INTERNSHIP TRAINING AT NATIONAL HEALTH MISSION HARYANA

BY

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PGDHM
2012-2014

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

DISSERTATION

IN

NHM HARYANA

(FEBUARY 3RD TO APRIL 31TH 2014)

A STUDY ON

QUALITY ASSESSMENT OF SPECIAL NEW BORN CARE UNITS (SNCU) IN FIVE DISTRICT OF HARYANA

BY

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UNDER THE GUIDANCE OF

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NEW DELHI

2012-2104

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2014

CERTIFICATE OF DISSERTATION COMPLETION

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr.Girdharilal Yadav** has successfully completed his dissertation in our organization from February 5, 2014 to April 30, 2014. During this dissertation he has worked on project "**Quality Assessment Of Special Newborn Care Units In Five Districts Of Haryana**" & also co-ordinated for all child health Programmes under the guidance of me and my team at National Health Mission, Haryana.

We wish him good luck for his future assignments.

(Signature) 2/5/14

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This is to certify that Dr. Girdhar Jay Yadav student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at National Health Mission Haryana from 3/2/14 to 31/4/14

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I wish him all success in all his future endeavors.

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Certificate of Approval

The following dissertation titled "**A Study on Quality Assessment of Special Newborn care Units In Five Districts Of Haryana"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily 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.

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This is to certify that **Mr./Ms./Dr. Your Name,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled " TITLE OF YOUR PROJECT" at "YOUR ORGANIZATION" 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.

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Quality assessment of Special new born care units (SNCU) in five districts of Haryana and submitted by (Name) Dr. Girdharilal Yadav Enrollment No. PGP/031 under the supervision of Dr. Vinay Tripathi for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 3/2/14 to 31/4/14 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

FEEDBACK FORM

Name of the Student: DR. Giridhariilal . Yadav

Dissertation Organisation: National Health mission Haryana

Area of Dissertation: facility based Newborn care.

Attendance: 97%

Objectives achieved: 1) Quality assessment of selected SNCUs using a standard checklist (self-assessment)
2) To develop & validate the scoring system to conduct analysis

Deliverables: 1) To conduct semi-structured interviews of Staff & Parents/Relatives.
2) Share the findings apart from the checklist - Qualitative findings to the district & state officials

Strengths: Hard working, time management

Suggestions for Improvement: Communication skills, report writing

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

Medical Officer (Child Health)
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Place:

ABSTRACT

The neonatal mortality rate in India is high and stagnant. Special Care Newborn Units (SCNUs) have been set up to provide quality level II newborn-care services in all district hospitals to meet this challenge. The units are located in some remotest districts where the burden of neonatal deaths is high, and access to special newborn care is poor. The study was conducted to assess the functioning of SCNUs in five rural districts of India. The evaluation was based on an analysis of primary data from the five units that had been functioning for at least one year. A cross-sectional survey was conducted to assess the availability of human resources, equipment, and quality care. Descriptive statistics were used for analyzing the inputs (resources) and outcomes (morbidity and mortality).In study we judged SNCU on the basis of scoring in two part i.e mandatory and essential and its should be more than 75% .And its found that in Jind district overall score is very less i.e Mandatory 40%,Essential 15% while the score of Hisar was M-60%, E-41%,and remaining three districts score were satisfactory i.e more than or equal to 75%.Individual scoring of each districts on various parameter which were used to assess the quality of SNCU also calculated. In which all districts scored almost less than 20% in protocol and process parameter Drugs fluids and nutrition mandatory score of each Districts satisfactory and met the standard of accreditation, but essential score is almost zero for all five Districs. Services given by the SNCU is most important part in which all five districts Mandatory score were satisfactory i.e more than 70% but Essential score were less than60% so need to improvise the Essential services specially Jind, Sirsa, Kaithal. Infection control practices :eight criteria were used to assess infection control practices in the SNCUs. Jind has very poor show in this segment with score 32%. fatehabad was on average score and 88%, Kaithal and Sirsa have achieved the full score.while scored for another factor were average or satisfactory. On the basis of secondary data from SNCU online software outcomes were also found, In last academic year maximum number of babies admitted to SNCU were diagnosed with Birth Asphyxia, sepsis, LBW, in which Discharged % were highest in all five districts. while in district Fatehabad and Jind referred rate much higher than remaining three Districts. while the expired rate was much less as compared with discharged babies.so from study its being clear that less scoring SNCU were performed low in outcomes also.

ACKNOWLEDGMENT

"Any accomplishment requires the grace of god as well as help and good wishes of many people and this work is not different."

This perspicuous piece of acknowledgement is an opportunity and humble privilege for me to express my deepest sense of gratitude and in debtness to those people without whose help, assistance and guidance, the present work would have been impossible.

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I extend my sincere thanks to **Dr**. **Rakesh Gupta (MD NRHM-Haryana)** for his endeavor and genuine support. I express my gratitude to him for encouraging me at every moment throughout the internship period.

I am very grateful to **Dr. Suresh Kumar Dalpath (DD, CH Division, NRHM-Hry**.) for his guidance, encouragement, constant supervision and valuable help during my study period.

I thank with profound honour and regards **Dr. Krishan Kumar (MO, CH Branch, NRHM-Hry)**. With his scholarly research guidance, constant supervision, timely advice, moral support and selfless help throughout the period, I have completed my internship without any obstacle..

I am highly indebted to **Dr. L.P. Singh (Director, IIHMR, New Delhi) & Vinay Tripati (Associate professor IIHMR, New Delhi**) for their valuable advice, help and encouragement during the study period. I gratefully acknowledge the assistance and critical remarks rendered by faculty members to bring it in effect.

I must render my sincere thanks to the **DIO's of these five districts** for their cooperation and support. I am also thankful to CMO's of these districts for their support.And I am thankful to state SNCU consultant **Dr. Mandar** for their guidance and support in doing of studies.

My obligations are especially to my parents from whom I learnt the art of dedication, sincerity and patience, which has helped me throughout the work period. Their love and blessings were and will remain my constant guide.

Place: Panchkula Dr. Girdharilal Yadav

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**

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INTRODUCTION

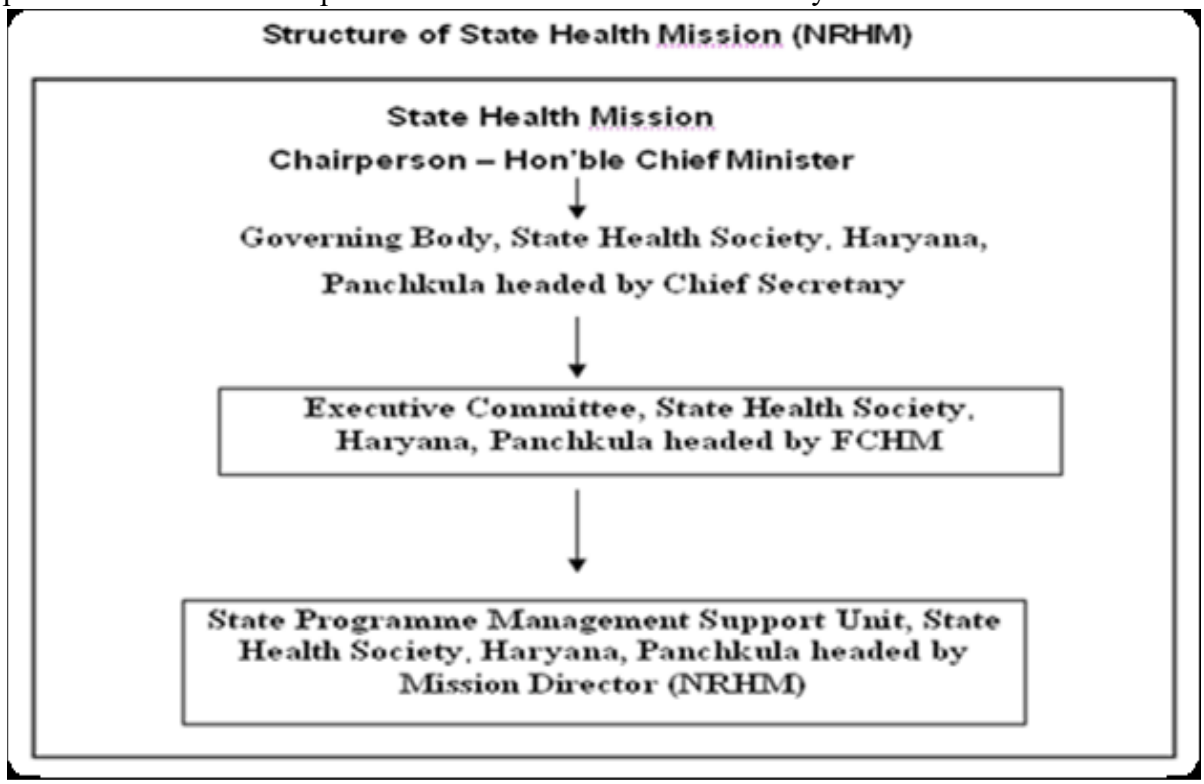
1. ORGANIZATION PROFILE

A. Introduction

The National Rural Health Mission seeks to provide effective health care to rural population throughout the country. It aims to undertake architectural correction of the health system to enable to effectively handle increased allocations as promised under the National Common Minimum programme. It has as its key components provision of a female health activist in each village; a village health plan prepared through a local team headed by the Health & Sanitation Committee of the Panchayat. It aims at effective integration of health concern with determinants of health like sanitation & hygiene, nutrition, and safe drinking water through a District Plan for Health. As per mandate under NRHM the State Health Society has been reconstituted under the Chairmanship of Chief Secretary, Haryana adopting multi department approach and involvement of all stake holders.

 Mission – Mission of NRHM is to improve the quality of life of people by providing better Health Services. It strives to help people improve their productivity and reduce risks of diseases and injury in a cost-effective way.

 Vision--NRHM seek to establish long-term relationships with groups and individuals to enable them to continue to work to achieve optimal health. It delivers cost-competitive health promotion services with patient's satisfaction and accountability.



B. Some of functions and duties of health department*:*

Health department has manifold functions and duties which are as under:-

- Provide promotive, preventive,curative and rehabilitative services to the community through primary health care delivery system.
- Provide equitable and quality health care at primary, secondary and tertiary level.
- Extension, expansion and consolidation of rural health infrastructure.
- Respond to the local community health needs and request.
- It takes many steps for population stabilization.
- Provide Reproductive and Child Health Services with the objective of reducing MMR & IMR.
- Provide immunization services against vaccine preventive diseases of childhood as well as pregnant mothers against tetanus during child birth.
- Provide Family Welfare Services. 9. Provide Essential Obstetric Care.
- Enforcement of PNDT Act to prevent Sex Determination

C. Programme Implementation Plan for 2013-14

State of Haryana has made steady progress in NRHM implementation during first phase of NRHM (2007-2012). State has now reached the stage from where it requires taking a leap forward. There has been considerable increase in the funds absorption capacity over the last few years, particularly after 2008-09. NRHM have however identified certain loose ends which need to be tightened up in the next phase. 2012-13 continues to retain the proposal of 2011-12, barring few structural changes necessitated by sub optional achievement in certain areas.

Program management needs a revamp both at state and district level. While on one hand state is averse to creating extra posts under NRHM but on the other this need people who can manage the program at district and sub district level. Community processes and main streaming of AYUSH have been weak areas. This year NRHM is proposing to link these two weak areas to strengthen both of them. It is proposed that MO (AYUSH) will function as community process manager at block level to look after ASHA, SMS, IBSY and HBPNC programs. AYUSH doctors otherwise well equipped to handle such programs have been underutilized. They will be paid extra honorarium for community process work.

ASHA program in Haryana has started moving; there has been increasing realization that if ASHA moves everything else would move along with it. There are two structural changes proposed this year in ASHA program: first, there will be an ASHA

supervisor from among the best performing ASHA at PHC level who will be paid extra honorarium for the work and second, there will be increased honorarium for ASHA for ensuring service delivery to SC and BPL population. In 2012-13, proposing 3000 new ASHAs in rural areas according to population norms. It is also proposed to have ASHA in urban areas to provide much needed extension services in urban slums.

State has proposed a new weekly Iron Folic Acid supplementation (WIFS) program for adolescent girls in colleges in all the districts. This will supplement the efforts of **Indira Bal Swasthya Yojana (IBSY)** for controlling anemia in children and adolescents.
Analysis of expenditure in last few years has revealed that while salary component has been almost fully utilized, the expenditure in services and procurement has not been commensurate. In new PIP, it has been proposed to link honorarium with performance- there will be fixed component of honorarium which will be same as in last PIP plus a variable component which will be based on performance and can go up to 50 percent of the fixed honorarium. State has proposed to bolster its procurement wing to cut down delays in procurement.

Managerial Tasks I Did With Respect To The Departments

During the three months of working period in the office, I mainly co-ordinated for the various programmes of child health . Also, I was involved in below mentioned activities.
After one month of extensive training period,I did three district visit for supportive supervision of various child health programmes such as

- Essential newborn care supportive supervision in Districts Narnaul, Sirsa, Yamunanagar
- Routine immunization supportive supervision in above all three districts.
- On job training to staff nurse and ANM on ENBCR.
- Data entry of all the finding then analyzed the data and explain with higher authority of respective Districts person such civil surgeon, DIO.
- Quality assessment of Special newborn units in five Districts of Haryana which is als now the topic of my dissertation.

Learning's In Dissertation Time

- I came to know about various health programmes managed by the organization.
- Work culture in govt. organizations as we think, is not the same everywhere.
- In NRHM Haryana there is lot of pressure of work in most of departments .
- This provided me an opportunity to field exposure .
- I came to know the harsh reality of health conditions prevalent in Haryana state.
- I learned the various programmes run by GOI regarding Child Health Programmes
- I got the training of
- Essential new born care,
- Routine Immunization,
- Home base New born care,
- IMNCI (integrated management of newborn child illness.
- Research type activities are very less held in NRHM, Haryana. This project by me created a niche in NRHM to think about the involvement of Researchers & health managers in their organization.
- I also attended review meetings of CMO & also aware with points discussed in IMR reduction. These provided me a lot of knowledge & a platform to learn.

- Last but not the least, I came to know that career in public health management is not as easy

INTRODUCTION

In India, 26 million babies are born every year, and 940,000 babies die before one month of life. India carries the single largest share (around 25-30%) of neonatal deaths in the world. The neonatal period is only 28 days; yet, Neonatal Mortality Rate (NMR) contributes to about two-thirds of Infant Mortality Rate (IMR) and about half of Under-5 Mortality Rate (U5MR).

