सत्यमेव जयते

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

CHILD HEALTH DIVISION

Ministry of Health and Family Welfare

Government of India

Facility Based Newborn Care

Operational Guidelines

2025

Facility Based Newborn Care
Operational Guidelines

आराधना पटनायक, भा.प्र.से.
अपर सचिव एवं मिशन निदेशक (रा.स्वा.मि.)
Aradhana Patnaik, IAS
Additional Secretary & Mission Director (NHM)

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
Government of India
Ministry of Health & Family Welfare

MESSAGE

Newborn survival continues to be a key priority for the Ministry of Health & Family Welfare, Government of India, under the Reproductive, Maternal, New-born, Child, Adolescent Health and Nutrition (RMNCAH+N) strategy of the National Health Mission.

The Facility Based Newborn Care (FBNC) programme, guided by the Operational Guidelines released in 2011, has played a pivotal role in supporting programme managers to plan, implement, and deliver newborn care at district and sub-district levels. More than 90% of districts across States and Union Territories are now equipped with functional Special Newborn Care Units (SNCUs). These concerted efforts have significantly contributed to the reduction of newborn mortality in the country.

In 2025, the FBNC Operational Guidelines have been revised to move beyond survival, guided by the vision that every newborn should have the opportunity to thrive. Building on new evidence and evolving clinical practices, the updated guidelines introduce advanced newborn care interventions such as Mother Newborn Care Units (MNCUs), Continuous Positive Airway Pressure (CPAP) for respiratory support, and the MusQan initiative under the umbrella of NQAS to promote child-friendly quality services. Technology enabled solutions, including Tele-SNCU platforms for remote support will strengthen the continuously expanding FBNC network across sub-district facilities, remote, and tribal areas. These revisions equip States and Union Territories with greater flexibility, resources, and innovations to further strengthen and scale up quality FBNC services nationwide.

I commend the RCH Division for spearheading this revision aligned with emerging needs of the States/UTs. The 2025 FBNC Operational Guidelines mark as an important step towards strengthening comprehensive, effective, and high-quality newborn care nationwide.

(Aradhana Patnaik)

Room No. 343-A, 3rd Floor, A-Wing, Nirman Bhawan, New Delhi-110011, Tel. No.: +91-11-23063618, 23061097
e-mail: asmd-mohfw@nic.in

Meera Srivastava, IRS
Joint Secretary

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली-110011
Government of India
Ministry of Health & Family Welfare
Nirman Bhawan, New Delhi-110011

FOREWORD

Newborn health is a central pillar of the Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition (RMNCAH+N) strategy. Over the past decade, significant progress has been achieved, not only in expanding the network of newborn care facilities but also through a wide range of interlinked interventions that ensure a continuum of care.

The Facility-Based Newborn Care (FBNC) Operational Guidelines, first issued in 2011, have provided programme managers with a framework to plan and implement newborn care at district and sub-district levels. Since their introduction, the country has established 1,114 Special Newborn Care Units (SNCUs), 3,215 Newborn Stabilization Units (NBSUs), and 22,147 Newborn Care Corners (NBCCs) across all States and UTs. These efforts have contributed to reducing the Newborn Mortality Rate from 31 in 2011 to 19 in 2023.

The revised FBNC Operational Guidelines 2025 introduce key structural and service delivery upgrades to advance quality newborn care. These include advance neonatal equipment and supplies, strengthened capacity building and supportive supervision mechanisms, and closer integration with other National health programmes. The guidelines extend the scope of care for small and sick newborns, reinforce infection prevention protocols, and emphasize a robust, streamlined recording and reporting system.

Developed under the technical guidance of the Child Health Division, Ministry of Health & Family Welfare, these guidelines reaffirm the commitment to scaling up quality facility-based newborn care nationwide. I am confident they will enable programme managers to deliver care that upholds quality, equity, and dignity, ensuring that every newborn has the opportunity to survive, thrive, and transform.

(Meera Srivastava)

Tel.: 011-23061842, 23061195
E-mail: jsrch-mohfw@gov.in

DR. SHOBHNA GUPTA
Deputy Commissioner & Incharge
Child Health & RBSK
Telefax : 011-23061218
E-mail : shobhna.gupta@gov.in
drshobhna.mohfw@gmail.com

GOVERNMENT OF INDIA
Ministry of Health & Family Welfare
Nirman Bhavan, Maulana Azad Road
New Delhi - 110011

Preface

The Facility-Based Newborn Care (FBNC) programme has been a cornerstone of India's efforts to improve newborn survival and health under the National Health Mission. Since the release of the Operational Guidelines in 2011, the programme has expanded significantly, enabling States and Union Territories to establish and strengthen newborn care units across public health facilities. Over the years, emerging evidence, innovations, and programmatic advances have enhanced the quality and scope of services provided to small and sick newborns.

The FBNC Operational Guidelines 2025 reflect this progress and respond to evolving needs. The revised document incorporates new interventions and technologies, aligns with the Indian Public Health Standards (IPHS) 2022, and provides updated guidance on planning, infrastructure, human resources, equipment, budgeting, and capacity building. It aims to support programme managers and service providers in delivering quality newborn care founded on the principles of Quality, Equity, and Dignity.

I express my sincere gratitude to the Secretary (Health & Family Welfare), Additional Secretary & Mission Director (National Health Mission), and Joint Secretary (RCH) for their continued guidance and support. I also acknowledge the valuable contributions of technical experts, academicians, partner agencies including the Norway India Partnership Initiative (NIPI), State programme officers, and the team of the Child Health Division in revising and finalizing these guidelines.

It is hoped that this document will serve as a practical resource for all stakeholders, guiding sustained and coordinated efforts to ensure that every newborn in India receives high-quality, compassionate, and equitable care.

(Dr. Shobhna Gupta)

ACRONYM/ABBREVIATIONS

AMC	Annual Maintenance Contract
ANCS	Antenatal Corticosteroids
BERA	Brainstem-evoked response audiometry
CFL	Compact Fluorescent Light
CLMC	Comprehensive Lactation Management Centre
CPAP	Continuous Positive Airway Pressure
DEIC	District early intervention Clinic
FBNC	Facility Based Newborn Care
FPC	Family Participatory Care
IPHS	Indian Pubic Health Standards
LBW	Low Birth Weight
KMC	Kangaroo mother Care
MNCU	Mother Newborn Care Unit
NBCC	Newborn Care Corner
NBSU	Newborn Stabilization Unit
NCC	National Collaborating Centre for Newborn
NMR	Neonatal Mortality Rate
NNF	National Neonatology Forum
NHM	National Health Mission
NSSK	Navjat Shishu Suraksha Karyakram
NQAS	National Quality Assurance System
PDHM	Pasteurized donor human milk
PIP	Project Implementation Plan
QI	Quality Improvement
RBSK	Rashtriya Bal Suraksha Karyakram
RCC	Regional Collaborating Centre
RMNCH+A	Reproductive, Maternal, Newborn, Child health & Adolescent health
ROP	Retinopathy of Prematurity
SNCU	Special Newborn Care Unit
SRC	State Resource Centre for Newborn

LIST OF CONTRIBUTORS

Ministry of Health and Family Welfare

Ms. Punya Salila Srivastava
Ms. Aradhana Patnaik
Ms. Meera Srivastava
Dr. Shobhna Gupta
Dr. Kapil Joshi

National Health System Resource Centre

Dr. J.N.Srivastava
Dr. Ranjan Kumar Choudhury
Dr. K. Madan Gopal

Expert Group

Dr. S. Ramji
Dr. Ashok Deorari
Dr. Harish Chellani
Dr. Sushma Nangia
Dr. Ramesh Agarwal
Dr. Sadhana Mehta
Dr. Renu Srivastava
Dr. Deepti Agrawal
Dr. Nimisha Goel
Dr. Atul Jindal
Dr. Nishant Banait
Dr. Rohit Anand
Dr. Alimelu
Dr. Swapna
Dr. Sugandha Arya
Dr. Ashfaq Bhat
Dr. Vivek Singh
Dr. Sachin Gupta

Reviewers

Dr. Ruchi Nanavati
Dr. J. Kumutha
Dr. Praveen Kumar
Dr. Reeta Bora
Dr. Arti Maria
Dr. Mangala Sood
Dr. Kanya Mukopadhya
Dr. Rajesh Mehta
Dr. Vikram Datta
Dr. Anuja Prakash
Dr. Rajesh Khanna
Dr. Aditya Mahopatra
Dr. S Sitaraman
Dr. Misbah Samad
Dr. Pradeep Chaudhary
Dr. Jai Singh
Dr. Lalan K Bharti
Dr. Mushtaq Ahmad Dar
Dr. Prasant Kumar Saboth
Dr. Sashi Vani
Dr. Surender Bisht
Dr. Ashish Jain
Dr. Ramesh Chaudhary
Dr. S. Srinivasan
Dr. Neeraj Gupta
Dr. Pramit Srivastava
Dr. Suman Rao
Dr. Bindu Bajaj
Dr. Jyotsna Suri
Dr. Deepak Chawla
Dr. Mala Kumar
Dr. Suchandra Mukherjee
Dr. Anu Sachdeva
Dr. Mukesh Beniwal
Dr. Tapas Som
Dr. G. Sudheera
Dr. Rajat Khanna

Acknowledgement

Dr. Sumita Ghosh
Dr. Ajay Khera
Dr. P K Prabhakar
Dr. Sheetal Rahi
Dr. Himanshu Bhushan
Dr. Arun Singh
Mr. Vishal Kataria
Mr. Sharad Singh
Dr. Vaibhav Rastogi
Ms. Sumitra Dhal Samanta

Table *of* Contents

SECTION I
Operational Guidelines

CHAPTER I: BACKGROUND

India has embarked on the ambitious mission to attain the Sustainable Development Goals and one of the Goal 3 targets is to end preventable deaths of mothers, newborns & children by 2030. Renewed commitments to achieve optimum levels of maternal and child health have been made and the National Health Policy (NHP) 2017 provides the roadmap for achieving universal health coverage and delivering quality health care services to all.

Considerable progress has been made in improving newborn survival in the last decade. The neonatal mortality rate has constantly declined from 35 in 2008 to 20 in 2020 (SRS). An analysis of causes of death SRS 2017-19 reported that prematurity/low birth weight, birth asphyxia & birth trauma and neonatal pneumonia & sepsis continue to remain the major causes of newborn mortality, more than 80% of which are preventable. This underlines the need to continue with high level of investment in intrapartum care and newborn care services as newborn deaths still contribute around 72% of infant deaths and 63% of the under five deaths in the country in 2020. RMNCAH+N strategic approach and India Newborn Action Plan 2014, under the National Health Mission, emphasize on continuum of care and life cycle approach to reducing newborn mortality. India is committed to attain single digit neonatal mortality and stillbirth as per INAP and SDG by 2030.

Facility Based Newborn Care Programme (FBNC)

Facility Based Newborn Care (FBNC) operational guideline was disseminated in 2011 to assist programme managers to plan newborn care facilities at the district and sub district level. The guideline elaborated on the layout, infrastructure, equipment, human resource and created dedicated budget lines for both capital expenditure and recurring costs. This guideline contributed towards standardization of the newborn care units and the provision of care across the country. FBNC programme was implemented across the country in terms of establishing several new units and these guidelines served the purpose well. To address the issue of standardization of skills, FBNC training package was developed and introduced into the programme in 2014 and revised FBNC training package in 2023, thus providing the much-needed acceleration to the capacity building efforts. Online monitoring system was established for tracking the performance of these units and providing data for the quality improvement process. A network of National and Regional Resource Centres provides training and mentoring support to the newborn care facilities.

As a result, there are functional Special Newborn Care Units (SNCU) in more than 90% of the districts. Newborn Stabilization Unit (NBSU) serves as an important link between sub-district level newborn care and SNCU; 2868 NBSUs have been established since 2011.

Why there is a need for revising the existing guidelines

Despite remarkable progress, few states do not have optimal numbers of functional newborn care units and many units experience very high case load with restricted bed capacity. The cost estimates for infrastructure, equipment and human resource have also changed significantly since 2011.

As the programme has evolved and evidence has accumulated, several guidelines for initiatives like kangaroo mother care (KMC) and feeding for preterm babies, Family Participatory Care are now being implemented and need to be integrated into single operational care guideline. More recently, Mother Newborn Care Units (MNCU) have been envisioned to care for the mother baby dyad and to ensure developmentally supportive care for newborns. In these MNCUs, mother bed is next to baby's radiant warmer and mother stays inside the unit 24*7 with her baby. Many units are in urgent need for expansion and upgradation of service provision (such as CPAP). Strengthening of Newborn Stabilization Units is the need of the hour. State Resource Centers are being promoted with a view to enable the states to undertake capacity building and quality improvement under the guidance and support of Regional and National Collaborating Centre. Therefore, a revised guidance is being provided to the states to facilitate further enhancement of facility based newborn care.

Purpose of this Guideline

This document provides detailed guidelines for organizing facility based newborn care in the public health system. It takes into account the new developments in the ever evolving RMNCAH+N programme, ensuring that newborn care services are delivered more comprehensively, effectively and across a larger number of health facilities than was envisaged in 2011.

These operational guidelines aim to equip the programme managers at all levels of the NHM to plan, monitor, review and upgrade the existing newborn care facilities based on the local assessment.

The document includes guidance for:

- Planning Mother Newborn Care Units (MNCU) and expansion of newborn care units in the State and districts.
- Revised cost and budgetary provisions,
- Capacity building of the service providers involved in provision of newborn care at all levels,
- Establishing linkages with other government schemes and quality initiatives, and
- Improving newborn care services to ensure Quality, Equity, and Dignity (QED)

CHAPTER II: PLANNING FOR NEWBORN CARE FACILITES AT DIFFERENT LEVELS

Facility Based Newborn Care Operational Guideline 2011 describes the newborn care facilities at each level of the health system. New Born Care Corner (NBCC) is a designated space in Labour Room and OTs in all facilities. Newborn Stabilization Unit at the sub- district level and Special Newborn Care Unit/Mother Newborn Care Unit (MNCU) at the district level provide first and second level of newborn care, respectively. Tertiary level care – at Newborn Intensive Care Units- is envisaged at teaching hospitals (medical colleges) and district hospitals attached to medical colleges.

Newborn Care Corner (NBCC)

Newborn Care Corner (NBCC) is a designated space in the Labour room & Obstetric OT, with equipment and trained staff available round the clock to provide essential newborn care including resuscitation at the time of birth.

Essential Newborn Care (ENC) is the care that each newborn needs regardless of where the baby is born and includes delayed cord clamping, skin to skin contact of the newborn with the mother, maintaining the airway, support in establishing respiration and early initiation of exclusive breastfeeding.

Newborn Stabilization Unit (NBSU)

Newborn Stabilization Unit (NBSU) is 4-6 bedded unit established at sub district level (Community Health Centers/ First Referral Units) providing basic care to sick and small newborns. NBSUs when optimally functional, well networked and supported by referral units, can satisfactorily manage large numbers of newborns requiring first level of care close to home. Based on the availability of the space the NBSU will also be converted into Mother Newborn Stabilization Unit where mother bed is next to baby's radiant warmer and mother will stay 24*7 in the unit along with her newborn baby.

Special Newborn Care Unit (SNCU)

SNCU is at minimum a 12 bedded or larger unit located at district hospitals or high delivery load sub district hospitals and medical colleges with dedicated and adequately trained doctors, staff nurses and support staff to provide 24*7 comprehensive secondary level of newborn care to small and sick neonates not requiring surgical intervention and mechanical ventilation. Well performing SNCU can also serve as training hub for medical officers and nurses.

Mother Newborn Care Unit (MNCU)

The aim of establishing MNCU is to ensure 'no separation' of mother and newborn during hospital care while the mother is empowered to participate in developmentally supportive care of the newborn. The mother's bed is in the same space/ area, next to the baby's warmer. It is envisaged that each SNCU should aim to have a MNCU while NBSU beds could also be converted into MNCU.

While at NBSU where feasible mother beds can be added based on the functionality of the NBSU following the critaria of functionality

Availability of Space for keeping mother's bed next to radiant warmer

Availability of Functional equipment

Availability of dedicated human resource at the facility i.e. Obstetrician, Pediatricians, Anesthetist and Staff Nurses.

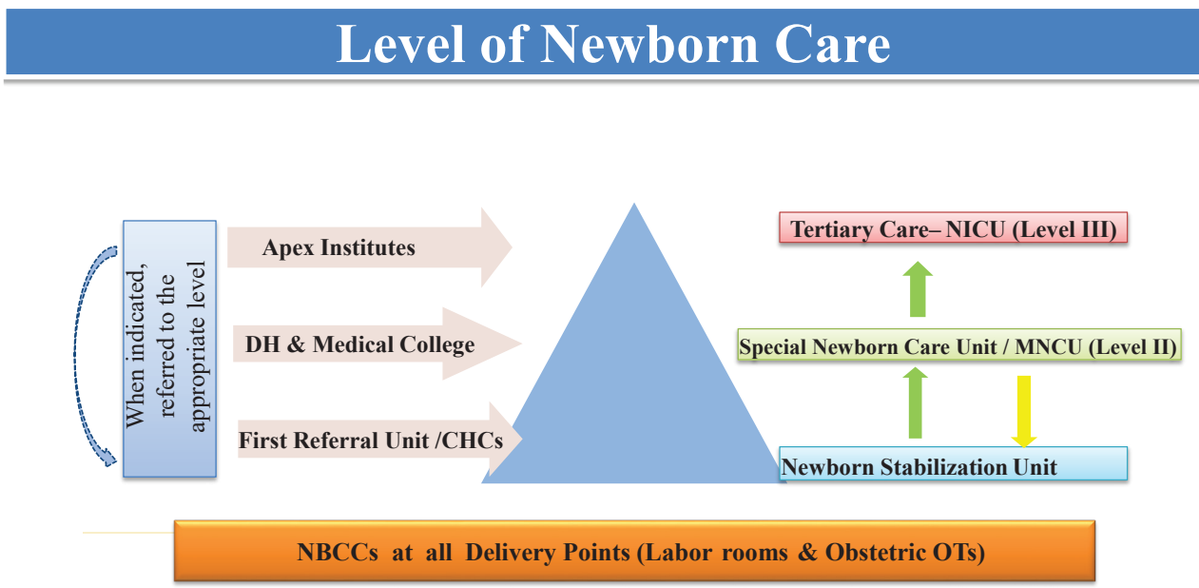
NBSU having bed occupancy rate of 60 % or more.

For adding mothers beds in NBSU add 100 Sq feet per mother bed (total 400 Sq feet) to the existing 4 bedded NBSU floor norms.

Neonatal Intensive Care Unit (NICU)

Regionalized system of perinatal care is recommended to ensure that each newborn is delivered and cared for in a facility appropriate for health care needs and to facilitate the achievement of optimal outcomes. Newborn intensive care provided is essential for medically unstable or critically ill newborns who require constant nursing, complex surgical procedures, ongoing respiratory support, or other intensive monitoring. NICUs are defined by having continuously available personnel (neonatologists, neonatal nurses, respiratory therapists) and equipment to provide life support for as long as needed. NICU needs paediatrician or neonatologist who is able to manage complex neonatal conditions in small & sick neonates often with immature organs with multidisciplinary team (Ophthalmologist , paediatric surgeons,etc.).

Levels of Health System for Facility Based Newborn Care



Simply adding ventilators to SNCU does not qualify the unit as NICU

Referral linkages: The aim of the referral system is to ensure that every small or sick newborn accessing the health system receives optimal care at the appropriate level. It requires effective links between primary health care services (PHC/SC delivery points) and newborn care units at referral hospitals (CHC, DH) in the form of efficient, appropriate and timely transportation of patients and pre-referral treatment. This will lead to an effective continuum of care for newborns across all levels of health facilities.

Overview of services at different levels of newborn care

	Newborn Care Corner (NBCC)/ Post natal ward	Newborn Stabilization Unit (NBSU)	Special Newborn Care Unit (SNCU)/Mother Newborn Care Unit (MNCU)	NICU
For sick & small newborns	Identification and prompt referral of 'at risk'/sick & small newborns	Stabilization of newborns presenting with emergency signs Management of sick & small newborns (meeting the admission criteria)	Comprehensive newborn care to all sick and small newborns (except for ventilator support and surgery)	Comprehensive newborn care with provision for advanced diagnostics, ventilator support and surgery
For all newborns	Essential newborn care at birth: • Skin-to-Skin Contact. • Early Initiation of Exclusive Breastfeeding • Thermal Protection • Infection Prevention • Vitamin K Administration • Immunization • Assessment for Danger Signs Resuscitation when required • Prevention of infection • Early initiation of breast feeding • Administration of Injection Vitamin K • Weighing the baby In Postnatal ward: • Continue breastfeeding and provide support, if required; • Daily monitoring for recognition of danger signs, • Immunization (birth doses), • Developmentally supportive care • Screening for birth defects • KMC for low birth weight newborns • Discharge counselling including KMC (for small babies), breastfeeding support,recognition of danger signs, vaccination schedule, Jaundice screening (visual)?			

Admission criteria at different levels of care

NBSU (at sub district level)	SNCU (at district level)
1. Stabilization of newborns presenting to FRU/ NBSU with emergency signs OR, Newborns not having emergency signs but weight above 1800 gm and any of the following signs: • Having feeding problem • Fast breathing (RR 60-70/min.) • Hyperthermia (Axillary temp >37.5°C) or hypothermia (35.5°C-36.4°C) • Jaundice requiring only phototherapy. • Newborns with suspected sepsis **2. #Newborns weighing 1500-1800 grams with no sign of sickness** **3. Newborns who cannot be transferred to SNCU or referral facility due to any reason** **4. Newborns back-referred (from SNCU) to NBSU for completion of treatment**	**1. Management of newborns with emergency signs:** • Apnoea (Not breathing at all) or gasping respiration • Severe respiratory distress (RR>70/min, Grunting, moderate retractions) • Central Cyanosis • Shock • Convulsions • Refusal to feed • Lethargy/COMA • Hypothermia (Temp.<35.5°C) **2. #Newborns weighing less than 1800gms / more than 4 kg/less than 32 weeks** **3. Any newborn with bleeding, severe jaundice, major malformations or any case referred from NBSU**

#Newborns weighing 1500-1800 g can be managed at either NBSU or SNCU depending on the distance to the nearest facility, sickness, and can be admitted even for KMC and feeding support.

