Assessment of the Sick New Born Care Unit In Haryana

A dissertation submitted in partial fulfilment of the requirements

For the award of

Post- graduate Programme in Hospital & Health Management

2011- 13

By

Dr. Ashish Kumar Verma

PG/11/017

International Institute of Health Management, Research

New Delhi-110075

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NATIONAL RURAL HEALTH MISSION
Paryatan Bhavan, Bays- 55-58, Sector 2, Panchkula, Haryana
Phone No: 0172-2581561, 2573222

No./NRHM/ADMIN/.....

Date: 28/05/13

Certificate of Dissertation Completion

TO WHOM IT MAY CONCERN

This is to certify that Dr. Ashish Kumar Verma has successfully completed his 3 months dissertation in our organization from 1st March, 2013 to 31st May, 2013. During this dissertation he has worked on "Assessment of SNCU (Sick Newborn Care Unit) in various districts of Haryana" under the guidance of me and my team at NRHM, Haryana. His work is satisfactory during this period.

We wish him good luck for his future.

Signature- 28/6/13

Name-Dr.V.K.Sharma

Designation- MCH Co-ordinator

FEEDBACK FORM

Name of the Student: Dr. ASHISH KUMAR VERMA

Dissertation Organisation: NRHM, Haryana

Area of Dissertation: Assessment of the Sick Newborn Care Unit in Haryana

Attendance: 100%

Objectives achieved: The student has collected the information from different districts and also participated in different programmes of Haryana and able to met the objectives.

Deliverables: Good quality Assessment of the SNCU condition in different districts of Haryana has been done.

Strengths: Various districts has been covered.
followed all the guidelines of SNCU and good analysis done.

Suggestions for Improvement:
More districts yet to be covered.
More indicators should be covered.
Mortality and effecal profile should be covered.

6/6/13

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 6/6/13
Place: NRHM, Haryana

Certificate from Dissertation Advisory Committee

This is to certify that **Mr Ashish Kumar Verma** , a graduate student of the **Post- Graduate Diploma in Health and Hospital Management**, has worked under our guidance and supervision. He is submitting this dissertation titled "**Assessment of the Sick New Born Care Unit In Haryana**" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Faculty Mentor Anupama Sharma

Designation Assistant Professor

IIHMR

New Delhi

Date 10/06/2013

Organizational Advisor

Designation Maternal & Child Health

Organization NRHM, Haryana

Address Sec. 2, Panchkula

Date 06/06/13

Certificate of Approval

The following dissertation titled **"Assessment of Sick Newborn care Unit in Haryana"** is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Vanishree	10.6.2013
Dr Shamesh Lal	

Acknowledgements

I am grateful to National Rural Health Mission, Haryana for providing me with a great learning experience. I would like to thank the Mission Director, National Rural Health Mission for giving me the chance to carry out this study with all the help and support required.

I would also like to extend my sincere gratitude to Dr. Suresh Dalpath, Deputy Director (Child Health) NRHM, Haryana and Dr. Krishan Kumar, Medical Officer (Child Health), to give me due and abundant guidance throughout the course of this dissertation. I have been fortunate to have them as my mentor and my coordinator.

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I would end this note of thanks by acknowledge the support of all those who took the timeout from their busy schedule and contributed invaluable toward the completion of this report. With the help of these fine people and inestimable support and faith of our parents we were able to bring about these results.

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List of Abbreviations

BMW **Biomedical waste**

CME **Continued Medical education**

CPAP -Continuous Positive Airway Pressure

FBNC **Facility Based Newborn Care**

HAI **Hospital Acquired Infections**

IPHS **Indian Public health Standards**

KMC **Kangaroo Mother Care**

LBW **Low Birth Weight**

MOHFW **Ministry of Health and Family Welfare**

NBCC **New Born Care Corner**

NNF **National Neonatology Forum**

SNCU **Sick New Born Care Unit**

VLBW **Very Low Birth Weight**

Introduction

There is a great responsibility of India to provide care to newborn against a background of the world's largest share of births (20%) and neonatal deaths (30%). To reach MDG of reducing infant mortality rate to 27 from its current value of 57(NFHS 3) in India, it is only possible by improved neonatal survival. 66% of infant deaths occur during the first 28 days after birth. Around 40% of these neonatal deaths occur on the first day of life, it's almost half within three days, and nearly 3/4 in the first week of life. Around 50% of the neonatal deaths occur among the low birth weight newborn[1]. Neonatal mortality in India after an initial decline has barely a point decline in a year. Other preventable factors like Hypothermia, Asphyxia, Sepsis, Pneumonia etc. contribute significantly to the NMR.

Commonest causes of Neonatal mortality in India are infections including Pneumonia and Sepsis (33%), Prematurity (15%), Asphyxia (21%), Low Birth Weight, varieties of congenital malformations and surgical conditions. For most of the Term Newborn, a proportion of the Preterm, and LBW, NMR can be reduced by providing the care to the community with Skilled Workers. However, to bring 30 per 1000 Live Births, neither community nor Outpatient based care is adequate[2]. To provide this, Facility Based Newborn care is required and without which it cannot be delivered through the Community or Outpatient Based Care of the Newborn effectively.

Around 130 million babies are born each year and around 4 million of them die in the neonatal period. 99% cases of neonatal deaths occur in low and middle-income countries. India has counted quarter neonatal deaths in comparison to global and little progress has been seen in reducing it in the last decade. A combination of family-community care intervention at 90% coverage and universal outreach has been estimated to avoid 18% to 37% of neonatal deaths[3]. These interventions include essential newborn care, family care of the newborn, care for low birth weight babies, resuscitation of the newborn, and emergency newborn care.

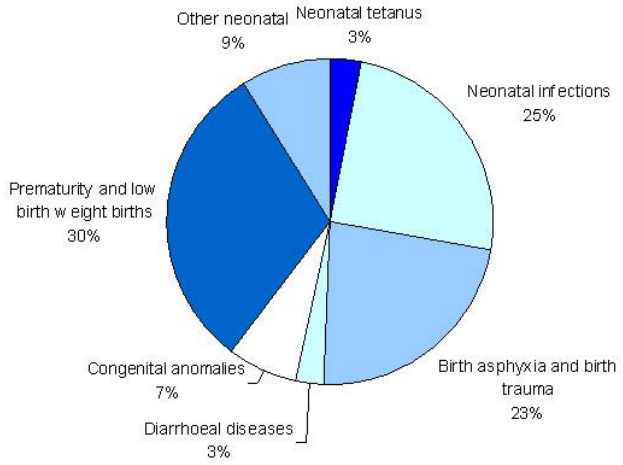
Sick Newborn Care Units (SNCU)

SNCU is a ward for newborn with 8-12 beds at the district level hospital and is expected to provide specialized new born care of level-III with C-PAP (Assisted Ventilation) facility. Other

facilities include Resuscitation, Warming, Phototherapy, Oxygen, etc. to provide the following services:

- Resuscitation of asphyxiated newborn
- Care at birth
- Follow-up of high risk newborn
- Immunization services
- Managing sick newborn (major surgical interventions)
- Post natal care
- Referral services
- In addition, the unit should also provide training of Medical Officers & Nurses of the district in Newborn Care.[8]

Figure 1: Causes of neonatal deaths
Source: World Health Organization. The Global Burden of Disease: 2004 update. World Health Organization, Geneva, 2008.



According to SRS 2009, IMR of Haryana state is 44, which is a matter of attention. There is need of strengthening of clinical services of health care system, therefore a much needed, but unfortunately neglected component of a comprehensive intervention for reducing neonatal deaths. Proper basic newborn care (Level I) is still not adequately available at many of the facilities where newborn are delivered and admitted. In the past, barring a few medical colleges, we do not have adequately functioning and appropriately equipped facility in the public sector. It has been concluded long ago that emergency Newborn Care is required apart from Essential Newborn Care to bring NMR down. Currently, for all uncomplicated deliveries our country requires **Level1**care for neonatal patients**.**

For sick newborn **Level 2 (Sick Newborn care unit**) care is required and for those extremely sick who require very special care a **level 3** facility is essential. Less than 1500gm or less than 28 weeks of gestation neonates usually require this type of care. It has been assessed that 85% of the newborn would require Level1care, while Level 2 and Level 3 ***(***NICU***)*** is required by 10% and 5% of the newborn respectively resulting in requirement of minimum of **3 lac level II beds** and 40,000 level III beds for our country. Ideally, a supervised neonatal care facilities (level I) at all the primary and community health centres is essential and each district hospital should have 20 bedded level-II care neonatal units and each teaching hospital should have a 20 bedded neonatal ICU (level III). Development of proper coordination between level I, level II and level III units through a proper referral, transport and feedback system supplemented by outreach education program would be a prerequisite for effective neonatal care. A significant investment is required for all Newborn intensive Care Units [6]. The trade-off, which can be make substantial reduction in NMR by improving the components newborn care that do not require highest level of sophistication and technology.

