extra warmth and helping my baby gain weight. I will start that soon”, Sunita mentioned. During our visit, the soles and abdomen of the baby were warm to touch and axillary temperature was 36.7°C. The baby did not look lethargic and had not suffered from any morbid condition since birth and weighed 2.250 kgs.

Who supported the mother and gave advice? Sunita’s mother and ‘Bhabhi’ supported her in providing extra care and gave her their timely advice.

This case study points out that even a poor family does make a conscious affordable effort using their traditional wisdom/logic to provide extra care to their LBW baby. A supportive family and willingness of the mother to work harder for the baby facilitates these efforts.

### Case Study A3: Kavita Bai adopts home remedies to take care of her LBW baby

Kavita grieved to recall the death of 2 of her earlier born babies, who died at birth due to pneumonia. Both these babies were boys and delivered at home by her mother-in-law assisted by a trained STBA Kalabai who had bathed these babies at birth. Today, Kavita is a mother of two daughters - a 2 year old and 23 days old (Diya). Kavita lives in Bhavna Nagar, a slum of Indore with her in-laws in a joint family. Her in-laws only came for delivery reasons otherwise they stay in their native village. Her husband has studied upto 8th std, is illiterate and works as a painter. She, although currently a housewife, earlier to Diya’s birth worked as a daily wage labourer and mentioned that she will resume this work when Diya is a year old. There are nine members in her family and caste wise they belong to a backward caste ‘kahar’.

Their home had a ‘kaccha’ floor and a tin top and was very damp and cold, perhaps due to the July monsoon of 2005. Diya was lying on the ‘carpoi’, was hardly clad (“was wearing only a cotton vest”) having been just bathed a while ago and was waiting for an oil massage after which she would be clad.

**Reason cited for the neonate being LBW**: Increased workload (Kavita worked as a daily wage labourer all through my pregnancy), premature delivery (by one month) and frequent pregnancies (She said - “My two son’s earlier to Diya died, I thought if I conceive again god may give me a son, but now I will first take care of my baby girl and once she grows older will try for a male child”) emerged as reasons for Diya being LBW.

**How was the risk to the neonate identified?**
Recalling the day of delivery, Kavita mentioned: “Diya was delivered at home by my mother-in-law. Kalabai, a trained slum based birth attendant came only an hour later for bathing her. Till then, Diya was laid on polythene. Diya did not cry or move until then, looked visibly cold (‘neeli par gayi thi’) and looked very small”. On the next day, LCBO, a community health volunteer on weighing Diya also mentioned that she is very weak as she weighed only 1.5 kgs. The LCBO advised BF exclusively and frequently and keeping the baby warm.

**Extra Care provided to the baby**
*BF:* Kavita mentioned that she breastfed Diya as and when she cried and also when she was free from household work. Diya was not exclusively BF. She was given water to drink in summer considering the
scorching heat. Diya was also fed ‘ghutti’ for warmth reasons. Kavita avoided spicy food as she felt that when she eats spicy food and feeds Diya her milk Diya gets diarrhoea.

**Warmth:** Diya was kept warm by making her wear a sweater and wrapping her in a shawl.

**Infection prevention:** Kavita did not take Diya out of this one roomed home.

**Monitoring danger signs:** Kavita mentioned that fever, diarrhoea, listlessness (“sust”) and shivering with increased respiratory rate (“pura badan thand se kampta hai aur pasli chal rahi ho”) are signs of worry. In these times of worry, she mentioned that she would monitor Diya for 2-3 days giving traditional remedies and still if the Diya doesn’t get OK, she would take her to a nearby private doctor. According to her, in instances, when the baby is visually cold to touch, she puts vicks on the baby’s chest, wraps the baby well and keeps the baby close to her (“Chipta kar raktae hai”). She mentioned one can also feed ‘desi’ ‘ghutti’ (made of nutmeg+almonds+karak), massage the baby with warm oil with pieces of garlic heated in it, postpone bathing until the baby is warm to touch.

Diya had cold on the day of visit. Kavita mentioned that Diya as got cold through her milk as she has cold. Kavita was using vicks and warmth as a remedy to avert this cold. Diya did not have diarrhoea since birth and on the day of our visit she had a normal respiratory rate and weighed 2.1 kgs when weighed.

**Who supported mother and gave advice?** Kavita was the only one to take care of her daughters. However, the LCBO often visited her for counselling her about optimal infant care practices. Overall she was conscious about the health of her baby and progressive to learn more for the betterment of her children. This was enabling Diya’s health progress.

**This case study highlights** despite recognizing danger signs of newborn illness mothers prefer to resort to home remedies for cure, whether this be at birth or thereafter, more so due to economic constraints. Some of these home remedies are beneficial and some unnecessary (like feeding ‘ghutti’). Regular counselling in taking prompt action when home remedies fail needs to be emphasized by LCBOs.

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**Case study A4: Rekha’s “Yes I can do it attitude” helped rehabilitate her LBW baby**

Rekha Bai resides in Bhavna Nagar, a slum in Indore (Madhya Pradesh) with her husband and in-laws. Both she and her husband have studied upto 5th std. Her husband being a truck driver is present at home only on weekends. She is a housewife and has four children – 6, 4, 2 year old sons and a 7-day-old baby boy. On our first visit to Rekha’s home she informed that her youngest baby (Vivek) was premature by one month and at birth weighed 1.75 kgs, was very small in size and had a shriveled skin. Rekha Bai was very depressed to see her “ugly” baby (cited by her) and said – “I was very careless with my health during my pregnancy that is why my baby was born like this. But you see next time you come, I will make my baby gol-matol”. We visited Rekha when Vivek was 8 months (weight: 7 kgs). A detailed discussion with Rekha helped us understand problems faced by her in taking care of Vivek and what all she did to rehabilitate him.

**Reason cited for the neonate being LBW. In Rekha’s words…**

I had severe abdominal pain throughout my pregnancy. In my second trimester, I went with my husband for examination to Kasturba gram, a charitable hospital. Doctors there mentioned that both the baby and I were weak and prescribed IFA tablets and some other multivitamins. Although I ate the multivitamins, I did not eat IFA tablets (“they smelled, lead to diarrhoea and nauseous feeling when eaten”). My mother-in-law (MIL) did not want I eat IFA tablets or take TT shots. She said- “during our time we did not eat these tablets or take TT shots, you too need not do so”). Ranjana, the LCBO used to come many times to
counsel me about benefits of timely immunization, diet, rest and IFA tablets, but I never listened to her thinking that if I do, my MIL would fight with me and when my husband comes back from his tour he would beat me up. I ate two meals a day and with my older three children and household work taking most of my time, I did not take adequate rest. I used to groan in pain, but what to do no one at home helped me in household chores.

Then, in my eight month of pregnancy, while I was routinely fetching two buckets of water from the hand pump far away, I started experiencing severe pain in my abdomen. I continued to walk quickly towards home and began to bleed. I was so nervous, more so because my husband was away. On reaching home, I informed my MIL of my condition. She said it’s quite normal in pregnancy and called the sTBA residing nearby. The sTBA on seeing me bleed and my bag of water leak said that the baby would be born and so did he.

**How was the risk to the neonate identified?**

At birth, Vivek’s cry was delayed by 5-10 minutes and he lied listless as though he was not breathing. From birth itself, the baby was not able to suckle. His chin did not touch my breast for taking my feed. I was very nervous and scared. I thought my baby would die. My MIL suggested that breast milk would let down after 2-3 days so she advised I feed jaggery water. As a neonate, he sweated while BF ("Zyada der doodh pita tha to gabra jaata tha") and faced a difficulty in breathing ("Unchi saans kheenchta hai").

