

Part B – Health Facility Briefing & Design
135 Intensive Care Unit – Neonatal (NICU)



iHFG

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135 Neonatal Intensive Care Unit (NICU)

1 Executive Summary

The Intensive Care Unit – Neonatal, commonly referred to as NICU is a specialised unit for the care of premature, medically unstable or seriously ill newborns who require constant close monitoring and interventions to preserve normal physiological functioning. NICU may be provided in a hospital at RDL 4 to 6.

NICU is the infant version of the adult ICU and as such has many of the same features. The Stepdown version of NICU is referred to as Special Care Nursery (SCN) or Special Care Baby Unit (SCBU), which is similar to HDU in the adult version.

There are various operational models that can be used such as an Integrated NICU/ Special Care Unit (NICU-SCN), suited in smaller hospitals. In larger hospitals at RDL 5 and 6 it is advisable to separate NICU from SCN.

A minimum of 50% of babies in NICU must be accommodated in fully enclosed single rooms. The balance of the babies may be in shared rooms but within discrete bays. These bays will be regarded as SCN. If SCN/ SCBU is physically separated from the NICU department, then 100% of the NICU babies must be in single fully enclosed rooms and the separate SCN/SCBU's may be in bays.

The Unit will have the required supporting facilities including an area for expressing milk & breast feeding. Adequate space for family members to visit on a regular basis or to stay overnight during the duration of the baby's admission is highly recommended.

The Functional Relationship Diagrams depicts the ideal internal relationships between the key rooms and the external relationships with other key FPU's (hospital departments) and services. There are 4 permutations of the planning model illustrated: a NICU unit, NICU back-to-back to SCN, an SCN Unit and an integrated NICU/ Special Care Unit.

Design Considerations address a range of important issues including Finishes, Accessibility, Acoustics, Safety and Security, Building Services, and Infection Control.

The typical Schedule of Accommodation (SOA) is provided using Standard Components (typical room templates) and quantities for the rooms. The SOA is presented for several different facility sizes and guide the designers to create their project-specific SOA's.

For each of the nominated room types within the SOA the code link to the corresponding Room Data Sheets (RDS) and Room Layout Sheets (RLS) has been provided. Readers may use those codes to access this information on the rooms in the section titled Standard Components on the website.

Further reading material is suggested at the end of this FPU but none are mandatory.

Users who wish to propose minor deviations from these guidelines should use the Non-Compliance Report (in Part A appendices) to briefly describe and record their reasoning based on models of care and unique circumstances. The responsible Health Authority may then consider the circumstances and accept such deviations.

The details of this FPU follow overleaf.

2 Introduction

The Neonatal Intensive Care Unit (NICU) is a specialized unit for the management of premature, medically unstable or critically ill newborns with severe and life-threatening conditions requiring constant close monitoring and interventions to maintain normal bodily functions. The Unit will be staffed by specialized doctors and nurses who coordinate technological and therapeutic resources to care for the critically ill babies.

NICU may be provided in a hospital at RDL 4 to 6.

3 Functional & Planning Considerations

Operational Models

There are various operational models that can be used in NICU as outlined below:

Integrated Neonatal Intensive Care/ Special Care Unit (NICU-SCN)

The integrated Neonatal Intensive Care (NICU) - Special Care Nursery (SCN), which will be developed in a 'Pod' arrangement with shared support services, will care for neonates and Special Care Nursery babies in the same unit. The two sections (NICU and SCN) will be zonally separated within the same unit. SCN is for the care of babies with less severe conditions and is seen as step-down from NICU.

This operational model is suited in smaller hospitals if bed flexibility is required. In the short and medium term, the rooms/ bays in an integrated Neonatal & Special Care Unit will be used to manage critically ill and medically unwell neonates, allowing for staffing and patient management flexibility, as well as allowing the babies to transition from being very sick to being discharged within the same geographic area. Special Care Nursery is sometimes referred to as the Special Care Baby Unit or SCBU.

In larger hospitals at higher Role Delineation Levels (RDL 5-6) and higher level of specialization, it is advisable to separate NICU from SCN as explained below.

Separate Units – Neonatal Intensive Care (NICU) and Special Care Nursery (SCN)

This model refers to separate Neonatal Intensive Care (NICU) and Special Care Nursery (SCN) with independent management structures.

The advantages of this model include independent bed management control which encourage physicians and nurses to develop specialty skills. It also allows for the independent placement of each Unit and collocation with other services with specific functional relationships with these units.

For example, NICU may be located on the "Hot Floor" (refer to Intensive Care Unit - General) whilst the SCN may be collocated with the Birthing Unit and Maternity Unit.

The disadvantages include duplication of management, policies and procedures, as well as physical isolation of units that may make staffing more difficult.

Models of Care

The NICU should be in a location that eliminates traffic and avoids (or minimizes):

- Disturbing sounds (ambulances, traffic, sirens)
- Disturbing sights (morgue, cemeteries etc.)
- Problems associated with prevailing weather conditions (excessive wind)
- Excessive sun exposure

In the ideal configuration of NICU, all bed baby/ cots/ incubator bays should be visible from the Staff Station. In larger units where this cannot be achieved, decentralized workstations or reporting bays with computer support should be provided for direct observation.