National Neonatology Forum and Requirements for Accreditation

The National Neonatology Forum (NNF) came into existence in 1980 through the initiative of a handful of leading paediatricians working in the field of neonatology. Currently NNF is actively networking with the partners and stakeholders like Government of India and State governments; International agencies including WHO, UNICEF, DFID; NGOs like BPNI; and Professional bodies like IAP, IMA, and FOGSI to improve newborn care in the country. Currently, The Forum is assisting the government, WHO and UNICEF in adapting the Integrated Management of Childhood Illness (IMCI). NNF is involved in the design of the next phase (2003-09) of the Reproductive and Child Health (RCH II) program

NNF has developed a tool to help newborn care units to identify and implement quality care practices that lead that lead to effective utilization of the available resources. It was developed in collaboration with UNICEF.

As per the NNF criteria following are the sections where target components are need to be achieved:

1. Mandatory things.
2. Protocols and processes:

3. Human resources
4. Physical infrastructure & facilities:
5. Facilities for thermoregulation:
6. Drugs, intravenous fluids management and nutrition:
7. Neonatal resuscitation in labour room:
8. Infection control practices:
9. Laboratory facilities:
10. Facilities for neonatal transport:
11. Case record maintenance:

Rationale of the Study

As Level II of care for newborn establishment requires lots of investment and without quality of care the output, which is reducing NMR cannot be achieved so it is essential to know that at what level our facility is standing in comparison to standards. This study provides an opportunity to analyse the situation of the same.

The Objective of the study

To study current status of SNCUs against the National Neonatology Forum's Accreditation Criteria for Level II Care in districts of Haryana.

Study Area: The study was conducted in about 7 districts of Haryana.

Study Respondents: Paediatricians, MOs and staff nurses related to SNCUs

Study Design: Cross-sectional study

Sampling Method: Random sampling of districts by means of lots.

Methods of data collection:

- Review of National Neonatology Forum's (NNF) Accreditation Criteria for Level II Care
- Review of SNCU records
    - Case sheet
    - Community follow up sheet
    - Discharge sheet
    - Admission note

Tools of Data Collection:

- Datasheet for reviewing SNCU records

Methodology:

The checklist for accreditation of NNF contains 11 sections, based on which each question was given 1 mark. At the end of section total marks for particular section were counted against given targeted value by NNF measurement. Total measurement of each section will give rank for all districts individually.

Study period: 15 February 2013 to 15 April 2013

Following Medical Facilities were visited:

Table 1: Name of health facility and numbers personnel interviewed.

S. No.	District Name	Department in the Hospital	MO	Nursing staff
1.	Panchkula	SNCU	1	1
2.	Ambala	SNCU	1	1
3.	Rohtak	SNCU	1	1
4.	Yamunanagar	SNCU	1	1
5.	Gurgaon	SNCU	1	1
6.	Mewat	SNCU	1	1
7.	Narnaul	SNCU	1	1
	Total		**7**	**7**

Findings:

After discussions with MO and Staff Nurse, and thorough reviewing records of SNCU following were the findings according to various heads of criteria for NNF accreditation.

Ten mandatory criteria for SNCU in the selected districts of Haryana were analysed. All components are required for accreditation of SNCU. In which presence of Head of Unit (Paediatrician), availability of Vit K, helping to initiate breast feeding were available and among which written documentation of disinfection instruction and disinfection of equipment was not present in any district.

Table 2: Distribution of SNCU mandatory requirements by districts (1 for Yes, 0 for No)

Mandatory Requirements	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Head of Unit	1	1	1	1	1	1	1
Attached to Obstetric Unit	1	0	1	1	1	0	1
Skin to Skin Contact in 1st Hour	1	1	1	1	1	1	1
Newborn Care Services and Records for atleast 9 months	1	1	1	1	1	1	1
Vit K to Newborn	1	1	1	1	1	1	1
Staff helping for successful Breastfeeding in 1st hour	1	1	1	1	1	1	1
Written Instructions for Disinfection	0	0	0	0	0	0	0
Method of Equipment Disinfection	0	0	0	0	0	0	0
BMW management as per GOI	1	1	1	1	1	1	1
Hand Washing Provisions and Demonstrate	0	1	1	1	1	1	1
Total - 10	7	7	8	8	8	7	8

Graph 1: Distribution of SNCU mandatory requirements by districts

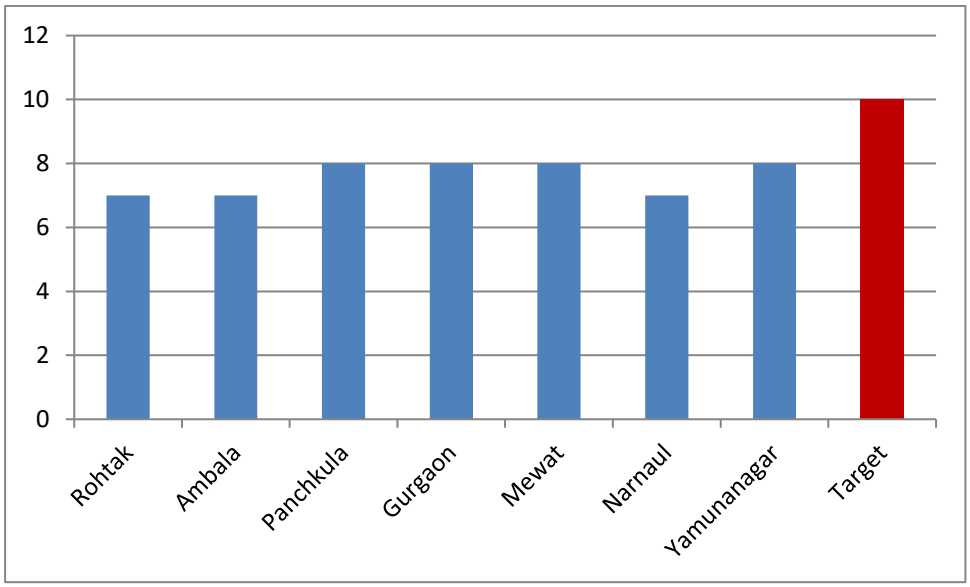
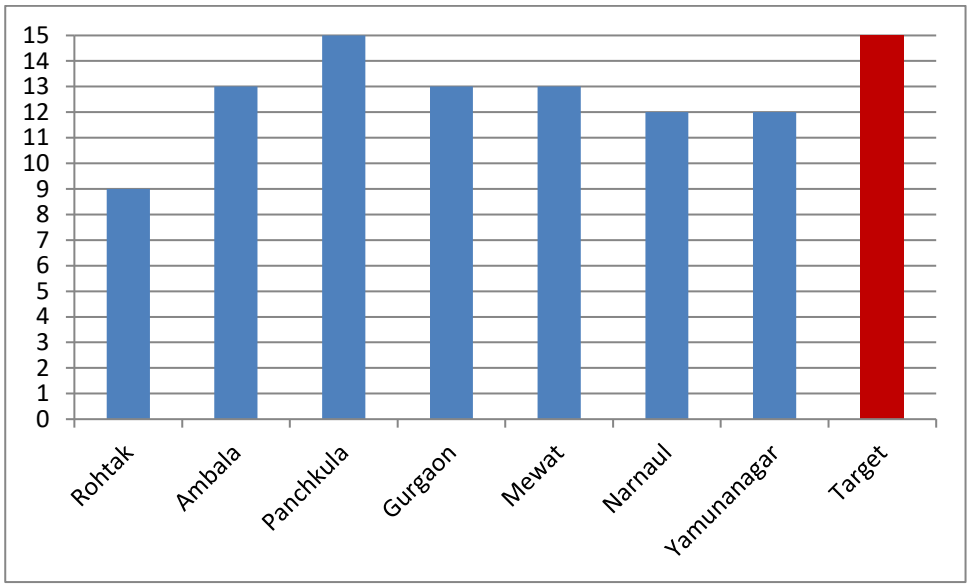