All babies between 1800 to 2500 gm with no signs of sickness to be kept together with their mother in the Post National ward for at least 72 hrs after birth and ensure breast milk feeding and initiation of Kangaroo Mother Care before discharge.

Newborn with priority signs is seriously ill and needs immediate assessment, treatment and admission to SNCU (Annexure 1)

Planning for FBNC at State & District

The state level planning for FBNC is important for ensuring that all districts have adequate number of newborn care facilities providing quality maternal and newborn care. Planning is to be contextual and based on the estimated need for total number of beds in each district, located such that newborn care is equally accessible across the geography of the state/district.

Steps for FBNC planning are as under:

A. Strengthen State Programme Management Unit (Child health team / consultant child health)

B. Provision for FBNC at all levels in all districts
- Gap analysis of planned & currently functional newborn care units
- Infrastructure: expansion of existing units / establishing new units

- Procurement and maintenance of equipment
- Human resources availability & rational deployment
- Capacity building

C. Establish/ strengthen State Resource Centre

D. Supportive supervision & monitoring

E. Budgets & PIP approval

A. Strengthen State Programme Management Unit

The State Programme Management Unit identifies key priorities and guides implementation of FBNC across the state. This unit strengthens technical, institutional and operational capacities for implementation of both national and state funded program and supports implementation of scalable innovations within the state. The state newborn care programme should be implemented under the overall guidance of designated Child Health Nodal Officer who coordinates with the District Program Managers as well the national programme managers. S/he may be additionally supported by the state FBNC consultant, Clinical Care Coordinator, Data Manager etc.

Important stakeholders including professional bodies, local public health experts, medical college faculty, nursing directorate, development partners and quality assurance teams should be engaged appropriately. Close coordination with public works department and biomedical engineers is also required.

Working together, the State Program Management Unit (SPMU) and State Newborn Resource Centre, should prepare a detailed state plan with timelines and budgets, ensuring uniformity in the standards of care, continuous monitoring and quality improvement across newborn care units as well as training of service providers.

B. Provision for FBNC in all districts

Each district should have newborn care facilities established as a three-tiered level care system. A illustration on how to calculate the number of beds needed in the unit is mentioned under Table No. 1, which will guide in planning the minimum indicative number of FBNC units required in an average sized district (population of 20 lakhs) with one medical college and district hospital each and **one sub district hospital with more than 3,000 deliveries per year, four FRUs, and twenty 24x7 PHCs:**

Table No.1: Example for calculating the requirement for newborn beds in a district

Newborn services	Level of facility	Number of units	Total number of units
Newborn Care corner at labour room & OT at all levels	SC, 24*7 PHC, CHC (20)	20	36
	First referral unit (4)	8 (4+4 for LR + OT)	
	District hospital (1), Sub-district hospital (1)	4 (2+2 for LR+OT)*	
	Medical College (1)	2 for LR+OT	
Newborn stabilization units	First referral unit (4)	4	4
SNCU/MNCU	District hospital (1), Sub-district hospital (1 with >3000 deliveries/year)	2	2
NICU*	Medical College (1)	1	1
Consider availability of neonatal care beds in private sector, especially hospitals empaneled under Ayushman Bharat			

**Medical College care in select districts only.*

Thus, a district as described above would have approximately 36 NBCCs if all delivery points are saturated, 4 NBSUs and at least one SNCU/MNCU. District hospitals attached to medical colleges can be considered for establishing NICU (in addition to SNCU), depending on the availability of neonatal specialists and overall infrastructure and backup services. In remote areas and certain NE states, the number of units shall not be linked to the total number of deliveries annually, but to the available resources and time to reach appropriate level of care. Ideally all facilities providing BEoMNC should plan for NBSU and those providing CEmONC , for SNCU/MNCU.

Population and Crude Birth Rate (CBR) based calculation of newborn care beds in the district

An average district with **20 lakh** population and an average Crude Birth Rate of **20 per 1000 midyear population** is estimated to have **40,000 live births annually.**

- The district plan should provision essential newborn care for all 40,000 births through a skilled birth attendant at NBCC.

Based on following assumptions:

- As 85 % of the total births require L1 care (i.e. 34000) and remaining 15% (i.e. 6000) require facility based care (L2 & L3).
- A district would plan facility based newborn care for approximately 6000 sick and small newborns annually.

- **Sample calculation for a 12 bedded unit:** An estimated 25% of these 6000 babies (i.e. 1500) shall require SNCU care; the total number of beds required will be 1500 sick babies * 5 (estimated average duration of stay per admission)/365 days = 20 beds per day. Thus the district should plan for a 12 bedded SNCU/MNCU with same number of beds for mother inside the SNCU/MNCU to cater to the sick and small newborns of a district. 30% of beds i.e. 4-6 beds should be additionally Planned and used as step down and for stable small babies requiring KMC and feeding support. This will cater to out of district referrals also. The number of beds in the SNCU/MNCU can be decided by the state team based on the criteria described earlier and accordingly the calculations may be adjusted.
- Remaining 4500 small and sick newborns can be cared for at sub district level that is at NBSUs. The total number of beds required will be 4500 babies * 2 (estimated average duration of stay per admission)/365 days = 25 beds per day. Referring to Table No. 1, four NBSUs (4-6 bedded each) in a district will provide another 20-24 beds creating adequate provision for care of these newborns. With 50% of institutional deliveries taking place in the private sector, some newborns shall be cared for in the private hospitals and nursing homes.
- Of these 6,000 newborns, it is estimated that only 3- 5% shall require tertiary care (at NICU) which is approximately 180- 300 newborns per year). Thus it is advisable that efforts should be directed towards regionalization of care at tertiary level and have robust referral linkages to tertiary care units.
- The State/UT should plan the number of beds based on the case load at the facility i.e. inborn and outborn admissions.
- The SNCU/MNCU should be established in the district based on the population norms and CBR as discussed above, Also for every 1000 additional deliveries, 4 SNCU/MNCU beds may be added in the existing unit along with the commensurate provision of Equipment, HR, consumable etc.

Need Based Assessment for planning FBNC

- Gap assessment should be undertaken to identify districts that currently do not have the recommended number of functional newborn care units. High priority districts and aspirational districts and blocks should be prioritized.
- NBCC is an integral functional area of Labour room & OT. A line list of functional NBCC (having required equipment and trained personnel). Matched with delivery points should be maintained and updated every quarter.
- NBSU operationalization requires meticulous planning by the state and district teams as it is currently the weakest link in the chain of newborn care. The functioning of existing NBSUs in terms of admissions, bed occupancy, and availability of dedicated & trained human resources (staff nurses) should be reviewed. New NBSUs need to be planned at functional FRUs and high case load CHCs. Capacity building of service providers positioned at the NBSU should be planned with the new training package (Facility based care of sick and small newborns at FRUs 2020). Regular reporting from NBSUs should also be ensured into the online reporting system.

- Take stock of of the units approved in previous years and review their operational status. Reasons for delayed operationalization should be identified and addressed at the level of State PMU in coordination with district authorities and new timelines decided and communicated. Delays in handing over of the newborn units beyond expected timelines should be monitored to avoid cost escalation.
- A small unit (SNCU with 6-8 beds) may be planned for difficult to reach/hilly terrain/conflict areas with due approvals in state PIP. Several new districts have been created recently and thus do not have the district hospital. It is important to holistically plan for newborn care units considering the requirement of the district.
- Ideally one SNCU/MNCU should be established at each district/district hospital.

Expansion of existing units/establishing new units

- **Existing SNCUs:** The state should critically review the units with high bed occupancy with respect to adherence to admission and discharge criteria, possibility of infrastructure expansion, and human resources availability before planning for expanding the bed capacity. Where the need for expansion has been objectively confirmed, expansion can be approved in existing SNCU where feasible, otherwise a second unit can be established at the sub district hospital/FRU with high delivery case load (>3000 deliveries annually). The state should ensure that in facilities with **Maternal Child Health wings,** the layout and infrastructure provisions for SNCU/MNCU are as per guidelines and duplicity should be avoided.
- It is advised that the expansion should be taken in the set of four beds for each 1000 additional deliveries to make optimal use of resources. The staff requirement has been calculated as one nurse per 3 beds. By adding bed capacity in set of 4; the additional staff required can be projected accordingly.
- **Support to the Medical Colleges:** Under NHM, existing newborn units at medical colleges receive financial support for SNCU and are required to report into the FBNC online portal. Designated nodal person for the unit is accountable for maintaining records and reporting from the unit, ensuring adherence to the clinical protocols and proposing the budgets as per the requirement.
- The State Child Health Nodal Officer in consultation with the MD, NHM and Directorate of Medical Education should identify and designate one or more medical college/s as **State Newborn Resource Centre/s** for capacity building and mentoring support to newborn care across the state and coordinate with the Director/ Principal and Head of the Pediatric /Neonatology unit of the medical colleges on a regular basis.

Procurement, supply and maintenance of the equipment

Optimally functioning equipment is essential for providing newborn care. Equipment for all newborn care units should be procured as per recommended norms and technical specifications. The current norms may be accessed from: http://nhsrcindia.org/category-detail/technical-specifications/ODgz
An inventory of equipment across all newborn care facilities will help in maintenance and optimal functionality. Any unused newborn care equipment should be mobilized and redistributed across newborn care units based on identified need. The state team should ensure the following:

- Build multiyear AMC into procurement contracts, outsource maintenance services, create network link with overall mechanism of bio-mechanical equipment maintenance system and earmark funds for maintenance and repair to avoid inordinate delays in sanctioning of funds.
- Stabilized power input, certified for compliance of electric wiring standards and power load, which should be certified and displayed prominently in SNCU and recertified on an annual basis. Also ensure adequate automatic power back-up for functionality of equipment. 24 X 7 electrical supply and power backup should be available at new born care area.
- Train SNCU staff in use, preventive maintenance, and troubleshooting of equipment before installation.
- In addition, as per IPHS norms the unit should have fire extinguishers, check functionality, replace after expiry date, fire drills with contingency plan in place and prominently displayed.

Human Resources

Under NHM, states have flexibility to budget for hard area allowances, and liberal pay structure to attract and retain trained human resources. States have also used various strategies for this purpose including campus interviews, walk in interviews, couple postings, additional weightage in postgraduate admission to those serving in difficult areas. Regular review of the staffing requirements to saturate all the recommended posts with permanent employees and gap-filling with the contractual staff from NHM should be undertaken. Task shifting is also promoted by training the medical officers in FBNC training(4+ 14 days) to be posted at SNCU to give round the clock services. The staff and doctors trained in Newborn Care should not be posted outside the newborn care area services/ facilities.

Capacity Building

National/Regional Collaborative Centres conduct trainings and observership for the states and provide on-site mentoring through periodic visits. Each state should aim at developing a State Resource Center (SRC) for coordinating and taking charge of FBNC trainings and mentorship.

State Child Health Nodal Officer should calculate the training load and plan FBNC training considering the availability of resource pool of master trainers. Each state should work towards developing a state pool of trainers drawn from medical colleges/domain experts/ professional association.

The trainings should be scheduled as close as possible to operationalization of the newborn care unit and rational deployment of trained personnel should be ensured. Participants for the State TOT (Training of the Trainers) should be selected with long term vision of using them as state level experts for training and mentoring. Hands on, competency-based refresher training for the service providers may also be planned where considerable time has elapsed since they were last trained.

State Child Health Nodal Officer in consultation with SRC should review the progress of trainings for service providers positioned, considering:

- HR in position at functional units (SNCU, NBSU, NBCC)
- HR planned for operationalization of new units during the year
- Attrition of the previously trained service providers
- Service providers newly hired/positioned at newborn care units.

C. Establishing State Newborn Resource Centre (SNRC)

With rapid expansion of newborn care services at all levels of the health system, it is imperative to provide support to these units/ hospitals through state level institutions thereby reducing dependence on the National and Regional Collaborative Centers. State Resource Centre is envisaged as the apex institution in the state for overall guidance in planning, capacity building, and delivery of quality newborn care services, while working closely with the State Programme Management Unit, Regional/ National Collaborative Centre and MoHFW to achieve these objectives. All States should aim to establish one or more State Resource Centre/s to strengthen newborn care services and improve quality of care.

D. Supportive supervision & monitoring

Comprehensive supportive supervision providing administrative and technical support and mentorship to newborn care facilities at all levels is important for delivery of quality services and a well-defined plan should be put in place. This can be done on day to day basis (e.g.; by Nursing in-charge or Facility/ Unit in-charge) or through review meetings scheduled at well-defined periodicity (e.g.; monthly meetings by Chief Medical Officer or Medical Superintendent).

The administrative staff and supervisors are required to keep themselves updated on operational guidelines & provisions for newborn care. Tools such as monitoring checklists are available and should be used by the supervisors in making an objective assessment of the newborn care facilities.

District level

Newborn care practices at sub district levels i.e., NBSU and NBCC are equally important as these providers (nurses, ANMs, medical officers) may not have ready access to on-site/ refresher /hands on training, making it difficult for them to retain essential skills. To provide optimal newborn care in sub district units an estimated 125-150 health personnel require ongoing mentoring support/ supportive supervision. It is not feasible for Regional or State Resource Centres to reach out to these large number of providers on a regular basis. The states are therefore encouraged to extend the reach of SRC and Divisional/District level resource centre to support mentoring of the sub district level health providers.

E. Financial support

State annual plan has dedicated FMR codes for FBNC related activities and financial norms are provided in this guideline. Any increase in the budget requirement above the recommended norms should be supported with adequate justification. Under NHM all renovations/new construction proposals must be supported by detailed project report developed by the government civil works or public engineering department. Robust and compliant systems are prerequisites for funds transfer to medical colleges and submission of utilization certificates at the end of financial year is mandatory.

CHAPTER III: INSTITUTIONAL MECHANISMS

National level

Under National Health Mission, Child Health (CH) Division Ministry of Health & Family Welfare provides the overall policy and technical guidance to implement the FBNC programme. In addition, updates, guidance notes, memorandums are issued by the CH Division, MoHFW to provide required assistance and clarification to the States/UTs in consultation with National Collaborating Centre for Facility Based Newborn Care, National Health Systems Resource Centre, apex institutions such as WHO Newborn Resource Centre at AIIMS, development partners and technical experts from academic institutions, professional bodies, etc.

State level

The state level institutions viz. the State Programme Management Unit (SPMU), State/Regional Newborn Resourced Centre (SNRC) and state training institutions support the State Child Health Nodal Officer. S/he should be well versed in newborn and child health program and along with the support team ensure that all the national and state guidelines are disseminated, implemented and monitored. The State Data Manger and Clinical Care Coordinator (or equivalent) shall work in close coordination for planning the visits and share the visit reports and findings with the respective units for improving the quality of care. States do have the flexibility to adapt and innovate to improve the quality of care at these units.

Establishing state Newborn resource centre

State Newborn Resource Centre (SNRC) is envisaged as the apex institution providing necessary technical guidance to the state and districts for planning and capacity building. SNRC works in close coordination with the State Program Management Unit (SPMU) / Regional Collaborative center (RCC), National Collaborative Center (NCC) towards delivery of quality newborn care services in the state by:

1. Performing an advisory role at State level for expanding and strengthening newborn care;
2. Enhancing technical capacity through capacity building support and making states self-reliant in FBNC programme; and
3. Improving quality of newborn care at all levels of the health system.

Institutional mechanisms for FBNC

Institution	Role
Child Health Division, Ministry of Health and Family Welfare, GOI	• Policy guidance on newborn care • Dissemination of guidelines, directives • Funding support to Resource Centres • Monitoring the overall performance & quality of newborn care in the country
National /Regional Resource Centre (at Kalawati Saran Children's Hospital & Lady Hardinge Medical College, New Delhi, National MNCU resource center at VMMC, Safdarjung Hospital New Delhi) King Edward Memorial (KEM) Hospital (Mumbai), Institute of Child Health (ICH) Chennai, Assam Medical College (AMC) Dibrugarh WHO Collaborating Centre & Other Centres of Excellence for Newborn Care, Development partners, Professional bodies	• Support Ministry of Health and Family Welfare in updating technical guidelines, norms and protocols • Build capacity, mentor and coordinate with other national/apex institutes to support regional & state collaborative centres for developing a resource pool of mentors and trainers
State Resource Centres At least one in each state, preferably a medical college/academic institution	• Build capacity of service providers and administrators through a pool of trainers and mentors for trainings (refreshers / continuing medical education (CME), observerships / mentoring) • Establish a technical helpdesk for queries related to patient care, unit management and case discussions. • Guide and provide technical support to State PMU in data analysis, quality assurance (NQAS, MusQan) & QI and review of Newborn Action Plans Tele SNCU, Monitoring
Divisional Resource Centre **(at well performing SNCU or District Medical College)**	• Training site for NSSK/NBSU/refresher trainings • Site for observership for NBSU & NBCC staff • Mentoring support to newborn care units at sub district level (NBCC, NBSU) within the same and neighbouring districts Hub and Spoke model Tele SNCU

Identifying an institution as State Resource Centre for Newborn Care

The state should identify medical college/ academic institution with good clinical practices and dedicated faculty for functioning as the State Newborn Resource Centre (SNRC). Concurrence of the Director/ Principal/ Vice Chancellor of the concerned institution for establishing the proposed centre within the institutional framework is an important prerequisite for ensuring sustainability of SNRC.

Nodal person of the State Resource Centre can be Head of the pediatric / neonatal unit / designated faculty member; and will be responsible for the overall functioning of the centre. S/he will strive to maintain the quality of clinical practices in newborn care in the unit to serve as a model/demonstration centre in the state. Any additional requirement for expanding the infrastructure or increasing faculty members, proposals for carrying out operational research, mentoring, etc. should be reflected in the State PIP.

Table No. 2: Roles and responsibilities of SNRC

1. Capacity building for newborn care services • Create a state pool of experts in newborn care for training and mentoring support • Propose budgets based on training calendars for capacity building of SNCU and NBSU staff. • Conduct quality Facility Based Newborn Care trainings and observership programme for service providers demonstrating standard clinical practice guidelines • Undertake mentoring visits to identified units and validate the data reported to the SPMU, check for adherence to SOPs, • Provide onsite training using teaching aids like mannequin, flipcharts, etc. • Participate in tele consultation to other/ designate newborn care units using Telemedicine
2. Local technical support • Support SPMU in taking informed decision based on data analysis • Help in implementation of SOPs for various levels of FBNC • Local adaptation of guidelines OR developing any relevant technical document • Undertake operational research on newborn care, within the state • Conduct rapid assessment of newborn care facilities
3. Advisory role as technical support to the SPMU for planning /strengthening services
4. Coordination & convergence with CH Nodal Officer for ongoing institutional support

Strengthening the designated institution for the role of SNRC

An assessment of the identified institution should be conducted and action plan developed to address identified gaps in infrastructure, human resources and clinical practices. Technical expertise and advise can be sought from collaborating centers or centers of excellence.

All the faculty members and nursing staff in the unit must be FBNC trained and skilled to conduct trainings for other service providers. In addition to the faculty members, additional human resource can be placed at the State Resource Centre, including:

1. Technical Project Coordinator (One)

Medical professional (MBBS), with at least 4-5 years of experience in the field of newborn care / neonatology to assist the SRC Incharge in preparing annual work plan, training calendars, year-end reports. S/he will also coordinate with SPMU for all newborn care related activities to be conducted by the SRC.

2. Nursing Coordinator (One)

A B.Sc. Nursing/GNM with experience of working in the neonatal unit and providing skills-based training to the staff. Duties shall include conducting the observership training for staff nurses under the regular guidance from Project coordinator/ Unit head/ Nursing Incharge.

3. Administrative Assistant cum Data Operator (One)

Graduate with basic degree in computers, data management shall be responsible for all the record keeping including financial transactions made by SRC.

Table No. 3: One-time establishment cost:

S.No.	Activity	Unit Cost (in Lakhs)	Remarks
1	Infrastructure: Refabrication, Office equipment and furniture	6 Lakh	Designated medical college/ institute to ensure adequate space for conducting SRC activities. An indicative cost can be proposed in state PIP, if required
2	Equipment for training: including Mannequins	4 Lakh	Recurring expenditure depending on usage for replacing as and when required (the equipment for training including Mannequins
	Total Cost	**10 Lakh**	

State may propose the budget for the State Newborn Resource Centre in the PIP and budget to develop the model SNCU.

Table No. 4: Recurring cost

S.No.	Activity	Remarks
1	Salaries of Project Coordinator (State), Assistant Nursing Coordinator (State), Administrative cum Account Assistant	As per the state norms. The salaries will include reimbursement of TA/DA for travel as per actuals
2	Day to day office functioning including Stationery, Internet & contingency etc.	1,20,000/annum (10,000/month)

SNCU as District / Divisional Training Centre

The states where SNRC is well established can designate a SNCU at DH/Medical College with optimal quality of care, availability of adequate space and human resources as the District Resource Centre for Newborn (DRC). DRC shall be responsible for capacity building, and mentoring visits to sub district newborn care facilities in the same and neighboring districts. DRC shall provide 'hands on', 'on-site' training of health personnel in addition to its already established role of treating sick & small newborns. Strengthening of the DRC designated unit as training and demonstration site (for e.g.; NSSK, NBSU trainings) will be required, and accordingly the capacity of all staff should be developed to perform the required tasks.

Like SNRC, a monthly reporting for all trainings & mentoring visits should be shared with the state level (SPMU/ SNRC).

Table No. 5: Additional Requirements

Criteria	Additional Requirements
HR	Desirable- 1 FBNC trained MO and 2 Nursing Tutors in addition to the recommended manpower of SNCU. They can work as part of SNCU team when not visiting sub district units to keep the skills upgraded.
Equipment	Two sets of resuscitation kit skills to be used during the mentoring visit (for hands on training of providers at NBCC) One set of equipment in DRC for demonstration/hands on training (Radiant Warmer, oxygen delivery system, phototherapy machine, pulse oximeter, resuscitation kit etc.)
Training infrastructure	Dedicated room/hall for training; Furniture and equipment for conducting training- table, chairs, A-V equipment, computer, printer/photocopier
Data Entry System	Support for data entry following mentoring visit (scoring checklist)
Travel and communication logistics	Budgetary support for the local travel and communication Support for telemedicine, where feasible one LCD projector with the computer , a sound system for use while displaying videos needs to be included in equipment for conducting training.

