



# Assessment of Knowledge on Essential Newborn Care among Nurses Working in Maternity Homes of Ahmedabad Municipal Corporation

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## ABSTRACT

**Introduction:** Essential newborn is important starting-point for any neonatal program. It is very important that health care service providers have good knowledge about it. This study was conducted to assess the knowledge of the nurses about it. The study was conducted to assess the knowledge of the nurses about essential newborn care, working in the maternity homes of Ahmedabad municipal corporation area.

**Methodology:** The study is descriptive type, which was conducted in year 2016-17. Knowledge was tested using questionnaire. All the nurses who had training in Essential Newborn care were included and nurses who did not want to be part of the study were excluded.

**Results:** Out of all 94.2% nurses had training in essential newborn care. The Mean score was 13.7 + 3.19. 82.8% nurses knew when to initiate breastfeeding, 98.3% knew average Indian baby weight, 50% of the maternity homes had no staff nurse vacancy. Two of the maternity homes had Caesarean section done. 75% of nurses had knowledge about Breastfeeding and 54.4% nurses about Breathing as Component of Essential newborn. 58% percent of the nurses knew APGAR score components. 64-66% nurses had knowledge about cleans of delivery.

**Conclusion:** The vacancy of nurses was significant. Almost all nurse had training in Essential newborn care, still test mean score was low. The Caesarean section and assisted delivery wasn't available in all the maternity homes.

**Keywords:** Essential Newborn care, Nurse, Maternity home

## INTRODUCTION

The 3.3 million newborn deaths that occur in the first month of life account for 41% of under-five mortality and are disproportionately concentrated in low and middle income countries (LMICs).<sup>1-3</sup> Newborn care and resuscitation is an important starting-point for any neonatal program that is required to ensure the best possible start in life. The first week of life is most crucial for the survival of an infant. Childhood and infant mortality rates have been decreasing in India in the last dec-

ade, the rate of neonatal mortality is still high. The first days and weeks of life are the most crucial for the survival of a child. The majority (75%) occur in the first week, particularly on the first day (25-50%)<sup>2-4</sup> and can be saved through simple, cost effective and low technology interventions.<sup>5,6</sup>

It is very important that health care service providers have good knowledge about essential newborn care practice and services. The government of India has come out with various schemes and projects to provide the quality newborn care services

at all the government health facilities. This study was conducted to assess the knowledge of the nurses about the essential newborn care services

**OBJECTIVE**

The study was conducted to assess the knowledge of the nurses about essential newborn care, working in the maternity homes of Ahmedabad municipal corporation area

**METHODOLOGY**

This is a descriptive type of study done in all the maternity homes of Ahmedabad Municipal corporation area. The study was conducted during year 2015-2017, all the nurses working in the maternity homes were included in the study and knowledge of the nurses were tested using preformed semi-structured questionnaire. The data was analysed using Microsoft excel and Epi info software.

**Ethical Issue**-Written permission of Institution Review board, Permission of the dean and consent of the Medical officers and nurses were taken to conduct the study.

All the nurses who had training in Essential Newborn care were included in the study. The nurses who did not want to be part of the study were excluded from the study.

**RESULTS**

There were 69 nurses working in the maternity homes during the study period, out of which 65 nurses had training in essential newborn care, which is 94.2%. The Mean score of the test was 13.7 + 3.19, which is 43.75%. A study conducted in Kenya by Florence Murila, Moses Madadi Obimbo and Rachel Musoke, One hundred and sixty three health care personnel (85%) had received some information on neonatal resuscitation. Out of this

number only 23 (12%) had formal training. Of those who received formal training. When asked on initial steps in resuscitation, ventilation, chest compression, endotracheal intubation and administration of medications and fluids only 68 participants (35.4%) obtained a score of 85% and above, the rest getting them wrong<sup>7</sup>. A study on essential newborn care training on practice of essential newborn care in Srilanka showed, Practices of cleanliness, thermal protection, and neonatal assessment improved significantly in the intervention group. The intervention was effective in improving skin-to-skin contact by 1.5 times and early initiation of breastfeeding by 3.4 times<sup>8</sup>

In our study, knowledge about various components were tested using the questionnaire. 82.8% nurses had knowledge about when to initiate breastfeeding, 98.3% knew average Indian baby weight, 100% of the nurses knew low birth weight cut off (Table-1).

Knowledge about Vitamin k dose, premature age of gestation, normal respiratory rate, normal heart rate, the first bath and suction of the mouth to be done first was less compared to knowledge about other parameters studied. Knowledge about weight to be considered as low birth weight, 53.8 % nurses had knowledge about Normal respiratory rate and 55% nurses had knowledge about Normal heart rate.