There is a growing recognition that to meet national goals and the Millennium Development Goals (MDGs) to bring down childhood mortality, a substantial reduction in NMR is needed, and reducing deaths in the first week of life is essential to make progress. The Government of India (GoI) is committed to improve the availability of quality newborn care services in addition to renewing efforts in providing quality health care for women, infants and young children under the National Rural Health Mission (NRHM) and its Reproductive and Child Health Programme (RCH II).

Preventable morbidities such as hypothermia, asphyxia, infections, prematurity and respiratory distress continue to be the main causes of mortality in the neonatal period. There is an increasing need to focus on newborn care and survival for significant reduction in IMR and U5MR and strengthen the care of sick, premature, low birth weight newborns at the various levels of facilities right from the moment to birth through the neonatal period.

One of the key steps in this direction is the establishment of Facility Based Newborn Care (FBNC) services at various levels of health care facilities. FBNC has a significant potential for improving newborn survival and can reduce neonatal mortality by as much as 25-30%.

Neonatal care at different levels under FBNC program

Three levels of neonatal care under the FBNC program are as following:

Level I care includes referral of sick newborns from Primary Health Centres (PHCs) to higher centres and care at Neonatal Stabilization Units (NSUs) in the first referral units. Care in the NSUs includes stabilization of sick newborns and care of low-birth weight (LBW) babies not requiring intensive care.

Level II care includes functioning of Special Newborn Care Units (SNCUs) at the district hospital and some of the sub district hospital level. These units are being established at any health facility where the delivery load is more than 3000 per year and are equipped to handle sick newborns other than those who need ventilator support and surgical care. It has been estimated that around 15-20% of all newborns require level II care in rural settings.

Level III units are the Neonatal Intensive Care Units (NICU) which provide all care including assisted ventilation and major surgery.

Under this initiative, MoHFW established Special Newborn Care Unit (SNCU) in 2009-10 focusing on comprehensive care to a sick newborn.

Special Newborn Care Unit (SNCU)

SNCU is a neonatal unit in the vicinity of the labour room which provides Level 2/3 care (all care except assisted ventilation and major surgery) for sick newborns. All district hospitals and sub-district hospitals with more than 3000 deliveries per year should have a SNCU.

Expected services to be provided at SNCU:

Table 1: Expected services to be provided at SNCU

Care at birth	Care of normal newborn	Care of sick newborn
• Prevention of Infection • Provision of warmth • Resuscitation • Early initiation of Breastfeeding • Weighing the newborn	• Breast-feeding/ feedings support	• Managing of LBW babies < 1800 gm • Managing all sick newborns (except those requiring mechanical ventilation and major surgical interventions) • Post-natal care • Follow-up of high-risk newborns • Immunization services and referral services

(Source: Facility based Newborn Care Operational Guidelines 2011)

Components of SNCU

Baby Care Area: This should have at least 12-16 warming beds and may be divided into two interconnected rooms separated by transparent observation windows with the nurses' work place in between. This facilitates temporary closure of one section for disinfection.

Step-down Unit: This is an additional 5 bed step down unit where recovering neonates can stay i.e. neonates who don't need intensive monitoring.

Newborn Ward: This is an additional 10-20 beds, where both mother and the newborn stay together. This facility is to be used for neonates who require minimal support such as for

phototherapy, for uncomplicated LBW babies (>1800gm) requiring only observation and those babies who require only intravenous antibiotic therapy.

Ancillary area: Distinct support space should be provided for all other services that are routinely performed in the SNCU. The ancillary area should include space for the following:

- Nursing work station, hand washing and gowning area at the entrance
- Side Laboratory Room
- Follow-up clinic
- Examination Area
- Clean area for mixing intravenous fluids and medications
- Store Room and Power Room
- Teaching and Training Room
- Place for in-house facility for washing, drying, boiling and autoclaving
- Duty Room for doctors and Nurses
- Place for promotion of breast-feeding and learning mother craft etc.

Human resources for Special Newborn Care Unit

A 12-bedded unit (plus 4 beds for the step-down area) requires at least one paediatrician (M.D.-Paediatrics) or a trained doctor round-the-clock. Assuming that one doctor provides back-up of 8 hours, at least three trained doctors (M.B.B.S.) should be available at the facility. It is proposed that one paediatrician trained in neonatology should be posted at the unit, supported by two or three medical officers trained in FBNC. There should be three nurses in each shift, round-the-clock and sufficient nurses (G.N.M.) recruited to provide for leave vacancy and contingency.

In addition to doctors and paramedics, dedicated support staff should be available to clean the unit at least once during every shift and more often depending on the need. A part-time lab technician, a counsellor and a data entry operator (PGDCA) should also be posted at the unit.

Criteria for admission to SNCU:

Any newborn with following criteria should be immediately admitted to the SNCU:

- Birth weight <1800gm or gestation <34 weeks
- Large baby (>4.0kg)
- Perinatal asphyxia
- Apnea or gasping
- Refusal to feed
- Respiratory distress (Rate >60 or grunt/retractions)
- Severe jaundice (Appears <24 hrs/stains palms and soles/lasts >2 weeks)
- Hypothermia <35.4 degree C or hyperthermia (>37.5 degree C)
- Central cyanosis
- Shock (Cold periphery with CFT>3 seconds and weak & fast pulse)
- Coma, convulsions or encephalopathy

- Abdominal Distension
- Diarrhea / Dysentery
- Bleeding
- Major malformations

Criteria for discharge from SNCU to home:

- Baby is able to maintain temperature without radiant warmer
- Baby is hemodynamically stable (normal CFT, strong peripheral pulses)
- Baby accepting breast feeds well
- Baby has documented weight gain for 3 consecutive days; and the weight is more than 1.5kg .Primary illness has resolved
- In addition to the above, mother should be confident of taking care of the baby at home.

Training of SNCU staff on newborn care

To ensure that the staff has the necessary skills to provide the appropriate level of care, the medical and paramedical staff posted at SNCU need to undergo:

Navjaat Shishu Suraksha Karyakram (NSSK):

NSSK addresses important interventions of care at birth, that is basic newborn resuscitation, prevention of hypothermia, prevention of infection, early initiation of breast feeding, and equips the staff with 2 days knowledge and skill based training to provide essential newborn care in primary health care settings.

Facility based IMNCI (F-IMNCI) training:

F-IMNCI is skill-based training, based on a participatory approach combining classroom sessions with hands-on clinical sessions. Medical officers and nurses not trained in IMNCI and working at health facilities should receive the full package of training with 11 days duration of training and 5 days for those already trained in IMNCI.

Facility based newborn care (FBNC) training:

All doctors and nurses posted in SNCUs need to undergo a more intensive training programme at a recognized centre. The training programme includes 4 days skill-based training on essential and special care. Besides skills on clinical management, additional training is provided on housekeeping and maintenance of the equipment.

Observer ship training: This programme includes 2 weeks training for all doctors and nurses posted in SNCU.

Equipments for SNCU

Modern day neonatal intensive care necessitates the use of biomedical equipment for optimum care of sick and small newborn babies. The essential equipments for SNCU are given below:

A. Equipment for thermal control: Radiant warmers, Incubators, Transport incubators etc.
B. Equipment for monitoring: Pulse oximeter, Apnea monitors, BP monitors, Thermometers, Weighing scales, Transcutaneous Bilirubinometer and Blood gas monitor etc.
C. Equipment for treatment purpose: Phototherapy units, Infusion pumps etc.
D. Equipment for monitoring therapy: Oxygen analyser, Fluxmeter etc.
E. Life saving equipments: Manual resuscitator, Oxygen concentrator, CPAP machine, Neonatal ventilators etc.
F. Miscellaneous: Suction machine, Breast pump etc.

Cost of setting up SNCU

SNCUs require a huge investment in terms of money and other resources. It is estimated that Rs 40-60 lacs are spent to establish a single unit. Since SNCUs are expected to play a key role in saving newborn lives and the huge investment they require, it becomes essential to monitor their functioning and ensure newborn care services are provided effectively.

Evidence of effectiveness of level II newborn care in rural settings

There has been little evidence of feasibility and effectiveness of level II newborn care in rural settings. From one of the pioneering studies done in Purulia district in West Bengal, It was demonstrated that strengthening of secondary-level care can lead to significant reduction in mortality among admitted newborns and was further estimated to lead to reduction in neonatal mortality of the entire district. This study was conducted in a district hospital with 6500 deliveries a year. Baseline data for 10 months were compared with 2 years data of SNCU operation.

Compared with the baseline neonatal mortality in the district hospital the neonatal mortality rate among admitted newborns reduced by 14% in the first year and by 21% in the second year after the SCNU became functional. At the population level, this was estimated to have led to reduction in the NMR by about 10% in the district in two years.

Another study was conducted to assess the functioning of SNCUs in eight rural districts of India. The evaluation was based on an analysis of secondary data from the eight units that had been functioning for at least one year. A cross-sectional survey was also conducted to assess the availability of human resources, equipment, and quality care. Descriptive statistics were used for analyzing the inputs (resources) and outcomes (morbidity and mortality). The rate of mortality among admitted neonates was taken as the key outcome variable to assess the performance of the units. It was shown that the case-fatality rate was reduced from 4% to 40% within one year of their functioning. Proportional mortality due to sepsis and low birth weight (LBW) declined significantly over two years (LBW <2.5 kg). The major reasons for admission and the major causes of deaths were birth asphyxia, sepsis, and LBW/prematurity. The units had a varying nurse: bed ratio (1:0.5-1:1.3). The bed occupancy rate ranged from 28% to 155% (median 103%), and the average duration of stay ranged from two days to 15 days (median 4.75 days). Repair and maintenance of equipment were a major concern

RATIONALE OF STUDY

- SNCUs are expected to play a key role in saving newborn lives. Huge investment required, so it becomes essential to monitor their functioning and effectively.
- New RCH initiatives such as JSY, JSSK are gaining ground and hence SNCU network need to be well-strengthened
- The Government of India (GOI) is committed to improve the availability of quality newborn care services in addition to renewing efforts in providing quality health care for women, infants and young children under the National Rural Health Mission (NRHM) and its Reproductive and Child Health Programme (RCH II).
- There is an increasing need to focus on newborn care and survival for significant reduction in IMR and U5MR and strengthen the care of sick, premature, low birth weight newborns at the various levels of facilities right from the moment to birth through the neonatal period. Hence, the need has emerged to evaluate the overall functioning of SNCUs in terms of utilization, performance on the basis of geographical and ecological factors, treatment outcome, socio-demographic and clinical factors, and functionality, availability and adequacy of the facilities at SNCU.
- As identifying the gaps, it help in the decision making process and the corrective actions can be taken immediately.
- This study can be held in all the other districts of Haryana by Child Health Department, If State, through this tool, achieves a score of Mandatory >80 of each parameter in each of its facilities, Haryana can achieve the best Indian standards in Neonatal Care.

REVIEW OF LITERATURE

Operational guide on FBNC has been developed to facilitate planning, establishment, operationalisation and monitoring of newborn care facilities at various levels of public health facilities. The guidelines given here will assist programme managers and service providers at national ,state and district level in planning and delivering FBNC. The first section of the guide focuses on specifications and processes related to establishment of new facilities, while the second section provides technical guidance (key clinical protocols) to service providers working in newborn care facilities for managing sick newborns. The guidelines have been put together based on recommendations of an expert group that was set up by the Gal and included experts from medical colleges, professional bodies- National Neonatology Forum {NNF)and Indian Academy of Paediatrics (lAP) -and from UNICEF,WHO,USA!D and NIP!.

The operational guide includes information on various aspects that need to be addressed for ensuring quality newborn care services and is organized in two sections.

Section 1: Setting up, costing and operational steps

Section II: Key clinical protocols and other technical documents

Terminology

Newborn Care Corner (NBCO)

NBCC is a space within the delivery room in any health facility where immediate care is provided to all newborns at birth. This area is MANDATORY for all health facilities where deliveries are conducted.

Newborn Stabilization Unit (NBSU)

NBSU is a facility within or in close proximity of the maternity ward where sick and low birth weight newborns can be cared for during short periods. All FRUs/CHCs need to have a neonatal stabilization unit, in addition to the newborn care corner.

Special Newborn Care Unit (SNCU)

SNCU is a neonatal unit in the vicinity of the labor room which will provide special care (all care except assisted ventilation and major surgery) for sick newborns. Any facility with more than 3,000 deliveries per year should have an SNCU (most district hospitals and some sub-district hospitals would fulfill this criteria).

1…The study was conducted to assess the functioning of SCNUs in eight rural districts of India. The evaluation was based on an analysis of secondary data from the eight units that had been functioning for at least one year. A cross-sectional survey was also conducted to assess the availability of human resources, equipment, and quality care. Descriptive statistics were used for analyzing the inputs (resources) and outcomes (morbidity and mortality). The rate of mortality among admitted neonates was taken as the key outcome variable to assess the performance of the units. Chi-square test was used for analyzing the trend of case-fatality rate over a period of 3-5 years considering the first year of operationalization as the base. Correlation coefficients were estimated to understand the possible association of case-fatality rate with factors, such as bed: doctor ratio, bed: nurse ratio, average duration of stay, and bed occupancy rate, and the asepsis score was determined. The rates of admission increased from a

median of 16.7 per 100 deliveries in 2008 to 19.5 per 100 deliveries in 2009. The case-fatality rate reduced from 4% to 40% within one year of their functioning. Proportional mortality due to sepsis and low birthweight (LBW) declined significantly over two years (LBW <2.5 kg). The major reasons for admission and the major causes of deaths were birth asphyxia, sepsis, and LBW/prematurity. The units had a varying nurse:bed ratio (1:0.5-1:1.3). The bed occupancy rate ranged from 28% to 155% (median 103%), and the average duration of stay ranged from two days to 15 days (median 4.75 days). Repair and maintenance of equipment were a major concern. It is possible to set up and manage quality SCNUs and improve the survival of newborns with LBW and sepsis in developing countries, although several challenges relating to human resources, maintenance
of equipment, and maintenance of asepsis remain.

2….Evidence-based, cost-effective interventions: how many newborn babies can we save?
Gary L Darmstadt, Zulfiqar A Bhutta, Simon Cousens, Taghreed Adam, Neff Walker, Luc de Bernis, for the Lancet Neonatal Survival Steering Team

In this article of the neonatal survival series, we identify 16 interventions with proven efficacy (implementation under ideal conditions) for neonatal survival and combine them into packages for scaling up in health systems, according to three service delivery modes (outreach, family-community, and facility-based clinical care). All the packages of care are cost effective compared with single interventions. Universal (99%) coverage of these interventions could avert an estimated 41–72% of neonatal deaths worldwide.