Table 3: Distribution of Protocols and processes in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Newborn Care Services and 24 Hr Delivery	1	1	1	1	1	1	1
Awareness Of Staff for KMC and Sk into Skin Contact	1	1	1	1	1	0	1
Awareness Regarding 10 steps Breast Feeding	0	1	1	1	1	1	1
Protocol For Referral Of Seriously ill Newborn	1	1	1	1	1	1	1
Other Protocols Listed and Staff Awareness	1	1	1	1	1	1	1
Serum Bilirubin for Babies with Jaundice	1	1	1	1	1	1	1
Defined Policy on Equipment Maintenance	1	1	1	0	0	1	0
Any Defined Admission and Discharge Policies	1	1	1	1	1	1	1
Follow up of High Risk Babies	1	1	1	1	1	1	1
Instructions for Handling Neonatal Equipment	0	0	1	1	1	1	0
Routines to Educate the Mothers	0	1	1	1	1	1	1
Communication of Condition of Newborn to Parents	1	1	1	1	1	1	1
Grievance Counselling Protocol	0	0	0	0	0	0	0
Orientation of New Staff and Refresher for Existing	0	1	1	1	1	1	1
Blood Cultures for Neonatal Sepsis	0	0	1	0	0	0	0
Protocol of Triaging of Newborn	0	1	1	1	1	0	1
Target - 15	9	13	15	13	13	12	12

Graph 2: Distribution of Protocols and processes in SNCU

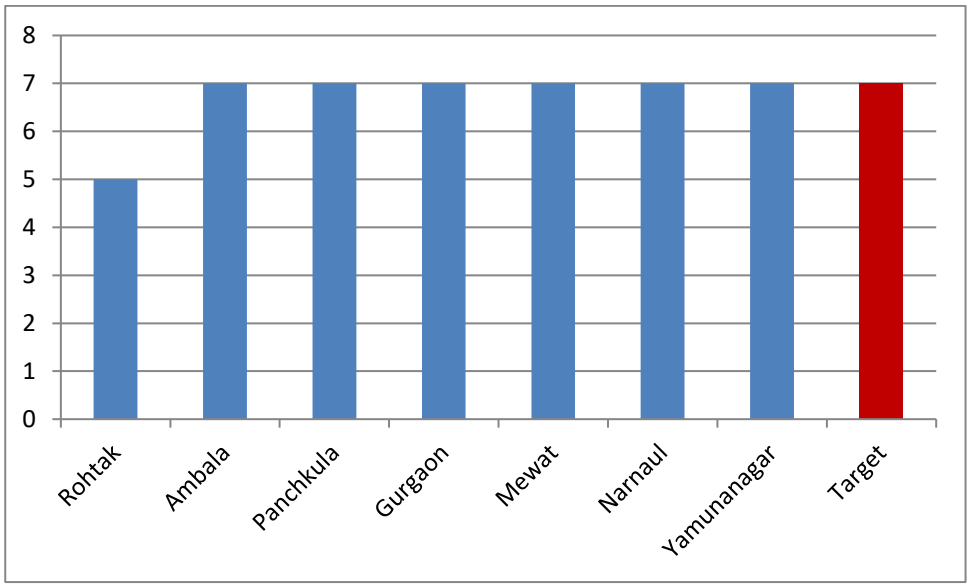


For protocols and processes, 16 criteria have been analysed in which display of IEC materials and SOPs for equipment were important. Out of 16 criteria 15 required for accreditation. SNCU in district Rohtak has not been able to meet the requirements. Grievance counselling protocol were not available in any of the districts. Only Panchkula has facility for blood culture for neonatal sepsis. The good points were 24 hour service for newborn care were available in all districts.

Table 4: Distribution of Human Resources in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Nurse Incharge Training in an Neonatal Unit	1	1	1	1	1	1	1
Nurse Patient Ratio	0	1	1	1	0	1	1
Round the Clock Availability of an FBNC trained Doctor	1	1	1	1	1	1	1
Round the Clock Availability of Paediatrician in house Or on call	1	1	1	1	1	1	1
Atleast One Cleaner or Helper Per Shift	0	1	1	1	1	1	1
Staff FBNC Training related to last 6 Months	1	1	1	1	1	1	1
Bio-Medical Engineer	1	1	1	1	1	1	1
One Nurse in Labour Room Trained in Neonatal Special Care	0	0	0	0	1	0	0
Target 7	5	7	7	7	7	7	7

Graph 3: Distribution of Human Resources in SNCU



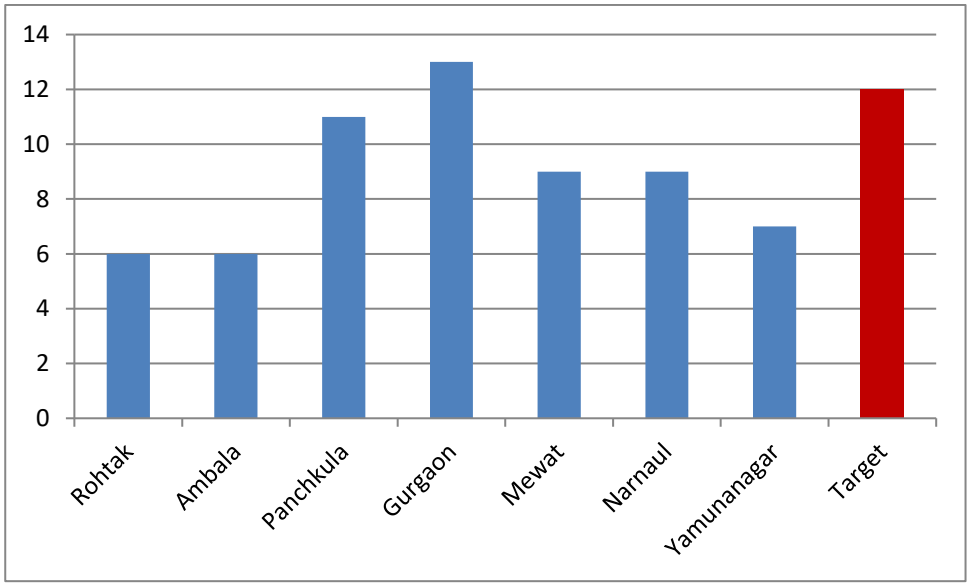
For Human resource, 7 criteria have been analysed. Out of 7 criteria 7 required for accreditation. District Rohtak was not able to meet 5 out of seven criteria. Rest districts have met the criteria. On the other hand availability of paediatrician all the time or on call facility was available in all districts.

Table 5: Distribution of Physical Infrastructure and facilities in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Space Available per Bed in sqft (more than 90 sq =2, 80 to 89 sq =1, less than 79 sq =0)	0	2	2	2	1	2	1
Separate Breast Feeding Room	0	0	1	1	0	0	1
Asymptotic High Risk Babies Growing Babies along with Mothers	0	0	1	1	1	1	1
Uninterrupted Power Supply	1	1	1	1	1	0	0
Hygienic Water Supply in Unitor Facility	1	0	1	1	1	0	1
Adequate Illumination	1	1	1	1	1	1	1
Portable X-ray Facility Round the Clock	1	0	0	1	1	1	0
Oxygen Concentrators Central Oxygen Supply	1	1	1	1	1	1	1

Along with Central							
Power audit of The Unit	0	0	0	0	0	0	0
Designated Are as for Clean Utility and Dirty Utility	0	0	0	0	0	0	0
Provision for Pulse Oximeters	0	1	1	1	1	1	1
CPAP and Short Term Ventilation	0	0	0	1	0	0	0
Blood Culture Available	0	0	1	0	0	0	0
Contingency Space or Rooms for Shifting in Case of Closure	0	0	0	0	0	0	0
Exchange Transfusion if not Name And Contact Number of Referral	0	0	0	1	0	1	0
Availability Of illumination or Flux Meter	1	0	1	1	1	1	0
Target - 12	6	6	11	13	9	9	7

Graph 4: Distribution of Physical Infrastructure and facilities in SNCU

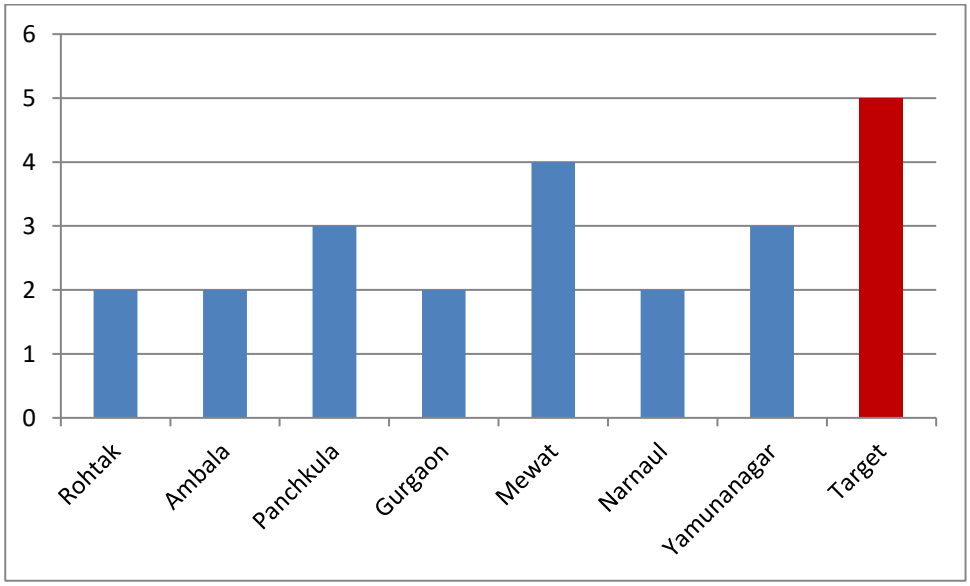


For Physical Infrastructure and facilities, fourteen criteria have been followed. Out of 14 criteria 12 required for accreditation. Only Gurgaon and Panchkula managed to meet the criteria. There was no contingency space or rooms for shifting in case of closure available in any of districts. Centralized oxygen supply and adequate illumination were available in all districts of Haryana.