**Extra Care provided to the baby**

**BF:** I tried to breastfeed in small and frequent sips and breastfeed exclusively in the first month, as Ranjana, LCBO advised. But later, I started feeding desi ghutti made of almonds and nuts in my milk against Ranjana’s advice as I felt that Vivek wasn’t gaining enough weight. It’s warm and also eases digestion. My neighbours also re-assured me that ‘ghutti’ is good and would do no harm.

**Warmth:** I always kept Vivek well wrapped in two layers of shawl, a cap on the head and socks. I insisted that my husband got red oil for massaging Vivek so that his bones become strong. Very reluctantly he did so.

**Infection precautions:** I was very regular with seeking all immunizations for Vivek. I did not allow other older babies to play with Vivek and was particular about keeping him clean and dry.

**Monitoring danger signs:** Ranjana told me to take Vivek to the doctor when he was one month old as he was not gaining weight in the initial month. But I did not go as my husband assured me that Vivek would get OK at home only.

Today Vivek is 8 months old, and eats mashed food from the family pot in addition to breast milk. A few days back he got diarrheoa so I went to Kasturba gram to seek advice and medicines.

**Who supported mother and gave advice?** It was only the mother’s will power and added emotional support and regular advice given by Ranjana and her neighbours which helped the baby recover. Her husband is an alcoholic. Being a truck driver he pays a visit home once in 10 days. She says she doesn’t receive any cooperation from her in-laws.

This case study brings out the pertinent role a CBO can play by counselling mothers of LBWs in households where the mother does not get adequate emotional and physical support of her family members. In a desperate attempt to make their baby healthy such stressed mothers keep trying home remedial options suggested by neighbours (like ‘ghutti’) which may cause more harm that good. Hence, it’s imperative for LCBOs to repeatedly counsel such anxious mothers and re-emphasize the positive and negative consequences of adopting a behaviour along with imparting the message.
**Case Study A5: Poor and physically handicap yet succeeding nutritionally**

Punwasi, a native of Ballia district lives in Bajranj Nagar, a slum in Indore city with his wife Shailkumari and two children - a 6 year old son and 21/2 year daughter. Recently, Shailkumari (aged 28 years) gave birth to her 3rd baby – another girl, born LBW (2 kgs) and without a left arm. Punwasi is a daily wager but often gets no work. Having his parents with him here, rather than in Ballia would have been an advantage for his wife in terms of getting assistance in delivery, a helping hand in household work and supervision of young ones especially the newly born (Gayatri). We were both concerned and anxious whether being born as a girl, a LBW and physically handicap in a family that was struggling to survive a living would have allowed Gayatri survive. We were taken aback when we visited this family three months later. Gayatri looked liked a blossomed rose – pink, round and beautifully dressed in a pink cotton dress. Her smile and sparkling eyes made it difficult to resist cuddling her and pinching her cheeks. On weighing, she was heavy (age: 3 months and weighed 4.5 kgs). How did Shailkumari do this? We probed to learn her secret mantra.

**Reason cited for the neonate being LBW**

During pregnancy, Shailkumari faced severe lower abdominal pain and white discharge (Safaed pani). She sought advice from the ANM during the monthly health camps organized in the slum who advised her to eat IFA tablets regularly and take TT shots. She took 2TT shots but did not eat IFA tablets feeling giddy having them. She took prescribed medicines and tonics given by doctors in Saikripa Charitable hospital, where she used to go for antenatal checkups. The LBCO was her mentor who guided her in taking care of her diet, calling her for taking TT shots and ANC checkups when the ANM came. Due to economic constraints, she could not eat an extra meal or food rich in animal protein but her husband asked her to take rest and did not insist she went for daily wage work. But the problem of white discharge still prevailed. She feels possibility this white discharge problem could have been the reason for Gayatri being born a low birth weight.

**How was the risk to the neonate identified?**

Shailkumari recalled- “Gayatri was born at home. She was not preterm though was very small in size but cried on her own at birth. Initially, we were not as much concerned about her being low birth weight than being physically handicap. We felt we had been cursed having giving birth to a handicapped baby. But it was the LCBO who weighed the baby and helped us realize that she needed extra care or she would die because she is very weak. She advised to breastfeed her exclusively, as frequently as possible, give her a daily oil massage and keep her warm”.

**Extra Care provided to the baby**

*BF:* Initially Gayatri was breastfed 5-6 times a day. Since she had a weak suckle Shailkumari held Gayatri’s chin and supported her while BF which took a lot of time. Shailkumari said- “LCBO would visit me frequently to keep check on whether I was following her advice. She taught me the right method of attaching the baby to the breast, advised to breastfeed once in every 1-2 hours and feed only my milk and nothing else for first six months. Slowly Gayatri started suckling well. It took me some time to overcome my depression over Gayatri being born physically handicap, but when I accepted this reality I was able to take better care of Gayatri and bonded with her”.
Warmth: The baby was given an oil massage once a day and bathed once every two days as she was very susceptible to cough and cold. Shailkumari said- “She gets it from me as I wash clothes and wash utensils and clean the house”. In our earlier visit, when Gayatri was one day old we saw her lying naked. Then Shailkumari had said that Gayatri had only two sets of clothes and both are wet. Gayatri was also cold stressed when touched then. Out of an old sari Shailkumari had now stitched new clothes for Gayatri which she showed us on this visit.

Infection prevention: Oil was applied on the umbilical stump so that it dries faster. Gayatri was never left alone. While the mother was busy working, she would be in the lap of her older siblings. She had also received her BCG, DPT-1, 2 vaccinations.

Monitoring danger signs: Shailkumari mentioned that Gayatri gets repeated bouts of fever, cough and cold. In such situations, without any delay she is taken to a doctor at Saikripa charitable hospital and prescribed medicines are given until recovery. Gayatri also often got diarrhoea, which Shailkumari insists is because of her eating chilly food which via her milk passes to Gayatri. She says she would stop adding chillies to the food she makes.

Who supported mother and gave advice? In words to Shailkumari - “My in-laws are not here. I have no relative in this slum. Many curious neighbours would come and see my baby saying see she does not have one arm. Only the LCBO gave me a sympathetic ear and guided me. She was my mentor and friend. I followed whatever she told me and my Gayatri is better now”.

This case study points out that – i) adopting very simple practices at home can help a LBW baby recover. ii) Women like Shailkumari need regular gentle counselling and supervisory monitoring as they are emotionally weak and iii) more rigorous counselling on eating IFA and adequate diet, keeping cord stump clean and not leaving the baby naked in neonatal period is needed.

Case study A6: When a LCBO and mother bonded…..

In one of the many densely populated lanes of a slum Bajrang Nagar in Indore city, amidst poverty and related problems lives a happy go lucky young couple Sri Bhagwan a daily wager with his wife Basanti. The two got married last year and are in their early 20s. Sri Bhagwan has been living in this slum since his adolescent years when he came here for a living although his native village is in Ballia district in Uttar Pradesh. While Basanti has studied upto 10th std, Sri Bhagwan is 3rd pass. Sri Bhagwan’s mother lives with her older son in the same slum but is not on talking terms with Sri Bhagwan and Basanti.