3….To evaluate the impact of creating a sick newborn care unit (SNCU) in a district hospital on neonatal mortality rate (NMR). This study was conducted in a district hospital with 6500 deliveries a year. A 14 bed SNCU that included controlled environment, individual warming and monitoring devices, infusion pump, central oxygen and oxygen concentrators, resuscitation and exchange transfusion, portable X-ray and in-house laboratory was created. Doctors and nursing personnel were trained. Baseline data for 10 months were compared with 2 years data of SNCU operation. A 14 bed SNCU that included controlled environment, individual warming and monitoring devices, infusion pump, central oxygen and oxygen concentrators, resuscitation and exchange transfusion, portable X-ray and in-house laboratory was created. Doctors and nursing personnel were trained. Baseline data for 10 months were compared with 2 years data of SNCU operation. Compared with the baseline neonatal mortality in the district hospital, neonatal mortality was reduced by 14% in the first year and by 21% in the second year after SNCU became functional. Estimated neonatal deaths averted were 329, which would reduce NMR of the district from 55 to 47 in 2 years

4…A study of neonatal admission into anewborn special care unit.Nigeria journal of peadiatric 1994:21:20:A retrospective study of newborn babies admitted over aperiod of six year into the Newborn special care unit(NBSCU).the number of babies admitted was 5376.babies of LBW comprised 25.7percent of total admission.there was progressive annual increase in the admission of outborn babies from 0.7 percent in 1982 to 21.4 in 1987.there similar annual increase in admission of babies of LBW from 17.3 to 51.8percent.the overall mortality was high at 10.5 percent of the cases.

OBJECTIVE:

General :

To assess the quality of services provided by Special Newborn Care Units (SNCU) and monitor and identify gaps in the functioning of SNCUs in selected districts of Haryana.

Specific Objectives:

- ❖ To assess the quality of services provided by Special Newborn Care Units (SNCU) in selected districts of Haryana on basis of following factors
- Services
- Infrastructure
- Equipments
- Human Resources
- Protocols and processes
- Facilities of thermoregulation
- Drugs ,fluid and nutrition
- Labour room/OT and resuscitation
- Infection control practices
- Laboratory facilities
- Case record maintenance

❖ To monitor and identify gaps in the functioning of SNCUs in selected districts of Haryana with help of national neonatal forum tool.

DATA & METHODS

- The study will be conducted to assess the functioning of selected SNCUs in the districts of Haryana.

Materials & Methods

Study area- Five districts of Haryana

Study Design - Cross-sectional study.

Study period – Feb 3rd to April 31th 2014

Study population- Special newborn care unit of five districts of haryana

Sampling Frame – SNCU are selected as per performance and convenience.

Sample Size – Total five SNCU, one at each district

Study Tool – A pre-designed, pre-tested structured questionnaire**.**

Data Collection Technique – Primary data collected from the SNCU's that have been functioning for past one year through NNF Self-Assessment Tool.

Data collection was done by myself appointed for the SNCU study**.** For reference in future during data collection, an instruction manual was formulated by my state consultant of SNCU. Myself visited to all the 5 SNCUs of Haryana and filled the format developed for the study. Data collection was done in 10 days.

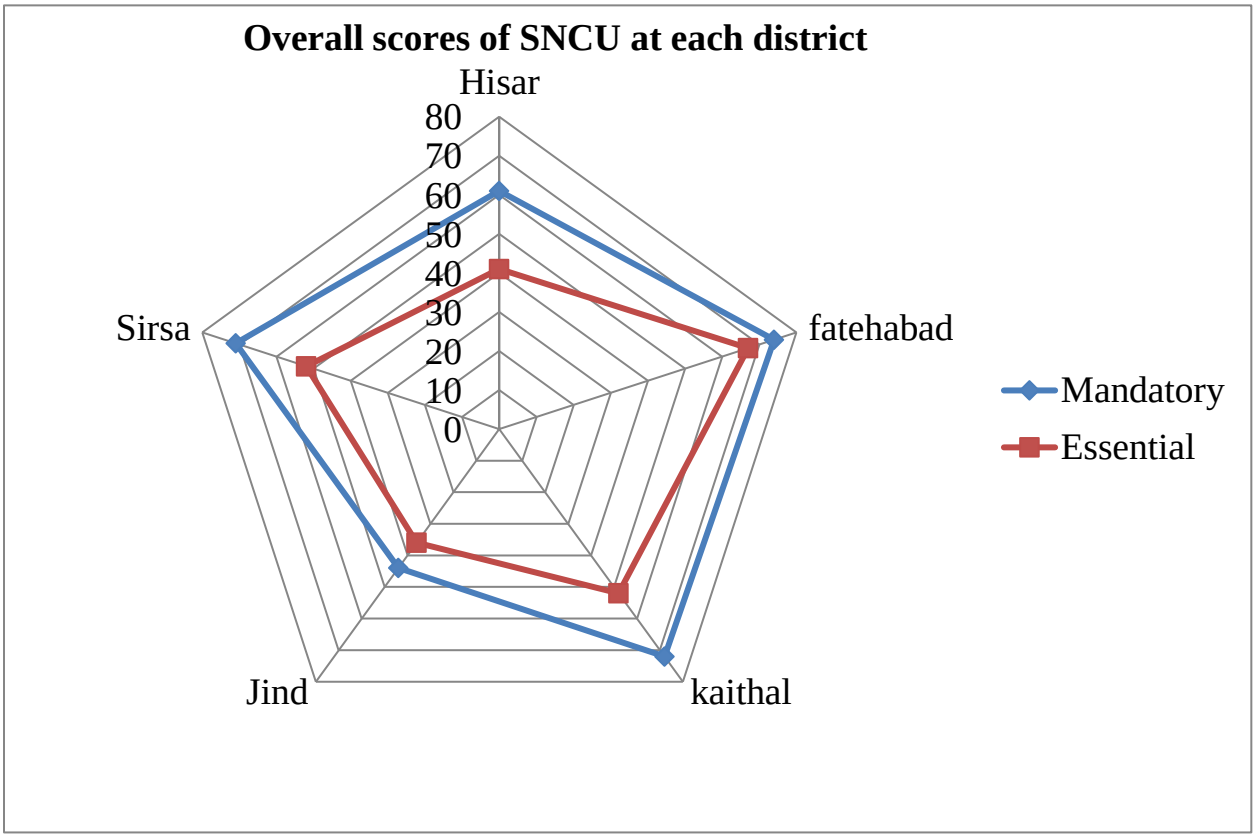
Following methods were used for data collection:

1. Recording secondary data on case wise information from SNCU record sheets/ registers and online software of SNCU at facility (data over the period of last 1 years (2013 - 2014).
2. These checklists (NNF format) captured information on following points

- Services
- Infrastructure
- Equipments
- Human Resources
- Protocols and processes
- Facilities of thermoregulation
- Drugs ,fluid and nutrition
- Labour room/OT and resuscitation
- Infection control practices
- Laboratory facilities
- Case record maintenance

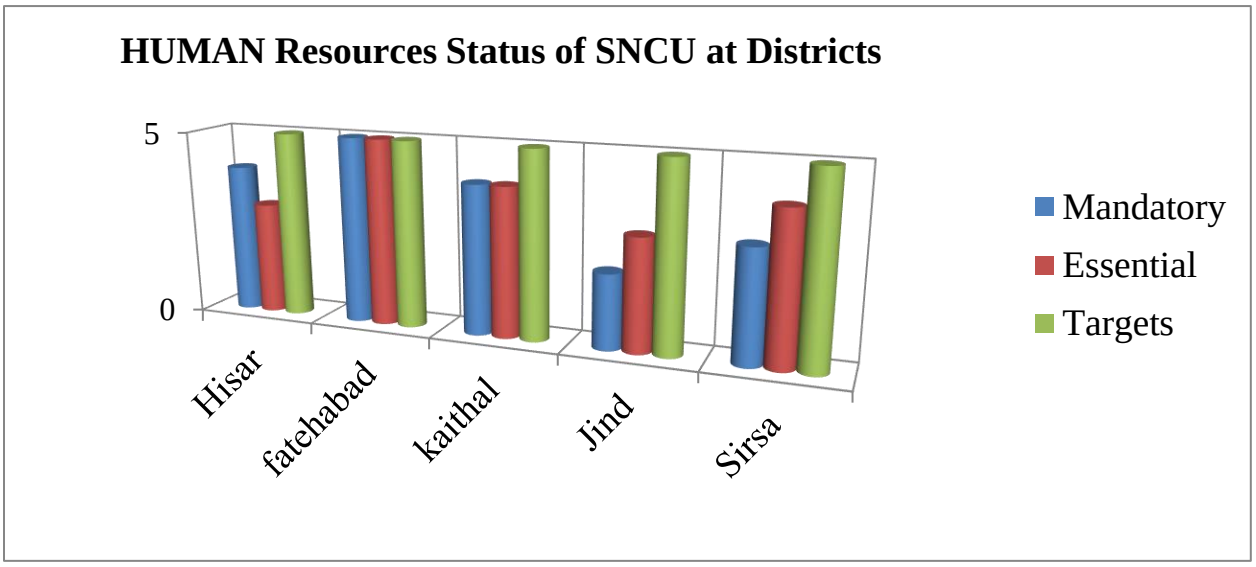
3. The national neonatal tools consist of two part i.e Mandatory and Essential so all the above parameter evaluate on the basis of mandatory and essential. As Mandatory is 100% and Essential on the 75% and for accreditation of SNCU through NNF Mandatory and Essential should be 75%. .
4. Structured tool to capture data on the variables to be explored for association with treatment outcome.

Results and Observation

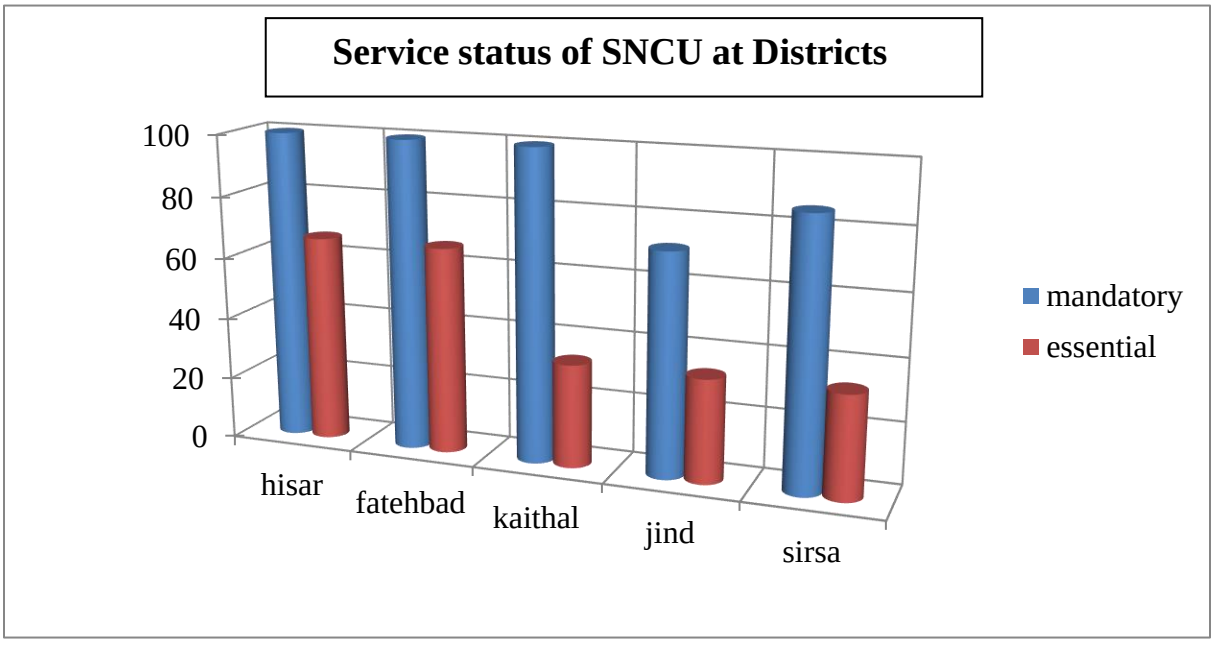


Above graph shows the overall status of SNCU in each districts of as per mandatory and essential Scoring in which Fatehbad score Mandatory 74% Essential 67%,Hisar M-61%,E-41% Kaithal M-72%,E-52% Jind M-44%,E-36%,Sirsa Score M-71%,E-52%.Above graph shows that in Jind and Hisar there are more scope of improvement and the performance of Fatehbad ,Kaithal and sirsa are satisfactory.