Baby-centred or family-centred spaces may be considered, and adequate space should be provided for family members to visit on a regular basis or to stay overnight within or adjacent to the unit for the duration of the baby's admission.

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A minimum of 50% fully enclosed NICU rooms must be provided within an integrated NICU-SCN operational model. The balance of the bays may be provided in multi-bedded rooms, separated by privacy curtains.

Single occupancy enclosed rooms are required for the purposes of isolation, privacy or end of life management while multiple bays within one room may be provided in clusters/ pods to maximize observation and staff efficiencies.

Consideration should be given to multiple birth cots as collocation of siblings in one space is usually recommended.

Functional Areas

The NICU - will consist of the following Functional Areas:

- Entry/ Reception including:
 - Waiting, with play areas for children
 - Meeting/ Interview Room
 - Public toilets that may be shared with other units
 - Gown-up/ Gown-down facilities for visitors
- Intensive Care/ Special Care Nursery Areas incorporating:
 - NICU cot bays/ room(s)
 - NICU Isolation Room(s), negative/ positive pressure with Anteroom as required
 - SCN cot bays/room(s)
 - SCN Isolation Room(s), negative/ positive pressure with Anteroom as required
 - Bathing/ Examination area
- Support Areas including:
 - Bays for blanket warmer, linen, resuscitation trolley/s, handwashing basins, mobile equipment and laboratory testing
 - Cleaner's Room
 - Clean and Dirty Utilities
 - Medication Room
 - Clean-up Room for equipment and cots
 - Disposal room
 - Feeding room
 - Formula Room
 - Procedure Room
 - Store rooms for equipment, general supplies and sterile stock
- Parent Support Areas (optional but highly recommended):
 - Parent Lounge/ Dining and Kitchenette
 - Parent Overnight stay Bedroom with Ensuite
 - Parent Property Bay – locker area
 - Toilets
- Staff Areas including:
 - Meeting Room/s
 - Change rooms with Toilets, Shower and Lockers
 - Offices and Workstations for administrative activities

- Staff Room

The Functional Areas are briefly described below.

Entry/ Reception/ Waiting Areas

Depending on the size of the NICU and the hospital's operational policy, a Reception and Waiting area shall be provided immediately outside the entry to the unit, but away from general patient and staff traffic areas. This room should have a drink dispenser, television and a comfortable seating area. A children's play area should be adjacent to or integrated into this space. Access to an Interview/ Meeting Room should be immediately available for parent conversations with the clinicians. This room is also used by distressed families/ relatives.

NICU Areas

Incubator Bays or Rooms, Isolation rooms and other support rooms will be provided according to the Service Plan. However, no less than 50% of the total NICU bays shall be in fully enclosed rooms, one per patient. The balance of the babies may be accommodated in shared rooms but within discretely defined bays and regarded as Special Care Nursery (SCN) or Special Care Baby Unit (SCBU). In this context SCN/SCBU will be seen as step-down from NICU, managed by shared staff.

If SCN/ SCBU is physically separated from the NICU department, then 100% of the NICU babies must be in single fully enclosed rooms and the separate SCN/SCBU's may be in bays.

As a minimum two negative pressure isolation rooms with associated ante-rooms should be provided for up to 12 NICU rooms or SCN/SCBU bays or a combination of NICU rooms and SCN/SCBU bays. The provision of a positive pressure isolation room with ante-room will depend on the facility's operational policy. However, this provision is highly recommended.

Staff must be able to see newborns directly at all times in order to monitor their status in both normal and emergency situations. This may be accomplished by a direct line of sight from the Staff Station. If this is not possible due to the size and geometry of the unit, then a series of decentralized reporting stations may be located between each two NICU rooms or bays with direct observation of each baby.

Sliding glass doors and partitions may facilitate this arrangement and maximize access to the single bedrooms when an emergency arises.

Within the NICU rooms, it is advisable to provide space for a recliner for mothers to stay with the baby overnight, if necessary. The recliner space should have a privacy curtain for privacy, if required.

Procedure/ Treatment Room

A Procedure/ Treatment Room shall be provided if required by the Operational Policy within or immediately adjacent to the area it's required to serve.

Equipment Clean Up Rooms

Within the NICUs, a dedicated space for cleaning cots, incubators, dismantling & cleaning respiratory equipment is required.

If the units are collocated this space/ area can be shared. Its location should be chosen so that it is easily accessible to all the bed/ cot bays, allowing for easy cleaning and reuse of equipment components.

The facilities for the maintenance of the Respiratory equipment should be separated, along with a respiratory store.

To allow for the mobility of clean, and used equipment, the facility should be sound-proofed and preferably accessible from a non-sterile environment or service corridor.

Laboratory Facilities

The NICU must have available 24-hr clinical laboratory services. When this service cannot be provided by the central hospital laboratory, a satellite laboratory within or immediately adjacent to the NICU must be able to provide as a minimum Biochemistry and Haematology testing, including Arterial Blood Gas analysis.