On 14th Feb’05, the couple’s first child was born, a daughter Sandhya, who weighed only 2 kgs at birth. Today she is 3 ½ months old and weighs 4.3 kgs. This has been possible due to regular and perseverant counselling by slum-based community volunteers (called Lead and ‘basti’ CBOs) of an NGO working for betterment of maternal-child health and Basanti’s keenness to learn new practices. A detailed conversation with Basanti helped us learn about problems she faced in caring for Sandhya and how she managed to cope up with them.

Reason cited for the neonate being LBW
Her first pregnancy and with no elders to seek advice from, little did Basanti know about what extra care to take in pregnancy. Her mentors, the L/B CBOs would call her when the nurse came to the slum to take her TT shots, receive IFA tablets and seek antenatal advice. However, from her 2 month of pregnancy, Basanti felt nauseous and vomited out what ever she ate and because of this she did not feel like eating anything. She consumed only 30 IFA tablets as these tablets aggravated her nausea. Her husband, sister-in-law and LCBO repeatedly urged her to consume IFA but she did not eat them. Her husband took her to both a private and government doctor and bought her the prescribed tonics too which she religiously took but this nausea problem persisted throughout her pregnancy. Basanti’s labour was also no less complicated. Her labour progressed slowly and painfully for hours and her bag of water had leaked too during this process. The slum based birth attendant (sTBA) showed incompetence to handle this complication. Hence, Sri Bhagwan rushed to get an auto rickshaw to go to Nand Nagar private hospital. Unfortunately, all three-wheelers were on strike that day. He quickly asked his neighbour to lend his
rickshaw and took Basanti to a private doctor close-by. Basanti feels her reduced diet and slow progress of labour was the reason why Sandhya was born weak.

**How was the risk to the neonate identified?**
The private doctor who delivered Sandhya after physically examining her identified that she was at risk (due to symptoms: very weak (‘admari’) and listless (‘sust’)). He helped initiated BF and advised Basanti to breastfeed very frequently and exclusively and include milk and wheat grain porridge (‘dalia’) in her own diet.

**Extra Care provided to the baby**

**BF:** Basanti religiously followed the private doctor’s advice (“khoob apna doodh pilao aur kuch mat daena”). When the LCBO came to pay a home visit the next day after delivery she too reinforced the same. Basanti faced a problem attaching Sandhya on her breast partially because this was her first baby and she did not know how to do so and partially because Sandhya suckled poorly. She would take one or two sips and go off to sleep. It was when Shabnam, the NGO staff member who came to visit Sandhya when she was 12 days taught Basanti the principles of breast attachment Sandhya sucked better. Thereafter, Basanti breastfed in the right manner and 12-14 times in a day but occasionally put water on Sandhya’s lips (“when her lips and throat dries due to the scorching heat until they are dabbed with water she doesnot come to the breast”). But then, Sandhya developed diarrhoea so Basanti stopped feeding water and started to breastfeed exclusively. Basanti also started having wheat porridge for better lactation.

**Warmth:** Sandhya was made to wear a warm cardigan and head cap in the morning and evening even in summer and in the afternoon a small cotton vest would cover her skinny body. She was given an oil massage in a special manner- every morning Basanti heated a spoonful of ‘rai’ in mustard oil for 30 minutes and then used this warm oil to massage Sandya’s body 4-5 times in a day.

**Infection prevention:** The cord stump was left clean. Sandhya was not given in hands of children of neighbourhood who wanted to play with her and when Basanti would be busy completing household work she would cover Sandya’s face with a muslin cloth in order to prevent flies and mosquitoes from touching Sandhya.

**Monitoring danger sins:** Inability to suckle, lying listless and diarrhoea were considered danger signs for seeking referral. Sandhya suffered from diarrhoea once (at age 10 days). Initially Basanti thought that she would get OK in a day or so. But when Sandhya kept passing watery green coloured stools every 5 minutes, refused to take any feed and kept crying continuously Basanti was concerned. She did not want to wait until evening when her husband would return so requested the LCBO to take her to a private doctor nearby. The LCBO escorted her to the private doctor. The doctor prescribed dysentrol syrup and asked to continue BF and feed the syrup as drops 2-3 times a day. Thereafter Sandhya got OK and has not been sick at all since then.

**Who supported mother and gave advice?** Basanti’s sister-in-law was kind to come to stay with her to lend her a helping hand in household work so that Basanti could concentrate on taking care of Sandhya. Her husband too was very supportive and caring (Basanti said- “Voh kehtae hai yeh bahut bagyashali hai…jab se paida hui hai kaam ki pareshani nahi hui. Jab bhi kaam se lautae hai…essae utha kar zarur khelte hai”). B/LCBOs and NGO staff personnel were always by Sandhya’s side to give timely advice, emotional support and escort her to a nearby doctor.

**This case study points out** that first time mothers living in squatter settlements require repeated counselling and emotional support especially when they are living without their in-laws. If L/BCOs in addition to counselling about BF frequency and exclusive BF also help and participate in helping the mother in times of difficulty like escorting the mother-baby dyad to a doctor when the baby is sick, the family’s faith in them increases multifold as they then view them as own their family. Here supportive role of the CBO, family support, willingness of Basanti to adopt recommended practices and promptness to take her to doctor when ill together helped rehabilitate Sandhya.
Case Study A7: Better Late than Never….Durga accepts positive child care practices

Bajrang Nagar Khakkad is one of the most densely populated slum in Indore city, with over 1200 households. Residents of this slum are mostly immigrants from rural poor families of Uttar Pradesh and Bihar who came here in search of a better living. In this slum also works an NGO with slum based community health volunteers called lead and ‘basti’ CBOs who mobilize their community for adopting positive maternal child health behaviours and services. While glancing through the birth weight section of one of the community health volunteer’s records we were curious to see number of surviving and healthy low birth weight babies. Of the very few we saw, was Sooraj, who weighed only 1.7 kgs at birth. Being inquisitive we asked – “How is Sooraj doing now”? Rekha, the volunteer said- “Now he is 3 months and weighs 4.5 kgs. Do you want to visit him”? With an obvious response (“yes”) we quickly put our belongings together and headed towards Sooraj’s home.

On our way, Rekha briefed us about Sooraj’s family. She informed that his mother’s name is Durga, who is about 28 year old and a mother of 4. Durga is illiterate and a housewife. Her husband, Kishore is illiterate too and works as a cobbler. They are an 11 membered joint family where Kishore parents and brother’s family also stay. A tension is prevailing in their home as Durga’s father-in-law recently died in a road accident and her husband also met with an accident with a motor bicyclist. We reached Durga’s tin sheltered ‘kaccha’ home divided into two cubicles (we assumed one cubicle would be for each family). Durga’s mother-in-law (MIL) invited us in. Sooraj was sleeping on the MILs lap and Durga was completing some household work. Durga’s devrani was washing clothes and other children were running about creating a mess in the already cluttered home. Durga quickly laid a polythene on the floor to have us seated. After talking about sundry issues we congratulated them on taking such good care of Sooraj despite such odds and requested them to share with us their secret behind such drastic improvement in Sooraj. Excerpts from our conversation as informed by Durga and her family are presented below:

Reason cited for the neonate being LBW

During Durga’s pregnancy, swelling on her hands and feet, pallor and breathlessness was a common feature. Rekha, the community health volunteer had requested her to take IFA tablets and improve the quality of her diet. However, Durga did not take any antenatal checkups and very reluctantly took one TT shot. “We had seen nothing like happen for my earlier three children so I was hesitant to adopt these practices”, Durga sadly admitted her fault. Large family and too many mouths to be fed meant a two meal pattern and a poor man’s meat diet. But Durga now realizes that had she listened to Rekha, Sooraj would have not been LBW.

