

Regional Roaming Team

Assessment of Newborn Care Service in SCANU

Instruction for the Assessor

Assessors are requested to read this SOP to fill up the checklist 1 and the checklist 2 of assessing newborn service care service in SCANU. Each checklist is provided with recommendation and feedback. Assessors are requested to provide important recommendation and feedback to ensure quality newborn service.

Standard Operating Procedure (SOP): The SOP includes standard criteria for SCANU. Asepsis and housekeeping technique, disinfection protocol, minimum requirement of equipments and emergency drug list are provided in the annexure part.

Checklist 1: Purpose of checklist 1 is to assess physical facilities, availability of the necessary equipments and to check functionality of the available equipments.

Contents are-

- Checklist for assessing physical facilities
- Checklist for drug availability
- Case fatality rate of common newborn illness
- Information management status
- Status of emergency newborn stabilization corner, newborn corner at OT and Labour room
- Checklist for assessing quality improvement strategies in the SCANU
- Recommendation and feedback

Checklist 2: Purpose of checklist 2 is to document the SCANU performance indicator, human resource status and skill of the service provider.

Contents are-

- Checklist of hospital performance indicator
- Checklist for assessing human resource
- Checklist for assessing newborn care by the service provider
- Checklist for client satisfaction
- Recommendation and feedback

STANDARD OPERATING PROCEDURE (SOP) FOR NEWBORN CARE SERVICES IN SCANU

Special Care Newborn Unit (SCANU)

The Special Care Newborn Unit (SCANU) is a neonatal unit in the vicinity of the labour room that provides care to all sick newborns (except for those requiring assisted ventilation or major surgery).

Standard Criteria for SCANU Assessment Tools:

1. Room space (100 sq ft per Newborn):

Each newborn space shall contain a minimum of 100 square feet of clear floor space excluding hand washing stations and columns.

The 100 sq ft per bed of space should be utilized as follows:

- Baby care area: 50 sq ft per bed
- General support and ancillary areas: 50 sq ft per bed

2. Number of beds:

Universally special care should have a minimum of eight beds and a maximum of 16 beds. A unit with fewer beds become available and with more than 16 beds becomes unwieldy.

Consideration of factors such as availability of resources management capacity, technology and maintenance of a minimum level clinical experience point towards a minimum capacity of 10 to 12 beds.

3. Available Baby care areas for:

3.a) Inborn or intramural babies – all deliveries occurring within the health facility

3.b) Step down nursery – An additional five bed step down area where recovering neonates can stay with their mothers before discharge is of added advantage to a SCANU. This will relieve the pressure on the SCANU to some extent. However it depends on the availability of adequate space in the facility. The additional space requirement should be about 40-50 sq ft per bed: the space can be within the SCANU or in the vicinity or in the postnatal ward.

3.c) Out-born or extramural babies – newborns delivered outside the hospital (extramural) and being brought to the hospital for special care,

3.d) Examination area- (enough light, table and necessary instruments) This should include comfortable seating and allow complete visual and acoustic privacy.

3.e) Nurse's station and charting area – Along with the provision of charting space on each bedside, an additional separate area or desk for takes, such as compiling records, completing requisitions, etc. should be provided. Dedicated space can also be allocated for electronic medical record keeping.

- A clerical area in a 12-bedded SCANU should be located near the entrance to the supervise traffic into the unit
- Newborns charts, computer terminals and hospital forms may be located in this space

- Design of the unit must anticipate use of electronic medical record devices, such as computers, so that their introductions does not significantly disrupt functions of the unit or impinge on the space designed for other purpose

3.f,g) KMC corner and area for breast feeding and expression of breast milk –

Comfortable seating and privacy should be provided to allow mother to breastfeed comfortably

4. Hand washing station:

Hand washing stations should be so positioned that every newborn bed is within 20 feet (6 meters). Hand washing stations should be no closer than three feet (0.9 meters) from a newborn bed or clean supply storage.

- It should be a hands-free, elbow operated hand washing station
- Hand washing sinks should be large enough to control splashing and designed to prevent standing or retained water. Preferably, the hand washing sink should be 24'' wide 16'' front to back x 10'' deep.
- Space for pictorial hand washing instructions should be provided above all sinks.
- Walls adjacent to hand washing sinks should be constructed of non-porous/non-absorbent material to prevent growth of moulds
- Space should be provided for soap and towel dispensers, and for appropriate trash receptacles

5. Gowning area:

The unit should provide clear floor space, excluding entry work area, for gowning.