Feeding/ Expressing Room

An area for expressing milk & breast feeding for up to 3-4 mothers is required and should be located within the unit. The area should be comfortable and peaceful. Mothers and staff should be able to access it in a friendly setting to encourage newborns to breastfeed.

Storage Areas

Mobile X-ray units and resuscitation trolleys should be stored in areas that are out of the way of traffic yet accessible to employees when the equipment is needed. Multiple mobile storage bays for mobile equipment may be required. A resuscitation trolley bay must be provided and be visible from the Staff Station.

Parent Support Areas

Depending on the size of the Unit, overnight accommodation with Lounge and refreshment preparation facilities may be required for families. The family lounge may be located adjacent to the NICU or in a centralized area in close proximity to the unit. Parents with severely ill newborns may be allowed to stay in the overnight stay room. The unit design should include one or more overnight stay rooms for them.

Some mothers may be allowed to stay within the NICU room with the baby overnight. As such, the provision of a recliner with a privacy curtain around it is recommended. The actual use of such a facility within the NICU room will be up to the unit management and subject to the clinical condition of the baby.

Staff Facilities

Offices and workstations will be required for senior staff in full-time administrative roles according to the approved positions. Offices and workstations for medical staff and some nursing staff may be located within the units or adjacent in an administrative area, to facilitate unit co-ordination, educational and research activities.

A Staff Room shall be provided within the unit for staff to relax and prepare meals and beverages.

Provide staff with close access to toilets and showers, lockers and meeting rooms so that they do not have to leave the Unit.

Functional Relationships

The following functional relationships apply.

External

Provide ready access to:

- Emergency Unit (including ambulance bay)
- Birthing Unit
- Operating Unit
- Medical Imaging
- Laboratory Services
- Biomedical Engineering
- Support services including Housekeeping, Supply, Catering, Morgue and Clinical Information

Internal

Optimal internal relationships to be achieved include:

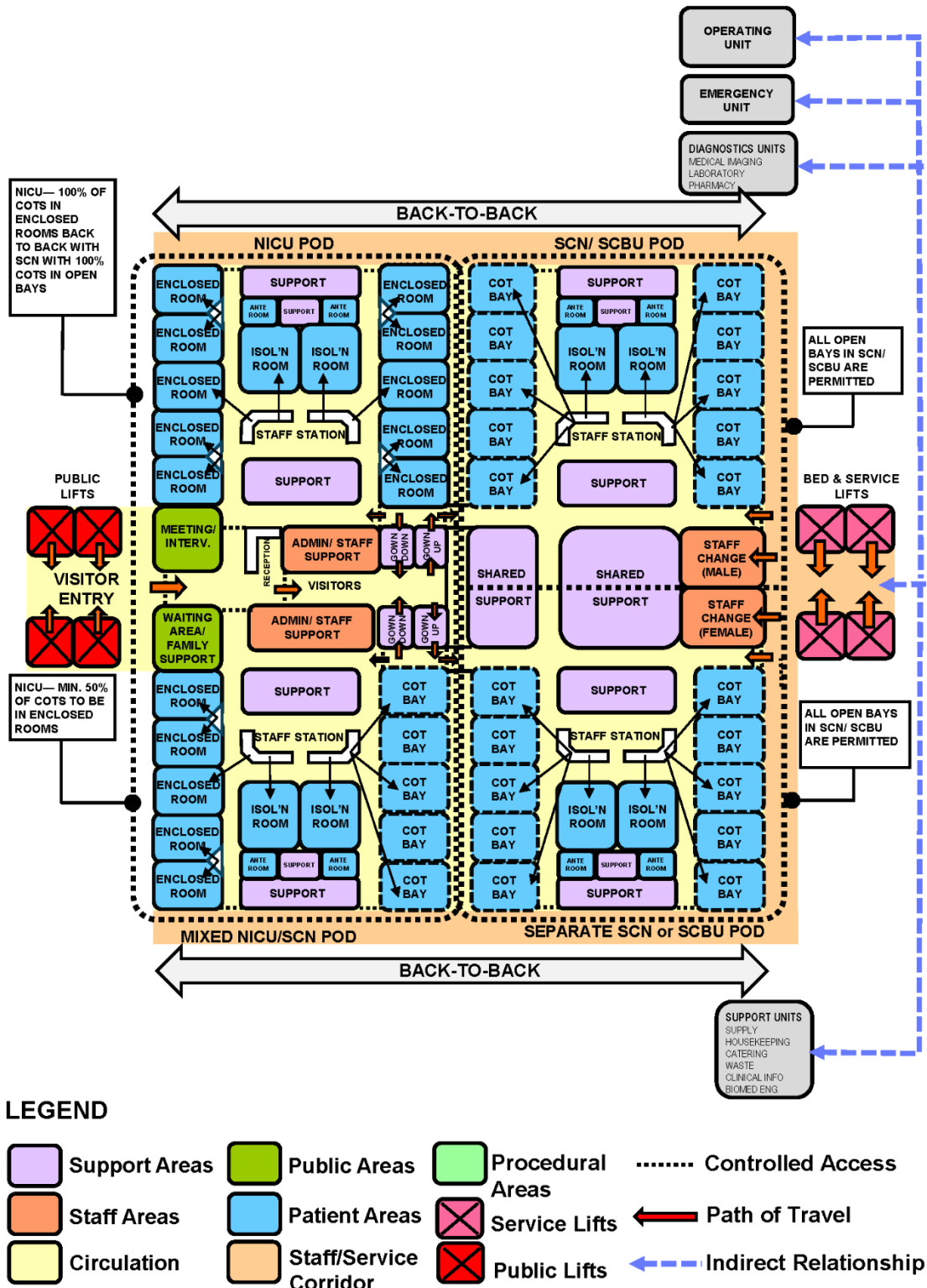
- Staff station/ Reporting stations which require direct access and observation of cots
- Utility and storage areas readily accessible by staff
- Public areas located on the perimeter of the unit
- Shared areas easily accessible from the units served
- Family Support on the perimeter or just outside the unit