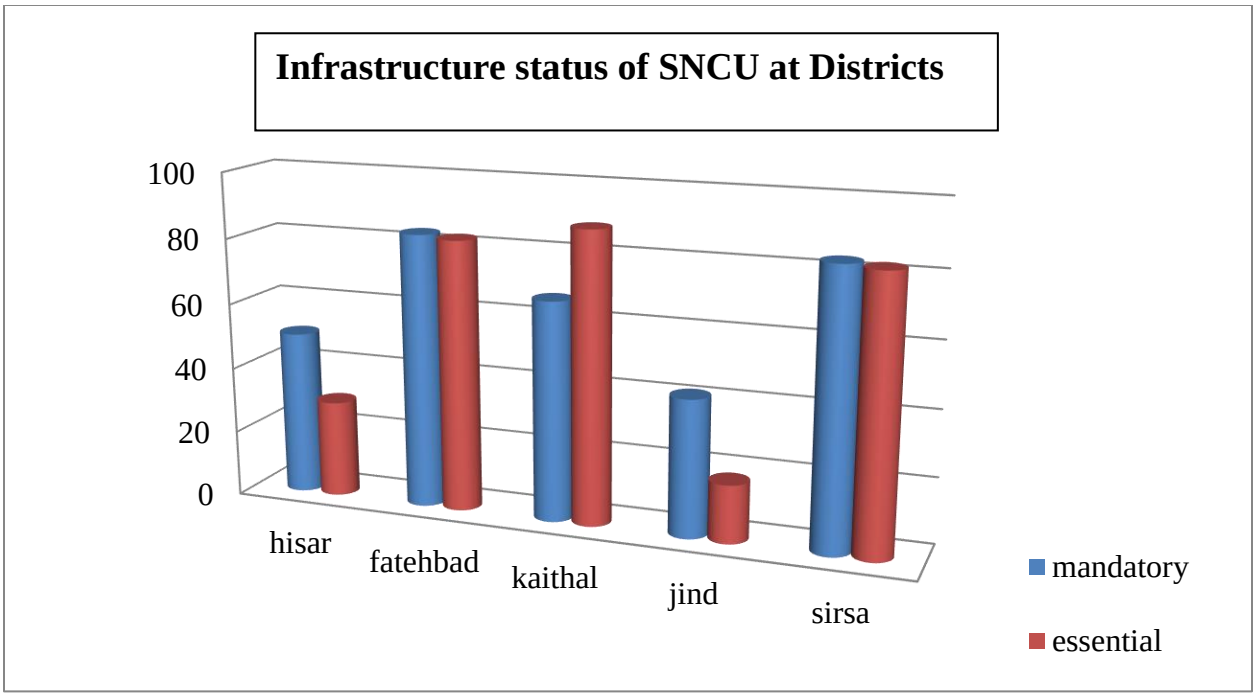
Now the below graph shows the scoring of Mandatory, Essential as per individual component :



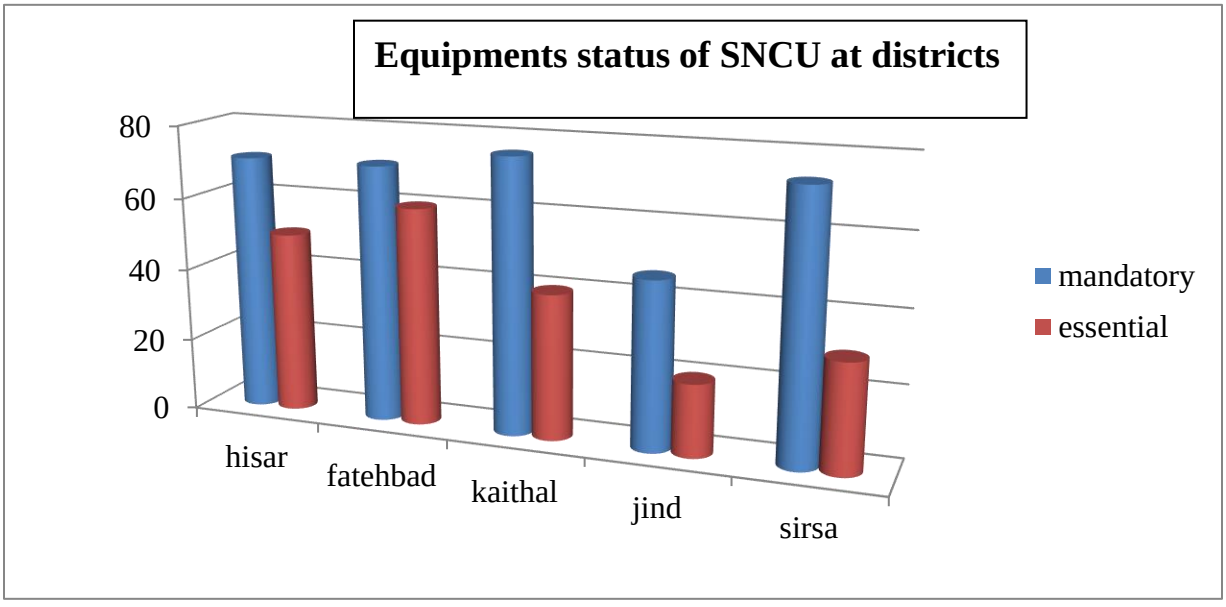
Above graphs shows that only Fatehbad SNCU achieved target of 5 point,and the status of Jind is very low.



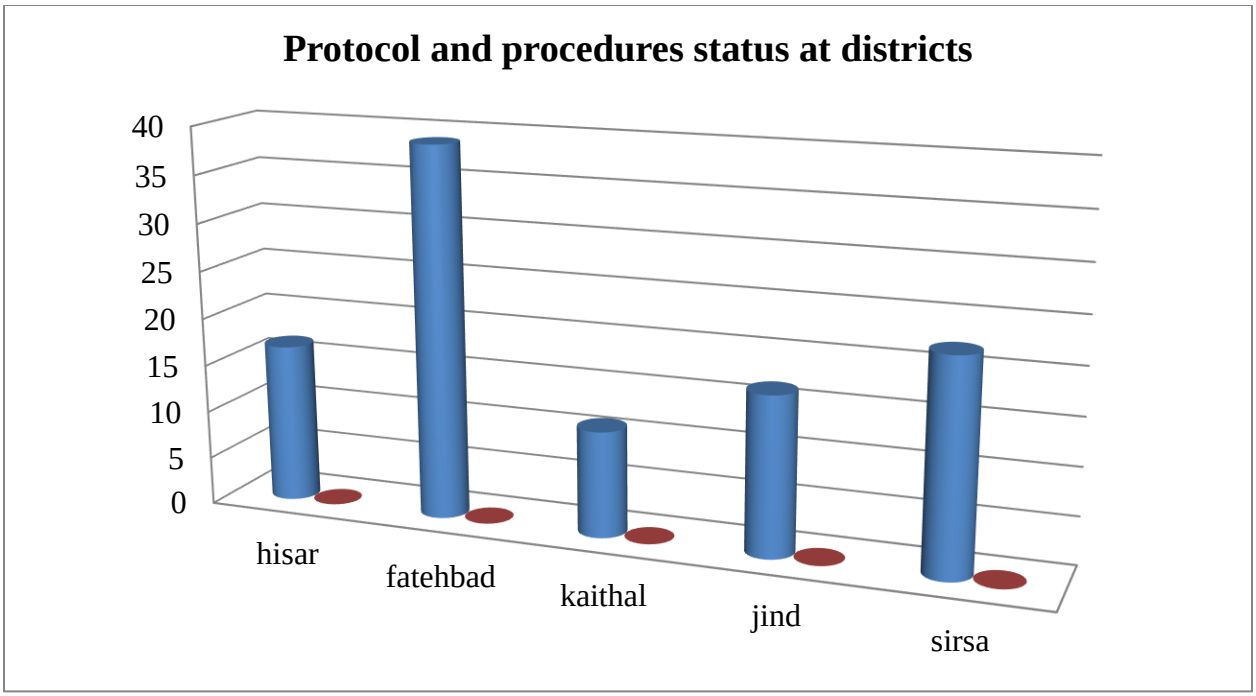
Above graphs shows the services status of SNCU in which except Jind and Sirsa remaining three DistrictsHisar, Fatehbad, and Kaithal achieved 100% scoring of Mandatory.but the essential scoring of all districts is less than targets of 75%.



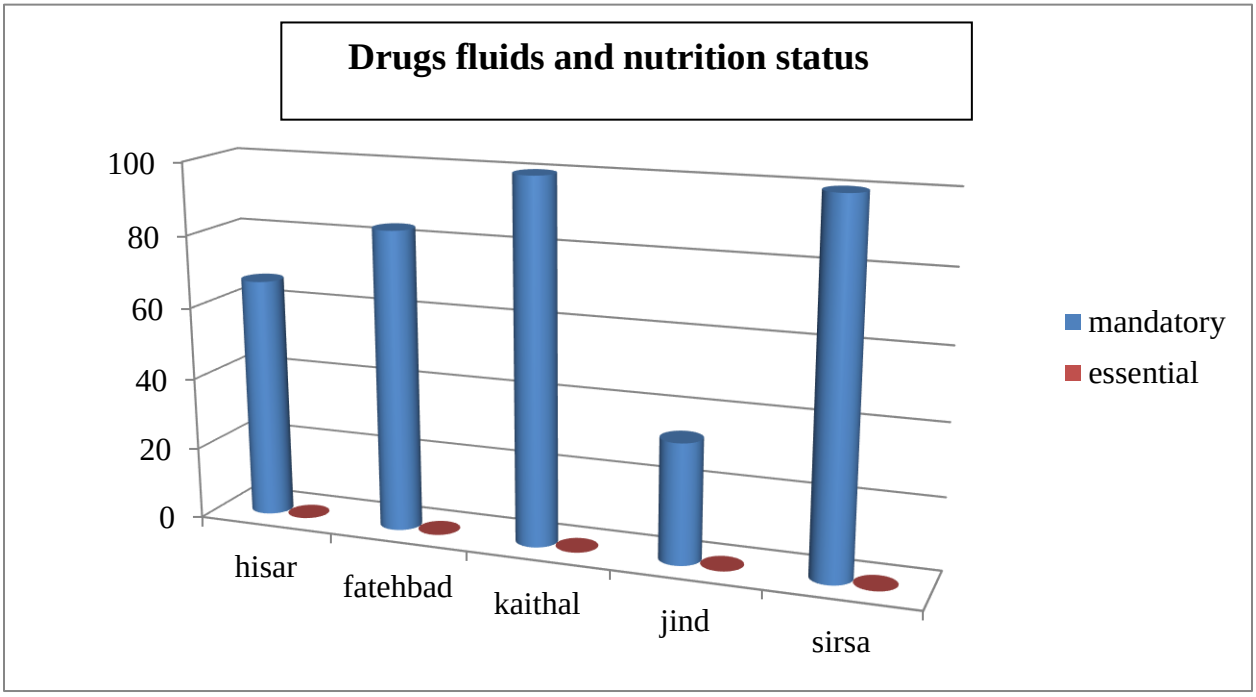
Above Graph shows the the scoring of infrastructure status of SNCU of each Districts in which fatehabad and Sirsa score almost 80% in both Mandatory and Essential scoring,while Hisar M-50% E-29%,Kaithal M-67%,E-88%,Jind M-42%,E-18%.



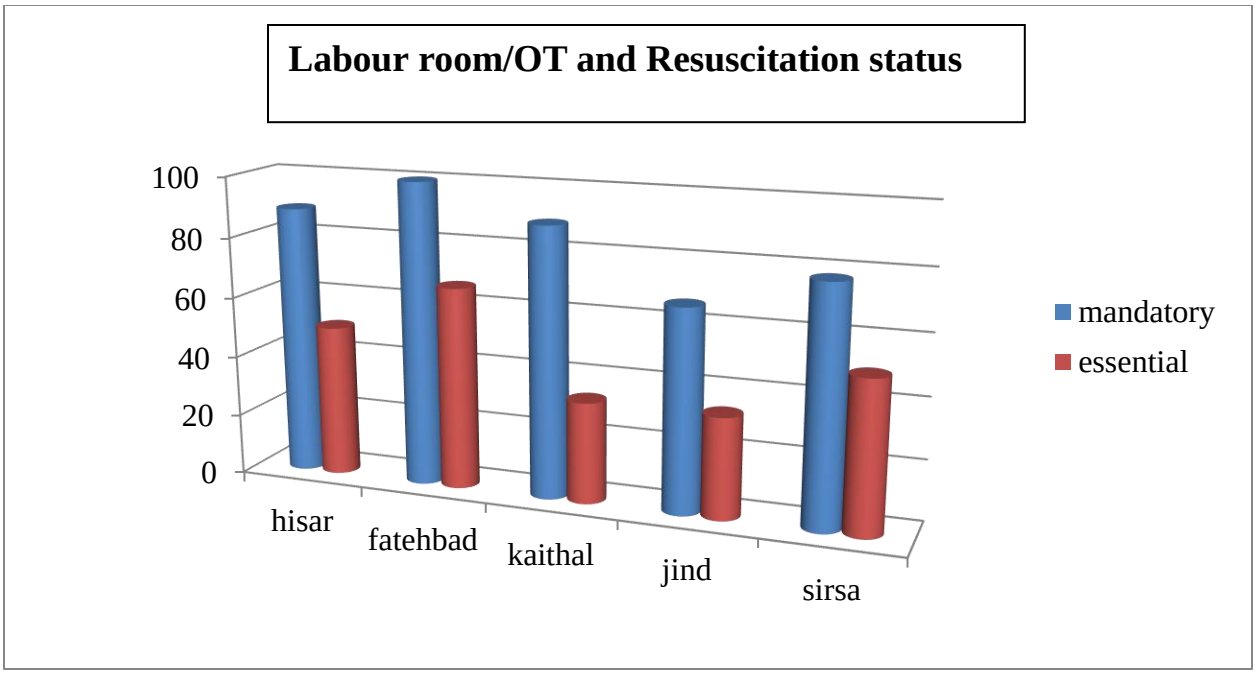
Above Graph shows the the scoring of Equipments status of SNCU of each Districts in which Fatehabad M-70%,E-40% ,SirsaM-73%,E-30%, Kaithal M-75%,E-40% while Hisar M-70% E-50%,Jind M-46%,E-20%,its means except jind all district mandatory scoring are satisfactory.



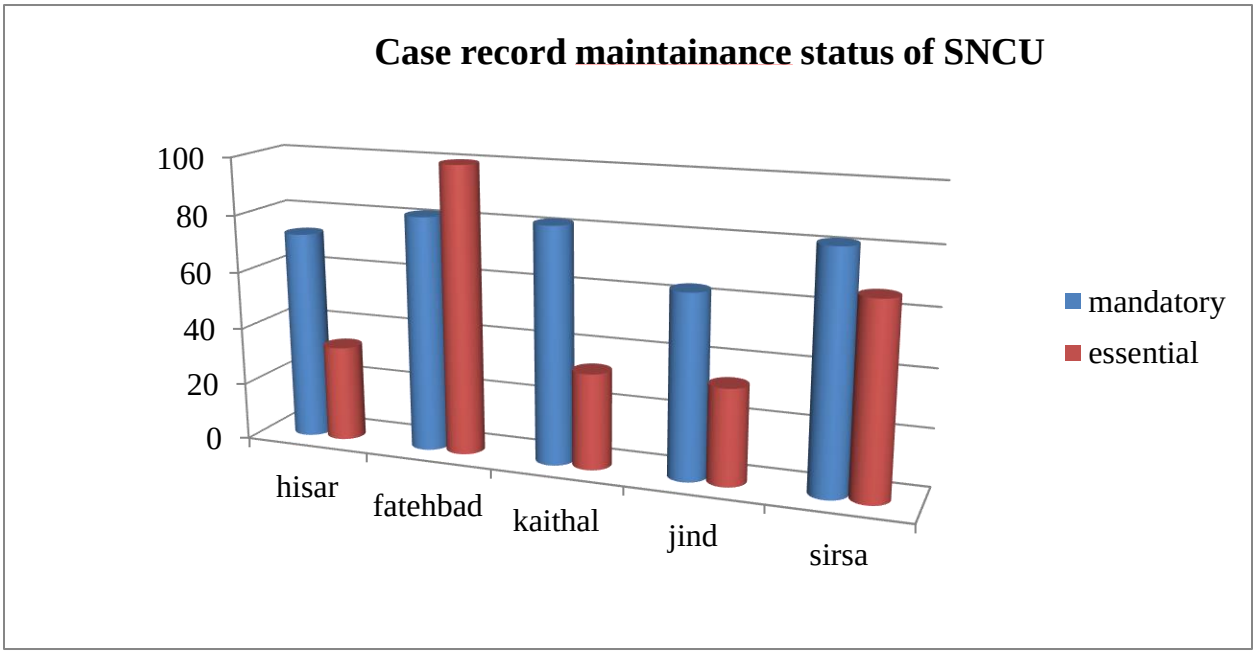
Above graph shows that all SNCU Essential scoring are Zero.and Mandatory scoring of fatehbad 39%,Hisar 17%,kaithal 11%,Jind 17%,Sirsa 22%



Above graph shows that Essential scoring of each districts are zero regarding drugs fluid and nutrition,while the Mandatory scores of Sirsa ,Kaithal and Fatehbad scored more tha 80%,and Hisar 63%,Jind 36%.