How was the risk to the neonate identified?

Durga’s MIL, devrani and slum based birth attendant (sTBA) assisted Sooraj’s birth. “Tiny and scary” were words described for Sooraj by the sTBA. They said they were feeling afraid to even hold and clean him as there was hardly any flesh on his body. At birth, the sTBA weighed Sooraj and not to her surprise he was confirmed a very weak baby (1.7 kgs). She advised initiating BF and keeping him warm. Next morning when Rekha came to vist Durga. She too was worried when she saw Sooraj and said- “the baby did not get any nutrition in your womb, as neither did you take care of your diet nor did you eat IFA while pregnant that’s why the baby is like this”. But she assured Durga that if she breastfeeds Sooraj religiously, gets him timely immunized, keeps him warm and eats wheat porridge (‘doodh-daliya’) he would recover soon.

Extra Care provided to the baby

BF: Traditions die hard. Contrary to the sTBA’s advice Durga fed some jaggery water before initiating BF to ease the passage of meconium and for warmth but when the baby vomited it out then she got scared and started feeding her own milk only. Thereafter, Durga did not want to take any chances as after three girls a boy was born and that too so weak. She followed all advises religiously. She breastfed 14-15 times a day, started eating ‘daliya’ and breastfed exclusively. Rekha also came to visit her often to keep a check on her. Her MIL made sure there was some coal under the ‘chulla’ so that the room is always warm and
advised to breastfeed often. Other members in the home took over cooking and cleaning responsibilities. Durga said - “Sooraj did not have a problem in suckling rather sucked rapidly as a scavenger as though he was starved for months and then while suckling he would get so tired and start crying. So I would feed patiently and support his chin and head to ease him to take breast feed”.

*Warmth:* Sooraj caught cold very frequently and was very vulnerable to pneumonia. He was kept covered, made to wear a sweater, room was always warm and he was massaged with coconut oil. Coconut oil was applied on the cord stump so that it warms the stump and prevents pneumonia.

*Infection prevention:* Durga did not take Sooraj out of the room until it was very necessary like getting him immunized during health camps in slum.

*Monitoring danger signs:* Sooraj’s pneumonia (“sai-sai awaaz karta tha aur pasli chalti thi”) did not get OK at home. He was taken to Sai-Kripa charitable hospital. The doctor advised Durga not to do work related to washing utensils and clothes, prescribed some medicines and strictly advised not to take Sooraj out in cool breeze. Sooraj got OK then, but still suffers from cold and cough often. Durga says it’s because she can’t avoid working in water and he gets cold through her.

*Who supported mother and gave advice?* Durga did realize that it was because of her carelessness that Sooraj was born in that condition. She appreciated the role played by the sTBA, Rekha and her MIL. Durga was also trying in whatever best capacity within her means to take care of Sooraj. Her husband neither helped in household work or child care nor was a barrier but accompanied Durga whenever Sooraj had to be taken to the hospital.

Durga mentioned that she has now understood the importance of what Rekha advises and will promote it to others too now.

This case study points out that:
Initial resistance by families to adopt positive behaviours is obvious. However, if regular gentle counselling by community health volunteers is continued, family is supportive and reminds the mother to practice positive behaviours and positive consequences of behaviour are visible to the mother she practices them with more zeal and motivation. People learn through example and imitation. Initial resistance to behaviour adoption can be removed through promoting discussions by early adopters in community meetings. This would prevent the time lost by mothers in first faltering then realizing and then adopting positive behaviours.

**Case Study A8: Supportiveness and promptness of family helped rehabilitating a LBW baby**

Resham Bai resides in Bajrang Nagar, a slum in Indore with her husband, Sardar. They are ‘Bajranga’ by caste and natives of ‘Neemar Barwani’ village in Nemad (Madhya Pradesh), where Sardar’s parents reside. Sardar has studied upto 5th std and works as a car mechanic in a garage. Resham is 30 years old, illiterate and a housewife. Finally, after 12 years of desperation for a child like getting odd checkups, eating medicines, trying remedies suggested by gynaecs and quacks, resorting to Jhaar-Phook and uncountable prayers, god blessed the couple with their first child, a daughter Roshni. Tagged along this joy was a sorrow too. Roshni was a very weak baby. She weighed only 1.9 kgs at birth. However, today Roshni is 4 months old, healthy and chubby (weight: 5.6 kgs) thanks to endless care and support of her family. We probed to understand problems faced and efforts made by Roshni’s family for her rehabilitation.

*Reason cited for the neonate being LBW*
Resham, Roshini’s mother herself was very lean. She did go to the monthly health camps organized in the slum for getting her antenatal checkups and TT shots. But her diet remained the same and she did not take IFA tablets. She also suffered from abdominal pain for which she got herself examined from a private doctor, who advised extra diet and getting delivery conducted in a hospital. Her husband did not want to take any risk to repent later. He had planned that the delivery be conducted in a private hospital and saved money for it too. On completion of 9 months of gestation, when Resham was in labour, her husband
called a private doctor home to examine her. Fearing complications in delivery as both the mother and baby were weak the private doctor advised institutional delivery. Resham was admitted to Mangalia private nursing home, where Roshni was delivered. Late pregnancy, poor diet and not taking IFA tablets could have resulted in Roshni being born LBW.

**How was the risk to the neonate identified?**

In Mangalia private nursing home, the nurse who delivered Roshni said "*the baby is very weak and would be needed to be extra cared for*". The doctor there advised Resham to breastfeed exclusively and very frequently ("*jiitna zyada apna doodh pilaogi utna hi bacchha phailaega*"), keep the baby covered in woollens to protect her from catching cold and strictly warned that if she wanted to save the baby’s life she too would have to take care of her diet for better lactation. Repenting her careless behaviour while pregnant, Resham was committed and family prepared to ensure that their baby was extra cared for. Resham’s mother and mother-in-law came to take over all household work so that Resham gets some rest and is able to take extra care of her baby.

**Extra Care provided to the baby**

**BF:** BF was initiated timely and the nurse taught Resham right method of positioning and attachment. The baby did not have any problem in suckling so BF was not as difficult. Resham was discharged 2 days after delivery. Back home, when Rekha, the LCBO came to weigh the baby, she too reinforced what the doctor had advised. Roshni was breastfed exclusively and patiently and would be woken up for feeding when asleep as both the grandmothers would say- "*bahut der ho gayi hai doodh nahi pilaya...jaldi se pilao*". The grandmothers would cook wheat porridge for Resham and ensure she drank one glassful of milk once a day.

**Warmth:** Roshni was born in the peak of monsoons so was kept warm with woollen clothing and then wrapped in woollen blanket, given a one hour massage with warm coconut oil and the room door was kept closed.

**Preventing Infections:** Roshni stayed on her mother or grandmother’s lap most of the time. She was never left wet, unattended or given to outsiders and was picked up as soon as she cried. On the cord stump, coconut oil was applied to help it dry off. Today Resham has understood the importance of counselling given by Rekha so whenever she comes to call her to get her baby immunized she unhesitatingly goes.

**Monitoring danger signs:** Roshni was affected with persistent diarrhoea (*‘harae se pani jaise dast’*) in the early neonatal period. Sardar despite his meager earnings (Rs. 60-70 per day) promptly showed her to a private doctor nearby who prescribed some medicines which when given helped her recover. But she did get affected with cold and diarrhoea very frequently in the first three months. The same doctor advised Resham to avoid eating spicy food, bathe Roshni on alternate days only with warm water, keep her warm and continue BF as usual. After three months of age Roshni faced no problem.