- A hands- free, elbow-operated hand-washing station for hand hygiene and areas for gowning and storage of clean and soiled materials should be provided near the entrance
- The room should have self-closing devices on all exits

6. Utility holding room:

6.a) Clean utility/holding area(s)

- Clean utility/holding area should be there for storage of frequently used supplies. Routinely used supplies such as diapers, linen, cover gown, charts etc. may be stored in this space. Space should also be provided for storage of syringes, needles, intravenous infusion sets and sterile trays.

6.b) Soiled utility/holding room

- This is essential for storing used and contaminated material before its removal from the care area.
- Unless used only as a utility room, this room should contain a counter and a hands-free hand washing station separate from any utility sinks
- Ideally the ventilation system in the soiled utility room should be engineered to have negative air pressure with all air being exhausted to the outside; a simple exhaust fan can also improve ventilation in the area.
- The location of the soiled utility room should be as such which will enables removal of soiled materials without passing through the baby care area.

7. Facility for autoclaving/Steam sterilizer: it should be available Linen washing/laundry area

If laundry facilities are not provided, a separate laundry room can serve the functions of laundry. Space should accommodate a washing machine with dryer which promotes the efficiency and effectiveness of the aseptic cleaning process.

8. Check list for Housekeeping in standard way:

Maintenance of asepsis is extremely critical in newborn care units. It requires laying down of clear housekeeping protocols and following them stringently. Details of asepsis and housekeeping protocols are mentioned in Annexure-1.

9. Regular supply of antiseptic solution/ disinfectants

10. Written instruction for waste disposal

11. Use of waste disposal instruction (Annexure-1: Use of Colored drums)

12. Availability of instruments (according to check list)

13. Baby Cot number: Five bed step down area (as mentioned previously in Step Down area)

14. Light sources:

• **Ambient lighting**

Perception of skin tones is critical in a SCANU, light sources should provide accurate skin-tone recognition. Light sources should be as free as possible of glare or veiling reflections.

• **Procedure lighting in baby care areas** Procedure lights with adjustable intensity, field size and direction can help protect an infant's eyes from direct exposure and provide the best visual support to staff. Procedure light that comes inbuilt with radiant warmers is often sufficient for procedures and no separate lights are required.

• **Illumination of support areas**

Illumination of support areas within the SCANU, including the charting area, medication preparation area, reception desk and hand washing area should be adequate.

• **Day lighting**

At least one source of daylight be visible from baby care areas, either from each room itself or from an adjacent staff work area. When provided, external windows in the rooms should be glazed to minimize heat gain or loss, and should be situated at least two feet (0.6 meters) away from any part of a newborn's bed to minimize radiant heat loss. Placing newborns too close to external windows can cause serious problems with radiant heat loss or gain and glare. Therefore, provision of windows in the unit requires careful planning and design.

15. Availability of functioning air condition

16. Temperature

The unit should be designed to provide an air temperature of 78.8o F to 82.4o F (26-28o-C)

17. Electrical outlet:

- Power supply- The unit should have 24-hours uninterrupted established power supply. Backup power supply is a must, with one or two outlets. To ensure this, a generator with 25-50KVA capacity and voltage stabilizer (3 Phase) of the same rating is needed. Monitors must have UPS
- Electrical outlet for individual beds- To handle equipment, 6-8 central voltage stabilized outlets are required per bed: 4 of them should be of 5 amperes and another 4 of them should be of alternate sockets for mobile bed-side X ray equipment or USG machine need to be planned
- Lighting of the unit- The unit should be well illuminated with adequate daylight. Panel of lights with cool white fluorescent tubes, preferably CFL or LED (light-emitting diodes) will be required for adequate illumination

18. Central oxygen supply

19. Central air supply

20. Registers for record keeping (updated with necessary information)

21. Availability of SOPs and protocol

22. Sitting arrangement for waiting outside the room

23. Space for caregivers

24. Space for doctors

- Space should be provided within the unit to meet the professional, personal and administrative needs of the staff.
- Rooms should be sized and located to provide easy access to the SCANU

25. Equipments functioning or not

26. Maintenance of Equipment:

A mechanism for maintenance of critical newborn care equipment is essential to ensure effective functioning of the medical devices, their longevity and best possible services.