Table 6: Distribution of Facilities for Thermoregulation in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Protocols for adqandeff warming for high Risk babies	1	1	1	1	1	1	1
Adq no of low reading clinical thermometers	0	0	0	0	0	0	0
Adq no of functional room thermometers	0	0	1	0	1	0	1
Adq measures for maintaining ambient temperature 2628degree	0	0	0	0	1	0	0
Electronic tele thermometers	1	1	1	1	1	1	1
Total - 5	2	2	3	2	4	2	3

Graph 5: Distribution of Facilities for Thermoregulation in SNCU

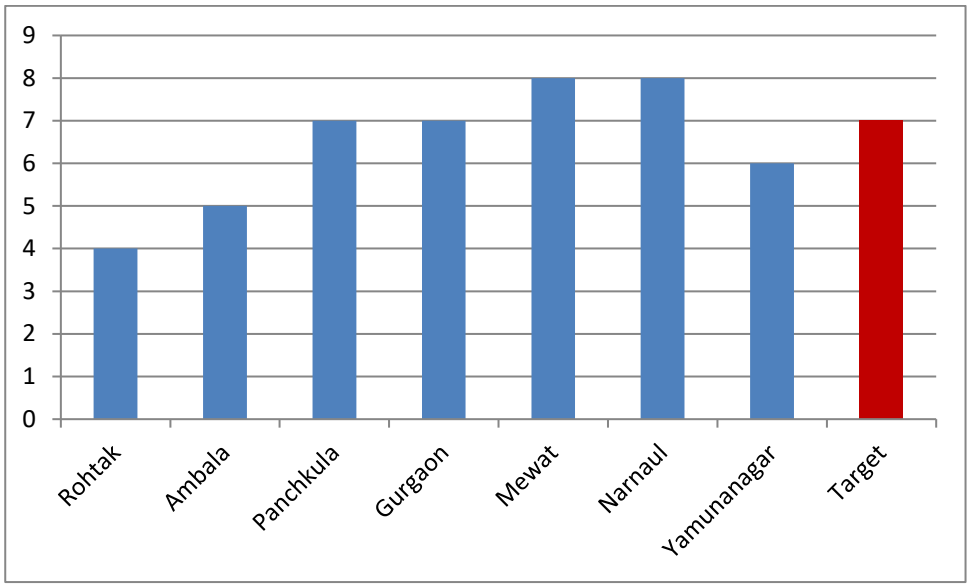


For thermoregulation, five criteria have been followed. Five criteria are required for accreditation and none of the districts were able to achieve the target. The low reading thermometers were not available in any of the districts, but instead SNCU of districts have electronic thermometer available.

Table 7: Distribution of Drugs, IV Fluids Management and Nutrition in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Protocols for IV fluids management as per FBNC Operations	0	1	1	1	1	1	1
Adq availability of Microdripsets	1	1	1	1	1	1	1
Syringe pumps or volumetric pumps	1	1	1	1	1	1	1
Availability of special IV fluids for Neonatal use	1	1	1	1	1	1	1
Accurate baby weighing scales delivery room Main SNCUs	1	0	1	1	1	1	1
Refrigerator exclusively for storing Feeds vaccines and drugs	0	0	1	1	1	1	1
Regular checking of Emergency Drugs in SNCU	0	1	1	1	0	1	0
Dedicated area for preparation of IV fluids	0	0	0	0	1	0	0
Availability of breast pump	0	0	0	0	1	1	0
Target 7	4	5	7	7	8	8	6

Graph 6: Distribution of Drugs, IV Fluids Management and Nutrition in SNCU

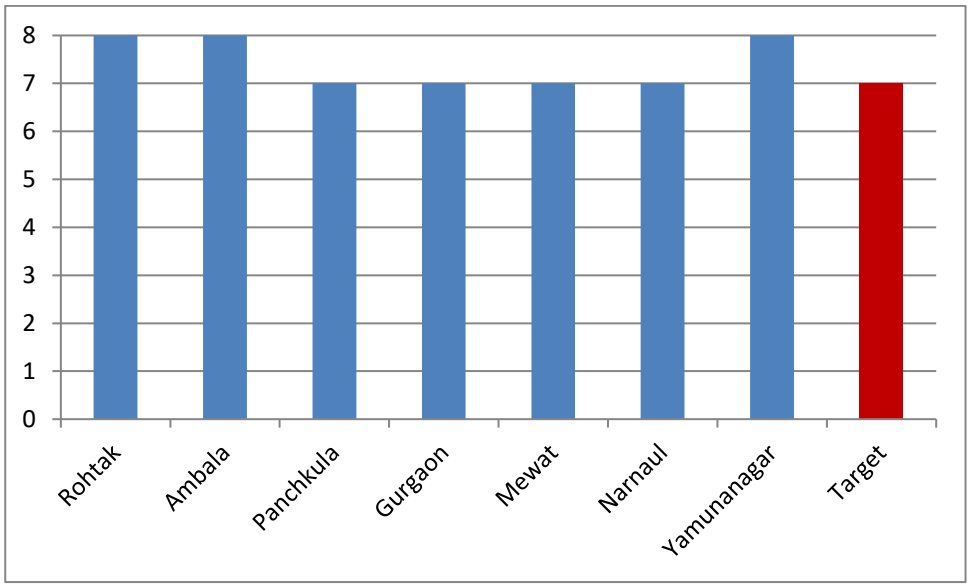


For Drugs, IV fluids management and nutrition, 8 criteria have been followed and minimum 7 were required for accreditation. Districts Yamunanagar, Ambala and Rohtak have not achieved the required target. The micro drips and syringe pumps were available in all districts.

Table 8: Distribution of Neonatal Resuscitation in Labour Rooms in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Avail of wall clock with Second arm in labour room	1	1	1	0	1	1	1
Avail of functional radiant warmer In NBCC	1	1	1	1	1	1	1
Avail of suction based mucus extractor	1	1	1	1	1	1	1
Working infant laryngoscopes with Neonatal size blades	1	2	1	2	1	1	2
Adq no of self-inflating resuscitation bag	1	1	1	1	1	1	1
Essential and emergency drugs	1	1	1	1	1	1	1
Avail of oxygen	1	1	1	1	1	1	1
Umbilical vein cannulation sets	1	0	0	0	0	0	0
Target - 7	8	8	7	7	7	7	8

Graphy 7: Distribution of Neonatal Resuscitation in Labour Rooms in SNCU

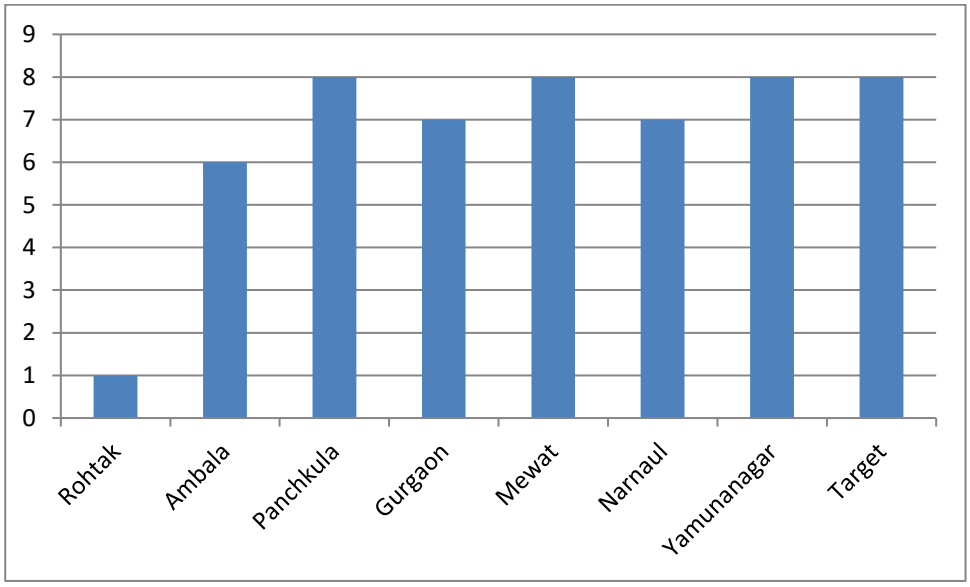


As far as neonatal resuscitation in the labour rooms are concerned, all the selected districts have well equipped labour rooms to manage any emergency arising in the newborn immediately after delivery. Here point of concern was umbilical vein cannulation set were available on at district Rohtak.