Table No. 6: Estimated cost for setting up of District/Divisional Resource Centre

Budget head	Indicative cost
One time establishment cost budgeted in the designated FMR of state PIP	
Renovation or repair (training hall) & electrical fittings, AC etc.	2,50,000
Furniture (chairs, tables, cupboards etc.)	2,00,000
Teaching Aids (projector, television, computer etc.)	1,20,000
Smart Board	150,000
Neonatal training equipment (including mannequin etc.)	1,50,000
Total	**8,70,000**
Recurring cost may be added to the existing operational cost of SNCU	
Human resources (1 doctor; 2 nursing tutors) Travel support, accommodation etc.	As per state norms

Linkages of District / Divisional and State Newborn Resource Centre

The designated State Resource Centre will provide the overarching technical and mentoring support to these DRCs for adhering to standard treatment protocols, requisite infrastructure, development of training and mentoring plan. At least one annual visit by team from SRC will be undertaken to the DRC for providing continued support for improving the quality of care. Linkages with Skills Lab established at district hospital should also be established. Mentoring checklists will help the mentors in conducting mentoring activities.

CHAPTER IV: NEWBORN CARE CORNER (NBCC)

Newborn Care Corner (NBCC) is a functional space within the labour room and Obstetric OT at all levels of health facilities designated as delivery points. NBCCs are equipped to provide essential newborn care including resuscitation at the time of birth.

The NBCC must always be in a state of readiness to provide essential newborn care for each birth, as some newborns with no prior risk factors may require resuscitation. More than 90% of the babies will cry at birth and should to be placed on the mother's abdomen for skin to skin contact and initiated early for breastfeeding. Babies who do not cry at birth require a designated area within the labour room prepared for performing the resuscitation protocol.

A clear floor area of 30-50 sqft inside the labour room /OT to accommodate one radiant warmer with adequate free space for movement around it is required for this purpose. Appropriate power source for radiant warmer, oxygen and suction equipment and connections is required and may need some renovation in the labour room /OT. It is suggested that every 3000 annual deliveries one radiant warmer (NBCC) in the labour room is required and for every additional 3000 deliveries one NBCC may be added. As per IPHS 2022, LR guideline, for every 4 Labour tables, there should be at least one functional NBCC.

NBCC is not a separate unit, it's a demarcated space within the labour room /OT

For each NBCC at sub –district health facilities (CHC, PHC, SC)

Table No. 7: NBCC at sub –district health facilities

S.No.	Item Description	Essential/ Desirable	Desired Quantity	Indicative Unit Cost	Total Cost
1.	Open care system: Radiant warmer (fixed height with trolley drawers, oxygen bottles)	E	1	65000	65000
2.	Self-inflating bag, 500ml with mask sizes 0,1	E	1	3500	3500
3.	Self-inflating bag 240ml with mask sizes 0,1	E	1	3500	3500
4.	Suction pump				
	(a) Suction Pump (Electrical)	D	1	15000	15000
	(b) Suction Pump (Foot Operated)	E	1	8000	8000
5.	Digital thermometer	E	2	500	1000
6.	Oxygen source (Oxygen Cylinder or Concentrator)				
	(a) Oxygen Cylinder (Type B) with trolley	E	1	10000	10000
	(b) Oxygen Concentrator (10 LPM)	E	1	50000	50000
7.	Weighing scale (digital)	E	1	5000	5000
8.	Stethoscope	E	1	2000	2000
9.	Room thermometer	E	1	500	500
	Total				**163500**

NBCC at District Hospital (DH) & Medical Colleges

Additional Pulse Oxymeter, Compressed air points, and air-oxygen blender and CPAP, T piece Resuscitator etc. should be available for NRP trained personnel (FBNC trained medical officers/ specialists) positioned at the DH and Medical College hospital and are available round the clock to provide advanced resuscitation & post birth care.

Table No. 8: Additional equipment for NBCC, DH & Medical Colleges

S.No.	Item Description	Essential/ Desirable	Desired Quantity	Indicative Unit Cost	Total Cost
1.	Laryngoscope with size 0,1 blade with spare bulb & batteries	E	2	5000	10000
2.	Pulse Oximeter (Tabletop) for neonatal	E	2	85000	170000
3.	T Piece resuscitator	E	2	50000	100000
Total Cost					**280000**
					(2.80 Lakh)

Human Resource

NBCC should be under the overall supervision of the Nursing Incharge of Labour room /Operation Theatre and functionality of essential requirements for NBCC should be checked daily at the time of change of duty. All the staff positioned in the labor room at sub-district health facilities should be trained in essential newborn care including resuscitation through capacity building programmes including NSSK, Dakshata and further update the skills at Daksh skill labs. It is important that at least one or two trained personnel are available in the Labour room in each shift and therefore all the staff may need to be trained. The facility incharge should ensure that the staff working in the labor room and maternity OT are not rotated/shifted from maternity duty to other departments/ wards frequently.

Table No. 9: Budget for NBCC for all levels

S.No.	Item	Cost (INR)
1.	Structural renovation	10000
2.	Equipment and furniture	4.44 lakh
3.	Equipment maintenance / consumables and recurring cost	20000
Cost of the training & HR should be budgeted under relevant heads and as per state norms		

**This budget considers the cost for Laryngoscope and its accessories (Bulbs, batteries etc.) and endo tracheal tubes also. The states to budget accordingly.*

Quality assurance in NBCC through LAQSHYA- Labor Room Quality Improvement Initiative

'LaQshya – Labor room Quality Improvement Initiative' focuses on all processes related to intrapartum and immediate post-partum care to enable adherence to quality standards and clinical protocols. LaQshya is expected to bring about reduction in stillbirths, newborn asphyxia and newborn sepsis related admissions in SNCUs for inborn deliveries.

Financial support for gap filling regarding infrastructure, equipment as per guidelines and bridging the human resource gaps is to be ensured. Baseline gap assessment and Training Need Assessment using standard NQAS checklist are conducted for planning purposes.
Reporting & Monitoring: Under LaQshya, standardized labor room registers and case records are used with review of all adverse events and outcomes.

The routine state HMIS reporting should continue. At district hospitals where SNCU/MNCU is functional data is also captured FBNC MIS

Refer to the chapter on Referral Transport for Prereferal stabilization and transportation of newborn. It is reiterated that in any situations of epidemic, pandemic, disaster plan there should be an alternate plan to continue/restore essential newborn services without disruptions.

Additional information is provided in Annexure regarding Health emergency and risk management.

CHAPTER V: NEWBORN STABILIZATION UNIT (NBSU)

Newborn Stabilization Units (NBSU) have been established at the sub district level at CEmOC facilities like FRU/CHC for managing sick and small newborns who are not so seriously ill and therefore can be managed at first level of newborn care facility. NBSU provides additional neonatal beds in the district closer to home and addresses the issue of overcrowding of SNCU. This allows SNCUs to be utilized for those newborns who need secondary level care. Pre-referral stabilization of sick & small newborn at NBSUs before transfer to SNCU/NICU improves the outcome for referred babies. Additionally, NBSU can serve as a unit for referral back from SNCU/NICU provided the referral linkages between these facilities are well established.

Preferably the unit should be in close proximity to the maternity ward and/or labour room area. Mother becomes an active caregiver along with the staff and is involved in continuum of neonatal care. Mothers can contribute towards neonatal care in numerous ways – routine baby hygiene, feeding the baby, monitoring the babies on phototherapy, and providing skin-to-skin contact for longer duration. The unit, in addition to care of newborns, shall also have provision of Stay free diet and treatment for mothers.

Minimum space requirement & Layout

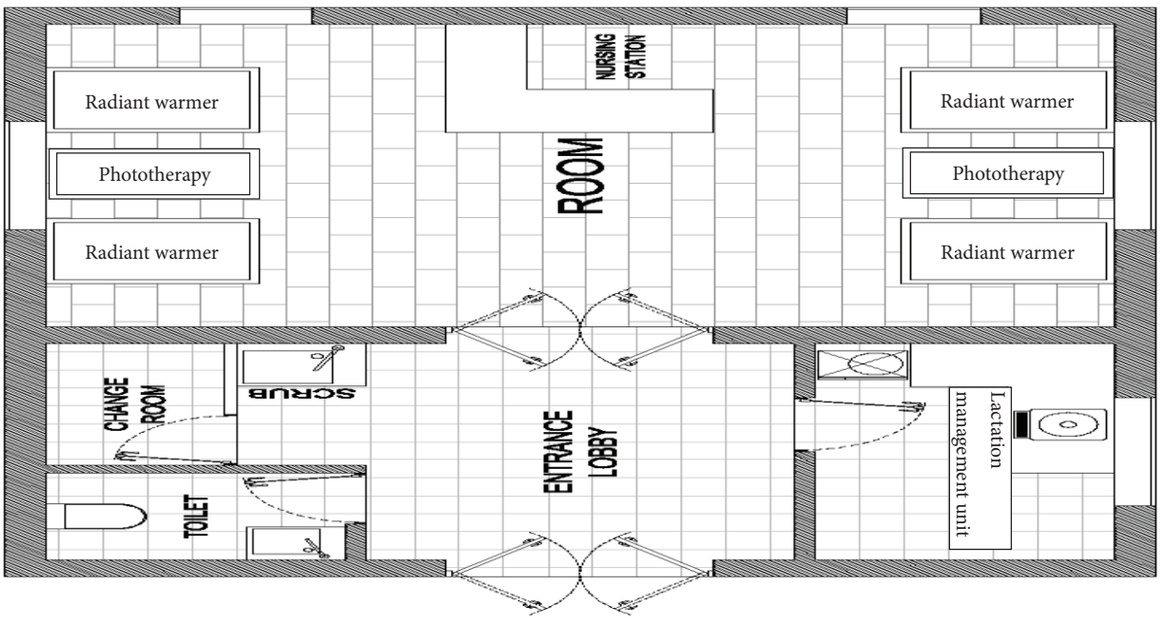
A normative requirement of 100 sqft per radiant warmer should be utilized equally for baby care area and as general support and ancillary areas. The ancillary area should include space for the following:

1. Gowning area at the entrance
2. Hand washing stations
3. Examination area/triage area
4. Nursing station for receiving/recording/reporting

Floor plan for a model Newborn Stabilization Unit (NBSU)

1. he layout of the room should be in such a way that all newborns should be visible from the nursing station including equipment like Radiant warmer, Phototherapy , any cupboard for utilities,
2. Lactation Management Unit (LMU) should be established for storing, dispensing and managing mother's own milk
3. Toilet /Washroom facility to be included for duty room for health care providers and mothers.

Floor plan for NBSU



The same principles for construction, lighting, electrical fittings as in SNCU need to be followed as is elaborated in the Annexure 2.

Mothers of the babies admitted in NBSU should be accommodated in side the NBSU next to radiant warmer or as close to their babies as possible. The aim is to keep the mother next to her baby (Zero separation)

Table No. 10: Equipment list for NBSU

S. No.	Essential Items	Quantity Proposed	4 Bedded	Indicative Unit Cost	Total Indicative Cost (4 Beds)
1.	Open care system: Radiant warmer (fixed height with trolley drawers, oxygen bottles)	4-6	4	65000	260000
2.	Phototherapy Unit (LED) Single surface	2	2	40000	80000
3.	Self-inflating bag, 500ml, 240 ml with Masks of different sizes (0,1)	1 set	1	7000	7000
4.	Neonatal Laryngoscope set (term & pre-term blades)	2	2	5000	10000
5.	Suction Pump (Electrical)	1	1	15000	15000
6.	Suction Pump (Foot operated)	1	1	8000	8000
7.	Digital Thermometer	04 to 06	4	500	2000
8.	Oxygen Source – cylinders/concentrator/ central oxygen gas supply of facility	2			
	(a) Oxygen Cylinder (Type B) with trolley	2	2	10000	20000
	(b) Oxygen Concentrator (10 LPM)	2	2	50000	100000
9.	Blenders *may be made available at high caseload facilities	2	2	75000	150000
10.	Weighing scale digital	1	1	5000	5000
11.	Glucometer with strips	1	1	2000	2000
12.	Stethoscope	4	4	2000	8000
13.	Pulse Oximeter	2	2	85000	170000
14.	Transcutaneous Bilirubinometer	1	1	150000	150000
15.	T Piece resuscitator	1	1	100000	100000
Other Equipment					
1.	KMC Chair	2	2	10000	20000
2.	Mothers bed (Semi - Fowler beds)	4-Jun	4	30000	120000
3.	Sterilising Drum	1	1	2000	2000
4.	Autoclave (20 Ltrs)	1	1	20000	20000
Total Cost					**1249000 (12.49 Lakh)**

For technical specifications of equipment, refer to the NHSRC guidance

General Equipment

- AC 1.5 ton
- Generator set 25 KVA
- Refrigerator -1
- Voltage Stabiliser Main line
- Room heater (Oil filled)-2
- Room thermometer -1
- Wall clock -1
- Mothers bed (Fowler beds) 4-6 beds
- KMC beds, wraps and garments
- Stands for IV fluids

Disinfection equipment

- Sterilising drum
- Electric steriliser

Consumables for NBSU

- Mucous extractor
- Pulse oximeter probes
- Suction machine tubes
- Nasal prongs & masks of different sizes
- Endotracheal tube - 2.5, 3& 3.5 (non-cuffed with vocal cord guide, disposable with adaptor)
- Glucometer
- IV canula
- KMC binders and garments

General supplies

Disinfectants: Hand rub, liquid soap, soap dispensers , 1% hypochlorite, , betadine, spirit

BMW needle destroyer, hub cutters, BMW coded bins, buckets, mops,

Regular Commodities ID bands, eye pads, cord clamps, disposable gowns, masks & slippers: as per the case load,, sterile gauze, cotton rolls, sterile gloves (sizes 5.5, 6, 6.5, 7 & 7.5) & non-sterile gloves to be included in the facility demand and indented on regular basis. Diapers for Newborn admitted.

Table No. 11: Human resource for NBSU

S.No.	Cadre	Number	Remarks
1.	Medical officer trained in the recommended package/ Paediatrician	One	Designated as unit In-charge; provides overall supervision. Available daily during hospital hours and for evening rounds; on call for emergencies.
2.	Staff nurses trained in newborn care*	One in each shift (total 4) With provision of leave reserve	**Staff Nurse trained in Newborn Care should be in position for newborn care** (The staff nurse posted in Postnatal ward must do the routine monitoring of baby along with the mother and inform NBSU accordingly) u**nits and are not rotated to other areas.**
3.	Data Entry Operator (DEO)	One	Mobilize from hospital pool; designate one DEO to the unit
4.	Support Staff: Nursing orderly, Sweepers, Security personnel	One in each shift	The staff can be mobilised from the hospital pool

Table No. 12: Indicative cost

One-time cost	*Recurring cost
New construction @ 4083.76 * 400 = 16.33 lakh Major renovation: upto 50% of initial cost of construction	@Rs 2 Lakh/ annum including consumables (Exclusive of cost HR & training)
Equipment: Rs 12.49 lakh (condemned equipment to be replaced as per extant norms)	Data entry management @ 3,000 INR per month and NBSU Standard Case sheets@ Rs 1000 pm

Reporting

Timely, regular and validated data from NBSU should be shared monthly with the SPMU/SRC both offline and online when available in the standardized format. Refer to the **Annexure-3** for reporting formates and Stationary for SNCU and NBSU are available online on NHM portal under Child Health guidelines:
https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1184&lid=368

CHAPTER VI: SPECIAL NEWBORN CARE UNIT (SNCU) & MOTHER NEWBORN CARE UNIT (MNCU)

Special newborn care unit and Mother Newborn Care Unit delivers level II care to sick and small newborns at the district or sub- district level health facility.

Services at the SNCU & MNCU units

The configuration of the SNCU/MNCU at the health facility should be such that it supports delivery of necessary quality services and meets the potential need to expand in order to accommodate increased demand. The SNCU/MNCU at the facility is expected to provide the following services:

1. Care at birth, including resuscitation of asphyxiated newborns at laobur room/Maternity OTs
2. Managing sick newborns (except those requiring mechanical ventilation and major surgical interventions)
3. Follow-up of high-risk newborns and mothers
4. Referral services
5. Immunization services

Along with the above services at MNCU the Post-natal care to mothers will also be provided. The unit should also provide training to medical officers and nurses in newborn care and nursing personnel are trained to provide postnatal care to mothers. Doctors from OBG department visit the SNCU/MNCU to provide maternal postnatal care.

Projecting demand for SNCU and MNCU beds

As a general guide, for every 1,000 annual intramural deliveries (those occurring within the hospital), three beds should be created in the newborn care unit. Additionally, an extra allowance of 30 per cent of the estimated beds should be considered for newborns delivered outside the hospital (extramural) and being brought to the hospital for special care. In addition around 30 % i.e. 4-6 beds should also be added for Step down care. For example, if a hospital conducts 3,000 deliveries per year, the number of beds required would be:

- For intramural: 3/1000 X 3000 = 9 beds
- For extramural: 30%*9= 3 beds
- Total beds required = 12
- Additionally 4-6 beds for step down care.
- Total beds SNCU/MNCU = 12 and
- 4 step down beds
- Total beds in unit = 16 beds.

* Same number of beds for Mothers at MNCU

Additional beds per 1000 additional deliveries be added if the number of deliveries exceeds 3000 per year and there is sufficient space for expansion. However, the equipment and staff should accordingly be enhanced.

Another approach would be to establish SNCU/MNCU at sub district level facilities which have an annual load of more than 3000 deliveries.

Some districts especially in North East States, hilly, high altitude area, and LWE areas may not have a delivery load of 3000 deliveries and therefore can establish an 8 bedded SNCU/MNCU at district and/or sub district level..

Minimum space requirement for SNCU & MNCU

Each SNCU bed requires a minimum of 120 -170 sqft and MNCU requires 220 - 270 sqft of clear floor space, excluding hand washing stations and columns. There should be enough space to provide for effective movement of staff, family, and equipment.

UNIT	Baby Care Area	Mother Area	General Support and Ancillary Area	Total Space
MNCU	**50 sqft** per bed	**100 sqft** per bed for mother	**70 sqft** per bed	220 sqft per mother baby bed
MNCU with *Noninvasive ventilation/ CPAP*	**100 sqft** per bed	**100 sqft** per bed for mother	**70 sqft** per bed	270 sqft per mother baby bed
SNCU	**50 sqft** per bed	NIL	**70 sqft** per bed	120 sqft per bed
SNCU beds with *Noninvasive ventilation/ CPAP*	**100 sqft** per bed	NIL	**70 sqft** per bed	170 sqft per bed

Layout

The SNCU & MNCU includes the following areas:

SNCU	MNCU
• Entrance and reception area • Triage area • Gowning & hand washing area • Newborn Care Area • Ancillary area utility room, storage area, Autoclave and boiling area • Rooms for doctors, staff nurses and janitors • Washrooms and washing area (for staff & Mothers), Bathing area for mothers • Follow up OPD cum counseling area • Attendant waiting area	• Entrance and reception area • Triage area • Gowning & hand washing area • Baby Mother dyed Care Area • Ancillary area – utility room, storage area, Autoclave and boiling area • Rooms for doctors, staff nurses and janitors • Washrooms and washing area (for staff & Mothers), Bathing area for mothers • Follow up OPD cum counseling area • Pantry and dining area • Mother's examination area • Attendnt waiting area

Location of the SNCU & MNCU should be in a distinct area in the hospital, preferably near labor room area, with controlled environment and access. MNCU is an area where small and sick newborns are cared with their mothers 24*7 with all facilities of the Special Newborn Care Unit (SNCU) with mother's bed is placed near to her baby.

Whenever with the best possible efforts the mothers beds can't be adjusted in side the SNCU (either in existing old established ongoing SNCUs or severe space constraint etc.) a dedicated room should be designated for mothers adjacent to SNCU so that babies that need to be under constant monitoring of the staff are not separated from their mothers for long periods. Mothers of all babies admitted to the SNCU are to be provided a bed in this room.

Entrance and reception area should be clearly marked for ease of access by hospital staff and families. A clearly demarcated entrance also enhances security for newborns in the units. Families can have direct contact with staff nurses and be provided with simple amenities like comfortable seating space, safe drinking water, AV system, tea/coffee vending machine and a wash room.

Triage area is the designated area (160 sq. ft) near the entrance with mandatory provision of a radiant warmer, essential equipment for initial assessment and emergency management of sick newborn presenting to the unit.

Gowning and hand washing area at the entrance

The unit should create earmarked space for gowning (both for the mothers and the staff) before entry to care area. A hand-washing station for hand hygiene along with areas for gowning and storage of clean and soiled gowns should be provided near the entrance.

Hand washing station should be hands-free, elbow operated, foot operated with sufficient supplies to meet the needs of the staff and the parents/ mothers. All the interconnected areas should have two-way beveldoors.

Hand washing basin should be made of nonporous material, preferably 24" wide x 16" front to back x 10" deep to control splashing and prevent standing or retained water. The splashed water must be considered to be contaminated. Very deep or wide (front to back) basins and counter tops should be avoided. Pictorial hand washing instructions in local languages should be provided above all basins and the wall adjacent to hand washing should be constructed of non-porous/non–absorbent material to prevent growth of molds. Space should be provided for soap and towel dispensers and for appropriate trash receptacles. Lockers for the caregivers and footwear stands should be placed for regular use. Preferably the basins should be equipped to provide water for hand washing at comfortable temperature specially during cold weather.

Mother Newborn care area

This is the main area with radiant warmers mother beds, equipment and other machines where sick and small babies are managed. The total area will depend on the bed strength; 50 sq. ft. area is required per bed (radiant warmer) and 100 Sq. ft. area per bed (mother bed). The space between two adjacent mother baby dyed area (Radiant Warmer + Mother bed) should be 4 ft. Each unit can customize and should preferably have not more than 12 RW and mother beds in one section. The mother baby dyad care area may be divided into two inter connected rooms separated by transparent observation windows with the nurses work place in between or U shaped space for mother baby dyad care area with nursing station in the center. This care area should have central oxygen and suction and it is desirable to have provision for compressed air in case mechanical ventilation facilities are to be made available in future.