- **Preventive maintenance**

Preventive maintenance consists of at least two planned technical visits per year, and includes and covers:

- ✓ Exchange of information with the end-user and technical staff about the status of the device
- ✓ Function and performance check-up of the device
- ✓ Technical check-up of device based on the manufacture's technical checklist
- ✓ Assessment of wear and tear of the device with notification if incorrect use of the device is noted
- ✓ Cleaning parts beyond reach, or capability, of the end-user

- ✓ Adjustment and calibration of the device
- ✓ All necessary materials to complete the preventive maintenance
- ✓ Repetition of user and technical training for current and new hospital staff
- ✓ All parts to be replaced; those which are most likely to break down within the next 6 months

- **On-call corrective intervention**

The objective is to intervene immediately and repair, limiting the downtime to the minimum. Hence, it includes and covers:

- ✓ On-site visit of service engineer/technician (s) with necessary spare parts, within a specified period of notification of the malfunction
- ✓ All necessary materials and spare parts to complete the repair
- ✓ Availability of spare parts for the technical lifetime of the device, approximately five years
- ✓ In case the device cannot be repaired on-site and the device is to be evacuated, a similar replacement model should be provided for the period of the repair

27. Availability of the drugs: (also in Annexure-2)

- Depending on the priority of services, the listed items are classified as essential, designated as 'E' (those must be available) and desirable, designated as 'D' (these could be available if resource are available). For each of the items, it has been identified whether installation, commission and training is necessary.
- Equipment, which has potential implication on civil, mechanical and electrical systems of the unit, are also identified in the list.
 - a. Civil implications: Equipment that has implications on the physical structure of the unit/building, such as item that are wall or ceiling mounted
 - b. Mechanical implications: Items that have implications for the mechanical infrastructure, such as items require hot/cold water supply, oxygen supply etc
 - c. Electrical implications: Items that have implications for the electrical installation of the unit, such as equipment which require high/low voltage/uninterrupted electric supply

28. Checklist for Essential and Emergency drugs for neonatal care (Annexure-3)

Annexure 1: Asepsis and Housekeeping Protocols

1. Basics

1.1 Basic requirements for asepsis in a baby care area

- ✓ Running water supply
- ✓ Soap
- ✓ Elbow or foot operated taps
- ✓ Strict hand washing
- ✓ Avoid overcrowding optimal number of nurses for care of more babies
- ✓ Plenty of disposables
- ✓ Rational antibiotic policy
- ✓ Obsession with good housekeeping and asepsis routines

Guidelines for ENTRY in the baby care area

- ✓ Remove shoes, socks, woolens, watch bangles and rings, Roll up the sleeves up to elbow
- ✓ Put on the earmarked slippers, wash hands with soap and water for two minutes (follow six steps of hand washing)
- ✓ Put on sterile half sleeve gown

Personnel with active infection should not be allowed entry into the baby care area.

1.2 Sterile gloves

- ✓ Always use sterile gloves for invasive procedures like sampling, starting intravenous lines, giving intravenous injections, etc
- ✓ Wash gloved hands to remove the blood stains and secretions. Remove gloves and put in the polar bleach bucket. Wash hands again with soap and water
- ✓ Used gloves should be cleaned, dried, powdered and packed in paper (e.g., a piece of newspaper) for re-autoclaving
- ✓ Adequate number of pairs should be prepared every day. Once can use disposable gloves, if available

1.3 Full sleeve gowns and masks.

- ✓ Use them for all invasive procedures e.g. lumbar, puncture, blood exchange transfusion, etc.

SOP 38

1.4 Other basics

- ✓ Keep separate sprite and betadine swab containers, stethoscope, tape measure and thermometer for each baby
- ✓ Change intravenous sets daily or as per set routine
- ✓ Feeding tubes as long as baby can keep
- ✓ Do not keep FOMITES, e.g. files, X-ray films, pens, etc. on the baby cot
- ✓ Change antiseptic solution in SUCTION BOTTLES and sterile water in oxygen humidification chambers everyday and sterilise the bottles/chambers daily by dipping in 2% gluteraldehyde for 4 to 6 hours

1.5 Nursery environment

- ✓ Floor should be cleaned with diluted phenyl once in each nursing shift and when required
- ✓ No dry mopping, only wet cleaning should be done
- ✓ Clean the walls with 2% of bacillocid once in each nursing shift
- ✓ Dustbin should be washed daily with soap and water. Polythene should be changed daily or whenever full

2. Hand Washing

- ✓ It is the single MOST IMPORTANT means of preventing nosocomial infections
- ✓ It is VERY SIMPLE and CHEAP

2.1 Hand washing norm

- ✓ Two- MINUTES hand washing (6 steps) to be done before entering the unit.
- ✓ 20 second hand washing with alcohol based hand rubs to be done before and after touching babies

2.2 Steps of effective hand washing

- ✓ Roll Sleeves above elbow
- ✓ Remove wrist watch, bangles, rings etc
- ✓ Using plain water and soap, wash parts of the hand in the following sequence
- ✓ Palms and fingers and web spaces

1. Back to hands
2. Back of hands
3. Fingers and knuckles
4. Thumbs
5. Fingers tips
6. Wrists and forearm up to elbow

Once you have washed your hands, do not touch anything, e.g. hair, pen or any fomite, till you carry out the required job.