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- Support services accessed via a staff/ service corridor

These functional relationships are best described in the diagram below.

Functional Relationship Diagrams



Note: In SCN/SCBU all cots may be in open bays except Isolation which must be in fully enclosed isolation rooms with anterooms.

4 Design Considerations

General

Refer to Part C for Ergonomic issues, Part D for Infection Control, and Part E for Engineering requirements.

Patient Treatment Areas

Staff must have direct or indirect visualisation of neonates at all times to permit the monitoring of patient status under both routine and emergency circumstances. The preferred design is to allow a direct line of vision between the patient and the central Staff Station or separate Reporting Stations. If decentralised staff stations are provided, then patients should be visible from their respective nursing substations.

Sliding glass doors and partitions facilitate this arrangement and increase access to the single bedrooms in emergency situations.

Environmental Considerations

Acoustics

Sound signals from patient call systems, alarms from equipment and telephones can add to the sensory overload of patients in critical care/special care. These signals should be modulated to a level that will alert staff members and be rendered less intrusive to patients.

In addition considerations for infection control, maintenance, and equipment mobility demands, acoustic floor coverings, walls and ceilings should be considered for these reasons.

To decrease sound transmission, doorways should be offset rather than located in symmetrically opposed positions.

Counters, barriers, and glass doors that do not obstruct view can also help reduce unwelcomed noise.

Refer to Part G of these Guidelines.

Natural Light

Controlled natural lighting for NICU rooms/ bays is desirable but not mandatory. Natural light may be provided directly via windows or through borrowed light from adjoining corridors, spaces or atrium spaces.

Excessive natural light or direct sun exposure is regarded as undesirable and should be avoided.

Interior décor

Colours, particularly the bold primaries and green should be avoided in areas where clinical observation occurs such as bedrooms, treatment areas and corridors. Such colours may prevent the accurate assessment of skin tones e.g. yellow / jaundice, blue / cyanosis, red / flushing.

Space Standards and Components

Accessibility

Ideally there should be separate and discrete entry for staff, goods and supplies with swipe card or similar electronic access to authorized personnel. Provide ready access to:

- Birthing Unit
- Maternity Inpatient Unit
- Emergency Unit (including ambulance bay)
- Operating Unit
- Medical Imaging Unit
- Morgue
- Supply Unit
- Other back-of house and support areas

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Provide public access for parents and visitors including connections to:

- Car parking
- Main Entrance Unit
- Amenities such as cafeteria or coffee shop (if provided)
- Family support areas such as parents lounge, overnight rooms, meeting rooms and prayer rooms

There should be only one point of public entry overseen by a NICU clerk/ receptionist during extended daytime hours to:

- Monitor and/ or prevent access by visitors depending on the patient's condition
- Advise visitors if patients have been moved or are out of the unit for any reason
- Monitor visiting staff and direct them to the appropriate staff member or patient
- Monitor patient movements in and out of the unit via the gown-up/ gown-down rooms

Doors

A minimum of 1200mm clear opening is recommended for doors requiring cot/ trolley access.

Also refer to Part C - Access, Mobility and OH&S of these Guidelines.

Bed Spacing/ Clearances

Cot/ incubator spaces should be placed with appropriate clearance from the side and bottom of the cot or incubator to the nearest fixed obstruction (including bed screens) or wall.

The arrangement of cots/ incubators in NICU rooms must be such that a nurse or doctor can walk right around without any interference with electrical or medical gas lines. As such, this will require the use of ceiling mounted service pendants with swivel arms in a similar manner to adult ICU.

In SCN/ SCBU, however, the services may come from a service panel at the head of the cot/ incubator. Such a service panel may be mounted on the wall or on a service column.

Drug Storage

The NICU shall include lockable drug storage within the Clean Utility or Medication room/s. Refer to Standard Components Clean Utility/ Medication and Store-drugs Data Sheets and Room Layout Sheets for further details.

Note: Storage for dangerous drugs must be in accordance with the relevant regulations.

Safety and Security

In addition to the security guard, entrance doors need to be secured to prevent unauthorized access. A video intercom with speech should be provided from entrance and exit door to main staff reception complete with door release button for staff access control. Security surveillance of the Unit may include CCTV cameras and monitors.