**Who supported mother and gave advice?** All family members provided both emotional and physical support to Resham. Their belief that they could help Roshni recover, their promptness in identifying her danger signs and seeking referral, never leaving her unattended and alone led to rehabilitating Roshni.

*This case study reinforces* the importance of warmth, BF and promptly recognising and addressing danger signs by family in ensuring survival of low birth weight. These are not difficult to practice if family members support and ensure these practices are adopted.
Shobha bai resides in Bajrang Nagar, a slum of Indore with her husband Bindeshwar. They are natives of ‘Chapra’ district in Bihar. Although she is illiterate her husband is 10th pass and works as a daily wage labourer. Shobha is 19 years old, a housewife, has 10-month old son (Ajay) and a newborn baby boy (Sanjay). Her in-laws reside in their native village in Bihar. Shobha also had a son born earlier to Ajay. The baby was born very weak, anaemic and died just a few days after birth. The couple did not have any money at hand to even show that baby to the doctor. Sanjay also weighed only 2.1kgs at birth but a month later his health improved and he gained weight (weighed: 3.250 kgs at 1 ½ month). Described below are excerpts from our discussion with Shobha on problems she faced and what home based management skills she used to rehabilitate Sanjay.

Reason cited for the neonate being LBW
Shobha had a narrow interpregnancy interval. Her diet was poor due to meager resources. She did not avail of any antenatal services available free of cost due to efforts of an NGO named Jatan Sanstha and its community health volunteers (called lead (L) and basti (B) CBOs). She said - “I did not want anyone to know I am pregnant. I felt ashamed of being pregnant so soon and stopped going out of the house or interacting with neighbours fearing they would get to know and would mock and laugh at me saying - ek, baccha abhi paida hua... ek baccha abhi mara... aur phir pait se hai”. During Shobha’s 8th month of pregnancy she experienced severe abdominal pain. After many days of pain and much hesitation she went to visit a private doctor nearby after sunset so that no one knew she was pregnant. The doctor in-turn scolded her for keeping such a short interpregnancy interval, gave her a pain injection and sent her back.

How was the risk to the neonate identified?
Shobha said - “All my three babies were born like this only. How would I have known that this baby was at risk? Sanjay was born at term but was very tiny (Guddia/pulta jaissa lagta tha). The stTBA on weighing said he weighed only 2.100 kgs, was very weak and advised to keep him warm by a regular warm mustard oil massage and breastfeed him frequently. When the LCBO came the next day, she too emphasized the same. But it was the ANM who scared me and advised that I take Sanjay to Chacha Nehru Hospital (the paediatric centre attached to Indore Medical College) for hospitalization when I went to get him his BCG vaccination in the health camp. She even refused to vaccinate the baby and told me the baby would not get O.K. through home-based care alone and needed to be hospitalized. I got scared though did not take the baby to the hospital feeling I could manage the baby at home only”.

Extra Care provided to the baby
BF: Shobha’s husband earned only 200/week and that did not suffice even two meals for them. Rekha, the LCBO advised Shobha to breastfeed exclusively and do so 10-20 times day. While Sanjay was a neonate one problem Shobha faced was that when she would begin to breastfeed him, Ajay (her 10 month old baby) would cry and push Sanjay away as he too would want to be breastfed. As a result Sanjay was not able to get complete feed. Shobha used to breastfeed Sanjay 8-10 times in a day and mentioned that while taking her feed Sanjay would take only a few sips, get tired suckling and then start to cry and when he cried he would become breathless (“til-til bar hi pita hai...thoda sa pi kar phir rota tha...aur rotae–rotae uski saans phool jaaati thi”).

Preventing Infections: Nothing was applied on cord stump and interaction with outsiders was restricted.

Warmth: Sanjay was given an oil massage 7-8 times a day with mustard oil. It was believed that in this way he would become healthy (“yeh tael bacchae ko balwaan banata hai kyoki usko pi-pi kar bacchae ki khaal moti ho jaati hai....tael garm hota hai jissae bacchae ko khasi aur jukham nahi hota”).

Monitoring danger signs: As a neonate when Sanjay would become breathless while taking breastfeeding, Shobha and Bindeshwar took him to Chacha Nehru private charitable hospital. The doctor there did not prescribe any medicine or advice hospitalization. He said- “itnae chotae kanzoor bacchae ko kya koi bharti karta hai. Ghar jao apna hi doodh bar-bar pilao ussi se thek hoga. Raat ko zyada pilana kyoki raat ka doodh bacchae to zyada lagta hai”. Shobha followed the doctor’s advice religiously. She felt- “sab
log ek hi chez kah raha thea ki maa kay doodh se hi thek hoga”. According to Shobha, the baby did not get diarrhoea, cough and cold thanks to the oil massage.

**Who supported mother and gave advice?** Shobha following the advice of doctor, LCBO and she believing that if she takes good care of Sanjay, he would be fine helped rehabilitating Sanjay. At 11/2 month Sanjay weighed 3.250 kgs and his mother feels that’s its all because of her low cost weapon- her breast milk and oil massage.

**This case study points out** that despite poverty, presence of slum-based NGO health workers in slum ensure awareness about and access to health services. If mothers are receptive and eager to adopt simple home-based practices regularly promoted by health workers many vulnerable low birth weights would survive and rehabilitate.

**Case study A10: Home based care saves a LBW baby**

Rekha Bai resides in Triveni Nagar, a slum in Indore (Madhya Pradesh) with her husband. Her in-laws stay in their native village in Bihar. Although she is illiterate her husband is 10th pass and works as a clerk in a private company. She is a housewife, and has three children – 4 year old daughter, 2½ year old son and a 4 month old gol-matol daughter, Poonam (weight: 5.5 kgs).

“Poonam wasn’t as healthy as she is today. At birth she weighed only 1.750 kgs and looked half-death (admari se)” said Rekha. A detailed conversation with Rekha helped us understand problems she faced and what home-based management skills she used to rehabilitate Poonam.

**Reason cited for the neonate being LBW**

Rekha took her TT shots and antenatal checkups from monthly health camps organized in the slum that were facilitated by a community based organization. In addition, she also got herself examined from a private doctor in her third trimester to get to know her expected date of delivery (EDD). She did not eat more than 30 IFA tablets given to her by the LCBO due to its offensive smell. Physically too she was weak - being just 22 years old, pregnant 3 times, eating food only twice a day, taking care of her children and household chores with no one else to provide her additional support. Before the EDD, she went into labour. With little money at hand, home delivery was preferred with assistance of an untrained slum-based birth attendant (sTBA).

**How was the risk to the neonate identified?**

It was until next morning after the birth of Rekha’s daughter Poonam, the LCBO on weighing Poonam (weight: 1.750 kgs) made Rekha realize that Poonam needs extra care or would have to be hospitalized. LCBO emphasized that since Rekha was undernourished, had a narrow interpregnancy interval and did not eat IFA tablets Poonam was LBW. LCBO advised Rekha to breastfeed frequently, keep the baby wrapped in warm clothes and if the baby has any problem in taking feed go to a doctor.

**Extra Care provided to the baby**

**BF:** The sTBA asked Rekha to initiate BF after two hours of delivery as she believed that milk let’s down only after that time. When the LCBO came and told Rekha that she did not do the right thing, Rekha too felt that she should not have listened to the sTBA. On the LCBOs advice Rekha started BF after every 1-2 hours and exclusively. She also improved her own diet by eating thrice a day for better lactation. Rekha did not mention anything about the baby suckling poorly or getting tired while sucking.