- ✓ Keep elbows always dependent, i.e. lower than your hands
- ✓ Close the tap with elbow
- ✓ Dry hands using single-use sterile napkin or autoclaved newspaper pieces
- ✓ Discard napkin to the bin kept for the purpose. If newspaper pieces, discard in the black bucket
- ✓ Do not keep long or polished nails

Remember- Rinsing hands with alcohol is NOT A substitute for proper hand washing.

Poster on hand washing should be displayed at all hand washing stations.

3. Skin preparation for venepuncture and other procedures

Skin preparation is an important part of asepsis routines. It should be performed meticulously to avoid entry of pathogens during insertion of IV cannula, pricks or procedure. Always wear sterile gloves after two minutes of thorough hand washing. The procedure of skin preparation is given in the box below.

Skin preparation for venepuncture

Steps

1. Wash and dry hands
2. Wear sterile gloves
3. Prepare skin site, confine to smallest possible area of skin
4. Swab with alcohol first, allow it to dry
5. Swab iodine on site and allow it to dry
6. Swab again and alcohol to wipe off iodine, allow it to dry
7. Skin is now ready for puncture or prick

4. Other recommendations

- ✓ Never use stock IV fluids. Do not use a single dextrose/saline bottle for > 24 hours
- ✓ Label the bottle with date and time of opening
- ✓ After seal is removed, first clean with sprite swabs, then use Betadine soaked sterile cotton to cover the stopper of the bottle
- ✓ Change the burette set every 24 hours or as per policy of your unit
- ✓ Use syrups within 1 week of opening, write the opening date
- ✓ Antibiotics vials to be changed after 24 hours. E.g. injections Ampicillin or Cefotaxime
- ✓ There is no need for flushing with heparins saline to keep the IV line patent
- ✓ Use separate IV line of giving antibiotics (do not open the IV fluid line for giving injection)

Safe disposal of hospital waste

Proper disposal of hospital waste is important to keep the environment clean. The waste should be disposed of in a proper way. All health professionals should be well conversant with their local hospital policies for waste disposal, which may vary from place to place.

Color coded disposal drums/bags

The following are the different colour drums with different colour polythene for different types of waste, to be disposed of in a different way.

a. Black drums/bags

Left-over food, fruit, feeds, vegetables, waste paper, packing material, empty boxes, bags, etc. This waste is disposed of by routine municipal machinery.

b. Yellow drums/bags

Infected non-plastic waste, e. g human anatomical waste, blood. baby fluids, placenta, etc. This type of waste requires incineration.

c. Blue drums/bags

Infected plastic waste such as used disposable syringes, needles (first destroy the needle in the needle destroyer). Used sharps, blade and broken glass should be discarded in puncture proof containers before discarding. patients IV set, BT set, Et tube, catheter, urine bag, etc. Should be cut into pieces and disposed of in blue bag. This waste will be autoclaved to make it non-infectious. This is then shredded and disposed of.

Disinfection Protocol

Name of Equipment	Disinfection Method	Other Considerations
Baby line, blanket, blanket cover	Wash and autoclave	Use autoclaved linen each time
Cotton gauze	Autoclave, as required	Every time use autoclaved cotton
Feeding utensils (cup, spoon, etc.)	Wash with soap and water before each use then boil 10 minutes	
Swab container, injection and medicine tray	Wash with soap and water/autoclave	Daily morning shift use separate swab containers for each baby.
Sets for procedures	Autoclave	After each use every 72 hours if unused
Chattel forceps	Autoclave	Daily put in sterile autoclaved bottle contain gin dry sterile cotton
Stethoscope, measuring taps, thermometer, swabs BP cuffs, probes of Radiant warmer/ Incubator pulse oximeter	Clean and sprite	Daily
Laryngoscope	Clean with spirit swab thorough with spirit swab thorough daily and after each use	If used for an infection baby, wash with soap and water. Put the blade in 2% gluteraldehyde warp in autoclaved cover and mark date on the cover.
Oxygen hood	Wash, soap & water	Daily, dry with clean linen
Face mask	Clean with soap and water, immerse in gluteraldehyde for 20 mins. Rinse in distilled/running water. Dry and wrap with autoclaved	Daily, dry with clean linen.
Resuscitation bag and reservoirs, oxygen tubing, bottle and tubing of suction machine	Clean with soap and water after dismantling immerse in gluteraldehyde for 4 – 6 hours. Rinse in distilled water. Dry wrap in autoclaved lined and put a date.	Weekly for resuscitation bag and reservoir. Daily for others. Use savlon for suction bottles, change daily.
Weighting machine	Wipe with 2% Bacillocid	Daily morning shift and when required.
Radiant warmer and incubator	Clean with soap water daily, if occupied, if unoccupied, clean with 2% Bacillocid	Daily