Special baby monitoring security tags system (such as RFID risk tags) must be employed throughout the NICU and all doors connecting to it. Including fire doors, smoke doors, public and staff entrance doors. Such special security system is intended to alert the un-authorized exit of a baby, to prevent baby abduction.

Milk Storage

Breast milk storage freezers and refrigerators must be secured or kept within a lockable formula room with access restricted to staff or mothers under staff observation to guarantee the correct milk is delivered to the right infant.

Finishes

The aesthetics of the Unit should be warm, relaxing and non-clinical as far as possible. The following additional factors should be considered in the selection of finishes:

- Acoustic properties
- Durability
- Ease of cleaning
- Infection control
- Fire safety
- Movement of equipment, floor finishes should be resistant to marring and shearing by wheeled equipment

In all areas where patient observation is critical, colours shall be chosen that do not alter the observer's perception of skin colour.

Wall protection should be provided where bed or trolley movement occur such as corridors, patients' bedrooms, equipment and linen storage and treatment areas.

Fittings, Fixtures & Equipment

Window Treatments

Window treatments should be durable and easy to clean. Within NICU, window curtain or blinds with horizontal blades may not be utilised. Vertical blinds, holland's blinds and venetian blinds (within double glazing) may be utilised.

Bedside Monitoring

Bedside monitoring equipment should be located to permit easy access and viewing and should not interfere with the visualization of or access to the patient. The bedside nurse and/ or monitor technician must be able to observe the monitored status of each patient at a glance.

Weight-bearing surfaces that support the monitoring equipment should be sturdy enough to withstand high levels of strain over time. It should be assumed that monitoring equipment will increase in volume over time.

Therefore, space and electrical facilities should be designed accordingly.

Each cot space shall include storage and writing provision for staff use.

Clocks

An analogue clock/s with a second sweep hand shall be provided and conveniently located for easy reference from all bed positions and the Staff Station.

Building Services Requirements

This section identifies unit specific services briefing requirements only and must be read in conjunction with Part E - Engineering Services for the detailed parameters and standards applicable.

Mechanical Services (HVAC)

The NICU should be air-conditioned with adjustable temperature and humidity in all cot areas, Procedure rooms and Interview/ Meeting Rooms for staff comfort.

All HVAC requirements are to comply with services identified in Standard Components and Part E – Engineering Services.

Refer to Part E of these Guidelines for the specific requirements for Mechanical and Electrical provision.

Electrical Services

Provide the required electrical services and outlets by quantity and type as shown in the Standard Components for the required rooms within the NICU/ SCN bay. These constitute the briefing requirements for the electrical services required for NICU/ SCN.

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The number and type of electrical sockets may at first appear excessive. However, operational practice has shown that they are required and cannot be compromised.

Refer to Part E of these Guidelines for the specific requirements of Electrical Services including backup generators, distribution etc.

Medical Gases

Medical gas is intended for administration to a patient in anaesthesia, therapy, diagnosis or resuscitation. Medical gases shall be installed and readily available in each NICU or SCN bay/ room according to the quantities noted in the respective Standard Components Room Data Sheets.

Also refer to Part E – Engineering Services of these Guidelines.

Hydraulics

Warm water supplied to all areas accessed by patients within the Unit should be maintained at 38°C and shall not exceed 43°C. This requirement applies to all staff handwash basins and sinks in patient accessible areas.

For further information and details refer to Part E – Engineering Services in these Guidelines.

Information Technology (IT) and Communications

Unit design should address the following Information Technology/ Communications issues:

- Health Information System (HIS)
- Electronic Health Records (EHR)
- Hand-held tablets and other smart devices
- Picture Archiving Communication System (PACS)
- Paging and personal telephones replacing some aspects of call systems/ DECT
- Data entry including scripts and investigation requests
- Bar coding for supplies, and X-rays/ Records if physical copies are still being used
- Data and communication outlets, servers and communication room requirements
- Wi-Fi availability for staff, patients and/or visitors
- Special baby monitoring security tag system (RFID)

Nurse Call / Emergency Call / Staff Call

Hospitals must provide an electronic call system next to each cot space to allow staff to be alerted in a discreet manner at all times. Staff and Emergency calls are to be registered at the Staff Stations and must be audible within the service areas of the Unit including Clean Utilities and Dirty Utilities.

If calls are not answered the call system should escalate the alert accordingly. The Nurse Call system may also use mobile paging systems or SMS to notify staff of a call.

Patients may be provided with communications systems according to the Operational Policy of the facility including bedside telephone and internet (Wi-Fi) access.

Pneumatic Tube System

The Unit may include a pneumatic tube station, as determined by the facility's operational policy.

If provided the station should be located in close proximity to the Staff Station or under direct staff supervision. When required, a second PTS station may be provided within the medication storage area.

Refer to Part E - Engineering Services for details.

Infection Control

Hand Basins

Clinical Hand-washing facilities shall be provided convenient to the Staff Station and patient bed/ cot areas. The ratio of provision shall be one clinical hand-washing facility within each enclosed NICU room or Isolation room and one for every two cots in open-plan areas within the SCN/ SCBU and one in each single isolation room.