Separate in born/intramural and out born/extramural units are no longer promoted.

Isolation room

A designated isolation area that accommodates 3-4 beds for newborn (RW) and mothers bed, adjacent to the newborn care area, should be available to isolate newborns suspected of having infectious diseases. Additional PPE must be ensured for service providers before entering isolation room. Ventilation systems for isolation rooms should be engineered to have negative air pressure with air

100% exhausted to the outside. Walls, Ceilings and floors, including fenestrations, shall be sealed tightly to minimize leaks so that air does not infiltrate the environment from the outside or from other airspaces.

The lactation management centers (CLMCs, LMUs and LSUs) should be established in close proximity of the Mother Newborn Care Units/Special Newborn Care Units.*

** Refer GoI National Guidelines on Lactation Management Centers in Public Health Facilities of MoHFW.*

Space for ancillary and supplementary services

Distinct support space should be provided for all clinical services that are routinely performed in the SCNU/MNCU. The ancillary area should include space for the following:

General Support Space-

- *Storage area/Utility holding rooms* for storing routinely used supplies such as diapers, linen, cover gowns, stationary, charts, syringes, needles, consumables, intravenous infusion sets and sterile trays etc.
- *Soiled area /Soiled utility holding* room should be planned in such a manner that it enables removal of soiled materials without passing through the newborn care area. The ventilation system in the soiled utility/holding room shall be engineered to have negative air pressure with air 100% exhausted to the outside: a simple exhaust fan can also improve ventilation in the area.
- An additional Sluice Room 4ft.wide x3ft.front to back x 2ft. deep with both inlet for water supply and outlet is preferable to clean dirty mops and to prewash linen soiled by biowaste before putting them in the washing machine.
- A working area or desk for completing the routine tasks
- Space for data entry operator should be planned so that s/he can continue to access case sheets but without disrupting newborn care functions.
- If laundry facilities are not provided by the hospital then linen washing and laundry space with an automatic washing machine and dryer should be ensured.
- Janitors' closet for storage of clean mops, materials for cleaning, gloves and boots worn during cleaning and three bucket trolley etc. should be provided.

Staff support space

Space such as doctors' duty room, nurses' changing room, washrooms etc. should be provided within the unit to meet the professional, personal and administrative needs of the staff.

Follow up OPD

Every unit is expected to conduct a regular Follow up clinic for newborns discharged from the unit. A designated separate area /room equipped for anthropometric measurement and examination of the newborns should be available. This area should be accessible from the reception/triage area so that families/parents do not have to enter the main care area of the SNCU. RBSK manager will also be provided the list of babies under follow up so that there is close coordination for provision of care – ROP, BERA, surgical intervention can be facilitated.

DEO should also share the list with ASHA so that both facility & community follow up can be linked. Although each unit needs to customize the follow up plan, a normative list of babies to be followed up is as under:

- Babies with <1800 gms birth weight and/or gestation <34 weeks
- Perinatal asphyxia – Apgar score 3 or less at 5 min and/or hypoxic ischemic encephalopathy of stage II and above
- Small for date (<3rd centile) and large for date (>97th centile)
- Hypoglycemia
- Neonatal Seizures
- Sepsis with meningitis or culture positive sepsis
- Shock requiring inotropic/vasopressor support
- Total serum bilirubin in the exchange range.

Follow up schedule at facility

Initially call as per follow up schedule on day 8, 1 month, 3 months, 6 months, 1 year as a routine facility follow up visits. The facility follow up visits can be increased based on the condition of the infant as prescribed by pediatrician or SNCU doctor. Following that link with visits on scheduled Immunization days till 18 months of age with a visit at 6 months and 12 months of age. An yearly Follow up till school entry may be required in high risk cases.

Special conditions/senerio at State/district level

Government of India has established many SNCUs and MNCUs across the State/UTs. Based on the availability of space at the facility, availability of human resource etc. few specific conditions can be faced at State/UT/district level and the judicious decision can be taken for establishment of either SNCU or MNCU.

1. **New Level II Newborn Care Units:** All new proposed level II newborn care units at district level to be established as Mother Newborn Care Units (MNCU)

2. **Expansion of existing SNCUs with high bed occupancy:** In cases of need for expansion of exisiting SNCUs because of high bed occupancy rate (BOR), a new MNCU may be establised in the close proximity to the existing SNCU. Eventually over the time gradually all SNCU beds to be converted MNCU beds (baby and mother bed together).
3. **Neonatal Intensive Care Units (NICUs):** Based on the availability of the space, State should prioritize and convert level 2 newborn service area of NICUs to MNCU area and kept mother beds next to the radiant warmer and involve the mothers 24*7 in newborn care. MNCU should be established in close proximity of NICU and based on requirement and case load for level II care MNCU (Newborn + Mother beds) should be established in the facility. Large districts with adequate resources, HR, and committed teams should establish their own Level 3 units. This would:
    - Provide effective tertiary care to neonates within the district.
    - Reduce the burden on medical colleges, enabling better quality care for referred cases.

Infrastructure and Space Requirements for 12 bedded Mother Newborn Care Unit (MNCU):
The MNCU will be designed with the following space considerations to ensure efficient care delivery:

Space requirement:
Average 236.67 square feet per bed [220 sq. feet for 8 beds and 270 sq. feet per bed for 4 beds with CPAP. **[(220*8) + 270*4) = 2840 sq. feet**]

Other Ancillary area (Step down, bathroom, doctor duty room, store room, other examination): 350 sq. feet

Total Space Requirement: 2840 sq. feet + 350 sq. feet = 3190 sq. feet

Total infrastructure Cost: Rs. 1, 30, 27,194 [3190 sq. feet x Rs. 4083.76 per sq. feet] ~130 lakh

Human resources

The SNCU/MNCU team besides taking care for all the newborn admissions in the SNCU/MNCU will carry out tasks such as essential newborn care at birth, breast feeding support, newborn vaccinations, daily postnatal ward rounds to screen for danger signs and counseling of parents/families of SNCU/MNCU dischargs. MNCU admitted mothers should be taken care by the MNCU/SNCU staff however daily round by obestetric department should be conducted for the mothers. They will also impart training for Family Participatory Care which includes KMC and developmentally supportive care to the parent attendants. SNCU/MNCU team will coordinate with District Early Intervention Centre (DEIC) manager for required supportive care and developmental assessment.

Table No. 13: HR Requirement at SNCU/MNCU for 12 bedded Unit.

S.No	Cadre	Number	Remarks
HR can be proposed specifically for SNCU/MNCU or be added to the hospital pool and designated for SNCU. Availability of trained manpower should be ensured throughout the day (24x7). FBNC trained staff should not be posted outside the newborn care areas			
1.	Paediatrician/s + FBNC trained medical officers *	One for each shift.	1 paediatrician from existing pool and one FBNC trained MO/Paediatrician, with additional provision for off and leave reserve round the clock should be available.
2.	Nurses**	One nurse for every 3 beds round the clock with additional provision for off and leave reserve.	Total numbers will depend on the number of beds in the unit. One nurse is required for every four beds in each shift. Thus, a total of 16 nurses for 12 bedded units. Adequate arrangement for leave and day off. One staff nurse should be designated for follow up OPD.
3.	Support Staff: Nursing orderly, Janitor & security personnel	One Nursing orderly, One Janitor, one security personnel in each shift	Round the clock services to be ensured. Outsourcing of these services is preferred.
4.	Data Entry Operator	One	To complete online reporting, follow up of discharged babies and informing ASHAs

** It is desirable to have one neonatologist/Paediatrician being given full responsibility to develop continued capacity and fix responsibility. However, a second trained Neonatologist/Paediatrician can make sure that in case of absence of the first, functioning of MNCU/SNCU is not affected. Similar arrangements should be done for staff nurses too.*
***Utilization of existing HR may be considered instead of part time/contractual HR if adequate HR is available.*

List of equipment

Table No. 14: Minimum requirement for at least 12 bedded unit

S. No	Item Description	Essential/ desirable	Quantity Proposed	Indicative Unit Cost	Total Indicative Cost
1.	Open care system: Radiant warmer (fixed height with trolley drawers, oxygen bottles)	E	12	65000	780000
2.	Self-inflating bag, 240 ml, 500 ml with Masks of different sizes (0,1)	E	6	7000	42000
3.	Hand-held Video Laryngoscope	E	4	150000	600000
4.	Phototherapy LED	E	6	40000	240000
5.	T Piece Resuscitator	D	2	100000	200000
6.	Suction electric	E	3	15000	45000
7.	Suction foot operated	E	2	8000	16000

8.	Syringe pump	E	18	45000	810000
9.	Bubble CPAP	D	4	275000	1100000
10.	(a) Oxygen concentrator (10 LPM)	E	8	50000	400000
	(b) Oxygen Cylinder (Type B) with trolley	E	1	10000	10000
	(c) Blenders (wherever central supply of oxygen and compressed air is available)	E	4	75000	300000
11.	Thermometer digital	E	18	500	9000
12.	Pulse oximeter	E	12	85000	1020000
13.	Glucometer with strips	E	4	2000	8000
14.	Stethoscope (neonatal)	E	18	2000	36000
15.	Multipara Monitor with 5 Parameters	E	6	150000	900000
16.	Hub cutter with needle destroyer	E	4	2500	10000
17.	Irradiance meter	D	1	25000	25000
18.	Infant meter	E	2	1500	3000
19.	Digital weighing scale	E	4	5000	20000
20.	Mobile X-ray 100 mA with CR system	D	1	1200000	1200000
21.	Mobile X-ray 100 mA	D	1	400000	400000
22.	Transport incubator	D	1	500000	500000
23.	Transcutaneous Bilirubinometer	E	2	150000	300000
24.	Medicine Trolley	E	2	12000	24000
25.	Infusion Stand	E	2	1000	2000
26.	Laminar flow Cabinet	D	1	200000	200000
Equipment for Mothers					
1.	Multipara Monitor with SpO2, ECG, NIBP	D	2	80000	160000
2.	B. P. Apparatus (Digital)	D	4	2500	10000
Other Equipment					
1.	Autoclave (steam, electrical, 20 litres)	E	1	20000	20000
2.	Semi-fowler bed	E	18	30000	540000
3.	Spotlight	D	2	15000	30000
4.	X Ray view box	E	2	2500	5000
5.	Sound (dB) Meter and LUX meter	D	1	25000	25000
Total Cost					**99,90,000 (100 Lakh)**

Table No. 15: General care and support equipment

S.No.	Item Description	Essential/ Desirable	Quantity
1.	A.C (1.5 ton) (Split Hot and cold)	E	4
2.	Refrigerator 250 litres	E	1
3.	Generator (25-50 KVA)	E	1
4.	Voltage stabilizer (25 KVA) (50KV -1)	E	2
5.	Washing machine 5 to 8 kg, Industrial grade	E	1
6.	Digital room thermometer	E	4
7.	Room Heater (oil filled)	E	4
8.	Computer (Desktop with UPS) with Printer with internet facility	E	1
9.	Fio2 meter	E	6
10.	Digital Wall clock with Temp. and Humidification indicator	E	3
11.	Provision of Television for training of FPC	E	1
12.	Hand dryer	D	1
13.	Liquid soap dispenser	D	2
14.	Janitor trolly with multiple function or multifunction janitor cart with three bucket system	E	1
15.	Folding laundry trolly for used linen and gown	D	1
16.	Complaint/Suggestion Box	E	1
17.	Telephone/Intercom service	D	1

Table No. 16: Consumables for SNCU/MNCU

Suction	O2 delivery	Resuscitation	I/V access	Misc.
Suction catheters size 8, 10, 12, 14	Flow meters CPAP Circuit and related consumables(for patient interface use prongs/mask) Wherever CPAP machines are being provided	Laryngoscope bulb	Cannulas 24, 26	Masks, gloves, hand-rub, ID bands,Eye pads, diapers, caps, socks, mittens, jhabla, KMC binders and garments, Blankets, Linens Gown for Staff, mothers and surrogates, Microfiber cloth for cleaning and mopping, Mop set with 360 degree rotating pole and steel bucket preferably, Toilet cleaning would require separate rubber gloves and shoes along with toilet brushes and liquid cleaners as per hospital policy, Window wiper, Dust bins 3L, made of stainless steel covered, foot operated.
	Pressure gauge	Cord Clamps	Pedia drip Sets, BT Set for newborns	Feeding - Paladai, Steel bowl (Katori), BMW bins Shoe cover, Slippers, Disposable caps, Dust bins Bucket, Liquid soap, disinfections liquids Induction/hot plate Side lockers
Mucous extractor	Tubing	Batteries	Venoline 12 inches	Skin friendly adhesive tape Cling wraps
Endotracheal tube - 2.5, 3& 3.5 (non-cuffed with vocal cord guide, disposable with adaptor)	Nasal prongs-	OG feeding tubes size - 5, 6 & 7	Fluids – NS, RL, 10%, 25% glucose and Isolyte P, Sterile water 500 ml auto fill	3-way adaptor

Suction tubes	Low flow nasal cannulae		Syringes (1,2,5,10,20 & 50 mL) Blood sample collection tubes for culture and sensitivity, Umbilical catheter 3, 3.5 & 5	Pulse oximeter probes

Note: All electronic and valuable equipments are to be maintained under Annual Maintenance contract (AMC) to be managed by the health facility where MNCU/SNCU is located.

Table No. 17: Indicative budget for a 12 bedded SNCU/MNCU.

One-time cost (Rs. in Lakhs)	Recurring Cost (Rs. in Lakhs)
New Construction of a New Mother Newborn Care Unit (MNCU) = Rs. 130 lakh [3190 sq. feet x Rs. 4083.76 sq. feet] Major renovation: 50% of the total cost	Rs 14 lakh including consumables and biomedical equipment maintenance etc. #exclusive of HR & training
Equipment: Rs 100 Lakh* *Condemned equipment tobereplaced as per extant norms	Rs 1lakh per SNCU for standard SNCU stationary and SNCU datamanagement.

Recurring cost of SNCU is to ensure uninterrupted services and ensure zero out of pocket expenditure. This cost is to meet any expenditure in day to day functioning over and above the support for free drugs, diagnostics and treatment on newborn

CPAP facilities at SNCU

Continuous Positive Airway Pressure (CPAP) is an effective therapy for managing severe respiratory distress syndrome in newborns. CPAP is the application of positive pressure to the airways of spontaneously breathing newborn resulting in better gas exchange. When started early and applied correctly, CPAP decreases the work of breathing, reduces the requirement for oxygen and prevents the need for transfer to tertiary facilities. With optimal equipment, regular supply of consumables and skilled manpower CPAP can be effective and safe. However, it is important to objectively identify units that can provide CPAP. Around 30 % beds can be converted to CPAP or based on the need the CPAP beds can be increased.

Criteria for selection

1. SNCU operational for a minimum of two years and having
   a. One or more paediatrician /FBNC trained medical officer available in each shift
   b. Bed nurse ratio of at least 3:1 in all shifts
   c. Mortality rate due to sepsis less than 10%
   d. Follows standard treatment guidelines and asepsis protocols as per GoI FBNC module
   e. 24*7 diagnostic facilities
   f. No stock out situations
   g. System in place for regular equipment maintenance
2. Support for ventilation:
   a. Round-the-clock air and oxygen supply ensured with back up with Jumbo cylinders
   b. Surfactant and ventilator back-up available in a nearby linked neonatal unit
   c. Arrangements for transport and referral to another unit with ventilation facilities
3. Mandatory training of doctors in CPAP at arecognized institution State Newborn Resource Center (preferably a medical college)

As SNCU has provision for level II care, the unit should focus primarily on management of newborns with gestation >28 weeks. Ensuring effective resuscitation, asepsis, breast milk feeding, intensive monitoring and screening for complications will reduce associated morbidities and long-term sequelae. A skills based CPAP training is mandatory for those working in such a unit that offers CPAP facility working in units providing CPAP to the babies.

All provisions for Level II care

CHAPTER VII. POSTNATAL CARE

The postnatal period – defined here as the first six weeks after birth – is critical to the health and survival of a mother and her newborn. The most vulnerable time for both is the critical first 48 hours which are generally spent at the health facility. In the absence of any physical, emotional, social or psychological risk factors or concerns, it is recommended that woman and newborn be discharged at least after 48 hours of hospital stay. A holistic approach to planning and provision of postnatal care for the mother, the newborn and the family is therefore required.

Postnatal care (PNC)

Should aim to create a supportive environment, consider the woman's individual needs, the newborn care and should be a continuation of the care the woman has received through her pregnancy and labor.

Postnatal ward (PNW)

Ideally there should be separate postnatal ward. It is a common practice that women and baby are shifted to the postnatal area after 2 hours. But in case of complications, the mother and /or the baby may need extra care or intervention. **The main philosophy of care is that mothers and babies should stay together as much as possible and not be separated at any time following birth**. Zero separation policy should be practiced right from the time of birth.

Infrastructure requirements of PNW

- Proximity to labour room, operation theatre, blood storage area and other supportive services is desirable, however not mandatory.
- Considering that each postnatal woman stays in the facility for 2 days on an average, the beds should be at least double the daily delivery load (2 beds for every delivery).
- PNW should have adequate number of beds in a well-ventilated room (without direct draught of air), with 24*7 facility of drinking water and clean toilets to ensure 48 hours of stay after delivery.
- Each bed should have a bed number, a mattress, plastic sheet, a bed sheet and a mosquito net (in malaria endemic areas), bedside locker, a stool and a bench.
- Babies should be with the mothers on same bed. Babies must have identification tags as well. The room temperature should be maintained between 24-26 degrees Celsius at all times using external sources as required. Room thermometers should be installed.
- Consider provisions for cooling systems, especially for warm/summer season, to maintain thermal comfort for babies and mothers
- Space between two beds should be at least 4 feet, from the wall should be 1 ft (0.25 m) and between the side of a bed and wall about 2 ft.

- Width of the hospital corridor should be 3 meter to accommodate two passing trolleys.
- Restricted entry must be ensured in the wards with provisioning of security guards.
- Appropriate IEC material regarding breast feeding, KMC, exclusive breast feeding & complementary feeding, Danger sign, hand washing, hygiene, immunization should be displayed.
- Provision of AV equipment should be made to show informative and educational films. Short films on contraception, how to take care of the new born & on danger signs can be shown.

Nursing station

Nursing station should be located such that 'on duty' nurses can keep watch over as many patients as possible and are able to access the farthest bed as quickly as possible. The nursing station should be 20' x 20' and have:

- Space for documentation and wall fitted cup board for filing the documents
- A built-in lockable drug cupboard to hold medicines, stationery, forms keeping files etc.
- Wash room and nursing rest room
- Notice board
- Telephone
- Patients' bell board

Following policies should be in place at the health facility:

- Postnatal visits and coordination amongst all services providers caring for women and the newborn
- Baby friendly hospital initiative
- An opportunity to talk about one's birth experiences (MERA ASPATAL APP)
- Information (written and verbal) to parents for assess to their newborn's general condition.
- Contact information for relevant healthcare professionals regardless of the place of birth (Contact details of ASHA/ANM/CHO)
- Linkages for both facility & community follow up, and with DEIC where required

Roles and responsibilities

Postnatal care has been a neglected area of care and a missed opportunity in our health facilities. Good postnatal care cannot be provided without clear designation of roles and responsibilities. It is important that routines for postnatal care of mother and baby are described and followed jointly by the service providers in the departments of Obstetrics and Paediatrics /SNCU.

MO/ Specialist: The medical officer must visit the mother and baby at least once a day. Both should be monitored for danger signs. Check the mother and baby before discharge. In case referral is planned complete the referral slip, provide pre-referral stabilization and facilitate free referral transport.

Staff Nurses: They are primarily responsible for the care in postnatal ward. It is important that sufficient number of nurses are designated to the postnatal ward in each shift, taking onto account the number of deliveries. Their role is to counsel all mothers for keeping newborn warm, infection prevention and ensure exclusive breastfeeding. They must keep preterm and LBWs weight between 1800 gm to 2500 gm under close observation in the ward and support mother for breastfeeding with the help of counsellor, where available. Undertake discharge counselling and explain the discharge instructions and the follow up schedule. Ensure birth doses of vaccination before discharge. Provide counselling on family planning, maternal mental health, nutrition and hygiene, and gender-based violence, if RMNCH Counsellor is not available at the facility.

Counsellor: S/he should counsel all mothers for keeping newborn warm, infection prevention, exclusive breast feeding (EBF) and stimulation. Actively promote counselling and support for EBF including counselling on common breastfeeding problems and ways to manage them if they occur. Also assist the staff nurses while supporting mother for assisted feeding. Guide the mother on choice of contraception available. Provide psychosocial support specially to those mothers whose baby is either admitted or expired. In case mother is to provide Kangaroo mother care then provide support for that too. Provide counselling on family planning, maternal mental health, nutrition and hygiene, and gender-based violence.

Support Staff: Help the providers by strictly following housekeeping protocols and ensuring asepsis control. Restrict entry and help the staff in day to day activities like investigations etc.

Care givers/attendants/ birth companion: Should accompany the mother right from antenatal period and be there with her throughout the process of delivery. She has to play the key role in maintaining the psychosocial support to the mother for her emotional wellbeing and can also be instrumental in relating mother's experience around delivery.

CHAPTER VIII. REFERRAL TRANSPORT

The referral system is an essential component of the district health systems. All the health facilities accredited for institutional delivery should necessarily have an assured referral transport and linkages. Babies who are seriously ill require to be transferred to higher level of newborn care facility. It then becomes necessary to arrange for timely transport and provide care during transfer. There should be high level of 24x7 preparedness for transport of sick and small newborns to a desired level of care. This will enable the hospital team to respond appropriately to the emergencies. The pre-requisite for a good referral system is the clarity of the role of each facility in managing newborn conditions at that level of care. The services available at newborn care facilities at each level (NBCC, NBSU and SNCU) have been described in the previous chapters.