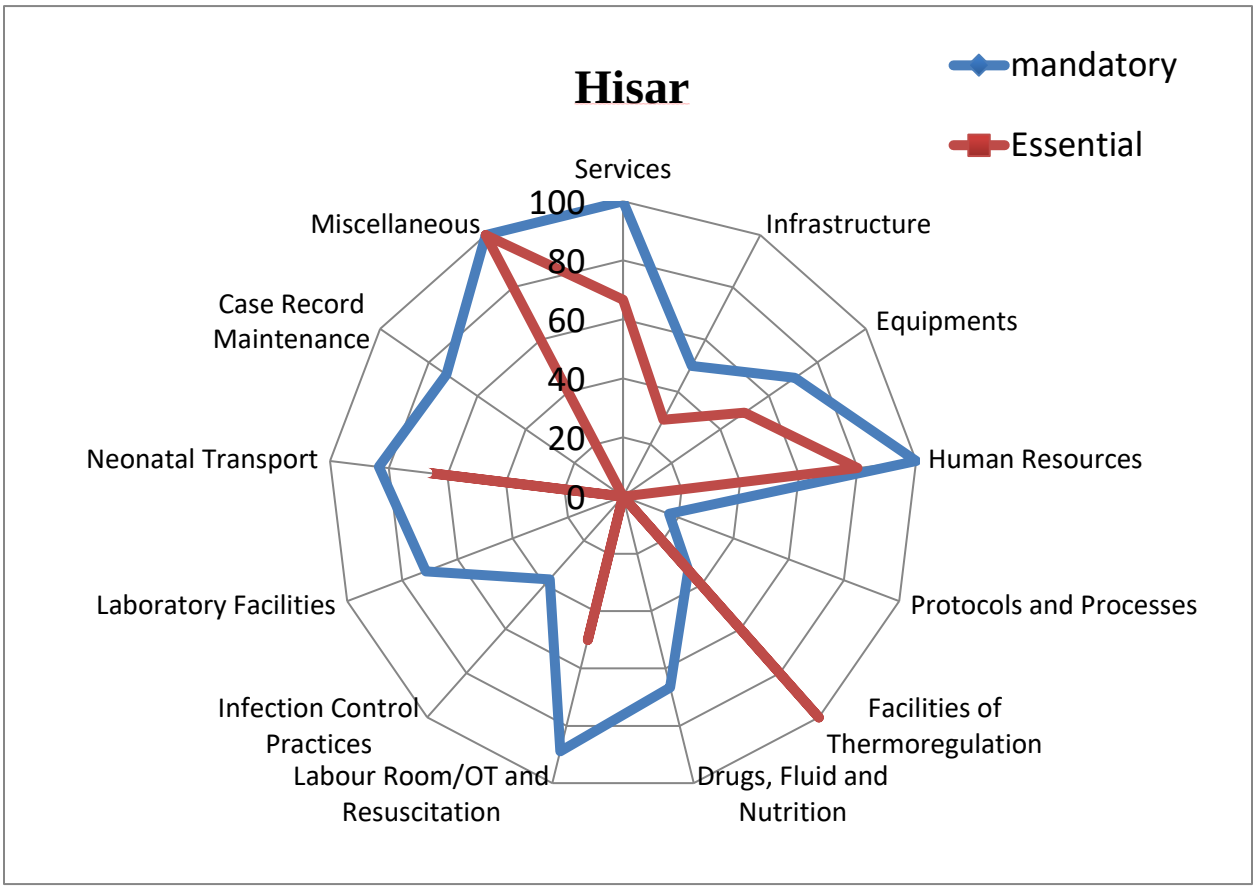


Above graph shows status of New born care corner in labour room/ OT and status of Resuscitation,in which Fatehbad,Hisar and kaithal score Mandatory more tha 80% and score of essential 33%,50%, 33% while Jind M-66%,E-33%, Sirsa M-77%,E-50%.

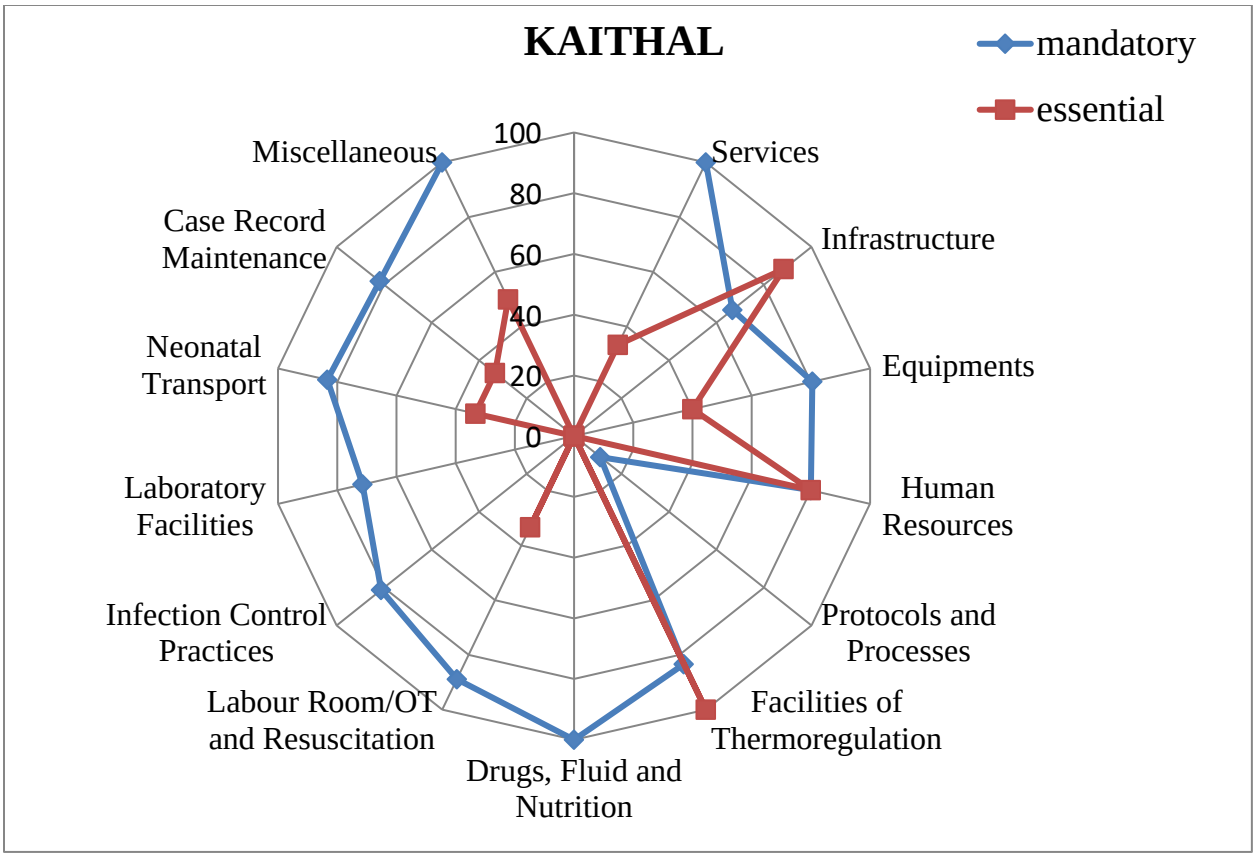


Above graphs shows status of maintaing case sheet of delivery and baby notes in which mandatory score of fatehbad kaitthal and sirsa are more than 80% essential100%,33%,66%,Hisar M-72%,E-33%,Jind M-63%,E-33%.

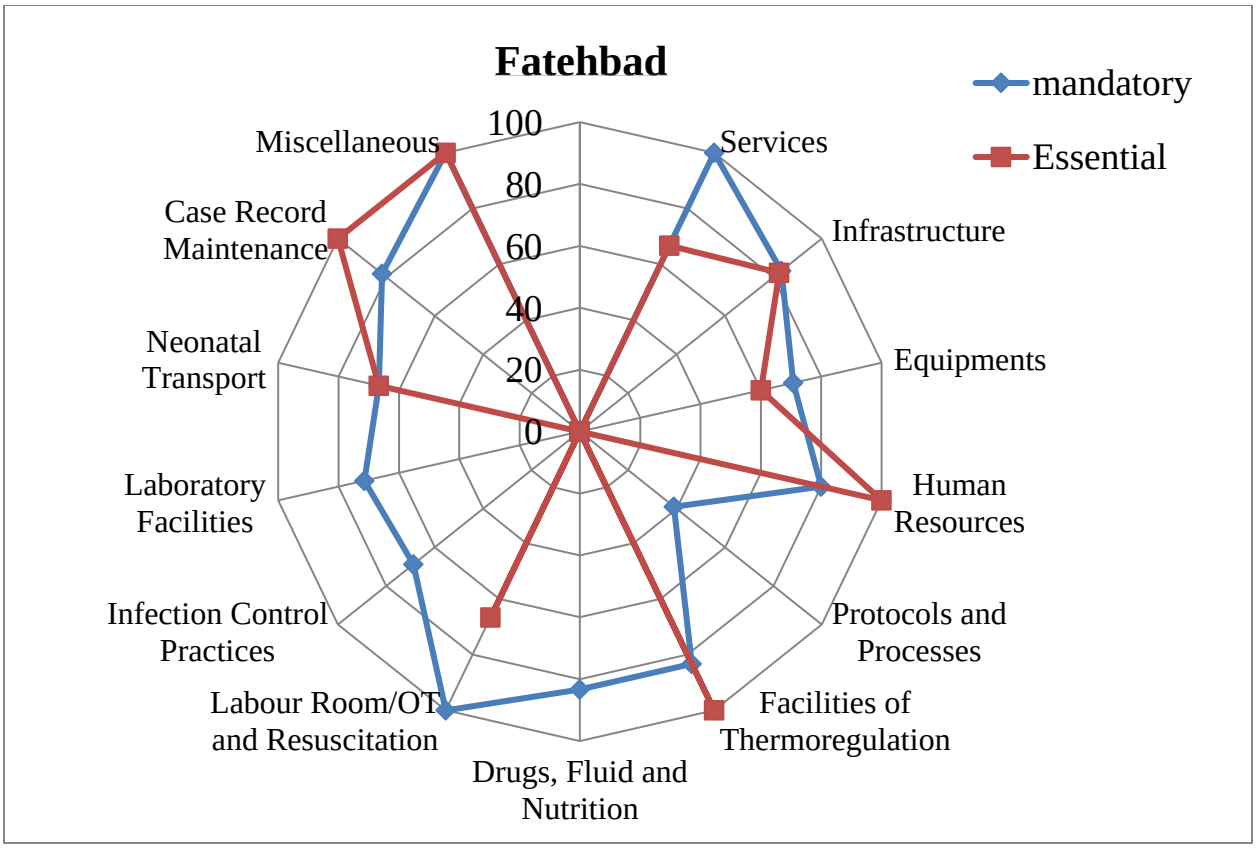
Now we disccussed about the SNCU scoring status of each Districts on basis of each parameters Used to assess the quality of special new born care units.



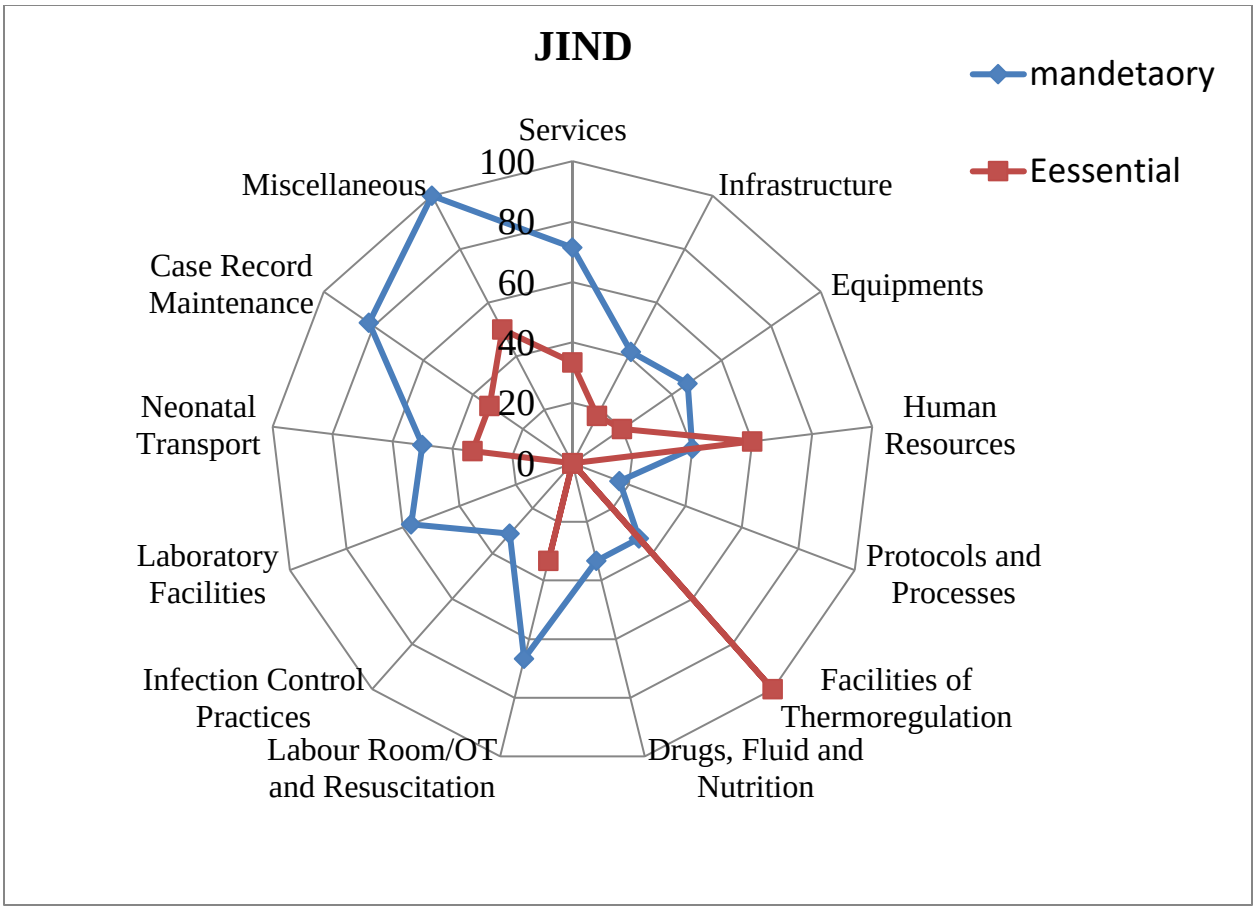
Above Radar graph of Hisar district the blue lines shows that mandatory score of services,Human resources,Labour Room/OT and Resuscitation are almost 100% ,protocols process and infection control are inverted means mandatory scores is much lesser than targets while laboratory drugs fluid and nutrition are goods but need to improves .The red line shows the score of essential elements in which Facilities of thermoregulation, miscellaneous human resources are more tha 80%,while infrastructure equipments,services,labour room /OT are much lesserthan the targets scoreso needs to improve.