**Table 1. Distribution according to knowledge about Various Parameters of Newborn care**

Parameters	Frequency (%)
Vitamin K dose	7 (10.8)
Premature Age of gestation	8 (12.3)
Low birth weight	65 (100)
Average Indian baby weight	64 (98.3)
Normal respiratory rate	35 (53.8)
Normal Heart rate	36 (55)
Breast feeding initiation	53 (82.8)
First bath	13 (20.3)
Suction mouth first	10 (15.6)

**Table 2. Distribution of maternity homes according to availability of staff and service provision**

Maternity home	Medical officer vacancy(%)	Staff nurse Vacancy (%)	Normal Delivery (%)	Caesarean sectionn(%)	Assisted Delivery (%)
Danilimda	0	20	100	0	0
Khokhara	0	0	60.9	24.9	0
Behrampura	0	50	99	1	0
Vatva	0	12.5	100	0	0
Sabarmati	0	0	100	0	3.5
Sarkhej	0	0	100	0	0
Shahpur new	0	25	100	0	0
Shahpur chakla	0	50	100	0	0
Gomatipur	0	40	100	0	0
Naroda	0	0	100	0	0
Chandkheda	0	0	85	4.8	0
Bardolpura	0	0	100	0	0

In our study all the maternity homes had 100 % availability of the medical officers and 50 % of the maternity homes had no staff nurse vacancy. All the maternity homes had required class III and class IV workers .(Table-2) .In this study only 2 maternity homes had Caesarean section done, Sabarmati maternity home had 0.75% and Khokhara had 25 % Caesarean section . Assisted delivery was done at Sabarmati maternity home only. Sabarmati Maternity home had 50% nurses vacancy but it still had caesarean sections done.

Most of the service provider gave score between 6 to 8 (Table-4).

**Table 3. Distribution according to essential newborn care service satisfaction by the service provider (out of 10) (n=65)**

Essential newborn care service satisfaction score	Frequency (%)
9	2 (3.08)
8	20 (30.89)
7	24 (36.92)
6	14 (21.5)
5	5 (7.69)

**Table 4- Distribution according to various parameters of knowledge about Essential Newborn Care among the nurses**

Knowledge component tested on Essential newborn care	Answer frequency (%)
<b>Essential Newborn care just after birth</b>	
breathing	35 (54.4)
temperature maintenance	18 (29)
breast feeding	48 (75)
infection control	3 (4.4)
<b>Resuscitation immediately after birth</b>	
dry the baby	33 (51)
suction	47 (73.5)
stimulate	4 (5.9)
provide extra warmth	27 (41.7)
<b>Resuscitation if baby doesn't cry</b>	
repeat suction	43 (67.6)
reposition	15 (23.5)
provide extra warmth	30 (47.1)
apply ambubag and mask	38 (58.8)
cardiac massage & oxygen	2 (2.9)
<b>APGAR score components</b>	
respiratory rate	16 (24.6)
heart rate	5 (7.7)
Reflexes	2 (3.2)
skin color	16 (24.6)
muscle tone	19 (30)
<b>Cleans of delivery</b>	
clean hands	14 (21.5)
clean surface	41 (64.6)
clean cordcut	42 (66.2)
clean wrap	24 (36.9)
clean perinium	10 (15.3)
clean tie	42 (66.2)

75% of nurses had knowledge about Breastfeeding and 54.4 % nurses about Breathing as Component of Essential newborn care just after delivery. 73.5% nurses had knowledge about suction, 51% had knowledge about how to dry the baby and 41.7% had knowledge about providing warmth to baby. Only 5.9 % nurses had knowledge about when to stimulate the newborn. 58 % percent of the nurses had knowledge about APGAR score components, which is shown in the graph. The knowledge about the various components of APGAR score is shown in the graph. Knowledge about heart rate and reflexes were found to be less than 10 % . 67.6% nurses had knowledge about repeat suctioning , 58.8% had knowledge about applying ambubag and mask and 47.1% had knowledge about providing extra warmth. Only 2.9 % of the nurses had knowledge about cardiac massage and when to give oxygen to the newborn. 64-66 % nurses had knowledge about clean surface and clean cord cut and clean tie. 36.9% nurses had knowledge about clean wraps and 21.5 % had knowledge about clean hands.

## DISCUSSION

Knowledge about Vitamin k dose, premature age of gestation, normal respiratory rate, normal hearth rate, the first bath and suction of the mouth to be done first was less compared to knowledge about other parameters studied. Knowledge about weight to be considered as low birth weight, 53.8 % nurses had knowledge about Normal respiratory rate and 55% nurses had knowledge about Normal heart rate (Table-1). The study of Rapid assessment of essential newborn care services and needs in national rural health mission priority states of India showed; 100 % nurses had A rapid assessment of ENC conducted in 11 districts across 10 states in the country reported that a sample of 44 doctors in the fields of neonatal resuscitation (41%), hypothermia prevention (61%), breastfeeding (34%), and infection prevention (23%) had both satisfactory knowledge and skills. The study pointed out limited capacity of staff nurses and ANMs in having sufficient knowledge and skills in neonatal resuscitation (41%) and hypothermia prevention (52%)<sup>9</sup> .In Philippines, trained physicians observed 481 consecutive deliveries using a standardized tool to record practices and timing of immediate newborn care procedures. Drying, weighing, eye care and vitamin K injections were performed in more than 90% of newborns.<sup>10</sup>