However, it is important that before transportation, the newborn is provided the best possible treatment at that level of care and the transfer is made only after stabilization. In all instances, the providers should prepare the family for transfer by communicating adequately.

Referral communication between referring facilities is equally important to ensure that the receiving facility is sounded in advance and therefore adequately prepared, and the facility making the referral is informed of the case outcomes. Referral slips detailing the reason for referral, probable diagnosis and the management done should be clearly specified and ensured.

The transport facilities can be availed through the network of National Ambulance Service which is provided free of cost under the Janani Shishu Suraksha Karyakram (JSSK). Wherever available, newborn should preferably be transported in an ALS (Advanced Life Support) ambulance and the attendant in the ambulance should be trained in handling medical emergencies and vehicle should be equipped to provide quality emergency care.

SNCUs are provisioned with transport incubators and ALS ambulances have provisions for multi-para monitors, pulse oximeter, suction apparatus and specially designed stretchers mounted with portable oxygen cylinders and EMTs are trained in the life support skills. Ensure that the newborn is provided warmth to maintain temperature. If ALS ambulance is not available, then the options for transport are as detailed below:

An ambulance with the facility "or" called from the higher facility "or" local ambulance service "OR" a private or commercial transport vehicle. The transport vehicle should be equipped to shift the baby in a secure manner with monitoring enroute to deliver a stable baby at the receiving facility. During transport avoid using 100% oxygen. Use of blenders and compressed air is preferred. As far as possible babies to be transported in KMC position for intramural and extramural transport.

The minimum requirements that should be available in a transport vehicle are as below.

Table No. 19: Medical equipment required for transport of newborn

Essential	Desirable (in ALS ambulance)
• Suction pump- manual/ electric • Flow-meter with humidifier • Oxygen cylinder • Stethoscope • Laryngoscope& ET Tubes (2.5,3 & 3.5) • IV fluid stand/ hook • Glucometer with strips • Pulse oximeter with neonatal probes • Gloves, surgical masks, hand rub	• Transport incubator • Trolley stretcher with back tilt and collapsible wheels • Monitor- multiparameter with neonatal probes and cuffs • Infusion pump (with battery backup) • Transport ventilator • Surgical kit

The following is a list of supplies to be carried during transport as Transport kit:

Table No. 20: Medical supplies required for transport of newborn

• Self-inflating silicone bags (240 ml and 500mL) • Ventilation mask • Mucous sucker • 5-10 mL Syringes, needles • Intracath- 24 G • Thermometer • Naso-gastric tube • Adhesive plaster	• 10% dextrose • Normal saline • Cotton • Antiseptic solution • Sterile gloves • Nasal prongs • Feeding cup • Small blankets • Adrenaline • Phenobarbital • Dopamine

Janani Shishu Suraksha KaryaKram (JSSK)

Under JSSK, sick infants are entitled to completely free and cashless services like treatment, drugs and consumables, diagnostics and provision of blood. Another benefit that is included in treating a newborn is free referral transport from home to health facilities, between facilities in case of referral and from Institutions to home. The state nodal officer should make good use of the available entitlements under NHM to provide optimal care to newborns. The mothers of sick newborns (inborn and outborn) admitted in the Mother Newborn Care Unit / SNCU will be provided diet from the facility following the JSSK diet norms. Efforts on increasing the awareness should also be undertaken to optimize the utilization of resources.

SUMAN: "Surakshit Matritva Aashwasan" is an initiative that subsumes all existing initiatives under one umbrella. It is a comprehensive initiative which provides a service guarantee for the entitlements delivered with care in congenital environment. It also provides a platform for guaranteed access to good quality maternal and infant care services. The objective of SUMAN is to provide assured, dignified, respectful and quality healthcare at no cost and zero tolerance for denial of services for every women and newborn visiting the public health facility to end all preventable maternal and newborn deaths and morbidity and provide a positive birthing experience.

CHAPTER IX. CAPACITY BUILDING

Planning for capacity building in newborn care

A comprehensive view must be taken for capacity building for newborn care, which includes relevant trainings at all three levels as well as supportive supervision and mentoring support (detailed in next chapter). Detailed annual training plan should be prepared by each state after assessing the training load . Trainings should be scheduled as close as possible to the date of operationalization of the newborn care unit so that there is little/no time gap between completion of training and applying skills and knowledge to practice. The requisite funds should be provisioned in the annual PIP as per the extant budgets norms under NHM. A database of service providers trained in newborn care(as also for other child health training packages)should be maintained.

The State Nodal Officer for Child health trainings should seek support from State/Regional /National Collaborative Centre to ensure that trainings can be planned and conducted timely. Training of Trainers (TOT) should be planned first so that a pool of trainers is available within the state to take the trainings forward and provide mentoring support in coordination with Regional or National Collaborating Centre. The trainers selected for the TOT should themselves be working in newborn care setup and also committed to provide training and conduct mentoring visits. SNCU being a highly skilled area, the trainers need to be well versed with clinical care protocols and demonstrate these practices in their own units. As mentoring and supportive supervision is an integral part of the capacity building, it should be part of the overall training plan.

Another important aspect of training is the selection of appropriate candidates and their posting at the health facility which provides adequate opportunity to put into practice the new skills learnt during the trainings. As far as possible, doctors and nurses should not be rotated after training, to departments where these skills are not of relevance. The training schedule should be planned well in advance at the state level and shared with the concerned institutions, including the SRC which should also monitor the quality of the trainings including appropriate selection of participants, facilitators, and training sites.

**Note: It is important that the doctors and nurses trained in newborn care package are retained in SNCU/ NBSU/NBCC and are not rotated to duties outside the newborn care facilities.*

Details of training programme for capacity building on newborn care

Training for facility based newborn care should be according to the level of newborn health facility at which the doctors and nurses are positioned. Customized packages are available for developing skills required at the level of SNCU and NBSU care and at all delivery points where NBCC are established. State Collaborative Centre's budget has provision for mentoring visits.

Table No. 21: Newborn Care Training Packages recommended by MOHFW, GoI

Level of care	Training packages	Notes
SNCU	Facility based newborn care	FBNC Package for Doctors & Nurses
	Neonatal Resuscitation programme (NRP)	NRP module is a part of FBNC training, but can be taken up separately
	Training for developmentally supportive care and Mother Newborn Care Unit	The concept of FPC, KMC, MNCU/DSC, Nurturing Care is incorporated in FBNC training package. The AV training resources are for parent/ attendant and sessions to orient them should be planned by SNCU Staff
	Oxygen delivery system to the newborns training package	Mandatory for units introducing CPAP
	Quality Improvement and NQAS training including MusQan	QI training should be an integral part of all trainings & refreshers. Recommended that 1-day training be combined with FBNC classroom training and QI included in observership. Two/One days orientation of MusQan quality certification of Newborn and Paediatric Care units should be organized to all MusQan identified facilities.
	Optional/advanced training packages such as 'Facility Based Care for Preterm Infants' or any other new packages	States can plan trainings for improving competencies for select facilities/ service providers after mandatory training (FBNC) is completed
	SNCU Online Training and Capacity Building	For data entry operators deployed in SNCU or NBSU
NBSU	Facility based care of sick & small newborn for NBSU, 2020	
	Revised NSSK, 2020 /NRP	
NBCC	Revised NSSK,2020/NRP	
	Dakshata	
Across all levels of care	Birth defects and Newborn screening	Comprehensive newborn screening: Handbook for screening visible birth defects at delivery points (under RBSK)

Training at SNCU level

FBNC Training package for doctors and nurses was disseminated in 2022 for skill building of doctors and nurses posted in SNCU/MNCU. This training adopts a participatory approach, combining classroom sessions with hands-on clinical sessions and case discussions within the SNCU/NICU. The total duration is of four days which includes one-day training in Neonatal Resuscitation Protocol.

The classroom training is followed up by 14 days observership at a recognized state/regional/national collaborating centre. To be considered as FBNC trained, it is mandatory to complete both the classroom training as well as observership.

Doctors and nurses positioned at SNCU/MNCU after the training should receive continuous supportive supervision and mentoring support to help them integrate new skills into their job activities.

***Table No. 22:* Training for Facility Based Newborn Care (FBNC) at SNCU**

Training	Facility based newborn care
Trainees/Participants	Doctors & Nurses positioned at SNCU
Facilitators /Trainers	Every state should conduct TOT and ensure a pool of FBNC trained teaching faculty of Medical Colleges (Department of Neonatology/ Paediatrics); Faculty from State/ Regional/ National collaborating Centers ; National Facilitators from National Neonatology Forum and Indian Association of Neonatal Nurses (IANN)
Training site	Preferably at Medical college / A well functioning / SNCU/MNCU at the District Hospital; observership at a medical college or collaborative centre designated for this purpose
Duration	4 days of classroom training (including one day for NRP) + 14 days observership
Batch size	24 participants per batch for classroom training; 6 or 8 participants (2 or 4 doctors & 4 nurses) for 14 days observserhip training
Facilitator Trainee Ratio	1: 6; Total 4 facilitators
Training package includes:	• Neonatal Resuscitation Programme (NRP) Module; • FBNC Training module for doctors & nurses; • FBNC Facilitator Guide; • Set of instructional videos;

Training for developmentally supportive care and Mother Newborn Care Unit

The concept of FPC is integrated in the revised FBNC training package. In the meantime, a state level Training of Trainers can be organized with the help of the experts who are implementing FPC in their units. Each batch should preferably have 24 participants and not more than 30. Each batch will have 1-2 doctor and 2-4 nursing staff (including Nurse Incharge) from each SNCU.

These trainers after being trained at the TOT would be required to sensitize and train all their doctors and staff nurses who are involved in neonatal care routinely in the SNCUs.

Once all the staff has been sensitized and trained, skill building and trainings of parents can be initiated by the nurses. Staff nurses will primarily train the parents-attendant in various domains of infant care through structured sessions organized daily. It is critical that all the nurses in the unit are well trained in the content and methodology of this training package and in providing continuous support to parents-attendants in practicing these skills by their baby's side during the stay in the facility.

Both the Doctor Incharge and Nurse Incharge must work together to ensure that the training programme for parents –attendants are regularly and successfully implemented.

Table No. 23: Training for developmentally supportive care and Mother Newborn Care Unit

Training	Training for developmentally supportive care and Mother Newborn Care Unit
Trainees/Participants	Doctors and Nurses posted in newborn care units
Facilitators	District paediatricians, selected medical officers & nurses from newborn care units practicing FPC
Training site	Preferably a SNCU where MNCU is functional
Duration	1.5 days to 2 days days; can be combined with FBNC classroom or CPAP or any other Newborn Training package
Batch size	24 participants
Facilitator Trainee Ratio	1:6; Total 4 facilitators
Training package includes:	• Participants' module • Facilitators' Guide • Videos • Wall charts

Training providers on Quality improvement

Quality improvement (QI) is a management approach that health workers can use to reorganize patient care at their level to ensure that patients receive good quality healthcare. Government of India has launched National Quality Assurance Standards (NQAS) which has an implementation framework and has checklists for newborn care areas. MusQan is an initiative of GoI for ensuring child friendly services in Public Health Facilities. The MusQan Certification checklist covered Special Newborn Care Units, NBSU, Paediatric OPD, Paediatric Ward and NRC.

QI training packages are available to build knowledge and skills of service providers to use quality improvement approaches to deliver better care for mothers and newborns around the time of birth. MusQan orientation training should be given to all the service providers of the MusQan identified facilities. The Point of Care Quality Improvement (POCQI) training package includes a facilitator's manual, a learner's manual, a set of slides and other learning materials.

The training package can be accessed from:
http://aiimsqi.org/point-of-care-quality-improvement-pocqi/

Table No. 24: FBNC Online Software/Database Training and Capacity Building:

Activities	Description
Training	**State TOT SNCU Online software training**
Venue	Preferably at State Resource Centre/SNCU at the district level
Batch Size	25-30 participants per batch of training
Facilitators	Regional SNCU Coordinators/Faculty from National Collaborative Center
Participants	State level MIS and data consultants, State nodal person/designated for SNCU and child health, Paediatrician, Medical officer and Staff Nurses from SNCUs and data operators from well-functioning SNCUs and faculty form nodal medical college or collaborative centre
Duration	One day

Activities	Description
Training	**State level trainings of SNCU/MNCU staff**
Venue	Preferably at State Resource Centre/SNCU at the district level
Batch Size	25-30 participants per batch of training
Facilitators	Regional FBNC Data Coordinator/State SNCU Data Manager/State SNCU Clinical Coordinator
Participants	3 participants from each SNCU: Doctor In-charge SNCU, Nursing In-charge SNCU, Data Operator SNCU. The consultants supported by partners and state government looking after data monitoring and SNCU data reporting should also attend the training.
Duration	One day
Budget	Budgets can be proposed in annual state PIP under Facility Based Newborn Care budget head as per RCH norms after calculating the training load based on above batch size for residential training

Prerequisites before training: The States need to ensure availability of all the hardware and stationary as per the guidelines before a training is planned. Internet connection and dedicated data entry facility are equally important.

Training at NBSU level

A customized training package has been developed in 2020 to build capacities of service providers (doctors and nurses) positioned at FRU/NBSU. This module will equip them with following skills:

i. Triaging and emergency treatment of newborns with emergency signs
ii. Referral of newborns after initial stabilization
iii. Management of newborns admitted to NBSU including KMC for stable babies

Table No. 25: Training for Facility Based Care for Sick & Small Newborns at FRU/NBSU

Activities	Description
Trainees/Participants	Doctors & Nurses positioned at FRUs /CHCs/NBSUs
Facilitators/Trainers	Teaching faculty of Department of Paediatrics in Medical Colleges; Paediatricians with experience of working in SNCU
Training site	SNCU or State /Divisional Newborn Resource Centre (medical college)
Duration	3 days; can include one additional day for NSSK/NRP
Batch size	24 participants
Facilitator Trainee Ratio	1: 6; Total 4 facilitators
Training package includes:	• Participant module • Facilitator Guide • Instructional Videos

NBSU Online Training and Capacity Building

Activities	Description
Activities	Description
Training	State/Regional TOT/Training on NBSU Online Software
Venue	State/Regional Resource Centre
Batch Size	20-25 participants per batch of training
Facilitator	Regional FBNC Data Coordinator/State SNCU Data Manager/State SNCU Clinical Coordinator
Participants	Medical Officer, Staff Nurse, Data Entry Operator from well-functioning NBSUs, District MIS Consultant
Duration	Two days

Training at NBCC level

Navjaat Shishu Suraksha Karyakram (NSSK) which aims to provide skills for basic newborn care and resuscitation is in use since 2009. The training in NSSK imparts basic skills essential to manage common neonatal problems like birth asphyxia, infections, hypothermia and delayed cord clamping and immediate skin to skin care and breast feeding within one hour breast feeding.

Revised NSSK package (2020) adopts a more participatory training methodology with emphasis on demonstration and hands-on practice of key skill sets using mannequins and equipment. Higher facilitator to participant ratio has been recommended, this should improve the quality of training and thus skills acquisition by participants. Technical changes have also been made to the resuscitation protocol based on recent evidences. The duration of the training continues to be of two days.

Table No. 26: Training for newborn resuscitation (Navjaat Shishu Suraksha Karyakram 2020)

Trainees/Participants	ANM, CHO, doctor positioned at delivery points at SCs/ PHCs/CHCs & directly involved in providing essential newborn care EMTs of Ambulances
Facilitators	Nurses from Medical colleges/SNCU; Faculty of Nursing Colleges; Faculty of ANM training Centers; trainers from Skills labs/Dakshata programme
Training site	District hospital (DH) or a high case load sub district hospital or CHC/ FRU; Skills lab; ANM training centre
Duration	Two days
Batch size	24-28 participants in 4 batches of 6/7 each
Facilitator Trainee Ratio	Ratio of 1:6; Total 4
Training package includes:	• Flip Chart • Wall chart • Resource manual • Videos

CHAPTER X. SUPPORTIVE SUPERVISION AND MENTORING FOR ALL LEVELS OF NEWBORN CARE

Supportive supervision and mentoring are complementary activities that are both necessary to continuum of care and support. Mentoring mostly focuses on individual clinicians or small groups establish (such as the SNCU team or NBSU team) for follow-up after training. Mentors are experienced, practicing clinicians with strong teaching skills e.g. faculty of medical colleges, National/Regional/ State Resource Centres, doctors working in SNCU. They can guide and advise from their experience and support service providers who have been recently trained and are starting to make their units functional.

Supportive supervision focuses on improving overall performance and solving systemic problems that contribute to poor service delivery. Supervisors are persons working within the health system having comprehensive managerial and administrative knowledge and skills e.g., the medical superintendent, medical officer in charge of the unit, state & district nodal officers. Their role is to promote quality of care at the health facility, by ensuring availability of resources, promote standards of care, teamwork, and improve communication between the health administration and the service providers.

It is being emphasized for program managers that supportive supervision and mentoring visits are activities aimed towards improving the quality of the services at the newborn care units. The program manager needs to further ensure that the mentoring and supportive supervision activities are well coordinated avoiding use of multiple checklists. Good institutional mechanisms at state level will ensure that the two activities complement each other.

Providing supportive supervision

Supportive supervision can be provided on day to day basis (eg; by nursing in-charge or MOIC) or through review meetings scheduled at well-defined periodicity (eg; monthly meetings by District Medical Officer or Medical Superintendent). The monitoring should be based on well-defined indicators that are currently being reported in HMIS & in SNCU online portal.

The supervisory staff should be oriented to techniques of supportive supervision (eg; problem identification, problem solving, two-way communication), which is different from the traditional approach to supervision (is authoritarian and relies on inspection or control). In addition, they should be updated on guidelines & provisions for newborn care.

Under the MusQan programme, Quality Circles at Facility Level are informal groups of the staff in each department towards improving care. For Quality circle in a labour room would involve Gynaecologist, Paediatrician, Matron and Nursing Staff & Support Staff to work in coordination with facility level quality team headed by the Medical Superintendent or facility incharge. Similar circles can be established for SNCU and NBSU.

Under NQAS and MusQan comprehensive checklist looking at processes and quality of care is shared with the state and the assessors/supervisor using theses checklists focus on priority issues, corrective actions, and actions to be followed up.

Providing mentoring for newborn care

The mentors for newborn care at SNCU level are the teaching faculty from medical college, National/ Regional Collaborative Centre or State Resource Centre, or any independent expert (designated by the government) with practical experience and expertise in newborn care. It is important that doctors and nurses identified to undertake the role of a mentor are trained in the recommended training packages). **They should have successfully implemented the management protocols at their own facility and have the motivation and the attitude to support their peers.**

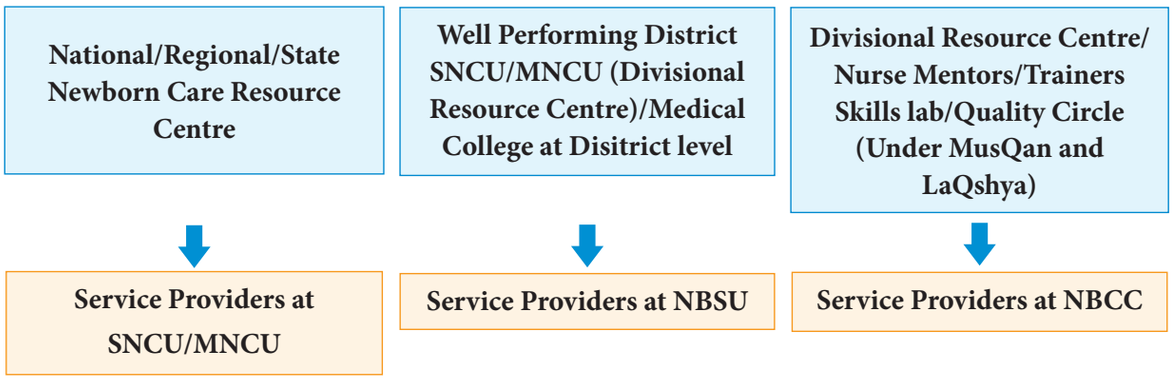
For NBSU, the mentors could be the doctors and nurses trained in FBNC and working at a well performing SNCU in addition to teaching faculty at tertiary level newborn care units.

For NBCC, the mentors would be the faculty of ANM or Nursing training centres/institutes, trainers at skills lab or nurse mentors assigned specially for the purpose of improving care in the labor rooms.

Under MusQan and LaQshya programme programme, a district level, external multidisciplinary coaching team will be responsible for mentoring one or more labour rooms including NBCC. All coaching teams are trained in skills lab/Dakshata, so that they are proficient mentors. They in turn shall be mentored by the State Mentoring Team.

It is important that mentors are trained in the recommended training packages and **they should have successfully implemented the management protocols at their own facility.**

Mentoring Support for Various Levels of Newbron Care



Providing mentoring support

1. Setting up a mentoring system

Designate State /Divisional Resource Centre; train core group of mentors at state /district level	Tools and reporting systems in place

2. Planning for regular mentoring visits

Develop a quarterly /annual plan for visits ; prioritize health facilities based on data review	Ensure availability of resources for mentoring visits: per diem, vehicles, permissions, etc.

3. Conducting mentoring visits

Observation of clinical practices; review of data & records by mentors	On the job skill building in identified gap areas; share observations & feedback

4. Follow up

Follow up on agreed actions with mentees, supervisors	Record and share observations , feedback & recommendations with relevant authorities

For effective mentoring visits, planning and action is envisaged at two levels:

1. At the level of State Programme Management Unit/FBNC Nodal person

I. The state nodal officer & state Newborn Care Resource Centre together develop a comprehensive state plan for quarterly mentoring visits for service providers in newborn care units at all levels of the health system. More frequent visits may be planned for lesser performing units. A team of doctors and nurse mentors should be designated and trained for this purpose.

II. Mentoring plan ensures that mentors are informed well in advance, visit is well organized and relevant data from units is made available to mentors. To maintain motivation of the mentors should be reimbursed on time, their travel taken care of and the whole exercise should not become burdensome. It is therefore important to link them with the hospital and district authorities before the visit, to coordinate during the visit and follow up on the recommendations made by them. The activity is funded in state PIPs. The state may even designate units to mentors so that a continuity is maintained and better trust building happens.