Table 9: Distribution of Infection Control Practices in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Essential supplies kit	1	0	1	1	1	1	1
Wash basin with elbow or foot Operated taps	0	1	1	1	1	1	1
Disposable hand wipes or sterile paper	0	0	1	0	1	1	0
Adq quantity of disinfectants	0	0	1	1	1	0	1
Defined protocol for handling and Disposal of soiled diapers	0	0	0	1	1	1	1
Separate routes for clean and dirty linen	0	0	0	0	0	0	0
Good standards of barrier nursing	0	1	1	1	1	1	1
Colour coded BMW bins	0	1	1	1	1	1	1
Periodic bacteriological surveillance	0	1	1	0	0	0	0
Written down unit antibiotic policy	0	1	0	0	0	0	1
Housekeeping staff do vacuum cleaning	0	1	1	1	1	1	1
Total - 8	1	6	8	7	8	7	8

Graph 8: Distribution of Infection Control Practices in SNCU

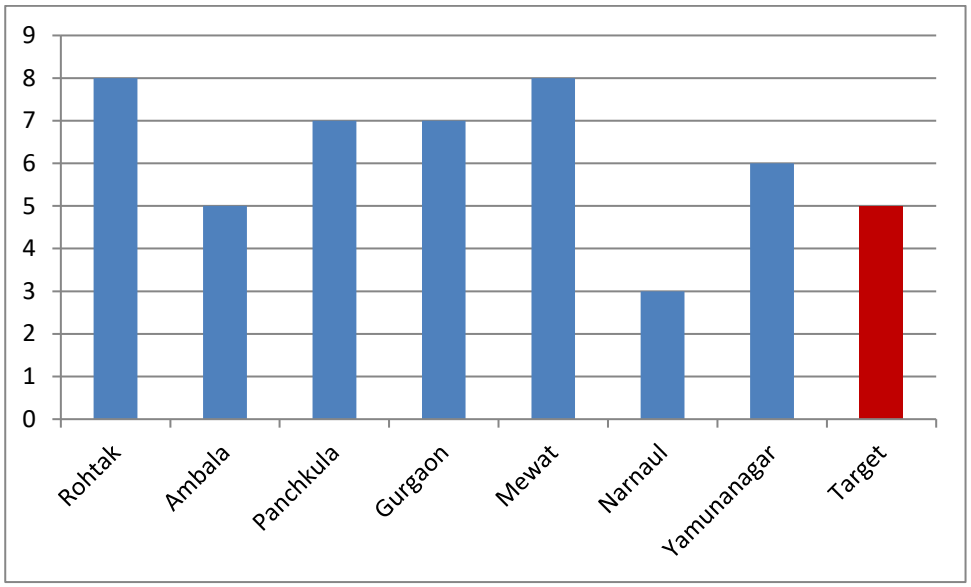


In total 8 criteria were used to assess infection control practices in the SNCUs and all 8 have to be achieved to get accreditation. District Rohtak has very poor show in this segment with score 1. Ambala was on average score and Panchkula, Mewat and Yamunanagar have achieved the full score.

Table 10: Distribution of Lab Facilities in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Serum bilirubin	1	1	1	1	1	1	1
Plasma glucose	1	1	1	1	1	1	1
Serum creatinine blood urea	1	1	1	1	1	0	1
Blood counts platelets	1	1	1	1	1	0	1
CRP	1	0	1	1	1	0	1
Serum electrolytes and calcium	1	0	0	0	0	0	0
ABG	0	0	0	0	0	0	0
Coagulogram Prothrombintime	0	0	0	0	1	0	0
USG	1	1	1	1	1	0	0
Echocardiography	1	0	1	1	1	1	1
CT scan	0	0	0	0	0	0	0
Target- 5	8	5	7	7	8	3	6

Graph 9: Distribution of Lab Facilities in SNCU

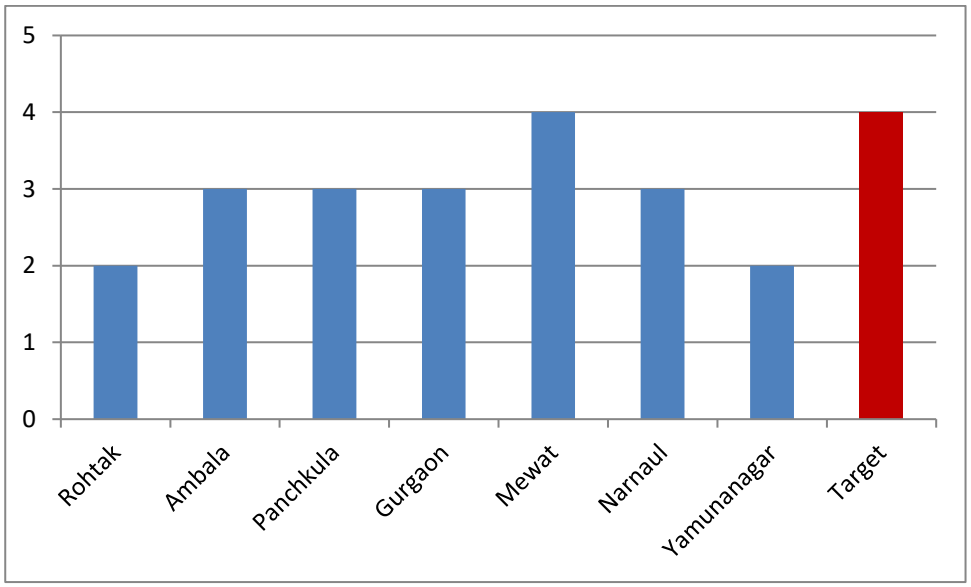


Total 8 criteria were used to assess availability of lab services. Out of 8, 5 were required to get accreditation. Here also point of concern comes regarding CT scan and ABG, which facility is not available at any of the district SNCU area. Except Narnaul all the districts have achieved the requisite target.

Table 11: Distribution of Facilities for Neo-natal Transport in SNCU (1 for Yes, 0 for No)

	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Facility for oxygenation in ambulance	1	1	1	1	1	1	1
Adq no of functional ambulance drivers	1	1	1	1	1	1	1
Ambulance staff trained basic neonatal resuscitation	0	0	0	0	0	0	0
Ambulance resuscitation equipment	0	1	1	1	1	1	0
Transport incubators during transport of babies	0	0	0	0	1	0	0
Total - 4	2	3	3	3	4	3	2

Graph 10: Distribution of Facilities for Neo-natal Transport in SNCU

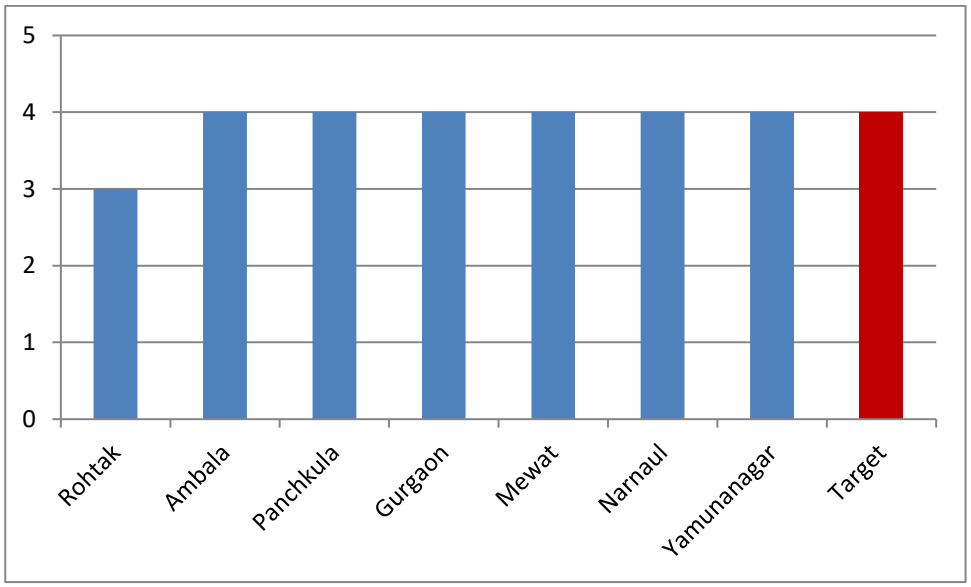


We listed total 4 criteria for facilities for neonatal transport and all 4 were essential. Only one district (Mewat) has achieved all four criteria. The basic equipment availability was found in most of the districts, but transportation of incubator was not done with babies except district Mewat.