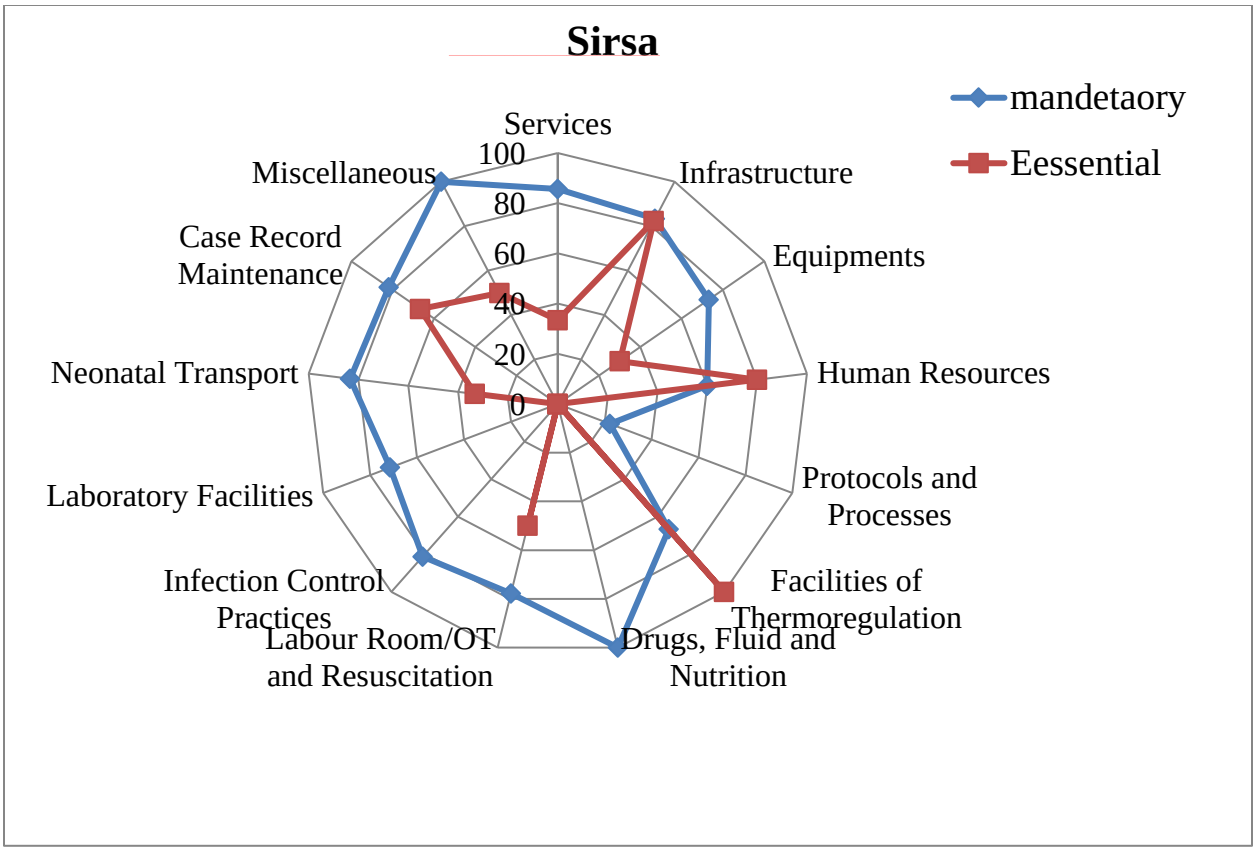
Above Radar graph of Kaithal district ,the Mandatory blue line in graph is much opened means the scoring of Mandatory is satisfactory or nearer to targets score such services,Human resources,Labour Room/OT and Resuscitation,case record ,neonatal transports,infection control,drugs and fluids are above 80% ,protocols process are inverted means mandatory scores is much lesser than targets and need to improve .The red line shows the score of essential elements which is much skiwed means the scoring of essential is much lesser than targets . Infrastructure, Human resources,and Facilities of thermoregulation, essential score are more than 80% but remanining parameter such as services,case recrds,laboratory,infection control labour room/OT Drud fluid and nutritions scores are much lesser than the targets 75% so needs to improve.



Above Radar graph of Fatehbad district ,the Mandatory blue line in graph is much opened means the scoring of Mandatory is satisfactory or nearer to targets score such services,Human resources,Labour Room/OT and Resuscitation,case record ,neonatal transports,infection control,drugs and fluids are above 80% ,protocols process are inverted means mandatory scores is much lesser than targets and need to improve .The red line shows the score of essential elements which is much skiwed means the scoring of essential is much lesser than targets . Infrastructure, Human resources,and Facilities of thermoregulation, miscellaneous,Case record, essential score are more than 80% but remanining parameter such as services,laboratory,infection control labour room/OT Drud fluid and nutritions are much lesser ttha the targets of 75% so scores needs to improve.



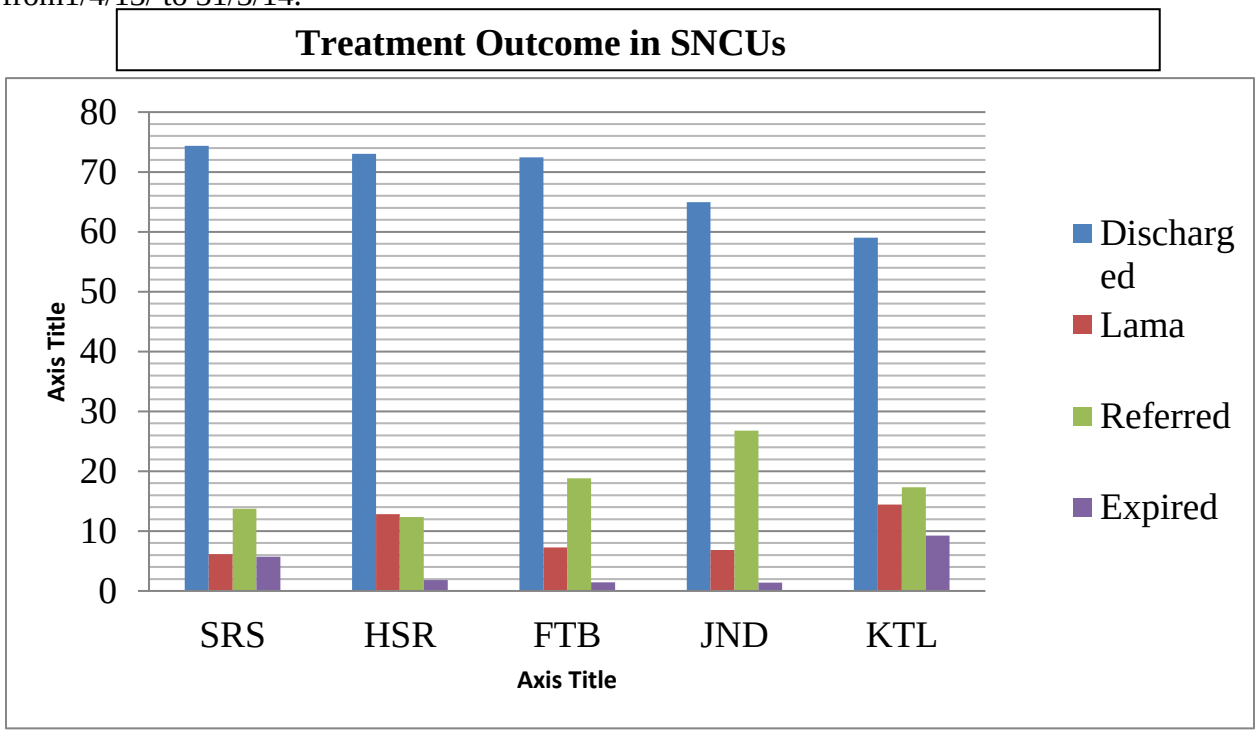
Above Radar graph of Jind district ,the Mandatory blue line in graph is much closer to center means the scoring of Mandatory is lesser than the targets score such services,Human resources,Labour Room/OT and Resuscitation,case record ,neonatal transports,infection control,drugs and fluids,equipments laboratory facilities are 40%-50% ,protocols process are inverted means mandatory scores is much lesser than targets and need to improve .The red line shows the score of essential elements which is much skiwed means the scoring of essential is much lesser than targets . Infrastructure, Human resources,and Facilities of thermoregulation, miscellaneous essential score are less than 40% but remanining parameter such as services,laboratory,infection control labour room/OT Drud fluid and nutritions are much lesser than the targets of 75% so scores needs to improve.



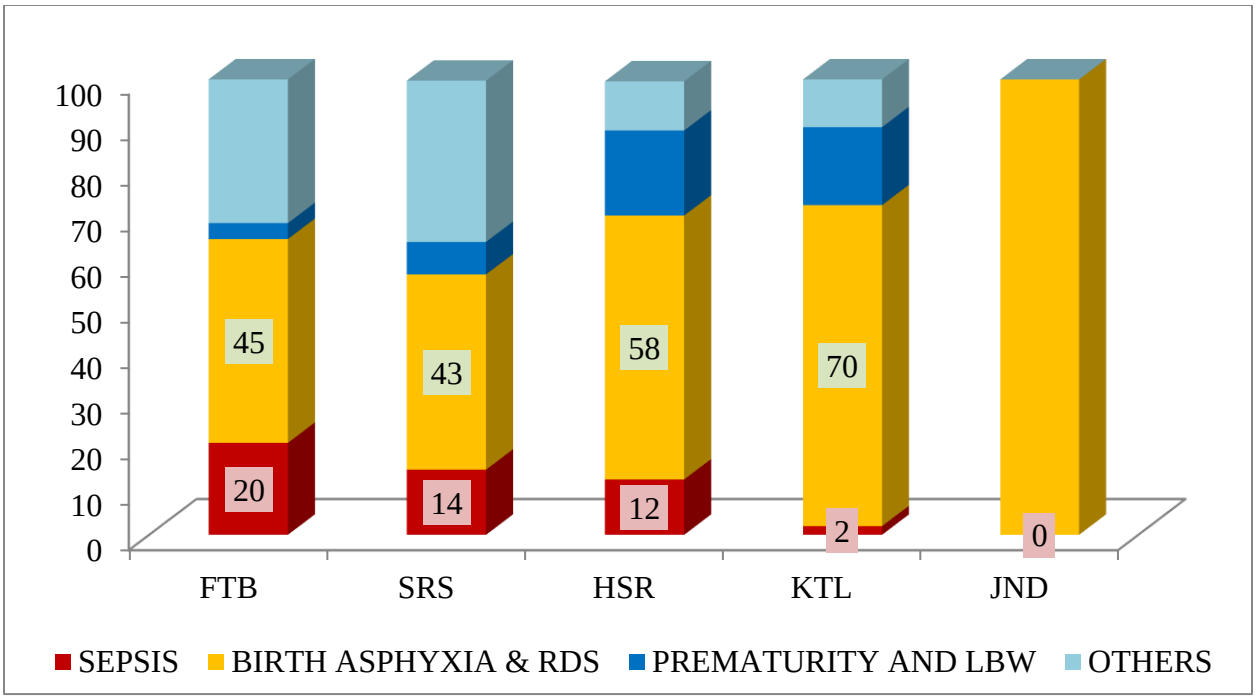
Above Radar graph of Sirsa district ,the Mandatory blue line in graph is much opened means the scoring of Mandatory is satisfactory or nearer to targets score such Services, Human resources, Labour Room/OT and Resuscitation,Case record Neonatal transports,Infection control,drugs and fluids,Laboratory facilities,Drugs fluid and nutrition are above 80% ,protocols process are inverted means mandatory scores is much lesser than targets and need to improve .The red line shows the score of essential elements which is much skiwed means the scoring of essential is much lesser than targets Infrastructure, Human resources,and Facilities of thermoregulation,Case record, essential score are more than 80% but remanining parameter such as services,laboratory,infection control labour room/OT Drud fluid and nutritions are much lesser ttha the targets of 75% so scores needs to improve.

Outcome:

The efficacy of a facility can be analyzed from the outcomes of the facility as higher cure rate means better efficacy. Four outcomes are possible for any admission in the SNCU. These are Discharge of the neonate, Referral to higher facility, Death due to any cause or Leave against Medical Advise (LAMA). The following graph is obtained from the SNCU online data from1/4/13/ to 31/3/14.



Graph shows the percentages of different outcomes of neonate admissions. appoorximate73% of the admitted neonates get well and were discharged back of all district except Jind and Kaithal having 63% discharged. 17% were referred to higher institutes. LAMA rate were approximate 8% for SNCUs of Haryana.



The above graph shows the percentage of babies admitted with different diseases in SNCU last one year 1/4/13 to 31/3/14.data obtained from the online SNCU softwear the above graph shows that Jind admitted 100% of birth asphyxia babies and No cases of any other diseases.its means no cases were there or they were not registered. While in other district also cases of asphyxia was maximum with respect to other diseases.

Duration of stay and its impact on outcome:

The neonates who were admitted in the SNCUs and stayed for treatment for some days on weeks. Near about 60% neonates were referred same day to the higher facility and 13% neonates reported as expired at the SNCUs. 71% neonates were stayed up to 1 week. Among 78% discharged after cured followed by 12% referred, and 5% expired. Majority (96%) of neonates were stayed up to 2 weeks. When stay of neonates increase than discharge rate also increase and referred and expired rate reduced.

Discussion:

It was observed that the mandatory and Essential 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.