III. Take timely actions on feedback & recommendations provided by mentors by sharing feedback report officially, provide necessary direction where required and monitor progress on well-defined set of indicators using data from reports of mentoring visit to validate the information/data shared regularly by the health facility.

2. At the level of mentor/mentoring team

Steps in conducting the mentoring visit:

1. Plan and prepare for the mentoring visit
2. Conduct the visit
3. Review records at the facility
4. Observe case management
5. Clinical and QI skills staff
6. Review the QI project undertaken
7. Provide feedback & address problems/bottlenecks
8. Prepare summary report

Mentors should be aware of the objective of the visit, follow up on recommendations made during previous visits and be prepared if any updates and/or refresher training is required on site. Mentoring checklists should be used for the purpose of conducting the visit so that areas for observation and recording of feedback is standardized.

The mentors should be able to spend sufficient time to validate data, observe clinical practices, review records and note strengths and weaknesses. Interviewing few beneficiaries can help to learn about the quality of service. Recording the observations made, actions taken during the visit and recommendations for further actions by relevant authorities is a very important aspect of the visit. Mentoring checklists for NBSU & NBCC is placed at Annexure to be used by mentors to make it more objective and progress can be easily followed.

Tele mentoring initiative for SNCUs/NICUs

Organizational Structure

The SNCU tele-mentoring program will be structured in the following hierarchy:

1. **Child Health Division, Ministry of Health and Family Welfare, Govt of India** will provide overall leadership to SNCU tele-mentoring services under the FNBC program, including the technical guidance and operational framework for implementing the program in each state.
2. **State Child Health Division, led by the State Child Health Nodal Officer,** will be the overall convenor of the SNCU tele-mentoring programme at the state level. It will conduct and supervise meetings with the various stakeholders, including MD NHM, Director Child and Maternal Health, District Magistrates, District Nodal Officers for RCH & ASHAs, SNRC paediatrician, development partners and representative from professional academic bodies.
3. The **State Newborn Resource Centre (SNRC)** will serve as the command centre for the initiative. It will be located in a designated state medical college and headed by a senior pediatrician with administrative experience.
4. The **Divisional Newborn Resource Centres (DNRC)** will be the primary providers of telementoring services. Each DNRC will mentor 5-10 SNCUs and be located in a medical college or a well-functioning SNCU. It will have a well-equipped telementoring lab and provide 24x7 mentoring services.
5. **SNCU Tele-mentoring Unit:** Each SNCU will assign a nodal person to coordinate and facilitate the telementoring services. SNCU doctors and nurses will be periodically trained to utilize the telementoring services optimally.
6. The SNCU team will be engaged to understand their needs. The frequency and intensity of mentoring needs will be individualized using a bottom-up approach.

The basic layout of the organizational framework is depicted in Figure 1.

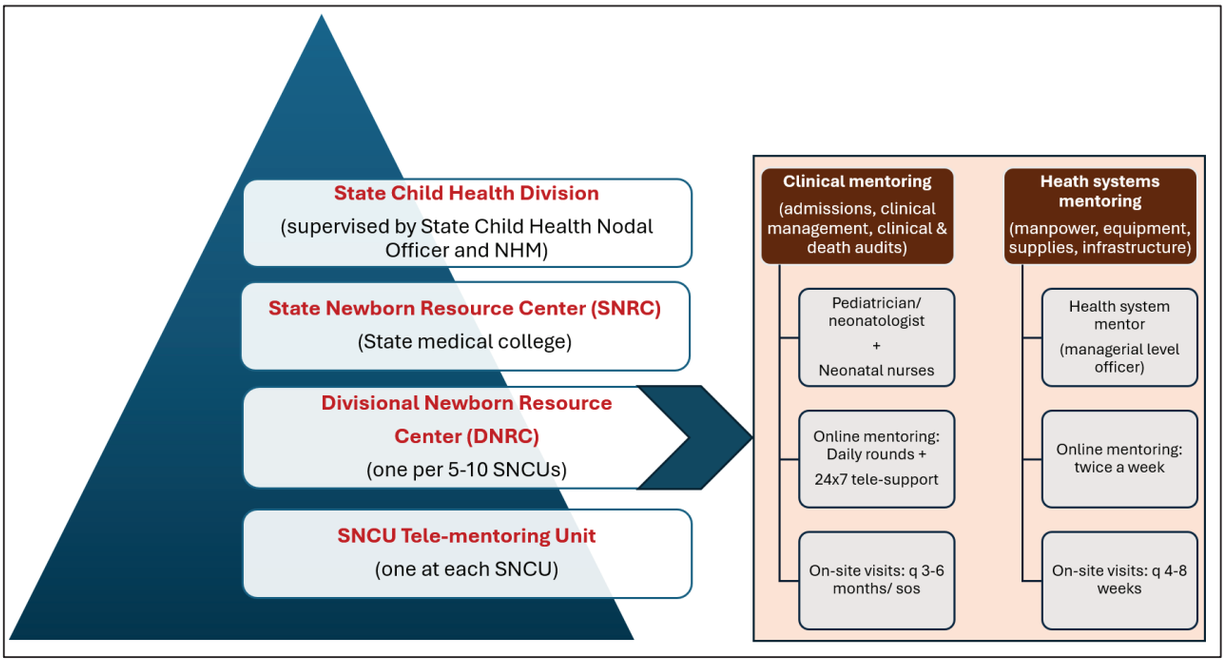


Figure 1: Organizational framework of the SNCU tele-mentoring program

Operational Framework and Requirements

Organizational Level	Roles and Responsibilities	Human resource	Infrastructure and Equipment Requirements
State Child Health Division	• Conduct monthly meetings with various stakeholders • Administrative support for closure of the identified gaps • Benchmarking of SNCUs and facilitating incentive program for well-functioning units	Supervised by State Child Health Nodal Officer who leads the initiative.	No additional requirements
State Newborn Resource Center (SNRC)	• Formulation of context-specific SOPs (based on FBNC guidelines) • Benchmarking and reporting mechanisms • Training & capacity building of DNRC and SNCU staff • Track gaps/challenges, escalate to different levels and monitor closure of the gaps	**Full-time:** 2 pediatricians* with administrative experience 1 data entry operator* 1 statistician* 1 assistant* **Technical assistance:** One or more faculty from a designated state medical college **Administrative support:** State Child Health Nodal Officer	Tele-consultation lab equipped with: • Computers with TV screens (2 units) • Telephone and Internet connection • Subscription of interface software SNRC office space and supplies
Divisional Newborn Resource Center (DNRC)	For each SNCU: • Tele-rounds of SNCU and birthing area: daily on working days and as needed • Need-based teleconsultations: 24 x 7 • In-person visits: q 3–6 months • Perinatal meetings with pediatric and obstetrics team: monthly Monthly report to be submitted to the SNRC (with action points)	**Clinical mentoring team** (2 pediatricians* 6 nurses*) Work schedule: Pediatrician: Daily in working hours + on call on alternate nights Nurses: 24 x 7 cover in shifts	Tele-consultation lab at each DNRC (located in medical colleges) equipped with the following: • Computers with TV screens (3 units) • Internet and phone connection • Subscription of interface software Office space and supplies for staff

Divisional Newborn Resource Center (DNRC)	For each SNCU • Tele-mentoring: twice a week • In-person visits: q 8 weeks • 3-monthly report to be submitted to the SNRC and NHM for gap closure (with action points) Provide administrative support for equipment, supplies, manpower, infrastructure, funds, data collection	Health systems mentoring 1 Health systems mentor* (managerial level officer with hospital administration background) 1 data entry operator*	
Special Newborn Care Unit (SNCU)	• Facilitate daily clinical rounds and discuss selected cases • Empower clinical team to seek the help of tele-mentoring team • Attend monthly perinatal meetings	**Nodal person:** CMO/ senior nurse	• Tablets/phones with a good camera (3 units per SNCU) • Wifi internet connection • HD camera (3 per SNCU)#

*Additional staff hired under NHM for the SNCU tele-mentoring program

#Installed in each SNCU for monitoring of services

Key Performance Indicators

Key performance indicators	Nodal person for data collection	Monitoring frequency	Nodal person for data review
District Newborn Resource Center			
Process indicators: clinical Number of tele-rounds conducted Number of reactive calls attended Number of in-person visits Satisfaction of SNCU team with the tele-mentoring support (Likert scale)	DNRC Pediatrician	Weekly Weekly Monthly Monthly	SNRC Pediatrician
Process indicators: administrative Number of gaps identified Number of gaps closed Number of in-person visits	DNRC Health systems mentor	Monthly Monthly Monthly	SNRC Pediatrician
Special Newborn Care Unit			
Outcomes indicators* Percentage of preterm neonates (<34 weeks) who received antenatal steroids Percentage of neonates receiving antibiotics Percentage of neonates receiving high-end antibiotics Percentage of neonates on intravenous fluids Percentage of neonates on CPAP Percentage of low-birth-weight neonates undergoing kangaroo mother care (>8 hrs/day) Neonatal deaths Neonatal referrals Neonates leaving against medical advice Neonatal sepsis occurring >48 hours of life	SNCU Nodal Officer (MO/senior nurse)	Weekly Weekly Weekly Weekly Weekly Weekly Monthly Monthly Monthly Monthly	DNRC Pediatrician and Health systems mentor

*Assessed using data currently being reported in HMIS and in SNCU online portal

Annexure:

I. Activity wise financial break-up of the SNCU tele-mentoring program

Activity	2025 Version Guideline	New (2025) Budget
Tele – SNCU mentoring and monitoring		
State Newborn Resource Center (SNRC)	1 SNRC in each state (established in a state medical college)	
One time establishment at SNRC		
• Infrastructure renovation (sound-proof room, ACs, uninterrupted power supply)		25,00,000
• Equipment & Furniture (setting up video wall, computers with screens, dedicated high-speed internet)		25,00,000
Recurring cost at SNRC		
• Operational cost for consumables, Stationary, registers & equipment maintenance cost		1,80,000/annum
• Internet and data entry		70,000/annum
• Interface software licence		40,000/annum
• Mentoring and monitoring cost (including travel support and accomodation)		As per the state norms
Cash incentives to DNRC and SNCUs		50,00,000/annum
Divisional Newborn Resource Center (DNRC)	1 DNRC per 5-10 SNCUs (established in existing medical college/ well-functioning SNCU)	
One time establishment at DNRC		
• Infrastructure renovation (sound-proof room, ACs, uninterrupted power supply)		25,00,000
• Equipment & Furniture (setting up video wall, computers with screens, dedicated high-speed internet)		25,00,000
Recurring cost at DNRC		
• Operational cost for consumables, Stationary, registers & equipment maintenance cost		1,20,000/annum
• Internet and data entry		1,00,000/annum

• Interface software licence		40,000/annum
• Mentoring and monitoring cost (including travel support and accomodation)		As per the state norms
Human Resource at DNRC		
• Pediatricians	1 per DNRC	As per the state norms. The salaries will include reimbursement for TA/DA for travel as per actuals.
• Health systems mentor	1 per DNRC	
Special Newborn Care Unit (SNCU)	In each SNCU	
One time establishment at Spoke		
• Infrastructure renovation	As per actual need	-
• Equipment & Furniture	3 tablets/mobiles per SNCU 3 HD camera per SNCU	2,10,000
Recurring cost at Spoke		
• Operational cost for consumables, Stationary, registers & equipment Maintenance cost		50,000/annum
• Internet and data entry		30,000/annum
• Mentoring and monitoring cost		As per the state norms
Human Resource at Spoke		
• No additional HR needed for SNCU	-	-

II. Equipment and network support required for the SNCU tele-mentoring program

Name of Equipment	Essential/ Desirable	Quantity Required	Indicative cost
Computers with TV screens	Essential	2 per SNRC, 3 per DNRC	1,00,000/unit
Tablets/phones with good camera	Essential	3 per SNCU	30,000/unit
High speed internet connection	Essential	SNRC (on 2 systems) DNRC (on 3 systems) SNCU (Wifi internet)	70,000/annum at SNRC 1,00,000/annum at DNRC 30,000/annum at SNCU
Interface software licence	Essential	At each SNRC and DNRC	40,000/unit
HD camera	Desirable	3 per SNCU	40,000/unit

CHAPTER XI. IMPROVING QUALITY IN FACILITY BASED NEWBORN CARE

Background

During last two decades, substantial efforts have been undertaken by the Ministry of Health & Family Welfare Govt. of India to reduce morbidity and mortality among newborn, infants and children. It includes strengthening of physical infrastructure and human resources, knowledge and skill upgradation for providing essential care, manage complications and lifesaving interventions, etc.

The Lancet Global Health Commission on High Quality Health Systems in the SDG Era estimates that in low middle-income countries (LMICs) 60% of deaths occur due to poor quality care, whereas remaining deaths result from non-utilisation of the health system. In India, District level household and facility survey revealed that 51% of households bypass their nearby public facility for the usual care; of these, 80% experience poor quality.

To improve the Quality of care provided at the public health care facilities, MoHFW launched National Quality Assurance Standards (NQAS) and its implementation framework in 2013. The framework builds its foundation by setting minimum standards of care at all level of Primary and Secondary care Public Health institutions. These standards measure the quality of care objectively using Donabedian model i.e. Structure, Process and Outcome.

For ensuring quality in facility based newborn care (FBNC), dedicated standards and assessment tools have been built into the NQAS and MusQan. There are dedicated quality assessment protocol for Special Newborn Care Units (SNCUs), Newborn Stabilization Units (NBSUs) and Newborn Baby Care Corners (NBCCs). Detailed Assessment should be done using MusQan checklists.

For supporting the seamless implementation of the NQAS and MusQan there is well established functional institutional framework at every level. Figure1 illustrates level the existing institutional framework for NQAS and MusQan implementation.

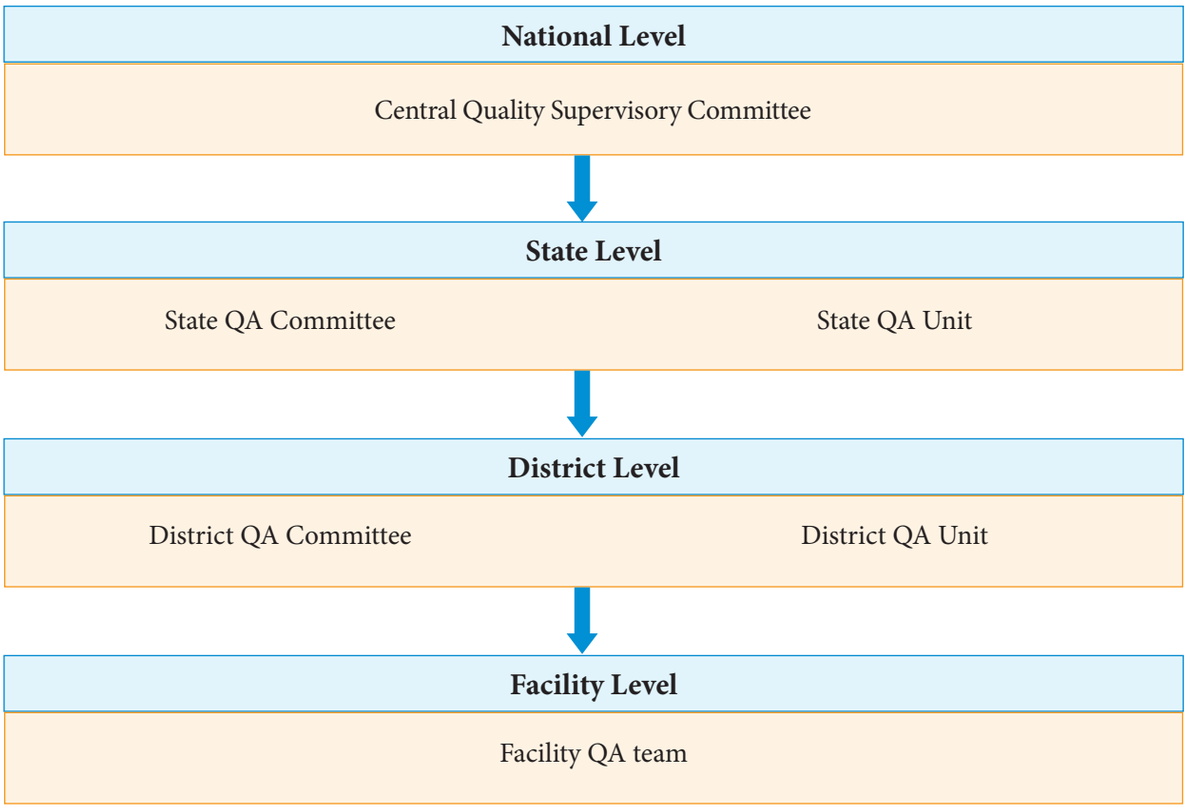


Figure 1: Institutional Framework under NQAS

The progress and targets are monitored at all levels through inbuild mechanisms. Departments or areas which are able to demonstrate attainment of defined standards, are quality certified initially in first year, and surveillance is undertaken by the state in subsequent two years.

Key Concepts of Quality

Quality is described in several ways. Figure 2 illustrates few commonly accepted definitions.

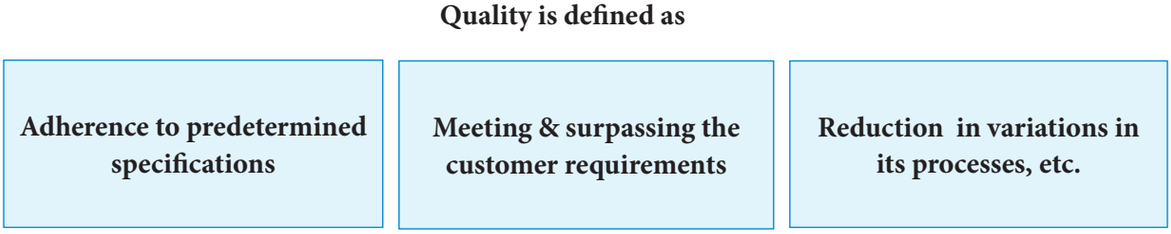


Figure 2: Illustrate few commonly accepted definitions of Quality

Ensuring Quality in delivered services has many dimensions - Quality Control, Quality Assurance, Quality Improvement, Quality Planning and Quality Management System. ISO (International organization for Standardization) 9000:2015 describes them as given below:

Quality Control as a part of quality management focused on fulfilling quality requirements. Quality Control is the detection of defects.

Quality Assurance as a part of quality management, focused on providing confidence that quality requirements will be fulfilled.

Quality Improvement as a part of Quality Management, focussed on increasing the ability to fulfil quality requirements.

Quality Planning as a part of quality management focused on setting quality objectives and specifying operational processes, and related resources to achieve the quality objectives.

Quality Management System (QMS) includes establishing quality policies, quality objectives, and defining processes to achieve quality objectives through quality planning, quality control, quality assurance and quality improvement.

Measurement System for assessment of SNCU and NBSU under NQAS

Quality Standards for SNCU and NBSU under the NQAS and MusQan are broadly arranged into Eight (8) Areas of Concern (AOC) - (a) Service Provision (b) Patient's Rights (c) Inputs (d) Support Services (e) Clinical Services (f) Infection Control (g) Quality Management Systems (h) Outcome.

Each area of concern has specific standards. It can be defined as statement of requirements of particular aspect of quality. Each standard is divided into measurable elements (MEs) i.e. specific attributes of a standard which will assess extent of compliance to the given standard. Each measurable element is objectively checked by means of checkpoints (CPs). CP are tangible, objective attributes. Compilation of AOC, standards, MEs & CPs together constitute departmental checklist like Emergency, Labour room, SNCU, etc.

Figure 3 shows arrangement of AOC, Standards, MEs & CPs in respective departments.

For instance, there is an area of concern (AOC) - Infection Control, under which, one of the standards pertains to material availability and practices for personal protection. Personal protection standard is divided into two measurable elements (MEs) i.e. availability of adequate PPE as per requirement & adherence to standard personal protection practices. Availability of the PPE (first ME) is further divided into checkpoints like availability clean gloves at point of use, availability of masks, gown, gum boots, etc. while the second ME related to adherence to practices looks at the adherence to practices of donning and doffing of the PPE.