Table 12: Distribution of Case Record Maintenance in SNCU (1 for Yes, 0 for No)

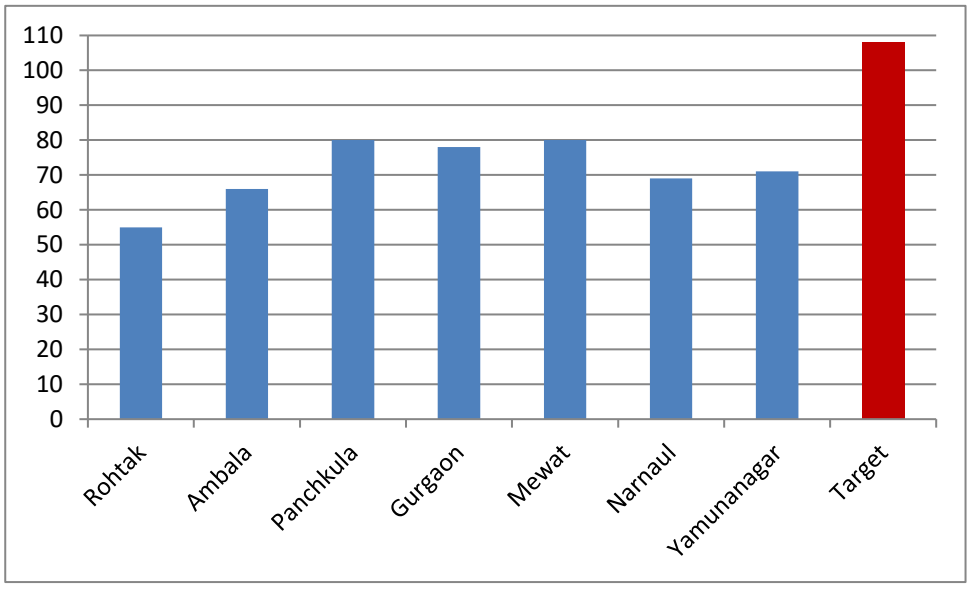
	Rohtak	Ambala	Panchkula	Gurgaon	Mewat	Narnaul	Yamunanagar
Case sheets have daily record	1	1	1	1	1	1	1
Daily charting of temp-pulse-fluid input output	1	1	1	1	1	1	1
Verbal orders by doctors	0	1	1	1	1	1	1
Unit generate monthly information report	1	1	1	1	1	1	1
Total - 4	3	4	4	4	4	4	4

Graph 11: Distribution of Case Record Maintenance in SNCU



When it comes to case record maintenance 4 criteria were used and most of the districts have achieved all four criteria except Rohtak.

Graph 1: Overall Results in SNCU (Scored achieved by each district from above tables)



The facilities were judged on the criteria provided by National Neonatology Forum (NNF) to get overall scores for accreditation level II of SNCU. We can divide all 7 districts into three categories:

a. Scoring > 75
b. Scoring > 50, but < 75
c. Score > 50

In the first category (>75 scores) the three districts (Mewat, Panchkula, Gurgaon) are categorized keeping in view the immediate action to achieve accreditation as they are having score more than 75 in comparison to target score of 84 (Table 13). Details are worked out for this category only.

Table 13: Scoring of District category wise.

Current Status of Districts	Name of Districts	• Recommendations
More than 75	Mewat, Panchkula, Gurgaon	• Written Instruction for Disinfection • Written Methods of Disinfection of Equipment. • Policy for Equipment Maintenance. • Grievance Counselling Protocol • Train Nurse in Labor room for Neonatal care • Designated area for clean utility • Separate routes for dirty linen • Periodic Bacteriological Surveillance • Written down unit antibiotic policy. • Laboratory facilities for Serum electrolytes, ABG, CT scan. • Ambulance staff trained in neonatal resuscitation
More than 50, but less than 75	Yamunanagar, Narnaul, Ambala	
Less than 50	Rohtak	

To cover this gap, following areas were identified, which were common problems in Mewat, Panchkula, and Gurgaon.

- Written Instruction for Disinfection
- Written Methods of Disinfection of Equipment.
- Policy for Equipment Maintenance.
- Grievance Counseling ling Protocol
- Train Nurse in Labor room for Neonatal care
- Designated area for clean utility
- Separate routes for dirty linen
- Periodic Bacteriological Surveillance
- Written down unit antibiotic policy.
- Laboratory facilities for Serum electrolytes, ABG, CT scan.
- Ambulance staff trained in neonatal resuscitation

If these are achieved the three districts come up with given target of NNF accreditation. Next we can concentrate on 3 districts categorized in scoring more than 50 and less than 75.

Discussion:

It was observed that the mandatory criteria were not met in any of the SNCUs. According to the guidelines each component should be met for accreditation, nevertheless the total score was satisfactory. This was conveyed to the respective SNCU in-charge and necessary actions were taken to meet up the requirements.

District Rohtak has a very low overall score. They have to improvise in many fields like Mandatory Requirements, Protocols and Processes, Human Resources, Physical Infrastructure and facilities, Facilities for thermoregulation, intravenous fluids management and nutrition, neonatal resuscitation in labour room, infection control practices, laboratory facilities, and facilities for neonatal transport. In case of protocols and processes, Only Rohtak is the district which was not able to meet the requirements. These protocols help the person to give proper guidance at the time of service delivery. In case of Human resource Rohtak, district has not met the criteria. In physical infrastructure and facilities, only Panchkula and Gurgaon had good infrastructure other institutions are lacking in this. Thermoregulation is main issue after the delivery of the child. So, all the five criteria are required to get the accreditation. Only Mewat district was near the target in IV fluids management and Nutrition, eight criteria are required. Districts Yamunanagar, Ambala and Rohtak

have not achieved the required target. As far as neonatal resuscitation in the labour rooms is concerned all the selected districts have well equipped labour rooms to manage any emergency arising in the newborn immediately after delivery.

In case of infection control practices, eight criteria were used to assess infection control practices in the SNCUs. Rohtak has very poor show in this segment with score 1. Ambala was on average score and Panchkula, Mewat and Yamunanagar have achieved the full score. In lab facilities, five criteria were required. All the districts have achieved the requisite target except Narnaul. The facilities for neonatal transport plays a main role in the hospital because if the infant is in critical condition, he/she has to refer to higher institution. So, Mewat had achieved all the five criteria. In case record maintenance, four criteria are required and all the districts have achieved the criteria except Rohtak.

Conclusion

A modern sick newborn care facility created in a district hospital can substantially reduce hospital neonatal deaths and NMR of the district. This model may be an effective tool to reduce NMR of the country. Mandatory Requirements and Facilities for Thermoregulation were not met by any of the districts. Protocols and processes, Human Resources, Drugs, IV Fluids Management and Nutrition, Neonatal Resuscitation in Labour Rooms, Infection Control Practices and Case Record Maintenance criteria were met by maximum districts whereas district Rohtak lacks in all.

Lab Facilities need improvements in Narnaul. Rohtak and Yamunanagar districts need improvement in Facilities for Neo-natal Transport. The criteria in Physical Infrastructure Facilities is exceeded by district Gurgaon and Rohtak lacks far behind with score one. Facilities for Thermoregulation also need much improvement by every district.

Depending upon the NMR, SNCU's are much required in each district to prevent the deaths of newborn.