In addition to the above, at least two Clinical Hand-washing bays must be provided within the corridors with one being adjacent the Staff Station.

Handwashing facilities shall not impact on minimum clear corridor widths.

Handbasins are to comply with Standard Components - Bay – Handwashing type A and Part D - Infection Control in these Guidelines.

Antiseptic Hand Rubs

Antiseptic hand rubs should be accessible, so they are readily available for use at points of care, in Procedures Rooms and in circulation areas.

Antiseptic Hand Rubs, although very useful and welcome, cannot fully replace Hand Wash Bays. Both are required.

Antiseptic hand rubs are to comply with Part D of these Guidelines.

Isolation Rooms

Refer to the section under Functional Planning Considerations above for the minimum number of negative pressure isolation rooms.

Entry to each Isolation room shall be through an airlock (or anteroom). Clinical hand-washing, gown and mask storage, and waste disposal shall be provided within the airlock.

The pressurisation of the isolation NICU/ SCN room and the airlock must be monitored and displayed on a device on the corridor side. The monitor must have audible and visible alarm.

The pressure regime for the negative pressure isolation room and airlock should be based on the following:

Corridor	(N) Neutral
Airlock	(-) Negative
NICU room	(--) Negative

Positive Pressure isolation NICU rooms will depend on the operational policy of the facility and the clinical assessment of the patient types expected.

The pressure regime for the positive pressure isolation NICU room and airlock should be based on the following:

Corridor	(N) Neutral
Airlock	(+) Positive
NICU room	(++) Positive

Also refer to Parts E and D of these Guidelines.

5 Components of the Unit

Standard Components

Standard Components are typical rooms in a health facility, each represented by a Room Data Sheet (RDS) and Room Layout Sheet (RLS). Sometimes, there are more than one configuration possible and therefore, more than one room layout sheet can be found in the Standard Components for a room with same function.

They may differ in room size and/ or the requirement of FF&FE items.

The Room Data Sheets are presented in a written format, describing the minimum briefing requirements of each room type divided into the following categories:

- Room Primary Information; includes briefed areas, occupancy, room description, relationships and special room requirements
- Building Fabric and Finishes; describes fabric and finishes for the room's ceiling, floor, walls, doors and glazing requirements
- Furniture and Fittings; lists all the fittings and furniture typically located in the room; Furniture and Fittings are identified with a group number indicating who is responsible for providing the item according to a widely accepted description as follows:

Group	Description
1	Provided and installed by the Builder/ Contractor
2	Provided by the Client and installed by the Builder/Contractor
3	Provided and installed by the Client

- Fixtures and Equipment; includes all the serviced equipment commonly located in the room along with the services required such as power, data, water supply and drainage; Fixtures and Equipment are also identified with a group number as above indicating who is responsible for provision
- Building Services - indicates the requirement for communications, power, HVAC (Heating, Ventilation and Air Conditioning), medical gases, nurse/ emergency call and lighting along with quantities and types where appropriate. Provision of all services items listed is mandatory.

The Room Layout Sheets (RLS's) are indicative plan layouts and elevations illustrating an example of a good design. The RLS indicated are deemed to satisfy these Guidelines. Alternative layouts and innovative planning shall be deemed to comply with these Guidelines provided by the following criteria are met:

- Compliance with the text of these Guidelines
- Minimum floor areas as shown in the schedule of accommodation
- Clearances and accessibility around various objects shown or implied
- Inclusion of all mandatory items identified in the RDS

6 Schedule of Equipment (SOE)

The Schedule of Equipment (SOE) below lists the major equipment required for the key rooms in this FPU.

Room Name		
Neonatal Bay - Intensive Care, Enclosed, Room Code (nbicu-e-i), Neonatal Bay - Isolation Room - Negative Pressure, Room Code (nb-is-n-i), Neonatal Bay - Isolation Room - Positive Pressure, Room Code (nb-is-p-i)		
Air flowmeter	Infusion pump: single channel	Oxygen flowmeter
Blender: air & oxygen	Infusion pump: syringe	Suction adapter
Chair: recliner, electric	Lamp: phototherapy, neonatal (shared)	Supply unit: ceiling (with optional examination light)
Incubator: infant	Light: examination (optional)	Ventilator: neonatal/ paediatric
Infusion pump: enteral feeding	Monitor: physiologic, critical care, neonatal	
Neonatal Bay - Special Care, Enclosed, Room Code (nbsc-i)		
Air flowmeter	Infusion pump: single channel	Oxygen flowmeter
Blender: air & oxygen	Infusion pump: syringe	Suction adapter
Incubator: infant	Lamp: phototherapy, neonatal (shared)	
Infusion pump: enteral feeding	Monitor: physiologic, critical care, neonatal	

7 Schedule of Accommodation

The Schedule of Accommodation (SOA) provided below represents generic requirements for this Unit. It identifies the rooms required along with the room quantities and the recommended room areas. The sum of the room areas is shown as the Sub Total as the Net Area. The Total area is the Sub Total plus the circulation percentage. The circulation percentage represents the minimum recommended target area for corridors within the Unit in an efficient and appropriate design.