Figure4 indicates diagrammatic representation of the NQAS in respect of Personal Protection under the Area of concern -Infection Control

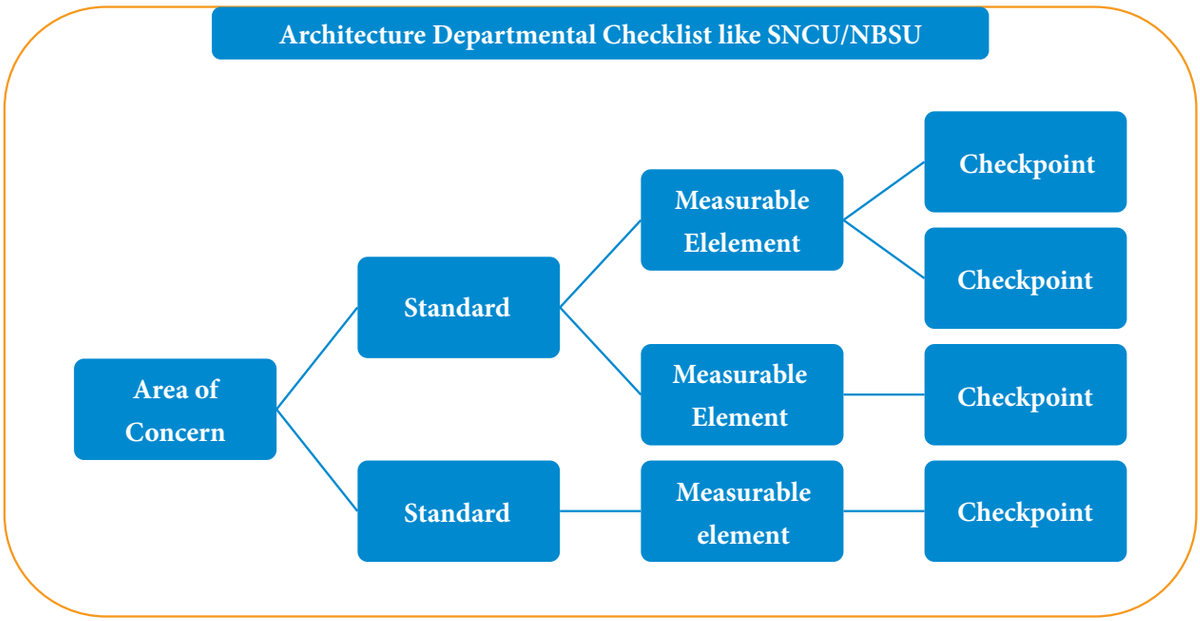


Figure 3: Relation of Quality Standards with Area of Concern (AOC), Measurable Elements (MEs) & Checkpoints (CPs)

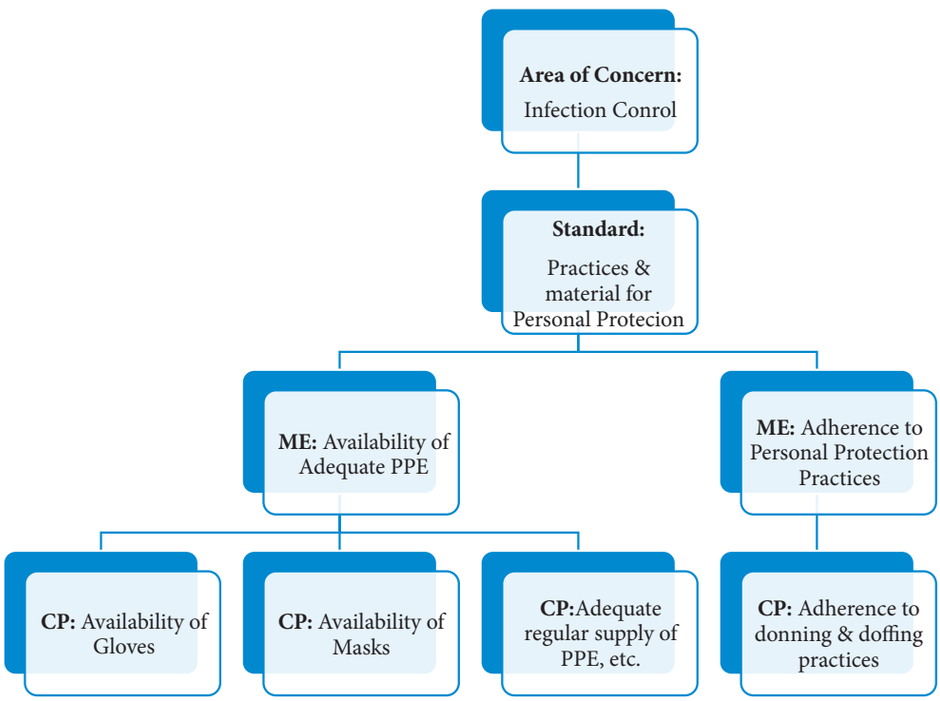


Figure 4: Illustrative example of Area of concern, Standard, ME & CP

Generation of Score Cards for SNCU/MNCU/ NBSU

Scoring is rendered against each checkpoint as 0 (zero) for no compliance, 1 (one) for part compliance and 2 (two) for full compliance. Table 1 represents key rules for assigning the score against checkpoints.

Table No. 1: Represents rules to assign scoring against checkpoints

S.NO	CRITERIA	FULL COMPLIANCE (2)	PARTIAL COMPLIANCE (1)	NON-COMPLIANCE (0)
1	CHECK POINT (CP)	All requirements are met	Half of the requirements are met	None of the requirements met
2	MEANS OF VERIFICATION (MoV)	100%	50% to 99%	Less than 50%

Compliance to checkpoint is arrived through following assessment methods -

a. **Observation (OB),**
b. **Staff interview (SI),**
c. **Patient Interview (PI) and**
d. **Record review (RR)**

In actual assessment, it could be that either one method is used, or more than one approaches are taken together.

For example, to check the availability of drugs and supplies, observation (OB) can be used but the same information needs to be triangulated from other sources by looking at the records (RR) and talking to patients (PI), if they have been purchasing the drug.

For minimising the subjectivity, there are means of verification (MoV), that denotes tracers, which should mandatorily be checked. For instance, availability of IV fluids and Vitamins are tracers under the MoV in SNCU.

Figure 5 provides snapshot of SNCU checklist reflecting AOC, standard, ME, CP, assessment method, MoV and scoring compliance.

As assessment checklists are available in excel/ GUNAK Application . It facilitates in generation of scorecards for a facility or department. The score card could be presented differently – departmental score, Area of concern wise score, and standard wise score.

Figure 6 shows different scorecards generated through GUNAK application. (GUNAK is an IT application used for Assessments of NQAS, Kayakalp & LaQshya. The App is available in google play store as well as in ios app store.)

Roles of SNCU/MNCU/ NBSU staff in implementation Quality Standards

The focus of National Quality Assurance Standards has been on improving the RMNCHA services. It is expected that all department providing care to mother and child would implement these standards by undertaking following activities -

a. Team formation
b. Baseline assessment against the NQAS and MusQan Checklist
c. Plan for gap closure – Structure, Process and Outcome
d. Undertake Quality Improvement activities using PDCA approach
e. Functional system of collating patients' satisfaction and its analysis
f. Meeting regulatory compliances
g. Analysis of facility level key performance indicators (KPIs) & undertaking sustainable follow up actions
h. Repeat assessment at quarterly interval
i. State level and National level certification
j. Recognising Quality Champions
k. Sustenance

Figure 6 MusQan guideline, Rapid improvement after cycle completion of assessment, concerted efforts are undertaken to identify the 'Gaps'. Subsequently available resources are channelized for closing the gaps and bringing the 'Improvement' in the services using the PDCA methodology (PDCA gets used interchangeably with PDSA : Plan-Do-Study-Act).

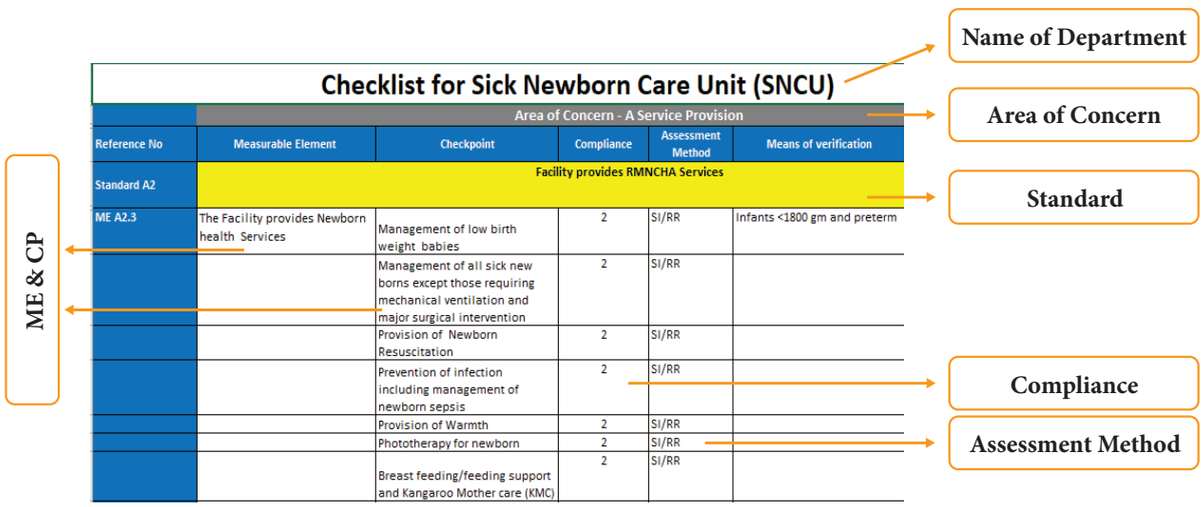


Figure 5: Snapshot of SNCU/MNCU Checklist

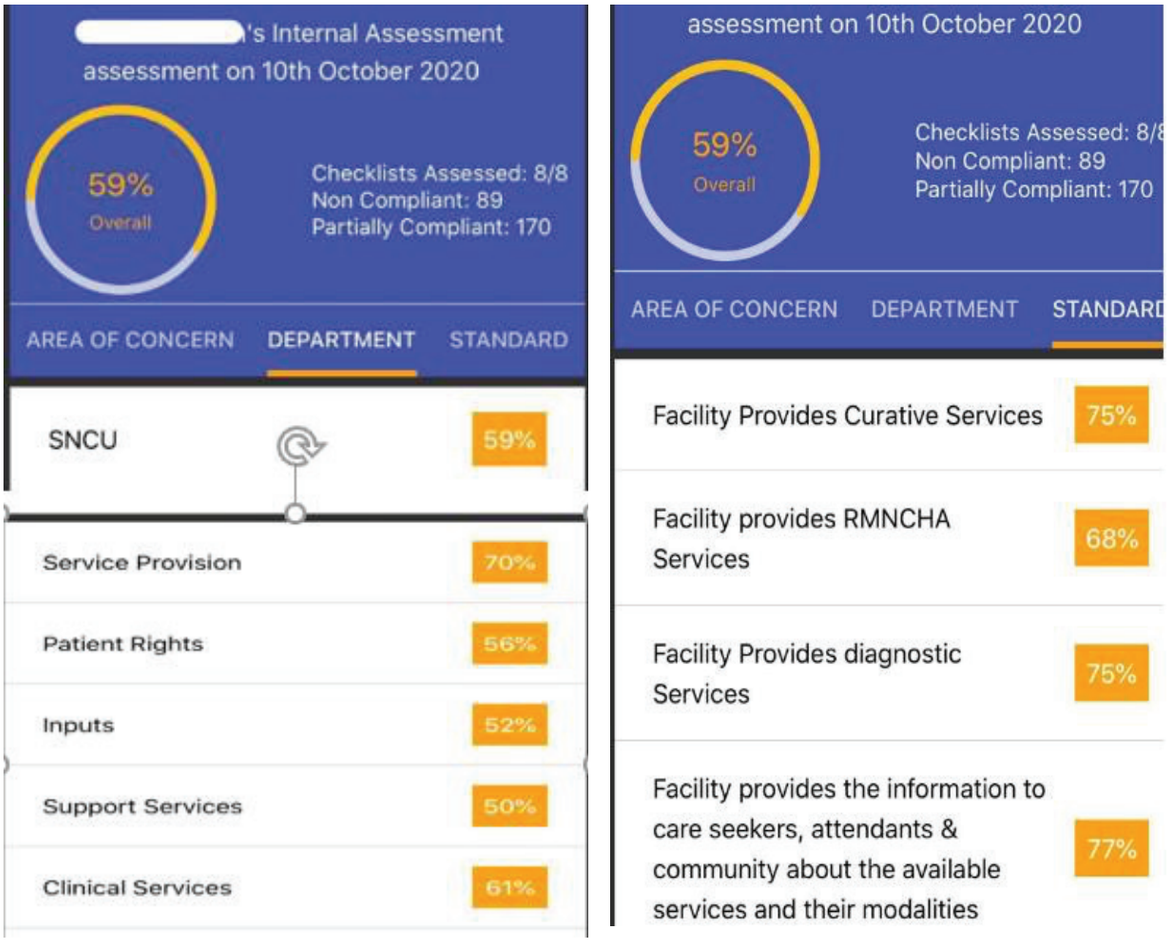


Figure 6: Illustrate Snapshot of GUNAK generated SNCU scorecard (AOC & Standard Wise)

Continual improvement using PDCA approach

NQAS and MusQan focuses on continual improvement through identifying of the gaps, performing root cause analysis, prioritization, taking actions, measuring the improvement and sustaining the efforts. The gap identification, closure and process breakthrough efforts can be broadly grouped into two categories:

1. Identifying gaps against defined NQAS or MusQn standards, analysing results of audits (viz medical audits, death audits, safety audits etc.), Patient satisfaction surveys, (PSS), Key performance indicators (KPIs), internal & external quality assurance programmes, etc.

2. Improving the care using PDCA approach. It would largely entail identification of the problem, breaking the problem into sub components, set the verifiable objectives, collect the baseline data, develop change idea, implement the change idea, monitor & evaluate the process & outcome, adopt or adapt the change idea, standardise & sustain the accepted ideas.

Conclusion

A measurement system for facility-based Quality of care (QoC) has been created through the NQAS and MusQan implementation at the facilities. Specific standards and assessment checklists are available for all facility-based care, which ranges from care around birth, early initiation of breastfeeding, immunization, management of sick newborn, infant and children including management of malnourished children.

Following quality standards and assessment tools are available for FBNC:

1. District Hospital – Assessment tools for Sick newborn Care units (SNCU)
2. Community Health Centre- Assessment tools for Newborn Stabilization units (NBSU)
3. Primary Health Care – Assessment of Newborn care corners (NBCC) in concerned areas viz Labour room etc.

The tools can be accessed using link given in references.

The facilities engaged in caring for newborn and children are expected to familiarise with the standards and develop a culture of QoC measurement under the FBNC. PDCA remains fulcrum of all improvement initiative for ensuring that the provided care is benchmarked.

Concerted efforts would be required for traversing the gaps, identified in the process of care. This would also require 'paradigm shift' to collective ownership and pride in the work. Such efforts would need sustenance to bring about improved outcomes.

References:

1. *http://qi.nhsrcindia.org/cms-detail/national-quality-assurance-standards/MTAx*
2. *http://qi.nhsrcindia.org/sites/default/files/National%20Quality%20Assurance%20Standards%202020.pdf*
3. *http://qi.nhsrcindia.org/sites/default/files/Operational%20Guidelines%20on%20Quality%20Assurance.pdf*
4. *https://qps.nhsrcindia.org/musqan/musqan-guidelines*

CHAPTER XII. RECORD KEEPING & REPORTING

FBNC Online portal

FBNC online monitoring system has been scaled up to ensure uniformity in data collection and getting real time data for efficient monitoring and timely feedback for action. The state PMU or Child Health Nodal Officer will be supported by the State level SNCU Data Manager and the Clinical Care Coordinator for monitoring quality and completeness of clinical data entry by the units and identifying areas for corrective actions including periodic reviews.

Record keeping

All units should have a computerized data entry system. Prototypes of the case sheets and registers for the newborn care facilities are available online at NHM portal under child health (https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1184&lid=368). Each unit will record information in the standard case-recording sheet for every admitted newborn. Standard case definitions would be used for recording the clinical diagnosis to ensure that the data is valid, reliable and comparable across the units.

Reporting from SNCU and MNCU

As a routine all the SNCUs are reporting data based on standard format in **Annexure 3.** The section A of the report deals with the labour room data which is currently not reported online but has to be generated at the end of the month and incorporated in the SNCU report. The states by the end of the first week of every month must update and validate all the data that is being reported online. The state NHM team will share the analysed data with the state collaborative centre to plan the mentoring visits.

Reporting from NBSU

NBSU training package shares a prototype of Newborn Case sheet and registers which can be used for regular record keeping. The medical officer on morning round must note the daily findings in the case sheet and the mother/family of newborn discharged should receive discharge counselling. A simplified format shared by CH division, GOI for monthly reporting from every unit is to be used for reporting. A compiled state report should be communicated to MOHFW by every 10th of the month with the status of non-reporting units. NBSU reporting forms are included in the Annexure 3.

NBCC being an integral part of Labour room, the labour registers and case sheets capture the outcome related data of newborn. (Refer to MNH toolkit). The **section A** of the SNCU Report captures the data from the labour room of that facility and has important indicators related to preterm births, rate of Caesarean Section, still births (fresh/macerated) etc. and therefore make all efforts to report the complete data regularly.

CHAPTER XIII. FACILITY BASED NEWBORN DEATH REVIEW

As per the GOI guidelines, facility-based reviews should be taken up of newborn deaths in SNCU, MNCU and NBSU.

Steps for facility based newborn death review are as follows:

Step 1: Notification of all newborn deaths

Immediately by the Medical Officer/Specialist on duty (at the time of death) to the Facility Nodal Officer (FNO) who could be the Paediatrician/Medical Superintendent/Principal Medical Officer/ CHC In-charge. The office of the FNO should inform the newborn death to the District Nodal Officer within 48 hours of death.

Step 2: Detailed investigation of all newborn deaths by filling the requisite forms

Facility Based Neonatal or Post-Neonatal Death Review Forms (Forms 4a or 4b) should be filled depending on the age and category by the DMO. Medical cause of death is to be ascertained based on the ICD 10 criteria and recorded in the Death Certificate. The form should be filled within 48 hours of death and in duplicate. One copy of the form will be sent to the DNO **within one month** of death and the second copy retained at the hospital for review by appropriate committees.

Step 3: Data transmission

The office of the FNO will prepare a line list of all neonatal (0-28 days) and post neonatal deaths (29 days onwards) that have taken place in the hospital during the month and electronically transmitted to the DNO for information, compilation and analyses at the district level. The standard definitions are provided at Annexure 3.

Step 4: Analysis of the data followed by making suitable action plans based on it Facility Level Reporting Form (Form 5c)

Facility Based reporting forms will be directly received from all the health facilities in the district at the office of the DNO so that the main causes of death and delays at various levels can be identified. Facility specific issues may emerge and can be addressed locally.

Refer to Operational Guidelines of Child Death review for the relevant forms and specific details.

SECTION II
Annexures

ANNEXURE 1: SIGNS OF TRIAGE

Emergency signs	Priority signs	Non urgent signs
Hypothermia (Temp<35.50C) Apnea or gasping respiration Severe respiratory distress (rate>70,severe retractions, grunt) Central cyanosis Shock (cold periphery, CFT>3secs, weak and fast pulse) Coma, convulsions or encephalopathy	Tiny neonate (<1800 gms) Temp 36.4^{0}C - 35.5^{0}C Respiratory distress (rate>60 but no or minimal retractions) Irritble/restless/jittery Refusal to feed Abdominal distension Severe jaundice (appears in <24 hours/stains palms and soles/ lasts>2 weeks) Severe pallor Bleeding from any site Major congenital malformations (tracheo esophageal fistula, Menigomyelocele, Anorectal malformation Large baby >3.8 kg or according to the percentile charts,	Jaundice Transition stools Developmental peculiarities Minor birth trauma Possetting Superficial infections All cases not categorized as Emergency/Priority
Actions		
Neonates with emergency signs are at high risk and require urgent intervention and emergency measures. These neonates with emergency signs after stabilization are to be admitted in the SNCU (Special Newborn Care Unit)/ MNCU (Mother Newborn Care Unit).	Neonates with priority signs are sick and would need immediate assessment. They should be attended to on a priority basis. These will also need to be admitted to SNCU/MNCU	In neonates with no emergency or priority signs, proceed with assessment and further treatment according to neonate's requirement

ANNEXURE 2: INFRASTRUCTURE SPECIFICATIONS AND DISASTER MANAGEMENT FOR NEWBORN CARE UNITS

A. Infrastructure Specifications

Floor surface: Should be of material that is cleaned easily, highly durable and withstand frequent cleaning and heavy traffic, and. It is preferable to use anti-skid and not very glossy vitrified tiles of at least 2'0"x2'0" in size to reduce the crevices for easy cleaning and minimizes the growth of microorganisms.

Walls: Should be glaze tiled up to the ceiling, easy to clean, durable and compatible acoustical properties of wall surfaces. Commonly used vinyl wall covering contains PVC which degrades indoor air quality and should be avoided.

Ambient temperature: Should be controlled to provide an air temperature of 78.8°F to 82.4°F (26-28°C) and a relative humidity of 30 to 60% while avoiding condensation on wall and window surfaces. Heating and cooling devices as per the requirement should be installed. In case duct AC is not used, few air-conditioners should be connected to emergency power to take the load in the case of power outage. While planning one must remember that newborn care unit has to cater to different needs of the room temperatures such as room temperature in the duty rooms should cater to the needs of the providers whereas that temperature will not be suitable to the newborn.

Ventilation

Ventilation in the unit should serve the twin purpose of:

1. Inhibiting particulate matter from moving freely in the space and
2. Minimizing draughts on or near the newborn beds.

The ventilation should preferably be provided by a duct air conditioning system capable of both temperature control as well as exchange of air. Air circulation can be adjusted by a properly installed and adjusted heating, ventilation, air conditioning and cooling (HVAC) system. It is preferable to avoid using fans and open windows. The airflow pattern should be at low velocity and designed to

minimize draughts, noise levels and airborne particulate matter. A minimum of six air changes/ hour is required, with a minimum of two changes being outside air to inhibit particulate matter from moving freely in the space.

Ventilation can be provided in two ways:

- Exhaust fans are a good choice for units that do not have existing ductwork to distribute heated or cooled air.
- Supply-and-exhaust is a good choice for units with heating or cooling ducts, as it is an inexpensive way of providing fresh air.

Intake and exhaust vents should be situated to minimize drafts on or near the infant beds. Do not change the filters near infant-care. Preferably fresh air intake is to be located at least 25 ft from exhaust outlets of ventilating systems or areas that may collect vehicular exhausts or other noxious fumes. Prevailing winds or proximity to other structures may require greater clearance.

Water Supply: The unit should have 24-hour uninterrupted running water supply. To ensure water supply, it is useful to have a separate overhead tank with a capacity of 1,000 to 2,000 litres. It is preferable to have R.O. water supply in patient care area.

Fire Safety: Plan of SNCU/MNCU should be an integral part of the facility's plan for prevention of fire. As a part of the fire safety plan of the facility there should be adequate fire-fighting equipment and a system of periodic training of staff by conducting mock drills regularly for fire and other disaster situations. Ensure that the unit has sufficient fire exit to permit safe escape to its occupants.

The fire exits should be clearly visible and well -marked with no obstruction in the route of fire exits. It is important for the staff to be oriented regarding assembly points & policy to evacuate SNCU/MNCU in case of fire. Smoke detectors with fire alarm as well as fire extinguishers in the vicinity of the panel boards in front of the SNCU/MNCU may also be installed. A write-up describing the procedure for emergency shut off, and location of main switch should be made available to SNCU/MNCU staff members at all times.

Ambient lighting

Perception of skin tones is critical in a SCNU/MNCU light sources should provide accurate skin-tone recognition. The unit should be well illuminated with adequate provision for daylight. Each light source to be controlled by single switch and accessible for easy cleaning. Panel of lights with CFL or LED (light-emitting diodes) will be required for adequate illumination. At least one source of daylight

should be visible from baby care area, either from each room itself or from an adjacent staff work area. However, care must be taken to ensure that light sources are as free as possible of glare or veiling reflections and do not reach and babies' eyes directly.