References

1. Sen A, Mahalanabis D, Singh AK, Som TK, Bandyopadhyay S, Roy. Newborn Aides: an innovative approach in sick newborn care at a district-level special care unit. S.J Health Popul Nutr 2007 Dec;25(4):495-501

2. Bhakoo, O.N. Prematurity in India: What does the future hold?. Journal of Neonatology, Year: 2007, Volume: 21, Issue: 2 Print ISSN: 0971-2179

3. Bhakoo O.N. Challenges of neonatal intensive care in India. Journal of Neonatology, Year: 2006, Volume: 20, Issue: 3

4. Goldsmith Jay P, Karotkin Edward H, Assisted Ventilation of the Neonate, Fifth edition, Saunders Elsevier, Page 525

5. Social Sector Service Delivery, Good Practices Resource book, Planning Commission Govt. Of India, United Nations Development Programme India, 2009, Page 39

6. National Neonatology Forum's,Accreditation criteria for level II care,Revised Edition, 2012

7. Facility Based Newborn care Operational Guide.MOHFW (2011)

8. Facility Based Care Of Sick Neonate at Refferal Health Facility.NNF (2009)

9. Standarda for SNCU at District Hospital,IPHS Norms for District Hospitl, MOHFW (2010)

10. Lawn JE, Cowsens S, Zupan S; Lancet Neonatal Survival Steering Team. 4 million neonatal deaths: when? Where? Why? Lancet 2005;365:891-900

11. Dadhich JP, Paul VK, editors. State of India's newborns. New Delhi: National Neonatology Forum, 2004:13-4.

12. Rajlakshmi Viswanathan, Arun K Singh, Chiranjib Ghosh, Sudipta Dasgupta, Suchandra Mukherjee and Sulagna Basu. Profile of Neonatal Septicaemia at a District-level Sick Newborn Care Unit. J Health Popul Nutr. 2012 March; 30(1): 41–48.

13. Rahman S, Hameed A, Roghani MT, Ullah Z. Multidrug resistant neonatal sepsis in Peshawar, Pakistan. Arch Dis Child Fetal Neonatal Ed 2002;87:F52-4.

14. Lahiri A, Mallick A. Newborn health: the West Bengal perception. J Neonatol 2005;19:41-9.

Annexure

SELF ASSESSMENT TOOLKIT FOR ACCREDITATION OF LEVEL II SNCU

Objective of Accreditation

The purpose of this document is to help newborn care units to identify and implement quality care practices that lead to effective utilization of available resources while helping improve India's infant and neonatal care delivery. It is with this aim that NNF in collaboration with UNICEF has revised it's Accreditation Criteria for evaluation of Level II SNCUs to highlight the changes in technology and treatment protocols and to ensure that India is able to offer uniform, timely and affordable quality neonatal care in each district.

General Note:
(while completing this self assessment tool please take note of the following):

1) Section 1 are the **Mandatory Criteria,** which have to be met by all SNCUs wanting to get accredited. These are not flexible criteria and inability to meet any of the mandatory criteria will lead to failure of accreditation. The SNCU can however after correcting the deficiencies again apply for accreditation but not within a period of 3 months since last application.

2) The text with green background – these are the points that form the "desirable" criteria for level II SNCU, these are NOT essential or mandatory but their presence helps deliver care in more efficient way.

3) Please mark **"1"** where you meet the criteria and **"0"** when the said criterion is not met/or remains unfulfilled. Some criteria have "Partially Fulfilled" option as well for which scoring is described where ever it is mentioned.

4) Please submit the completed (in all aspects) toolkit along with the application form to NNF.

Date of Self-assessment (dd-mm-yyy)	
Health care facility name:	
Health care facility in-charge:	
SNCU in-charge (with qualifications):	
Date of starting SNCU (in dd-mm-yyy)	

1.	MANDATORY CRITERIA	Mark "Yes" or "No"	DOCUMENTARY EVIDENCE (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Does the head of the unit have post graduation qualification in Paediatrics (MD/DCH or an equivalent qualification) with a minimum of 3/5 years experience (MD/DCH respectively) after such post graduation of working in a neonatal unit?		
2	Is the unit attached to an active obstetric unit offering modern facilities for perinatal care and operative delivery?		
3	Is “Skin to Skin” contact initiated within the first hour of the birth, especially for pre-term and LBW babies?		
4	Has the unit been offering newborn care services with adequate facilities for a period of at least 9 months? This must be supported with evidence of records and reports about patient care and survival for that period?		
5	Is vitamin K given to all newborn delivered at the facility/unit and/or to outborn babies if they have reliable history of NO vitamin administration?		
6	Is the staff aware of and helps mother initiate successful breastfeeding within the first hour?		
7	Are there written instructions/guidelines for unit’s cleaning, disinfection and fumigation routines?		
8	Are there written instructions/guidelines for method of equipment cleaning and disinfection?		
9	Does the unit follow the bio-medical waste management norms as prescribed by Govt. of India?		
10	Are the provisions for hand washing adequate in the SNCU and can the staff demonstrate it as per norms for the same?		

2.	PROTOCOLS AND PROCESSES	Score	DOCUMENTARY EVIDENCE (e.g. Breast Feeding Policy, Instructions

			for cleaning, etc.)
1	Does the unit offer 24-hr delivery and new born care services?		
2	Is the staff aware of importance of skin to skin contact and KMC especially in LBW babies?		
3	Is the staff aware of all 10 Steps to successful breast feeding in maternity services and support for HIV-positive mothers?		
4	Is there protocol for referral of newborn who is seriously ill or whose condition is deteriorating?		
5	Are there protocols displayed and staff aware about management of common newborn conditions, like hypoxemia, hypoglycaemia, jaundice, pneumonia, diarrheal diseases, neonatal sepsis, shock, etc.?		
6	Is serum bilirubin measured regularly in babies at risk for jaundice and guidelines for phototherapy are displayed and followed?		
7	Is there a defined policy on equipment maintenance (including AMC, CMC, etc.) that includes the list of common problems that can be managed at the facility/unit level or by hiring a local service engineer and when should a call to the equipment vendor/manufacturer is to be made and equipment's downtime?		
8	Are there defined admission and discharge policies for the unit?		
9	Is there a protocol for follow up of high-risk babies after their discharge?		
10	Are there written instructions for handling various neonatal equipment's in the unit?		
11	Are there structured routines to educate the mother of a normal as well as a LBW baby in the skills of home care with special reference to warmth feeding, growth, immunization and identification of early signs of illness in the baby?		
12	Is there a defined process for communication of newborn's condition regularly to the parents/relatives, at least once a day?		
13	Is there a defined protocol/process for conducting grievance counselling of the parents and family by the doctor in case of newborn death?		

14	Is there a protocol of orientation of new staff and refresher course (like CME) for existing staff (records for both be available with the SNCU) - **(a) Has both orientation program and refresher courses; (b) Has only either of these; and (c) None of the two*Scoring: a=2; b=1; c=0***		
15	Are blood cultures done before starting the newborn on antibiotics for neonatal sepsis?		
16	Is there a defined protocol for triaging the newborn when they arrive at the unit/facility?		
	SCORE FOR PROTOCOLS	**0**	

3. HUMAN RESOURCES		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Has the Nurse in charge of SNCU had training in an neonatal unit?		
2	Is the nurse patient ratio overall - **(a) up to 1:2 or (b) up to 1:4 or (c) > 1:4?** ***SCORE: a = 2, b = 1 and c = 0***		
3	Is there round-the-clock availability of an FBNC trained doctor in the unit?		
4	Is there round-the-clock availability of paediatrician (in house or on call) at the unit?		
5	Is there availability of at least 1 cleaning/helper personnel in the unit per shift, even in night shift?		
6	In last 6 months, has the care giving staff had trainings related to FBNC (Facility Based Newborn Care)?		
7	Is there availability of a bio-medical engineer for maintenance of equipment, either attached with the unit or with the parent facility? *(If outsourced, please mention so in the documentary evidence column with supporting evidence)*		
8	Is there availability of at least one nurse in each shift in labour room (in the attached unit) should be well trained in neonatal special care?		
	SCORE FOR HUMAN RESOURCES	**0**	

	4. PHYSICAL INFRASTRUCTURE & FACILITIES*(It includes the list of essential equipments as submitted by the SNCU in their "Application Form")*	**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	What is space available (in sq.ft.) per bed - **(a) > = 90sqft; (b) 80-89 sq.ft; & (c) < = 79 sq.ft.** ***Score: a=2; b=1; c=0*** *(50% of this space is for the newborn beds/warmer and other 50% is for the ancillary areas like baby receiving area, beds for mothers, nursing station, staff duty room, clean/dirty utility, autoclaving area, etc.)*		
2	Is there a separate marked area or room for mothers to express their milk and breast feed the newborn?		
3	Is there provision for keeping asymptotic high risk babies or growing babies along with their mothers in a special area with good nursing cover and beds for mothers?		
4	Is there availability of uninterrupted power supply through a generator, UPS, etc.?		
5	Is there availability of continuous supply of hygienic water for use in daily operations of the unit/facility?		
6	Is there adequate illumination in general for the unit and facilities for reinforced light in each patient care area?		
7	Is there a portable X-ray facility available round the clock?		
8	Is there availability of oxygen concentrators, central oxygen supply or oxygen through cylinders; along with central suction or suction via foot operated machines, in the unit?		
9	Has there been a power audit of the unit? *(in which electrical load of the unit was calculated and accordingly electrical wiring and installations done)*		
10	Are there designated areas for clean utility and dirty utility?		
11	Does the Unit have provision for Pulse oximeter(s)?		
12	Are there facilities for CPAP and short term ventilation?		
13	Is facility for blood culture available? It could be either in house or with the parent hospital or outsourced (in case of outsourced, MOU is required with clear delineation of reporting timelines)		