In our study all the maternity homes had 100 % availability of the medical officers and 50 % of the maternity homes had no staff nurse vacancy . All the maternity homes had required class III and class IV workers (Table-2) .In a study by Shah R

(2010) et al, similar findings were observed that post of medical officer was filled in 80% PHCs, in Gujarat. In a study done by Zaman FA, Presence of Nurse was found in 80% PHCs of Assam and 50% PHCs of Karnataka and 30 % had class IV workers<sup>11</sup>. In this study only 2 maternity homes had Cessarean section done, Sabarmati maternity home had 0.75% and Khokhara had 25 % Cs, DLHS-III (2007-08) Gujarat showed that 74.1% CHCs designated as FRUs and among them 17.8% FRUs offering caesarean section, 86% FRUs having new born care services on 24 hour basis<sup>12</sup>

Most of the service provider gave score between 6 to 8.(Table-3)

75% of nurses had knowledge about Breastfeeding and 54.4 % nurses about Breathing as Component of Essential newborn care just after delivery. A national postal survey of Australian midwives (n = 3500) was conducted in October 2001. A response rate of 31.6% (n = 1107) was achieved. The Breastfeeding Initiation Practices Scale revealed three factors related to observing pre-feeding behavior, mother/baby care and attachment and positioning practices. Midwives with high knowledge scores were more likely to report best practice when assisting mothers to initiate breastfeeding. Midwives with more personal breastfeeding experience scored higher on all scales<sup>13</sup>. A study was done in rural India in 2010, on the effect of knowledge of community health workers on essential newborn health care. Data collected from 302 anganwadi workers (AWWs) and 86 auxiliary nurse midwives (ANMs) and data from recently delivered women (RDW) (n = 13 023). Coverage of antenatal home visits and newborn care practices were positively correlated with the knowledge level of AWWs and ANMs. Initiation of breastfeeding in the first hour of life (odds ratio 1.97; 95% confidence interval (CI): 1.55-2.49 for AWW, and odds ratio 1.62; 95% CI: 1.25-2.09 for ANM), were significantly higher among women visited by AWWs or ANMs who had better knowledge compared with those with poor knowledge.<sup>14</sup> Rapid assessment of essential newborn care services and needs in national rural health mission priority states conducted in 11 districts across 10 states in the country reported that a sample of 44 doctors in the fields of neonatal resuscitation (41%), hypothermia prevention (61%), breastfeeding (34%), and infection prevention (23%) had both satisfactory knowledge and skills. The study pointed out limited capacity of staff nurses and ANMs in having sufficient knowledge and skills in neonatal resuscitation (41%) and hypothermia prevention (52%)<sup>15</sup>. A similar study conducted among medical officers, lady health visitors, and workers of Pakistan reported poor performance in resuscitation skill, and only 50% demonstrated correct steps of immediate newborn

care<sup>16</sup>. 73.5% nurses had knowledge about suction, 51% had knowledge about how to dry the baby and 41.7% had knowledge about providing warmth to baby. A study of essential newborn care in Haryana showed 16% of the healthcare workers knew all the initial steps of resuscitation.<sup>17</sup> Only 2.9 % of the nurses had knowledge about cardiac massage and when to give oxygen to the newborn. 58 % percent of the nurses had knowledge about APGAR score components, which is shown in the graph. 64-66 % nurses had knowledge about clean surface and clean cord cut and clean tie. 36.9% nurses had knowledge about clean wraps and 21.5 % had knowledge about clean hands. A study done in rural India in 2010, for effect of knowledge of community health workers on essential newborn care. Data collected from 302 anganwadi workers (AWWs), 86 auxiliary nurse midwives (ANMs) and recently delivered women (RDW) (n = 13 023). Coverage of antenatal home visits and newborn care practices were positively correlated with the knowledge level of AWWs and ANMs clean cord care (odds ratio 2.03; 95% CI: 1.64-2.52 for AWW, and odds ratio 1.43; 95% CI: 1.17-1.75 for ANM) and thermal care (odds ratio 2.16; 95% CI: 1.64-2.85 for AWW and odds ratio 1.88; 95% CI: 1.43-2.48 for ANM) were significantly higher among women visited by AWWs or ANMs who had better knowledge compared with those with poor knowledge.<sup>14</sup> (Table-4)

## CONCLUSION-

In our study all the maternity homes had adequate medical officers but nurses' vacancy was still there. Almost all the nurse had training in Essential newborn care, still the mean score of the test was low. Knowledge about Vitamin k dose, premature age of gestation, normal respiratory rate, normal heart rate, the first bath, suction of the mouth to be done first, APGAR score was less compared to knowledge about other parameters studied. The Caesarean section and assisted delivery wasn't available in all the maternity homes.

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