Provision of windows in the unit therefore requires careful planning and design to avoid radiant heat loss/ gain and glare to the newborn. External windows in the rooms should be situated at least two feet (0.6 metres) away from any part of a newborn's bed and glazed to minimise heat gain or loss. Old windows may be replaced with sound insulated and heat proof windows. Any lighting used outside the baby area should not be directed towards the baby.

Procedure lighting in baby care areas

Procedure light that comes inbuilt with radiant warmers is often sufficient for procedures and no separate lights are required. Temporary increases in illumination necessary to evaluate a baby or to perform a procedure should be possible without increasing lighting levels for other babies in the room. Procedure lights with adjustable intensity, field size and direction can protect the baby from an unpleasant experience and harmful effect to the developing retina from direct exposure to intense light and yet provide good visual support to staff.

Illumination of support areas

Illumination of support areas within the SCNU/MNCU including the charting areas, medication preparation area, reception desk, and hand washing areas should be adequate. In locations where these functions overlap infant care areas (such as close proximity of the staff charting area to infant beds), the design should nevertheless permit separate light sources with independent controls so that the different needs of sleeping infants and working staff can be accommodated to the greatest possible extent. 200 Lux at the plane of infant bed, adjustable Ambient lightening at least 50 to more than 600 Lux. Illumination level at nursing station- 150-300 Lux.

Acoustic environment

Noise-generating activities and gadgets (such as telephone sounds, staff areas, and equipment) should be acoustically isolated. Baby area, staff work areas, family areas, and sleeping areas and the spaces opening onto them shall be designed to produce minimal background noise and to contain and absorb much of the transient noise that arises within them. In baby rooms and adult sleep areas, the combination of continuous background sound and operational sound shall not exceed 45dB. Transient sounds shall not exceed 65 dB. In staff work areas and family areas, the combination of continuous background sound and operational sound shall not exceed 55 dB. This should be taken care of during construction and inbuilt in the specifications of the contract.

B. Disaster Management:

Newborns in MNCU/SNCU/NICU are highly vulnerable in a disaster because of their specialized needs and requirement for highly technical machine support. As such, preparation before a disaster event is critical to optimizing outcomes of sick newborns. It is important for the hospitals and providers to identify and prepare for the most likely disaster scenarios in their area (eg, earthquake, or flood) and to consider unanticipated events (eg, fires, gas leaks) that could necessitate emergency transfer or evacuation. A specialized triage and shifting arrangements must be made for newborns and infants, while maintaining sufficient emergency supplies of age and size appropriate equipment, vital drugs, injectables in a separate disaster storage cabinet, under direct supervision of nursing in-charge of emergency.

As per provisions of National building code 2016 (4.5.2-subdivision C-1) the health facility foundation and infrastructure shall be so designed, constructed, maintained and operated so as to minimize the possibility of a Fire emergency, to limit the development and spread of a fire by providing appropriate arrangements and reasonable degree of safety to reduce the probability of injury and loss of life from the effects of fire. The operative and maintenance procedures consisting of:

- Design and Construction;
- Provision of Detection, Alarm and Fire Extinguishment;
- Fire Prevention
- Planning and Training programs for Isolation of Fire; and,
- Transfer of occupants to a place of comparative safety or evacuation of the occupants to achieve ultimate safety.

Hospitals shall make provision for two levels of safety within their premises:

Comparative Safety: which is protection against heat and smoke within the hospital premises, where removal of the occupants outside the premises is not feasible and/or possible. Comparative Safety may be achieved through:

a. Infrastructure Modifications: Compartmentation, Fire Resistant wall integrated in the Flooring & Door of approved rating, Pressurized Lobby, Corridor, Staircase, Shaft (All vertical openings) and Independent Ventilation system with Alternate Power Supply
b. Automatic Detection System, Fire Dampers, Automatic Sprinkler System, Fire Fighting Appliances (n) Fire Alarm System
c. Refuge Area, Manual Call Point, First Aid, Fire Dampers, Public Address System, Signage, Fire Exit Drills and orders

Ultimate Safety: for complete removal of the occupants from the affected area to an assembly point outside the hospital building. Ultimate Safety may be achieved through:

a. Compartmentation
b. Fire Resistant Door of approved rating
c. Protected Lobby, Corridor, Staircase and Shaft
d. Public Address System
e. Signage
f. Fire Drills and orders

Improving disaster preparedness for newborn care units requires neonatal care providers to participate in emergency preparedness plans and activities within hospitals and communities. Drills and exercises are important components of maintaining disaster readiness. SNCU/NICU providers and staffs should be part of the periodic disaster simulation drills organized by their health facility, or regional, state, and local disaster management agency. The roles and responsibilities of all concerned staff should be clearly defined during such exercises.

Fire Safety: Plan of SNCU/MNCU should be an integral part of the facility's plan for prevention of fire. As a part of the fire safety plan of the facility there should be adequate fire-fighting equipment and a system of periodic training of staff by conducting mock drills regularly for fire and other disaster situations. Ensure that the unit has sufficient fire exit to permit safe escape to its occupants. Compliance as per state and center government guidelines for fire regulations should be ensured while planning for a health facility.

- **Facility:** Access & clearance of fire tender and rescue teams, availability of open spaces on each floor, clearly visible fire exits with proper illumination and lighting (even during interruption in electric supply) are some of the important considerations for creating fire safe infrastructure. Hospitals shall make provisions for sufficient open space in and around the hospital building by keeping it free of obstructions to facilitate the free movement of patient and shall not use for parking and/or any other purpose. Corridors to accommodate two passing trolleys easily along with some additional space for equipment. All two-way swing doors or doors in general circulation areas should be provided with vision panels giving a visibility from a height of 800 mm to 1500 mm.
- **Newborn Care Unit:** It is important for all the staff to be oriented regarding assembly points, details of all exit routes to be used for patients shifting and transfer & policy to evacuate SNCU in case of fire. The fire exits should be clearly visible and well -marked with no obstruction in the route of fire exits. Smoke detectors with fire alarm as well as fire extinguishers in the vicinity of the panel boards in front of the SNCU/MNCU may also be installed. These should be check regularly by the fire safety officers to ensure their functioning and maintenance

- **Instructions for Fire Safety for Hospital Staff Instructions for Personal Safety:** A write-up describing the procedure for emergency shut off, and location of main switch should be made available to SNCU staff members at all times All security guards manning fire exit doors should be trained in fire safety. Periodic monitoring and audit for fire safety and drills should be conducted and organized.All Hospital Staff should read the operating instructions and must know the location of the following:
  - MOEFA push button, fire alarm boxes
  - Fire extinguishers, hose reel, etc. provided on their respective floors
  - Nearest exit from their work area and their assembly point

- **Report to the Fire officer immediately if:**
  - If any exit door/route is obstructed by loose materials, goods, boxes, etc.
  - If any staircase/lift lobby door does not close automatically/completely. As a principle none of the fire exit doors should be kept locked. These doors should be fire resistant and can be opened towards outside with a push bar system on the doors.
  - If any push button fire alarm point or fire extinguisher is obstructed/damaged/ out of order.

During any fire incident in the hospital premises, staff should break the glass of the nearest fire alarm (if they are the first ones to discover the fire) and use fire extinguishers/hose reel provided on the floor

Complete SNCU/MNCU/NICU evacuation may be indicated in some circumstances and such plans should be arranged in advance. Planning may also include the use of specialized equipment (eg, moveable incubators) and neonatal transport ambulances. Planning should also prepare for possible separation of infants/newborns from their parents and families. Evacuation plans should include a mechanism to identify and track SNCU/NICU patients and caregivers during and after the disaster.

Earthquake Safety Provisions

To ensure the safety of hospitals and achieve the goal of 'safer and functional hospitals', mitigation measures (as presented in NBC) need to be undertaken. All New hospital buildings or hospital buildings being retrofitted in seismic zone IV and V, and hospital buildings in wind zones with basic wind speed 42 m/s or more, shall be instrumented with proper mechanism prescribed in NBC.

Post-Earthquake Assessment of Hospital Structures

Hospital buildings shall be inspected by competent licensed engineers after every damaging earthquake to document damages (if any) to Structural element (SEs) and nonstructural element (NSE)s of the buildings, along with recommendations for detailed study and suitable retrofitting as found necessary.

Electric power supply

Electrical installation is a specialized job and must be given due importance to ensure proper care with reduced risks to the patients.Refrigerants used in the Heating, Ventilation & Air-conditioning (HVAC) equipment should be CFC (Chloro-Fluoro Carbon) free, with a low Greenhouse warming potential (GWP) when available. The facility should have a plan for usage of renewable energy with battery backup during times of storms, floods or power blackouts

Unbalanced electric load in the facilities due to various equipment and installations and fluctuation in voltage can result in mis happening like electric fire hazard or can adversely affect the equipment. Adequate no. of electric points on the various walls (at < 1.5 m height from the floor) needs to be ensured for easy connection. Use of explosion proof plugs, plug connector and socket is essential to ensure safety against explosion. Use of low-energy LED lighting or alternate low-energy option to save indoor lighting energy cost is recommended

Clean electricity

The public health facilities should have access to adequate, affordable and reliable -free from voltage spikes and drops in electrical supply and dirty electricity. Fluctuating electrical supply & electrical pollution can cause electronics to perform poorly, especially microelectronics, and also can cripple the equipment.

Given the need of SNCU/NICU patients for intense technology support, planning for sufficient power during a disaster is critical, including backup generators. Backup power sources must be located in safe locations (protected by appropriate construction in earthquake-prone areas and high enough off the ground in flood-prone areas). Sensitive equipment should be provided with proper rating UPS for extra safety against disturbances as voltage spike and noise. New electrical appliances should have a minimum 3-star rating from Bureau of Energy Efficiency or equivalent recognized organization to minimize the energy input. Provision of power factor improvement for semiconductor material devices is useful.

Guidelines and standards issued by the Ministry of New and Renewable Energy must be adhered to (these are provided in the Gazette of India April 16, 2018, No 1456) for solar systems (with battery backup) in areas where electricity supply is known to be of lesser duration. Provision of uninterrupted power supply in critical areas with adequate power back up should be ensured. The facility should have a plan for usage of renewable energy with battery backup during times of storms, floods or power blackouts

Monitoring: Constant digital display for neutral and earthing should be there and the voltage between neutral and earthing should not more than 5 volt otherwise it can harm the semiconductor devices.

Additional Safety points for Electrical safety at the facility

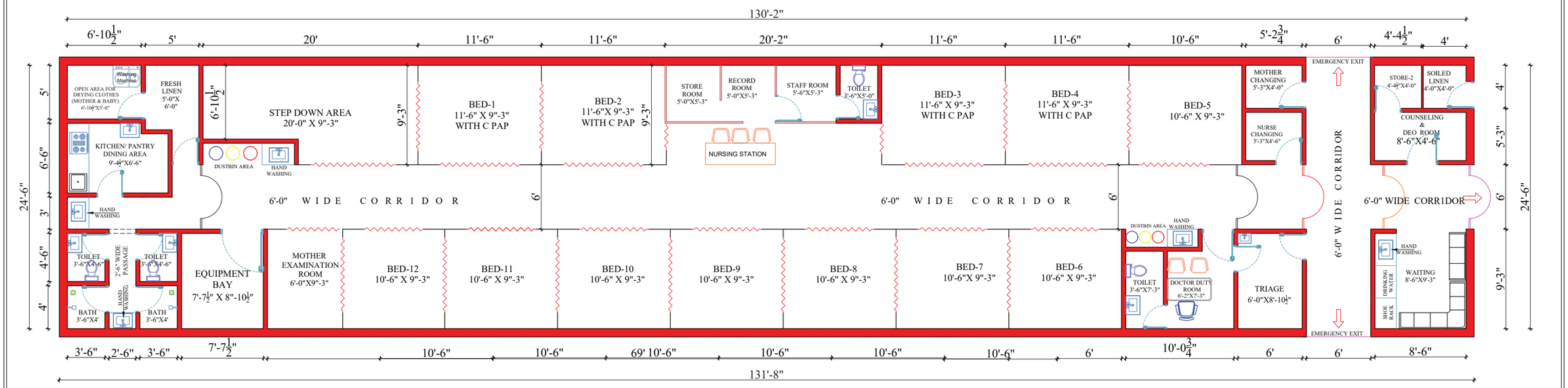
- Suitable place should be selected for electrical installation. Copper plate earthling (2 in number) should be there at each electrical installation.
- All the Connection and joint should be tight with proper size of thimbling.
- Provision of Electronic surge protection should be provided on the incoming mains. Surge suppressors of only units of high joules rating should be there.
- Balancing of electrical load calculation should be proper and monitored via measuring devices, accordingly the distribution, electrical switchgear rating, circuitry, cabling and electrical installation should be there. The size of cabling and wiring should be about 1.5 times or more to the actual electrical load calculated.
- **Electrical Switch Room** should be housed in a dedicated room/ cupboard located on the ground floor and in association with an external wall and shall have internal access and ease of services distribution from adjoining spaces or rooms and provide for economic distribution of services. The main switchboard shall be of metal clad cubicle design to approved standards and regulations. Each switchgear assembly shall have sufficient spare capacity. SNCU/MNCU has system for power audit of unit at defined intervals and records of same is maintained.

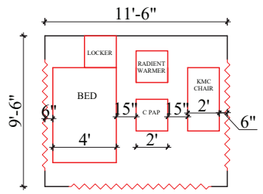
ANNEXURE 3: MENTORING CHECKLIST AND REPORTING FORMATS FOR SNCU AND NBSU

1. Emergency triage of new born
2. Management of a new born with emergency signs
3. Use of radiant warmer
4. Newborn resuscitation
5. Oxygen therapy in new born
6. Umbilical vein catheterization
7. Measuring oxygen saturation using pulse oximeter
8. Use of glucometer
9. Measuring temperature of a newborn
10. Management of severe hypothermia
11. Use of phototherapy unit
12. Management of neonatal seizures
13. Orientation on breastfeeding
14. Management of Sepsis in new born
15. Kangaroo Mother Care (KMC)
16. Technique for expressed breast milk and katori spoon/paladai feeding
17. Feeding with oro-gastric tube
18. How to clean self-inflating bag
19. Hand washing
20. Personal protective equipment (PPE)
21. Segregation of bio-medical waste and their disposal

Mentoring Checklist, reporting formates and Stationary for SNCU and NBSU are available online on NHM portal under Child Health guidelines:
https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1184&lid=368

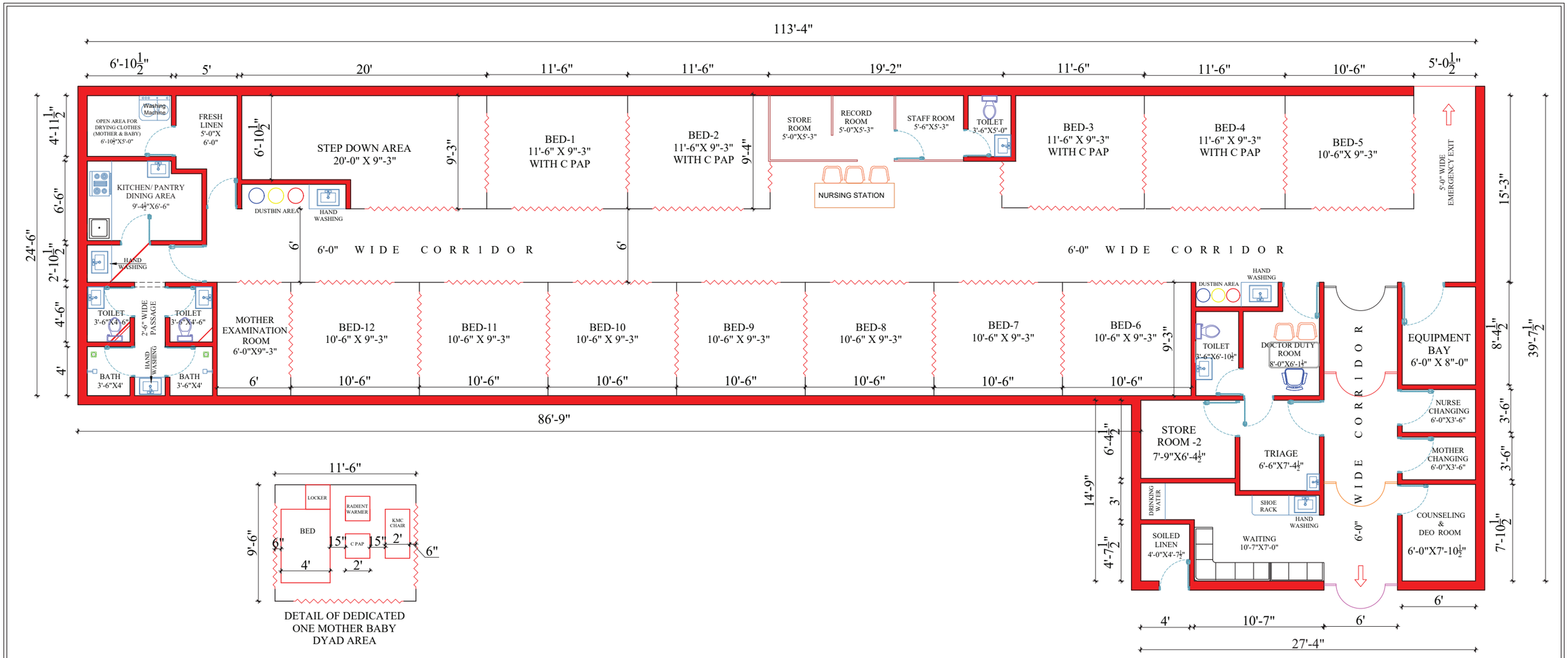
ANNEXURE 4:
LAYOUT PLAN FOR MOTHER NEWBORN CARE UNIT





DETAIL OF DEDICATED ONE MOTHER BABY DYAD AREA

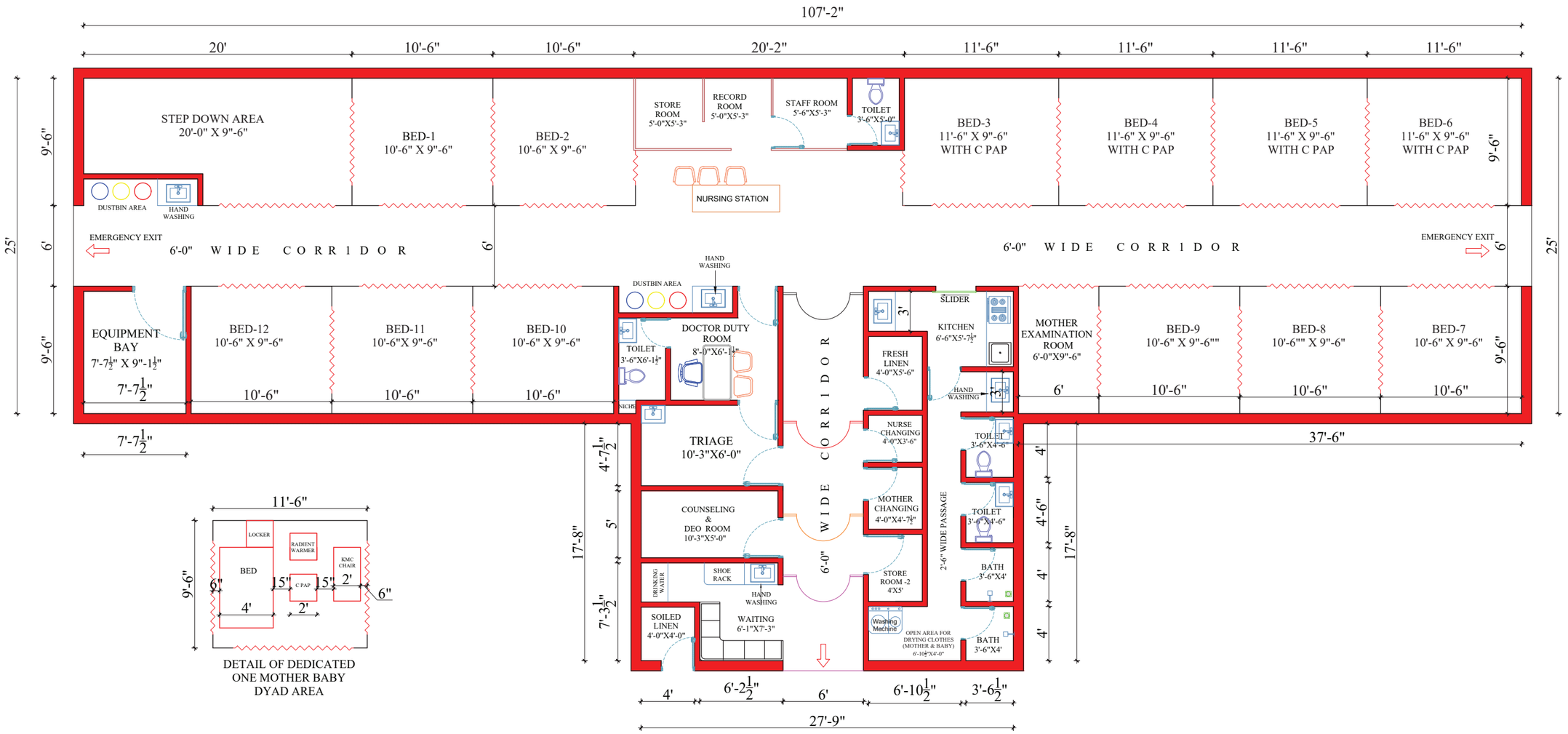
MOTHER-NEW BORN CARE UNIT DESIGN A	TOTAL COVD AREA=3190 SQ. FT	



DETAIL OF DEDICATED ONE MOTHER BABY DYAD AREA

MOTHER-NEW BORN CARE UNIT DESIGN B

TOTAL COVD AREA=3190 SQ. FT



DETAIL OF DEDICATED ONE MOTHER BABY DYAD AREA

MOTHER-NEW BORN CARE UNIT DESIGN C

TOTAL COVD AREA=3190 SQ. FT