14	Is there provision for contingency space/rooms for shifting the unit in case of temporary closure of the unit due to epidemics?		
15	Are there facilities for exchange transfusion, if not available then the name and contact number of the referral healthcare facility?		
16	Is there availability of illumination/Flux Meter? *(for checking light flux of Phototherapy units and illumination levels in the unit) SNCU can ask the service engineer to measure the illumination (Lux) when they come for AMC/CMC.*		
	SCORE FOR PHYSICAL INFRASTRUCTURE AND FACILITIES	**0**	

5. FACILITIES FOR THERMOREGULATION		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, etc)
1	Are protocol(s) for adequate and effective warming for high risk babies during special care as well as during various procedures displayed in the unit and is the staff aware of the same?		
2	Are there adequate number of low reading clinical thermometers - **(a) 1 per baby, (b) 1 per two babies or (c) 1 per 3 or more babies** ***SCORE: a = 2, b = 1 and c = 0***		
3	Are there adequate number of functional room thermometers (at least one for each baby care room) ?		
4	Does the unit have adequate measures for maintaining the ambient temperature of the baby care area, like use of air conditioning in very hot climate and of room warmers in cold climate to maintain the temperature between the 26-28 degree Celsius range?		
5	Are electronic tele-thermometers for continuous recording of baby's temperature available in the unit?		
	SCORE FOR FACILITIES FOR THERMOREGULATION	**0**	

6. DRUGS, INTRAVENOUS FLUIDS MANAGEMENT AND NUTRITION	**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions

			for cleaning, etc.)
1	Are there protocols for intravenous fluids management as per the FBNC Operational Guidelines Module?		
2	Is there adequate availability of Microdrip (intravenous) sets?		
3	Does the unit have syringe pumps or volumetric pumps ?		
4	Does unit have availability of special intravenous fluids for neonatal use?		
5	Is there availability of accurate baby weighing scales (electronic/analog) in each of the patient care areas like delivery room, main SNCU area and the lying-in wards?		
6	Is there availability of a functioning refrigerator exclusively for storing feeds, vaccines and drugs in each baby care area?		
7	Is there regular checking of Emergency Drugs (tray) and/or Crash cart in SNCU?		
8	Does the unit have dedicated area for preparation of IV fluids for babies with laminar flow?		
9	Is there availability of breast pump (Electronic/Manual)?		
	SCORE FOR DRUGS, INTRAVENOUS FLUIDS MANAGEMENT AND NUTRITION	**0**	

7. NEONATAL RESUSCITATION IN LABOUR ROOM		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Is there availability of wall clock with second's arm in labour room?		
2	Is there availability of functional radiant warmer for the newborn in the newborn care corner?		
3	Is there availability of suction based mucus extractor or a functioning pressure controlled suction machine?		
4	How many working infant laryngoscopes with neonatal size blades and appropriate adapter to fit the endotracheal tubes to the resuscitation bag are there in labour room: **(a) 2 (two), (b) 1 (one), (c) 0** i.e. there is no dedicated and working laryngoscope for the labour room. **SCORE: a=2; b=1; c=0**		

5	Does the unit have adequate number of self inflating resuscitation bag and well fitting neonatal face masks (at least two sizes for masks)?		
6	Does the unit have adequate availability of **"essential and emergency drugs"** e.g. adrenaline, RL, normal saline, etc.?		
7	Is there availability of oxygen (central or from cylinder) with a flow meter?		
8	Does the unit have umbilical vein cannulation set(s)?		
	SCORE FOR NEONATAL RESUSCITATION IN LABOUR ROOM	**0**	

8. INFECTION CONTROL PRACTICES		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Is there adequate availability of **"essential supplies kit"** in the unit? *(Kit consists of: Towel; Bag & Mask; Suction device (with catheter); Gloves; Alcohol-based hand rub)*		
2	Does the unit have at least one wash basin for every 5 beds with elbow (or foot or any mechanism which doesn't require use of washer's hands) operated taps with soap (medicated/normal) at each such wash basin?		
3	Is there adequate availability of disposable hand wipes or sterile paper?		
4	Is there adequate quantity of disinfectants available in the unit? *(e.g. alcohol hand rub, hypochlorite solution, Cidex, Bacillocid, Polysan, Savlon, etc.)*		
5	Is there a defined protocol for handling and disposal of soiled diapers and soiled linen?		
6	Are there separate routes for clean and dirty linen going in and out of the unit?		
7	Does the unit have good standards of barrier nursing like separate gowning area, shoe changing area, double door entry to patient care areas?		
8	Is there adequate availability of colour coded BMW bins in each of the different areas of the unit?		
9	Is periodic bacteriological surveillance done of the unit by infection control committee?		
10	Is there a written down unit antibiotic policy?		
11	Does the house keeping staff do vacuum cleaning of the unit?		
	SCORE FOR FACILITIES FOR INFECTION CONTROL PRACTICES	**0**	

9. LABORATORY FACILITIES *Does the unit have following tests available (either from the side lab, hospital lab or outsourced lab)*		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Serum bilirubin (both direct and indirect)		
2	Plasma glucose		
3	Serum creatinine/blood urea		
4	Blood counts, platelets, band count		
5	C-reactive protein (CRP)		
6	Serum electrolytes and calcium		
7	Blood gas analysis with pH measurement facility		
8	Coagulogram, Prothrombin time		
9	Ultra Sonography (USG)		
10	Echocardiography		
11	CT scan		
	SCORE FOR INVESTIGATION FACILITIES	**0**	

10. FACILITIES FOR NEONATAL TRANSPORT		**Score**	**DOCUMENTARY EVIDENCE** (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Is there facility for oxygenation in the ambulance by means of a portable oxygen cylinder/head box?		
2	Are there adequate number of functional ambulance drivers and/or paramedics (in-house/outsourced) available?		
3	Is the ambulance staff trained in basic neonatal resuscitation and care?		
4	Does the ambulance have resuscitation equipments that are ready to use (e.g. self inflating resuscitation bag with mask, mucus extractor etc.) ?		
5	Is there a transport incubator(s) available with the unit for use during transport of babies?		
	SCORE FOR FACILITIES FOR NEONATAL TRANSPORT	**0**	

	11. CASE RECORD MAINTENANCE	Score	DOCUMENTARY EVIDENCE (e.g. Breast Feeding Policy, Instructions for cleaning, etc.)
1	Does the case sheets have daily record of patient examination and daily orders including drug prescriptions with signature of the treating doctor?		
2	Is there record of daily charting of temperature, pulse and fluid input/output in case sheets with signature of on duty nurse?		
3	Are the verbal orders by doctors verified by them within 24 hours of giving such orders?		
4	Does the unit generate monthly information report regarding status of the unit?		
	SCORE FOR CASE RECORD MAINTENANCE	**0**	

TOTAL SCORE	**0**	
Total Score for "Desirable Criteria"	**0**	

List of abbreviations used:

AMC - Annual Maintenance Contract
BMW - Bio Medical Waste
CMC - Comprehensive Maintenance Contract
CME - Continued Medical Education
CPAP - Continuous Positive Airway Pressure
FBNC - Facility Based Newborn Care
IV - IntraVenous
KMC - Kangaroo Mother Care
LBW - Low Birth Weight
NBCC - New Born Care Corner
SNCU/SCNU - Special Newborn Care Unit/Special Newborn Care Unit

Resources used:

*** Facility Based Newborn Care Operational Guide. MoHFW (2011).**

*** Facility Based Care of Sick Neonate at Referral Health Facility. NNF (2009)**

*** Standards for SNCU at District Hospital, IPHS Norms for District Hospital, MOHFW (2010).** Illumination should be 300-400 Lux for general lighting and should be ~ 600 lux at each patient care area.

* "Essential Supplies Kit" between bed sides of two neonates: Towel; Bag and mask; Suction device (with suction catheter); Gloves; Alcohol-based hand rub. **(Modified from: WHO safe child birth checklist)**