Within the SOA, room sizes are indicated for typical units and are organized into the functional zones. Not all rooms identified are mandatory therefore, optional rooms are indicated in the Remarks. These guidelines do not dictate the size of the facilities, therefore, the SOA provided represents a limited sample based on assumed unit sizes. The actual size of the facilities is determined by Service Planning or Feasibility Studies. Quantities of rooms need to be proportionally adjusted to suit the desired unit size and service needs.

The Schedule of Accommodation are developed for particular levels of services known as Role Delineation Level (RDL) and numbered from 1 to 6. Refer to the full Role Delineation Framework (Part A - Appendix 6) in these guidelines for a full description of RDL's. NICU may be provided from RDL 4 to 6. At lower RDL's SCN and SCBU may be provided, but patients requiring NICU should be transferred to hospitals at RDL 4 to 6.

The table below demonstrates the SOAs for NICU with 4, 6 and 12 cots and a 12 cots Neonatal Special Care unit. Quantities and sizes of some spaces will need to be determined in response to the service needs of each unit on a case-by-case basis. Arranging the bed areas in clusters of up to 12 bays is recommended within observation from the Staff Station. The number of clusters will be determined by the service plan.

Any proposed deviations from the mandatory requirements, justified by innovative and alternative operational models may be proposed and record in the Non-Compliance Report (refer to Part A - Appendix 4) with any departure from the Guidelines for consideration by the local health authority for approval.

Neonatal Intensive Care Unit (NICU)

Room/ Space	Standard Component Room Codes	RDL 4 Qty x m2 4 Cots			RDL 5-6 Qty x m2 6 Cots			RDL 5-6 Qty x m2 12 Cots			Remarks
Entry/ Reception											Optional - may be shared
Reception/ Clerical	recl-10-i similar	1	x	8	1	x	8	1	x	10	May be shared with an adjacent unit
Waiting	wait-10-i wait-15-i wait-20-i	1	x	10	1	x	15	1	x	20	1.2 m2 per person; 1.5 m2 per wheelchair
Waiting - Family	wait-10-i wait-15-i wait-20-i	1	x	15	1	x	15	1	x	20	
Play Area - Paediatric	plap-10-i similar	1	x	8	1	x	8	1	x	10	Adjacent to Waiting - Family
Meeting/ Interview Room	meet-9-i meet-12-i	1	x	9	1	x	9	1	x	12	Family interviews
Toilet - Public	wcpu-3-i	2	x	3	2	x	3	2	x	3	May share facilities with adjacent unit
Toilet - Accessible	wcac-i	1	x	6	1	x	6	1	x	6	May share public amenities if located close
Gown Up/ Gown Down facility	gw-up-i gw-dn-i	2	x	6	2	x	6	2	x	6	Mandatory for parents and visitors
Nursery- Intensive Care											
Neonatal Bay - Intensive Care	nbicu-e-i	3	x	17	5	x	17	10	x	17	Qty will depend on No. of Birthing Rooms, beds and service plan. Minimum of 12m ² for open bay NICU, 17m ² for enclosed room
Neonatal Bay - Resuscitation	nbicu-e-i similar	1	x	17	1	x	17	1	x	17	For resuscitation and transfer prep; in addition to neonatal bays
Neonatal ICU - Isolation Room, Negative Pressure	nb-is-n-i	1	x	18	1		18	2	x	18	Mandatory at the rate of two per pod of 12 plus/minus 2 cots
Neonatal ICU - Isolation Room, Positive/ Standard Pressure	nb-is-p-i										Optional provide according to Service Plan, includes handbasin within
Anteroom	anrm-i	1	x	6	1	x	6	2	x	6	For Isolation Room, Negative & Positive Pressure
Bathing/ Examination	baex-i	1	x	10	1	x	10	1	x	10	
Support Areas											
Bay - Blanket/ Fluid Warmer	bbw-1-i	1	x	1	1	x	1	1	x	1	
Bay - Handwashing, Type A	bhws-a-i	2	x	1	2	x	1	3	x	1	At Unit entry and in Corridors; refer to Part D
Bay - Linen	blin-i	1	x	2	1	x	2	2	x	2	

Part B: Health Facility Briefing & Design
Intensive Care Unit - Neonatal (NICU)