Annexure-2: Availability of Equipments

Item description	Essential	Desirable	Quantity for 10 bed unit	Installation	Training	Civil	Mechanical	Electrical
1. Open care system: Radiant warmer (fixed height) with trolley, drawers, O2-bottles	E		2					
2. Open care system: radiant warmer (fixed height) with trolley	E		4					
3. Radiant warmer with fixed height stand	E		2					
4. Basinet with mattress	E		2					
5. Phototherapy unit (single head and high intensity)	E		4					
6. Bag and mask	E		6					
7. penguin sucker for neonate	E		6					
8. Laryngoscope set for neonate	E		2					
9. Portable Suction Pump	E		2					
10. Foot operated Suction Pump	E		2					
11. Surgical instrument. suture/SET	E		2					
12. Syringe pump (10, 20, 50 ml) single phase	E		2					

Item description	Essential	Desirable	Quantity for 10 bed unit	Installation	Training	Civil	Mechanical	Electrical
13. Oxygen hood	E		6					
14. Digital Thermometer (32-43°C)	E		20					
15. Electronic Baby Scale, (10 kg <5g)	E		2					
16. Bedside neonatal Pulse oxymeter	E		6					
17. Apnea monitor		D	3					
18. Neonatal stethoscope	E		12					
19. Neonatal electronic Sphygmomanometer	E		2					
20. Mobile examination light (220-12V)	E		3					
21. Centrifuge machine including rotor (hematocrit upto 12000 rpm)		D	1					
22. Hb estimation- Photometer		D	1					
23. Syringe Hub cutter		D	2					
24. Measuring tape (vinyl-coated, 1.5m)	E		6					
25. Kidney tray (stainless steel, 825ml)	E		8					
26. Dressing tray (ss, 300x200x30mm)	E		4					

Item description	Essential	Desirable	Quantity for 10 bed unit	Installation	Training	Civil	Mechanical	Electrical
27. Double hook infusion stand on castors	E		10					
28. Portable X-Ray		D	1					
29. Glucometer	E		2					
30. Room Heater	E		4					
31. Room humidity/temperature meter	E		1					
32. Functioning computer with printer and accessories	E		1					
33. Functioning Wall Clock	E		1					
34. Gowns for staffs and mothers	E		20					
35. Neonatalie Complete (Neo Natalie Newborn Simulator + Bag & Mask + Penguin sucker)		D	4					
35. ARI Timer	E		1					

Annexure-3: Essential & Emergency Drug List

No	Drugs
1.	Inj. Ampicillin (250 mg)
2.	Inj. Gentamicin (20 mg) for IM
3.	7.1% Chlorhexidine solution
4.	Nystatin drop
5.	Gention Violet (1%)
6.	Chloramphenicol Eye drop
7.	Inj. 25% Glucose
8.	Inj. Aminophylline
9.	5% Dextrose in 0.225 saline
10.	10% Dextrose in 0.225 saline
11.	Inj. Adrenaline(1:10,000)
12.	Inj. Phenobarbitone
13.	Normal Saline
14.	Inj. Flucloxacillin (250mg)
15.	Inj. Ceftazidime (250mg)/ Cefotaxime (250mg)
16.	Inj. Amikacin (100mg)

Annexure-4: Calculation of Mortality Rate of Newborn

SCANU mortality rate =

Total number of death in SCANU X100

Total admitted newborn in SCANU

$$= \frac{(C+D) X100^*}{B}$$

Inborn mortality rate =

Total number of inborn death X100

Total number of newborn delivered

$$= \frac{C X100^*}{A}$$

A= Total no of delivery

B= Total admitted newborn in SCANU

C= Inborn death in SCANU

D = Out born death in SCANU

Annexure -5: Calculation of Case Fatality Rate (CFR)

$$\text{CFR} = \frac{\text{Total number of death due to disease X100}}{\text{Total number of that disease}}$$