**Preventing Infections:** Poonam was left in her ‘Jhula’ (cradle made of old sari) and even older siblings were asked not to pick her up but rock the cradle when she cried. Rekha got Poonam timely immunized in monthly health camps in slum. Poonam did not have any severe episode of diarrhoea, cough or fever for which care beyond home based care was needed.

**Warmth:** Poonam was always kept wellWrapped in warm clothes, not taken out of the room, given an oil massage at least once a day and never left unattended or allowed to cry for long.
Monitoring danger signs: Poonam was taken to a private doctor in the early neonatal period 2-3 days after birth to cross-check if Poonam has some major problem. The private doctor too advised that if Rekha eats a nutritious diet and breastfeeds very frequently Poonam would get O.K.

Who supported the mother and gave advice? Overall, support received by her husband and the LCBO, Rekha’s own realization that she needed to take care of her baby and effectively managing both household chores and childcare helped Poonam rehabilitate. This case study reinforces that simple home level practices if carried out religiously can save a LBW baby.

Case study A11: One community health volunteer helps another

‘Sunita Bai’ resides in Triveni Nagar, a slum in Indore (Madhya Pradesh) with her husband, three children, in-laws and 4 other members of their joint family. She’s 23 years old, has studied upto 7th std and is a community health volunteer (called ‘basti’ CBO) of a non-government organization working for improving health of mothers and children in this slum. Her husband, Sonu is 24 years old, has studied upto 8th std and works as an electrician in a shop near the slum. He is the only bread winner in the family and his meager income is too little to sustain a decent living. Earlier, his father too contributed to family income but due to a paralysis attack he is now bed ridden. In this very young age ‘Sunita Bai’ is a mother of a 5 year old daughter, 2 year old son and now a 2 month old daughter. Most of Sunita’s time goes in feeding and caring for her three children and her father-in-law who is totally dependant on his family. We got interested in Sunita because of the 2 month old daughter who weighs 4.5 kgs as of today but was only 2 kgs at birth. We were curious to find out how Sunita managed to rehabilitate her baby against all odds.

Reason cited for the neonate being LBW
Being a community health volunteer Sunita knew the importance of diet, rest, IFA tablets and other antenatal practices. While pregnant she ate more than 160 IFA tablets, about 35 calcium tablets, she took 2TT shots, 3 ANC checkups and also had the bottle of iron syrup provided free from the health camps organized in the slum. She says her small inter-pregnancy interval and too many mouths to be fed in a meager income made her sleep hungry on many occasions making her even more undernourished and her baby born LBW.

How was the risk to the neonate identified?
The baby was delivered in MY, a ‘big’ government hospital attached to Indore Medical College. She was identified as low birth weight by doctors and kept under observation for 8 days in the ICU (reason untold) and handed over after showing signs of improvement. Till then, she was fed through tube feeding (mother says she was fed glucose water through tubes). At the time of discharge, the doctor advised Sunita to exclusively breastfeed till six months and keep the baby warm. Within 15 days of delivery, Sunita also got her tubectomy done (possibly realized repeated pregnancies had caused more harm than good).

Extra Care provided to the baby
BF: After discharge from the hospital when Sunita came home, the lead CBO Neetu was the first one to visit her. Neetu, explained her gently that poor diet during pregnancy and small inter-pregnancy interval led to the baby’s undernutrition condition but if she takes now the baby would soon recover. Neetu advised her to breastfeed after every 15 minutes, breastfeed exclusively and so did she. Her mother-in-law also reminded her to breastfeed the baby frequently and also provided a helping hand in childcare

Warmth: The baby was wrapped from head to toe and was always covered with a warm blanket.

Infection preventions: Nothing was mentioned

Monitoring danger signs: Nothing was mentioned

Who supported mother and gave advice? Advice and support received by the doctor in MY, her husband and MIL and her forwarding attitude possibly helped in rehabilitating her baby.
This case study highlights the pertinent role of a diet during pregnancy and interpregnancy interval in birth weight. It also reveals that adopting appropriate practices pertaining to BF and warmth are not very difficult in community setting. However, not much emphasis while counselling by CBOs is given to infection prevention and monitoring danger signs, which needs to be promoted as well.

**Case Study A12: SurajBai struggles to ensure survival of her children**

‘Surajbai’ is 22 old. She resides in Triveni Nagar, a slum in Indore (Madhya Pradesh) with her husband, Jagdesh and three sons (5 years, 2 years and 2 months). Her family is ‘Balai’ by caste and natives of Nemad district. Both she and her husband are illiterate. Two years back, the couple used to reside in Bhavna Nagar with their in-laws. Jagdesh worked as a kabariwala and Surajbai a ragpicker. The two of them also worked as daily wagers for additional income. But then, their in-laws died in a road accident and since the couple could not afford the rent of that slum they shifted to Triveni Nagar. Subsequent to this, Jagdesh started suffering from some form of mental illness and slowly he stopped going for work. The only breadwinner now was Surajbai. Life had been tough on her. One year after her marriage she had a son in her lap and subsequently two more. She continued to juggle between working outside home, completing household chores and care-giving, while pregnant and otherwise. While at work she left her three sons in the custody of her husband. Her youngest son weighed only 1.600 at birth but at 2 months weighed 4.7 kgs, nearly thrice the birth weight. We had a discussion with busy Surajbai to understand how this miracle happened.

**Reason cited for the neonate being LBW**

During pregnancy, Surajbai left early morning while her family was asleep to pick polythenes, then came back to cook and feed her two children. Thereafter, she left her kids with her husband and went off for daily waging. No TT shots, No ANC checkups for her as she was never there in the slum when the ANM came and asking her to improve her diet would mean (“give me the money and I would eat”) so Neetu, the LCBO advised her to atleast eat IFA tablets given free of cost. Surajbai used to eat the tablet in the morning just before leaving for work. But, on her way while she went for rag-picking she vomited out and felt very giddy on one or more occasions so she stopped having IFA tablets. Throughout her pregnancy she worked and possibly lack of rest, poor diet and inappropriate care led to her baby being born LBW.

**How was the risk to the neonate identified?**

The baby was delivered by an untrained sTBA. When Neetu came to pay a postnatal visit she was horrified to see the baby look so tiny weighing only 1.6 kgs and advised Surajbai not to resume her work atleast for the next 1-2 months and breastfed frequently and exclusively and keeping the baby warm.

**Extra Care provided to the baby**

*BF:* After delivery, Surajbai did not resume work for the one month. What ever money she saved while pregnant was used for survival. She breastfed the baby frequently and on demand. She also attached the baby well and patiently fed from one breast before putting the baby to the other. She had realized that the baby sleeps longer like this so this helps her complete other household work. She also fed exclusively as anyway she couldn’t effort buying any supplements. Neetu, the LCBO paid her frequent visits to check if she was religiously following her advice.

*Preventing Infections:* After the baby turned a month old, the baby was left in the custody of older siblings and Surajbai would only go for rag picking in the morning and come back and take care of her children.

*Warmth:* The baby was given a warm mustard oil massage once in a day and left wrapped in a bundle of old clothes in a cradle made of cloth. The one room home was kept warm with a traditional heating source.
Monitoring danger signs: The baby passed loose stools in the first month. But Surajbai said it was normal. Thereafter, the baby did not show any signs of diarrhoea, pneumonia and was not taken to a doctor as the bay did not fall ill.