Services given by the SNCU is most important part in which all five districts Mandatory score were satisfactory i.e more than 70% but Essential score were less tha 60% so need to improvise the Essential services. District Jind has a very low overall scores Mandatory44%,Essential 26% 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 no Districts scores more than 30% except Fatehbad having mandatory score 40% but the essential scores of each Districs were **zero.**so there is need to improvise the scores. These protocols help the person to give proper guidance at the time of service delivery. The status of drugs fluids and nutrition mandatory score of each Districts are satisfactory and met the standard of Acceridation,but essential score is almost zero for all five Districs so its needs to improvise them. Human resource Kaithal district has not met the criteria in both mandatory and Essential elements. In physical infrastructure scoring of Jind and Hisar are very low ,while the scoring of districs Kaithal, Fatehabad and Sirsa are satisfactory in both mandatory and Essential elements. Thermoregulation is main issue after the delivery of the child. So, all the five criteria are required to get the Accreditation, but Fatehabad, and Kaithal districts mandatory score was100% and the rest of three have to improvise their scores. 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. Jind has very poor show in this segment with score 32%. Fatehabad was on average score and 88%, Kaithal and Sirsa have achieved the full score. In lab facilities, five criteria were required. All the districts have achieved the requisite target of mandatory but the essential score of all five district were less than the targets so need to improvise them.. 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 districts had to achieved all the six criteria for mandatory but only Kaithal Fatehabad and Hisar were score more than 5 ,remaining districts such as Jind need to improvise the scores..

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 Jind lacks in all.

Jind districts need improvement in Facilities for Neo-natal Transport. The criteria in Physical Infrastructure Facilities is need to improve in district Jind and Hisar lacks far behind with score .. 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.

Suggestion

On the basis of analysis, an attempt has been made to present recommendations for strengthening SNCU's service delivery in Haryana. These recommendations are organised in sections as given below:

1) Manpower:

- Number of sanctioned positions (4) of class IV staff must be fulfilled for the proper cleaning and dusting of SNCU.
- Sanctioned positions of Medical Officers(4) for SNCU must be fullfilled for the better and smooth functioning of SNCUs .

2) Training:

- All medical staff must be FBNC trained as early as possible after joining in SNCU and at least one FBNC trained MO must be available round the clock at the SNCU.
- All staff members of SNCU must be trained in handling equipments independently.

3) Infrastructure:

- There must be separate area in SNCUs for mothers of out born babies and also a separate area for keeping asymptotic high risk babies along with their mothers with good nursing cover, beds and separate toilets/washrooms for mothers.
- There must be some contingency space for shifting the unit in case of epidemics.
- Power audit must be done in the unit.
- There must be some medium like mike/bell for communication between staff available in the SNCU and parents/relatives of baby outside the SNCU so that no outsider have to enter

inside the SNCU to know the condition of their admitted baby or to talk with the staff for any other reason. e.g. Mike was available at the entrance of SNCU of DH Narnaul for the parents/relatives of admitted baby to contact with the SNCU staff easily without entering into the unit.

- Lab facility must be available at the unit. Facilities like blood culture, exchange transfusion, CPAP, short term ventilation, CT scan, echocardiography, portable X-ray be available also at the unit to improve the functioning of SNCU and also to reduce referral rate.
- Counsellors must be provided phone facility for counselling of parents and follow up of infant till one year.e.g at Hisar counselors did not have separate landline for follow up of community.

4) Equipments and Supply:

- Equipments for SNCU like radiant warmers, monitors, pulse oximeter, suction machines, oxygen concentrators, breast pumps, head boxes etc. must be provided on the basis of delivery/admission load in each SNCU instead of as per standard only. But at least, each SNCU must have all equipments as per standard. During the visits for this study, it was seen that most of the SNCUs were placing two babies under one radiant warmer.
- There must be transport incubators available with the unit in case of referral of baby to other facility.
- Repair of any equipment of SNCU must be done as early as possible and within the time limit.
- Guidelines/written instructions/protocols must be displayed in the unit to handle or operate equipments and also for management of common newborn conditions. Staff must follow these guidelines.as in above study only few districts having protocols.
- Other general equipments like washing machine for laundry, refrigerator for storing mother's milk and vaccines, vacuum cleaner for cleaning of unit, adequate number of surgical equipment sets and spot lamps must be provided separately to the unit.
- There must be separate generator /inverter, UPS for uninterrupted power supply in the unit.

5) Cleaning and disinfection:

- Guidelines/written instructions/protocols must be displayed in the unit for the unit's cleaning, disinfection and fumigation routines, for method of equipment cleaning and disinfection. Staff must follow these guidelines.
- There must be at least one wash basin with soap having mechanism which doesn't require use of washer's hands (e.g. elbow or foot operated taps) for every 5 beds. Poster on hand washing should be displayed at all hand washing stations
- Adequate quantity of disinfectants, soaps, diapers, eye patches for phototherapy, disposable hand wipes/sterile paper, colour coded BMW bins must be available in the unit.
- There must be an infection control committee for the periodic bacteriological surveillance of the unit.

- There must be separate uniform or gowns, chappals, masks, caps and gloves to enter in the unit and it must be followed by everyone entering into the Unit.
- There must be separate routes for clean and dirty linen going in and out of the unit and housekeeping staff must do vacuum cleaning of the unit regularly.

6) Case record management:

- Case sheets and old records related to SNCU must be available at any time and kept properly within the hospital.
- Signature of "on duty nurse'' must be present with the daily charting of temperature, pulse and fluid input/output in case sheets and growth chart which include height and weight regurly.

7) Software improvement:

- There must be a specified condition in software to accept lower value in "Age at marriage" than the "Mother's age".
- Data entry operator must be aware of the medical terms used in software and some training should also be given to them to enhance their knowledge about these terms so that the correct data must be entered in software. e.g. Gravida, Para, live birth etc.
- In final diagnosis, the option "Any other diagnosis" must be selected only when there is no other relevant
- option found in the drop down list and it must be updated correctly in the space given.
- In case of inborn admission, there must be no need to enter the place of delivery. Mode of transport must be blocked automatically in this condition.
- Place of delivery must be entered correctly.

8) Improvement in admissions:

It is observed from analysis that there is a big difference in number of inborn and out born admissions in some SNCUs in Haryana. So it is important to increase number of out born admissions in SNCU by increasing their catchment area by maximizing referral from community and other health facilities to SNCU. There is a need to-

- Create awareness among community about all services provided at SNCU without any charges to save lives of newborns.
- Create awareness among community about free ambulance service provided by government for referral.
- Sensitize staff of private hospitals or nursing homes and peripheral health facilities to refer sick newborns as soon as possible to nearby SNCU.

9) Improvement in referral rate:

There is a need to reduce number of referrals from SNCU to higher centres by providing all required facilities (e.g. lab tests) at that level.

10) Improvement in LAMA:

There is a need to counsel and sensitize parents/relatives of newborn not to take their babies from SNCU to home against medical advice.

Limitations

1. Difficulty in collecting case sheets from SNCU:

- During assessment, it is observed that most of the SNCUs are not maintaining their case records properly and the data required is not available physically in form of case sheets at some SNCUs. So, it is decided to extract this data from online software of SNCU.
- Due to insufficient time available & lack of resources ,this study was carried out with small sample. Although data are available, more results can be found.

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- Facility Based Care Of Sick Neonate at Referral Health Facility.NNF (2009)
- Standard for SNCU at District Hospital, IPHS Norms for District Hospital, MOHFW (2010)

Annexure

APPLICATION FORM *(to be filled by applicant only)*	
GENERAL INFORMATION ABOUT THE UNIT	
Particulars	**Details**
Name of unit along with full address, phone numbers & email address of unit	Name:
	Full Address:
	Phone (with STD code):
	Email:
Date of starting operations of the unit (dd-mm-yyyy) and Functional Age of the unit (in years)	
Date of self-assessment (dd-mm-yyyy)	
Name of unit in charge with qualifications and other details	Name:
	Full Address:
	Phone (with STD code):
	Email:
Accreditation requested for	**Level II-A**
Available number of beds in the unit total and different level beds (level IIA, IB)	
Surface area of unit (sq. feet), please attach floor diagram of unit with dimensions of various areas *(as Annexe to this format)*	
Name of consultants with their qualification & experience (in no. of years after PG)	
No of Junior Doctors (Post MBBS)	
No of Nurses	
Total Deliveries/year	
Total Admissions in your newborn care	

unit/year	
) No. of ventilated patient per year (if applicable)	
) Patient ventilation days in a year (if applicable)	
) Self-Assessment score (in numbers as scored by the summation of essential criteria only)	
) Is the unit part of a hospital/institution?	YES / NO *(please encircle appropriate answer)*
If yes Please mention - no. of beds	a)
Specialties offered by the hospital	b)
Special care areas in the hospital	c)
Other facilities in the hospital	d)
) Recognition for fellowship training for doctors/nurses has been requested and its fee submitted, if yes give details of payment made?	
) Any other teaching/training programs undertaken by the unit e.g. DCH, DNB, DM, etc.	
) Teaching experience of consultant(s)	
) Facilities for nurses training (if any, e.g. nursing college, etc.)	

Any additional information:	
Date of Application (dd-mm-yyyy)	
Signature of Unit In charge with their official seal/stamp	

S.no.	Parameter	Value/Details Year 1	Value/Details Year 2 (if applicable)	Value/Details Year 3 (if applicable)
1	Total, inborn and outborn babies admitted (yearly)			
2	Total number of babies admitted with LBW (low birth weight), VLBW and ELBW & their respective percentages	LBW: VLBW: ELBW:	LBW: VLBW: ELBW:	LBW: VLBW: ELBW:
3	Total number of babies referred-out for surgical & nonsurgical reasons (yearly)			
4	Total number of babies referred-in (yearly)			
5	Mortality figures – total, inborn and out born (yearly)and their group mortality %			
6	Mortality in total, LBW, VLBW, ELBW babies			

	(yearly) and their group mortality %			
7	LAMA (Left Against Medical Advice)/ DOR (Discharge On Request) rate in total, LBW, VLBW, ELBW babies (yearly) and their group %			
8	Hospital acquired infection (HAI) rates, VAP rates (ventilator associated pneumonia), and BSI rates (blood stream infections)	HAI: VAP: BSI:	HAI: VAP: BSI:	HAI: VAP: BSI:
9	Five (5) commonest major diagnoses			
10	Five commonest major mortality causes			
11	Any other important data			
12	Sign and seal of unit in-charge			

SECTIONS	ELEMENTS IN SECTIONS	SELF-ASSESSMENT (To be completed by applicant at the time of application)	ASSESSOR'S ASSESSMENT (To be verified and completed by the Assessors on inspection of the unit)
SERVICES		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY:**		
M1	Resuscitation at birth to all babies by NRP trained doctor preferably paediatrician		
M2	Care of sick neonate including babies >= 1000gms or >= 30 weeks		
M3	Stabilization of patients prior to referral		
M4	Transport facilities for Higher level of care		
M5	Follow-up of the High risk SNCU graduates		
M6	The Unit should be working/ operational for at least 12 months before applying for accreditation.		
M7	Patient care load of at least 200 patients deserving admission in a level II unit / year.		
E	**ESSENTIAL**		
E1	Attached to active obstetric unit with facility of perinatal care		
E2	Facility for carrying out exchange transfusion		
E3	Facility for oto-acoustic emission (OAE)/ BERA screening (in house/outsourced)		
	TOTAL SCORE…		

Note :
The rows "X" and "Y" should be filled ONLY by the Assessor
Finally , the Assessor will ADD Scores in different AREAS
The Gaps and Suggestions should be written in concerned area only

X	CRITERIA	MAX.	UNIT'S

Y		**SCORE**	**SCORE**
	MANDATORY	**ALL YES**	
	ESSENTIAL	**03**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

INFRASTRUCTURE		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Unit should have minimum 12 bThe unit may be bigger in the same proportion if there are > 12 beds		
M2	Every bed should have the space of 100 sq. ft. (this is inclusive of the 50 sq. ft. of ancillary areas)		
M3	A separate marked area/room for expression of milk and breastfeeding		
M4	Hospital must have a room for providing separate stay facility for all mothers of <2000gms babies within unit's/hospital's premises		
M5	Are there designated areas for clean utility and dirty utility?		
M6	Adequate measures for maintaining the ambient temperature of the baby care area, like use of air conditioning (hot climate) and of room warmers (cold climate) to maintain the temperature between the 26-28 degree Celsius range		
M7	Well illuminated but adjustable day and night lighting. Cool white fluorescent tubes or CFL unit with reflection grid providing 10-20 foot candles or 100-200 lux.		
M8	Reinforced light of 1000-1500 lux shadow free illumination for examination.		
M9	Blood Bank/Storage unit services available 24x7 in the hospital/conveniently outsourced		
M10	Availability of continuous water supply round the clock		

M11	There should be at least 4 - 6 sockets/bed of appropriate amperage		
M12	Uninterrupted availability of power supply through a generator / UPS etc.		
E	**ESSENTIAL**		
E1	Availability of suction facility		
E2	Facility for dimming of general lighting in the SNCU for developmental care		
E3	Sound absorbent walls and ceiling of the SNCU. Background noise should not be more than 45db and peak intensity should not be more than 80 db.		
E4	Has there been a power audit of the unit (to ascertain if electrical load of the unit was calculated and accordingly electrical wiring and installations done)		
E5	Provision for contingency space/rooms for shifting the unit in case of temporary closure of the unit in times of need		
E6	***Are the following areas designated within the unit?*** Hand wash and gowning area		
E7	Receiving room with examination area		
E8	Charting/staff work area, e.g. nursing station, cupboard/almirah for records, books, manuals, etc.		
E9	Breast feeding, expression of breast milk area		
E10	Duty room for doctors		
E11	Nurses changing room		
E12	Clean utility/holding area		
E13	Soiled utility/holding area		
E14	Stores		
E15	Side lab		
E16	Autoclaving room/area		
E17	Counselling room/area		
	TOTAL SCORES…		

Note :
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Finally , the Assessor will ADD Scores in different AREAS

The Gaps and Suggestions should be written in concerned area only			
	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**17**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y	**ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)**		

EQUIPMENTS		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	One Stethoscope with each Neonatal Bed		
M2	All warmers (equivalent to the neonatal bed) should have temperature sensing with Servo control		
M3	At least two Electronic weighing machine with minimum 5g sensitivity		
M4	One pulse-oximeter for every two level II beds		
M5	At least two Glucometer in unit		
M6	At least 1 CPAP per 6 beds		
M7	There should be 1 Oxygen delivery point for every 2 beds in the unit. Oxygen delivery could be from cylinder/concentrators/central supply		
M8	2 sets of sterile resuscitation equipment with all sizes of blades and mask in unit at all times		
M9	Phototherapy machine one for each 2 beds		
M10	At least one infusion pumps for each bed		
M11	Resuscitation equipment with all sizes of blades and mask, at least 4 such sets for each 12 level II beds		
M12	***Following equipment are present with the unit:*** Open care system: radiant warmer, fixed height, with trolley, drawers, oxygen bottles		