Who supported mother and gave advice? The LCBO came to pay postnatal visits to keep a check on Surajbai, call her to get the baby immunized. Surajbai too followed the advice. She feels that BF frequently, exclusively and attaching the baby well on the breast played the trick in the baby’s rehabilitation.

This case study points out that despite all challenges like poverty, single handed in earning for the family and caring for her children, Surajbai managed it all. She used her time, advice she got from the community health worker by BF appropriately and ensuring her baby is warm and attended and was self-confident that she would be able to rehabilitate the baby. The care-giving role played by very young yet older siblings in the case also cannot be ignored. Working mothers like Surajbai need empathetic support and more regular counselling so that they can avail of health services provided free of cost.

B. CASE STUDIES OF LBWS STILL STRUGGLING TO SURVIVE

Case Study B1: Lacchi’s ……. struggle to survive

Triveni Nagar is a slum in Indore (Madhya Pradesh). It is a home to many poor families who although came here in search of a better living but are living in even worse conditions here - in a tin sheltered room, the roof of which could wither away any day in dust storms, struggling to earn a meager 50-60/- through daily wage labour, too many ill-clad children waiting to be fed and many of whom sleep crying and whimpering in hunger on many occasions. Lacchi was one mother of a LBW baby we visited while searching home-based strategies to rehabilitate LBW babies in slums.

Lacchi was only 20 years old, ‘balai’ by caste (a socio-culturally backward caste), illiterate and looked as though she had not eaten for days. Her tattered clothes although apparently looked clean did not give a pleasing odour. She had a 2 month old daughter, Roshni in her lap who looked worse – sunken eyes, shrivelled skin, tiny little weighing only 2.3 kgs.

Lacchi was married to Maggo a year ago. He worked as a daily wager and was violent in nature. He would beat her up taking out his frustration of – i) not being able to earn to his expectations, ii) she because of having ‘Gatthia’ (knots in knee) since childhood not being able to move about easily let alone working as a labourer perhaps and iii) her poor mother not giving dowry in Lacchi’s wedding as Maggo expected. He would beat her up for all this and more. Seeing marks on her daughter’s underfed face and her clothes torn, her old mother would often give her some money she earned through working as a daily wage labourer. This would make Maggo less angry but when the money would get over he would come back to his violent self. Lacchi thought her pregnancy would make Maggo’s behaviour better. But life could not have being more tough on her. During her last trimester of pregnancy, Maggo ran away leaving her alone, pregnant, without any money to face the hardships of her physically handicapped poverty struck life. She would have nearly committed suicide when she was asked to leave the ‘kholi’ (6X10 feet hut in slum) not having paid the rent for months. But then when lacchi’s mother came, paid the rent and started living with Lacchi…. Lacchi’s life started afresh. Her mother would take care of her, ensure she eats for her baby in the womb by spending all the money her old bones earned through daily wage labour and slowly Lacchi wanted to live for her …..and for her to-be born baby.

Reason cited for the neonate being LBW
Lacchi being weak and underfed fell ill often while pregnant. She was not aware of the antenatal services available free in the slum as her activity was restricted within her ‘kholi’ and interaction with neighbours was minimal. Her mother would leave in search of work in the morning and Lacchi would groan due to
severe abdominal pain all day. Her mother felt guilty of not being able to take her to a doctor having no money at hand (“Paisae hi nahi hottae thae kyo ki kaam roz nahi milta thae kyo ki mein boori thi”). But when the pain was unbearable, her mother took her for an antenatal check-up to G.P.O, a government maternity centre about 4 kms away. The doctor in G.P.O. informed that Lacchi was highly anaemic and the foetus too was undernourished (small for gestational age) and did not advice home delivery. Before the expected delivery day approached Lacchi’s mother borrowed money from a money lender in the slum. Lacchi gave birth to a daughter in G.P.O hospital. The daughter was later named Roshni (meaning light).

How was the risk to the neonate identified?  
At birth, Roshni was very tiny (“hathaeli mein sama gayi thi”), lied listless (as if half-died) and weighed only 1.5 kgs. She was kept under observation (possibly in an incubator) and discharged the next day since the family did not have enough money to afford the hospital care. The doctor advised that the baby needed extra care or would die. The doctor also prescribed some multivitamins and nutrition supplements for Lacchi but due to lack of money she was unable to buy them.

Extra Care provided to the baby  
BF: When Lacchi initiated BF, she said she hardly had any milk in her breasts. She started packet milk along with breast milk. But then, due to heavy rains her mother stopped going for daily wage jobs, so there was no money at home to buy the packet milk hence she had to stop giving this milk too. But now, Roshni had got used to the bottle-feed and used to keep crying when not fed with the bottle as suckling was more difficult for Roshni. She would get very tired sucked as for her weak jaws it was a colossal task requiring her whole body strength to do so and then not getting enough milk she would get tried, irritated and begin to cry. Lacchi too not being aware of the right method of attachment of baby’s mouth near the breast made things worse. Roshni would lie in her lap loosely held on the breast with her head and chin unsupported, so the nipple would not even go in the her mouth making it harder for Roshni to suckle. During our discussion when we counselled Lacchi on appropriate method of breast attachment and she tried it in our presence by supporting Roshni’s head, holding her close such that her mouth was wide open and covered the areola, chin touched the breast, lower lip bent outward. Doing this, Lacchi too was surprised to see Roshni suckling well and going to sleep peacefully thereafter. So possibly, Lacchi did have breast milk but did not feed appropriately.

Preventing Infections: Nothing was done in particular and coconut oil was applied on the umbilical stump.

Warmth: Roshni was kept bundled in old dry clothes (“Sookhae kaprae ki godri mein dakh kar raktae hai”) and the room was warm because of the cooking heater where wood and coal was burnt as fuel for cooking food (“subah shyam chulla jalta hai to kamra garm rehta hai”).

Monitoring danger signs: Roshni did get affected with diarrhoea, fever, cold and cough 2-3 times like any other weak and vulnerable baby would get. But she was never taken to any hospital due to economic constraints.

Who supported mother and gave advice? Roshni’s condition at 2 months (weight: 2.3 kgs) was no better than at birth. This could be due to many reasons - Her mother’s compromised capacity to provide care either due to personal factors (poor health, physical suffering from violence and juvenile handicap, lack of self-confidence), economic factors (meagre uncertain income), lack of family and community support and lack of awareness regarding appropriate caring and poor care-seeking practices.

What would happen to Lacchi if her mother wasn’t there and would not be there in future? Wasn’t Lacchi too responsible for her condition? We came out of her house with these questions in our mind and hoping to see Roshni alive when we visit Lacchi next.
Case study B2: Low maternal self-efficacy – the biggest hurdle to LBW baby’s growth

Mohammad Raquik is a car mechanic. He resides in Yadav Nagar, a slum in Indore city, Madhya Pradesh with his wife, Samira and eight children. Recently, Samira, aged 40 years, has given birth to her 13th child, a girl. Five babies earlier to this one died. This baby weighed 1.5 kgs at birth. We first visited Samira when her youngest baby was 21 days and found that the baby well wrapped in a blanket, looked small sized, weighed 2.250 kgs, was warm to touch and had a respiratory rate in the normal range. Through a discussion with Samira we learned about problems faced by her in managing her baby. But when we left we hoped that her baby would recover. But when we next visited this slum, Samira’s daughter was 10 months old, still very weak (weighed: 6 kgs). We tried to gauge what went wrong in Samira’s care giving?

Reason cited for neonate being LBW: Samira feels her womb is cursed by some bad omen ("Shayad hawa ka chakkae tha") as this baby was born LBW and five of her babies earlier to this one died (Two died in her womb, two during delivery and one died when he was 5 months old). All these babies were full-term and not low birth weight according to her. “After these five deaths, my mother-in-law and father-in-law were so angry with me they were telling their son to divorce me as they felt my womb was cursed. But my husband stood by my side saying that it’s not my fault and its god’s will. We went to a traditional spiritual healer (Jhaar-Phook Karwaya) while I was pregnant. But again this baby was also born very weak” Samira added. Neither did Samira establish any contact with a trained birth attendant during pregnancy nor did she eat any IFA tablets. She ate as she did while she was not pregnant. Repeated pregnancies and not taking enough care of her self possibly were reasons for the baby being born with low birth weight.

How was the risk to the neonate identified? Samira was born at home. A private nurse was called home to assist delivery. Samira mentioned that although full-term, the baby was very small sized and listless at birth (“chhtak bar se dekhti thi aur sust thi”). The baby cried when moved (“doctor madam nay hilaya-dulaya tab ja kar roi”). No one thought she would survive. When the LCBO paid a postnatal visit, she informed Samira the baby needed to be extra cared for. She advised her that just like a hen keeps a close watch on her eggs to provide them warmth and comfort, she would have to do the same with her daughter. She would have to urgently respond to the baby’s distress condition and if the baby is unable to take feed or keeps crying all day the LCBO advised to take her to a doctor.

Extra Care provided to the baby

BF: Samira was BF 6 times in 24 hours. She said-“the baby sleeps all day, while she is asleep for long, I dab her lips with water (unboiled) to quench her thirst and when she cries I breastfeed her”. She has a very poor suckle, her jaw line is still weak, possibly because of this she is facing a difficulty in suckling. She sleeps even while feeding, so I have to hold her close to the breast, support her head and then breastfeed”.

Thermal Protection: The baby was kept well-wrapped, made to wear a sweater, woollen cap, held in close proximity with the mother. Samira mentioned that she has had so many children that she knows what to do and how to care for the baby.

Infection Prevention: Nothing was done for this. The baby was handed over to any family member and taken out of the house too. Older sibling would play with her giving Samira time to complete other household work.

Monitoring danger signs: According to Samira, since birth the baby has been vulnerable to cold, cough, fever. Samira said – “I am tired of feeding her medicines, but there has been no respite. I am 40 years
now, my breasts hardly have any breast milk (“ab doodh nahi hota”), the baby’s stomach remains empty as she cries very often so we give her biscuit or snacks and food we eat”.

Who supported mother and gave advice? Samira mentioned that post-delivery she has devoted all her time to her baby girl. “Most of the time I kept her in my lap, close to me. My older adolescent daughters are managing household work. However, the baby is affected with one or the other form of illness like diarrhoea, cough and cold. I had taken timely advice from a private doctor who suggested ‘calpol’ and amoxicillin drops and I am feeding her those as well”. She lies listless, doesn’t come to the breast and sometimes her cry is so weak that it goes unheard. I am doing what I can and rest is god’s will”. Samira sadly concluded.

This case study highlights that apathy and Samira’s belief that she could do nothing to better her baby’s nutritional status was possibly the reason why her daughter’s health was not improving.

Case Study B3: Juggling between problems of caste, class, nutrition and language

Bajrang Nagar is a slum in Indore city. It is a home to many poor ‘Bihari’ families who although came here in search of a better living but are faced with even more problems due to meager income earned through daily wage labour and problems adapting to both culture and language here. Amvalwati and Pramod is one such young couple. They stay here in their small ‘kholi’ (one room tinned squatter) and are paid occasional visits by their parents, who live in their native village. Both are illiterate. Pramod is a daily wage labourer. In Bajrang Nagar spoken language is Hindi. Amvalwati can only understand and speak bhojpuri (local language of Bihar). She communicates with signs and since many a times takes long to understand something, neighbours mock her. Not liking this she has limited her communication with neighbours and her world is restricted to household chores within her ‘kholi’. Three months back, Amvalwati found her companion ……she gave birth to a daughter, who she named ‘Guddia’ (meaning doll)

Reason cited for the neonate being LBW
When Amvalwati was pregnant, her ‘Saas’ (mother-in-law) and ‘Nanad’ (sister-in–law) came to help her in household work and later assist in delivery considering it was her first one. Her only friend in the slum who understood her incomplete communication was Rekha, the LCBO (a slum-based health volunteer of a community based organization Jan Sanstha working in the slum). Rekha would call Amvalwati when the nurse came to the slum to take her TT shots, receive IFA tablets and seek antenatal advice. But, right from the first trimester, Amvalwati used to vomit out whatever she eat and IFA tablets made her feel even more nausetic so she stopped eating them. Unawareness regarding good childcare practices and hesitation on how to communicate always came in her way.

How was the risk to the neonate identified?
Guddia was delivered at home by her grandmother and slum-based birth attendant (sTBA). Her family was overjoyed on her birth. When Rekha, came to weigh the baby the next morning, she was worried to see that baby weighed only 2 kgs. Until then, the family had not perceived the baby ‘at risk’. They felt she was small but all babies are born like this only the mother-in-law emphasized. Rekha counseled the family on appropriate BF behaviours and explained the relation between poor diet in pregnancy and low birth weight. Amvalwati was keen to follow new practices now.

Extra Care provided to the baby
BF: Amvalwati breastfed her baby exclusively, frequently and patiently. Guddia was her own and only companion and she would also talk to her while BF her. Amvalwati never left Guddia unattended. She picked her up as soon as she cried and would even breastfeed her when she was asleep. Guddia did not face a problem in suckling. Amvalwati knew that Pramod has no money to spend on cure if Guddia gets sick so she knew that her only weapon to make Guddia well was her breast milk.
**Warmth:** Guddia was made to wear a cardigan, a head cap and made to lie in ‘Jhula’ (cradle) made of a shawl after giving her daily body massage with warm mustard oil. Even while working at home, Amalvati would keep an eye on Guddia, would rock the ‘jhula’ once or twice and resume work.

**Infection preventions:** Nothing was applied on the cord stump. Guddia’s playing space was limited to her ‘jhula’ and bed in the ‘kholi’. When made to lie on the bed her face was covered with a muslin cloth to keep mosquitoes away. While Amalvati’s mother-in-law left soon after delivery her sister-in-law stayed back to lend a helping hand in household work. She could converse in Hindi and was fond of T.V programmes. She often discussed positive health messages she saw on T.V. with Amalvati and took Guddia to the immunization camp when Rekha sent a message.

**Monitoring danger signs:** Nothing was mentioned apart from inability to take feed as signs for seeking referral. But this condition never arose. With home-based care, at three months Guddia was 4.25 kgs.

**Who supported mother and gave advice?** Amalvati’s family supported her and slowly she started understanding Hindi too. Rekha was her friend and health counsellor and Amalvati was receptive to learning more about child care as a result of persuasive gentle counselling by Rekha. But when Guddia turned three months, Amalvati’s sister-in-law had to go back to Bihar so Amalvati opted to go back in her native place where people and language was her own.

**This case study points out** that not being able to speak or understand the spoken language in the city also poses a hurdle to survival of many migrants from rural communities living in squatter settlements. This also negatively affects their self confidence and health status as their boundaries are restricted to their own home not being able to identify themselves with neighbours. For such families, community health volunteers need to be more patient, emphasize, gently counsel and make repeated efforts to ensure these families take care of their health and health of their babies.