M13	Phototherapy unit, single head, high intensity		
M14	Resuscitator, hand-operated, neonate, 250 ml		
M15	Resuscitator, hand-operated, neonate, 500ml		
M16	Laryngoscope set, neonate		
M17	Pump, suction, portable, 220V and/or Pump, suction, foot-operated		
M18	Surgical instruments (suture/SET)		
M19	Syringe pump, 10, 20, 50 ml, single phase		
M20	Oxygen hood, S and M, set of 3 each, including connecting tubes		
M21	Thermometer, clinical, digital, 32-43ºC		
M22	Scale, baby, electronic, 10 kg <5g>		
M23	Pulse oximeter, bedside, neonatal		
M24	Sphygmomanometer, neonate, electronic		
M25	Light, examination, mobile, 220-12V		
M26	Hub cutter, syringe		
M27	Tape, measure, vinyl-coated, 1.5m in length		
M28	Basin, kidney, stainless steel, 825ml		
M29	Tray, dressings, 300x200x30mm		
M30	Stand, infusion, double hook, on castors		
M31	Infantometer, plexi, 3½ft/105cm		
M32	Washing machine with dryer		
M33	Gowns for staff and mothers		
M34	Washable slippers		
M35	Centrifuge, hematocrit, bench-top, up to 12000 rpm, including rotor		
M36	Glucometer with Dextrostix		
M37	Generator of appropriate load bearing capacity		
M38	Refrigerator		
M39	Voltage Servo-Stabiliser (three phase): 25-50 KVA		
M41	Spot Lamps		

M42	Wall Clock with second hand		
E	**ESSENTIAL**		
E1	One Multi-Para Monitor for every two beds		
E2	A portable X-ray machine (in unit/in house) available round the clock		
E3	Acid Blood Gas analysis Machine within unit or hospital premises		
E4	USG/CT/MRI facility that is present either with in the Hospital/conveniently Outsourced		
E5	Sterile fluid preparation area with laminar flow station		
E6	T-piece Resuscitators in unit		
E7	Cold light source for detection of pneumothorax		
E8	2D ECHO facility on call		
E9	Invasive BP monitoring for ventilated babies		
E10	Flux Meter		
	TOTAL SCORE…		

Note :
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	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**10**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y	**ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)**		

HUMAN RESOURCES	**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**

M	MANDATORY		
M1	One full time In charge of Unit, who should be an MD/DNB/DCH with 3/3/5 years' experience in Neonatology after post-graduation (on call)		
M2	Total four medical officers with experience in neonatology *(6 months in neonatal unit OR FBNC trained with 14-day NNF observership training undertaken)*		
M3	One Nursing In charge, who should have at least 1 year experience of working in a neonatal unit (non-rotational)		
M4	Unit maintains ratio of one nurse per bed, and one-third of the staff is trained in FBNC and has undertaken 14-day NNF observership training OR has work experience of at least 1 month in an NICU		
M5	At least 1 cleaner/helper per shift		
D	**ESSENTIAL**		
E1	An identified ophthalmologist for ROP screening (where the babies may be sent)		
E2	Identified ICU technician /bio medical technician or engineer who is committed to provide support to unit for its equipment		
E3	Lactation counsellor (in 9am-4pm shift) for difficult cases (who can be shared with maternal unit, if present within the hospital)		
E4	Nursing staff trained in the developmental supportive care (certification & demonstration for same can be asked by Assessor during assessment)		
E5	Security personnel 1 per shift		
	TOTAL SCORE…		

Note :
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Finally , the Assessor will ADD Scores in different AREAS
The Gaps and Suggestions should be written in concerned area only

	CRITERIA	MAX. SCORE	UNIT'S SCORE
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**05**	
Y	**ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR**		

	ASSESSORS)
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)

PROTOCOLS & PROCESSES		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Committed breastfeeding policy being followed & displayed 10 steps of Baby Friendly Hospital Initiative (BFHI)		
M2	Hospital must have a policy and space for providing separate in house facility for all mothers of <2000gms		
M3	Hospital should have policy for promoting KMC		
M4	Structured process to educate the mothers about basic newborn care		
M5	A defined process for communication of newborn's condition regularly to the parents/relatives, at least once a day		
M6	A defined protocol/process for conducting grievance counselling of the parents and family by the doctor in case of newborn death		
M7	Protocol(s) for adequate and effective warming for high risk babies during special care/ procedures displayed in the unit and followed		
M8	Admission and discharge policy defined and displayed		
M9	Protocols for Level II Care (NNF CPG Guideline) / FBNC or Equivalent should be retained and followed		
M10	A defined policy on equipment maintenance (including the AMC / CMC) where ever indicated		
M11	Protocol of orientation of new staff and refresher course (like CME) for existing staff		
M12	Sepsis screen & Blood culture done on babies prior to starting antibiotics		
M13	A Separate follow-up clinic for the High Risk SNCU graduates (at least 1/wk.)		

M14	Hearing Screen for the High Risk Babies at discharge		
M15	Protocol to screen all high risk babies for ROP		
M16	Individual written instruction for trouble shooting of equipment		
M17	Documented Communication, counselling, consent forms, vital signs monitoring, procedures, medications, notes, nursing sheet formats		
M18	Transport protocols, both to and from higher and lower level		
E	**ESSENTIAL**		
E1	Incident reporting and closure of loop – properly documented		
E2	Facility for metabolic Screen (e.g. TSH, PKU, Galactosemia etc.) on all babies		
	TOTAL SCORE…		

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The Gaps and Suggestions should be written in concerned area only

X	**CRITERIA**	**MAX. SCORE**	**UNIT'S SCORE**
	MANDATORY	**ALL YES**	
	ESSENTIAL	**02**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y	**ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)**		

FACILITIES FOR THERMOREGULATION		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Unit's temperature should be maintained between 26-28 degree Celsius, at all times		

M2	Adequate number of functional room thermometers (at least one for each baby care room)		
M3	Servo systems of all warmers is working *(Assessor can ask one of staff to demonstrate it)*		
M4	Adequate number of digital thermometers/alternate device to monitor for severe hypothermia		
M5	A log book for KMC to be maintained in unit (with documentation of mother's & baby's details)		
M6	A log book with daily shift-wise recording of temperature of SNCU is maintained		
D	**ESSENTIAL**		
E1	Skin to skin contact immediately after birth practiced (routine care)		
	TOTAL SCORE…		

Note :
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X	**CRITERIA**	**MAX. SCORE**	**UNIT'S SCORE**
	MANDATORY	**ALL YES**	
	ESSENTIAL	**01**	
Y	**ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)**		
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

DRUGS, FLUIDS AND NUTRITION		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Growth chart used for day to day monitoring		

M2	Separate containers with lids for storage of the EBM being used		
M3	At least 2 separate emergency tray for unit		
M4	Each of the patient care rooms/area in the unit should have an emergency tray/crash cart with all necessary medicines and resuscitation equipment in adequate numbers		
M5	All fluid administration by Infusion Pumps		
M6	Availability of refrigerator exclusively for storing feeds and drugs in baby care area		
E	**ESSENTIAL**		
E1	Use of scientifically designed breast pumps (Electronic/Manual)		
	TOTAL SCORE…		

Note :
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Finally , the Assessor will ADD Scores in different AREAS
The Gaps and Suggestions should be written in concerned area only

	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**01**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y			
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

LABOR ROOM/OT & RESUCITATION		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Availability of a wall clock (seconds) in at all Birthing		

	Areas		
M2	Availability of functional radiant warmer (Newborn care corner) at all Birthing areas		
M3	Availability of a functioning pressure controlled suction machine/mucus extractor		
M4	Availability of separate self-inflating resuscitation bag (<750ml) and well-fitting neonatal face masks (all sizes)		
M5	Prominent display of the NRP Algorithm at all the birthing areas		
M6	Availability of oxygen (central or from cylinder) with a flow meter		
M7	Staff aware of and helps mother initiate successful breastfeeding within the first hour		
M8	Availability of "essential and emergency resuscitation drugs" (e.g. adrenaline, RL, normal saline, etc.) that is replenished on daily basis.		
M9	The record sheets of resuscitation as per the NRP guidelines/CPG Guidelines		
E	**ESSENTIAL**		
E1	Availability of facility for blending for graded oxygen delivery (at least differential flow blending)/blender		
E2	Availability of the Pulse Oximeter for monitoring of the baby (preferably SET technology)		
E3	Availability of the T-Piece resuscitator for the Preterm babies		
E4	Availability of the Heater Pads / Re-sealable plastic (Zip pouch) to be used for preterm deliveries		
E5	Two sets of working infant laryngoscopes with all blade sizes (0 & 1) with ETT in various sizes (2.5, 3, 3.5, 4)		
E6	Availability of umbilical vein cannulation set(s) to be used during resuscitation		
	TOTAL SCORE…		

Note :
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X	**CRITERIA**	**MAX. SCORE**	**UNIT'S SCORE**
	MANDATORY	**ALL YES**	

Y	**ESSENTIAL**	**06**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

INFECTION CONTROL PRACTICES		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	Availability of a dedicated Wash area with Gown changing area, prior to entry into the SNCU		
M2	Presence of at least one wash basin for every 5 beds in baby care area (room) with shower tap (elbow or foot operated)		
M3	Provisions for hand washing instructions displayed in the wash area		
M4	Staff aware of technique of hand washing		
M5	here availability of alcohol-based hand rub – one between 2-3 beds?		
M6	Is there a written down unit antibiotic policy?		
M7	ailability of adequate quantity of disinfectants e.g. Floor (e.g. Lysol, Phenol) Surface (Bacillocid etc.) Tubes/ Circuits (e.g. Glutaraldehyde) Hands / Baby (e.g., Hand rubs, Betadine, Chlorhexidine) Autoclave/EtO (in unit's/hospital's premises)		
M8	Are there written instructions/guidelines for method of equipment cleaning and disinfection?		
M9	Are there written instructions/guidelines for unit's cleaning, disinfection routines?		
M10	Disinfection & Cleaning practices being followed and documented properly		
M11	Does the unit follow the bio-medical waste management norms as prescribed by Government of India?		

E	ESSENTIAL		
E1	Infection Surveillance and Audit of the unit is done on regular basis		
E2	Periodic bacteriological surveillance done of the unit by infection control committee		
	TOTAL SCORE…		

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	CRITERIA	MAX. SCORE	UNIT'S SCORE
X	MANDATORY	ALL YES	
	ESSENTIAL	02	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y			
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

LABORATORY FACILITIES *(within unit/hospital/outsourced [MOU for the same should be present with the unit])*		Mark - 1 for YES / 0 for NO	Mark - 1 for YES / 0 for NO
M	MANDATORY :		
M1	CBC		
M2	Serum Bilirubin (Both Direct and Indirect)		
M3	Plasma Glucose		
M4	Serum Urea and Creatinine		
M5	Serum Electrolytes and Calcium		
M6	CRP		
M7	TORCHES Screen		

E	ESSENTIAL		
E1	Microbiological lab facilities (inclusive of Blood Culture, fungal culture, etc.)		
E2	ABG Analysis		
E3	Facility for IEM Screen including thyroid profile		
	TOTAL SCORE…		

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	CRITERIA	MAX. SCORE	UNIT'S SCORE
X	MANDATORY	ALL YES	
	ESSENTIAL	03	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

NEONATAL TRANSPORT		Mark - 1 for YES / 0 for NO	Mark - 1 for YES / 0 for NO
M	MANDATORY		
M1	Facility for Provision of Warmth, oxygenation, Suction and Resuscitation kit in the ambulance		
M2	Availability of the Neonatal nursing staff or trained doctor in all transports		
M3	Adequate number of ambulance drivers and/or paramedics (in-house/outsourced) – who should be training equivalent		

	to ER-technician/EMT		
M4	Points for Pulse Oximeter and the Infusion pumps in the Ambulance		
M5	Display of contact details of higher and lower referral linkages of the unit		
M6	Outcome records of these referred patients/follow-up of such patients		
E	**ESSENTIAL**		
E1	Neonatal Transport incubator in the Ambulance		
E2	Doctors accompanying during transport (documentary proof)		
E3	A Neonatal Transport Ambulance (either in-house or outsourced, in which case MOU for same should be present with SNCU/NICU unit in-charge)		
	TOTAL SCORE…		

Note :
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Finally , the Assessor will ADD Scores in different AREAS
The Gaps and Suggestions should be written in concerned area only

	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**03**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y			
	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		

CASE RECORD MAINTAINENCE		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		

M1	Case sheets should have daily record of examination and daily orders with name & signature of the treating doctor		
M2	Record of daily charting of temperature, pulse and fluid input/output in case sheets with signature (Identity) of on duty nurse		
M3	Are the verbal orders by doctors verified by them within 24 hours of giving such orders?		
M4	Documentation of all procedures done in the unit in appropriate format		
M5	Use of growth charts regularly in the unit especially for small babies		
M6	Use of the special charts for Exchange transfusion / Partial Exchange transfusion / ABG-Ventilation etc.		
M7	Electronic/Manual medical record keeping (inclusive of M8-M11 mentioned below)		
M8	Monthly and Annual Sepsis data maintained		
M9	Monthly and Annual Morbidity data maintained		
M10	Monthly and Annual Mortality data maintained		
M11	Monthly and Annual Equipment status report		
E	**ESSENTIAL**		
E1	Monthly Perinatal-Neonatal meetings with documented record of such discussions		
E2	Medical record data sharing with NNF (these should be inclusive of M8-M11 elements of this section)		
E3	Structured sequential developmental follow-up of discharged babies till 2-years with all records		
	TOTAL SCORE…		

Note :
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The Gaps and Suggestions should be written in concerned area only

	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**03**	
Y	**ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)**		

	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)

MISCELLANEOUS		**Mark - 1 for YES / 0 for NO**	**Mark - 1 for YES / 0 for NO**
M	**MANDATORY**		
M1	At least one computer with printer and internet access in unit		
E	**ESSENTIAL**		
E1	The unit should be undertaking short research in community-based neonatology/ neonatology		
E2	Unit should have a community outreach programme		
	TOTAL SCORE…		

Note :
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	CRITERIA	**MAX. SCORE**	**UNIT'S SCORE**
X	**MANDATORY**	**ALL YES**	
	ESSENTIAL	**02**	
	ANY GAPS IDENTIFIED IN THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)		
Y			

	ANY SUGGESTIONS FOR UNIT PERTAINING TO THIS SECTION OF STANDARDS (ONLY FOR ASSESSORS)