Room/ Space	Standard Component Room Codes	RDL 4 Qty x m2 4 Cots			RDL 5-6 Qty x m2 6 Cots			RDL 5-6 Qty x m2 12 Cots			Remarks
Bay - Mobile Equipment	bmeq-4-i	1	x	4	1	x	4	1	x	4	
Bay - Pathology	bpath-3-i	1	x	3	1	x	3	1	x	3	Point of Care testing
Bay - Pneumatic Tube	bpts-i				1	x	1	1	x	1	Optional, may be located with Pathology Bay or Staff Station
Bay - PPE	bppe-i	1	x	1.5	2	x	1.5	3	x	1.5	As required, may be combined with Bay-Handwashing
Bay - Resuscitation Trolley	bres-i	1	x	1.5	1	x	1.5	1	x	1.5	Neonatal resuscitation trolley
Cleaner's Room	clrm-6-i							1	x	6	Smaller units may share
Clean Utility	clur-8-i clur-12-i	1	x	8	1	x	8	1	x	12	May be interconnected with Medication room.
Medication Room	medr-10-i similar	1	x	8	1	x	8	1	x	12	May be interconnected with Clean Utility room.
Clean Utility/ Medication Room	clum-14-i	1	x	14	1	x	14	1	x	14	*Optional, if preference is to combine Clean Utility and Medication Room into a single Room, Minimum 14 m2
Dirty Utility	dtur-s-i dtur-12-i	1	x	8	1	x	8	1	x	12	
Disposal Room	disp-8-i							1	x	8	May be shared
Equipment Clean-up	ecl-10-i similar	1	x	8	1	x	8	1	x	12	For dismantling & cleaning cots, incubators & other equipment but not respiratory equipment
Reporting Station	rpst-2-i	2	x	2	3	x	2	6	x	2	De-centralised reporting stations between NICU rooms. Provide one per two NICU rooms if there is no direct observation from the Staff Station to the cot.
Respiratory Workroom	rewm-i	1	x	20	1	x	20	1	x	20	
Respiratory Store	steq-20-i similar	1	x	20	1	x	20	1	x	20	
Feeding Room	feed-i similar	1	x	9	1	x	9	1	x	15	Located adjacent to Formula Room
Formula Room	form-i	1	x	10	1	x	10	1	x	10	Includes milk storage
Office - Write-up (Shared)	off-wis-i similar	1	x	12	1	x	12	1	x	15	May be collocated with Staff Station
Procedure Room	proc-20-i							1	x	20	
Staff Station	sstn-14-i similar sstn-20-i	1	x	8	1	x	12	1	x	20	2, 4 staff seated
Store - Equipment	steq-14-i similar steq-20-i similar	1	x	8	1	x	12	1	x	24	Based on a minimum of 2 m ² per cot

Part B: Health Facility Briefing & Design
Intensive Care Unit - Neonatal (NICU)

Room/ Space	Standard Component Room Codes	RDL 4 Qty x m2 4 Cots			RDL 5-6 Qty x m2 6 Cots			RDL 5-6 Qty x m2 12 Cots			Remarks
Store - General	stgn-8-i similar stgn-12-i	1	x	6	1	x	6	1	x	12	Consumable stock and sterile packs
Store - Sterile Stock	stss-12-i similar	1	x	6	1	x	6	1	x	10	
Treatment Room	trmt-14-i				1	x	14	1	x	14	Optional
Parent Support Areas											Optional
Parent Lounge/ Dining/ Kitchenette	lnpa-12-i similar	1	x	15	1	x	20	1	x	35	Optional, communal space, 8, 12 persons
Parent Overnight Stay Bedroom	ovbr-10-i	1	x	10	1	x	10	1	x	10	Optional
Parent Overnight Stay Ensuite	oves-4-i	1	x	4	1	x	4	1	x	4	Optional
Parent Property Bay	prop-2-i prop-3-i similar	1	x	2	1	x	2	1	x	4	Optional, Lockers for parents visiting
Staff Areas											
Office - Single Person	off-s9-i	1	x	9	1	x	9	1	x	9	NICU Manager
Office - 2 Person Shared	off-2p-i							1	x	12	Medical, Nursing, Allied Health as required
Office - Clinical / Handover	off-cln-i							1	x	15	
Office - Workstations	off-ws-i	1	x	5.5	2	x	5.5	4	x	5.5	Clerical support, Nursing, Medical as required
Meeting Room	meet-l-20-i							1	x	20	Meetings, Education
Staff Lounge (Male/ Female)	srm-15-i similar srm-25-i	2	x	10	2	x	15	2	x	25	May be shared
Change - Staff (M/F)	chst-10-i chst-14-i	2	x	10	2	x	10	2	x	14	Toilet, Shower and Lockers, may be shared
Sub Total		381			447			758			
Circulation %		40			40			40			
Total Area		533			625			1061			

Neonatal – Special Care Unit (SCN)

The Neonatal Special Care Unit (SCN) may be collocated with Neonatal Intensive Care Unit.

Room/ Space	Standard Component Room Codes	This column is not used			This column is not used			RDL ALL Qty x m2 12 Cots			Remarks
Entry/ Reception											Optional - may be shared
Reception/ Clerical	recl-10-i							1	x	10	May be shared with an adjacent unit
Waiting	wait-30-i							1	x	30	1.2 m2 per person; 1.5 m2 per wheelchair
Waiting – Family	wait-30-i							1	x	30	
Play Area - Paediatric	plap-10-i							1	x	10	Adjacent to Waiting-Family
Meeting/ Interview Room	meet-12-i							1	x	12	Family interviews
Toilet - Public	wcpu-3-i							2	x	3	May share facilities with adjacent unit
Toilet - Accessible	wcac-i							1	x	6	May share public amenities if located close
Gown Up/ Gown Down facility	gw-up-i gw-dn-i							2	x	6	Mandatory for parents and visitors
Nursery- Special Care											
Neonatal Bay - Special Care	nbsc-i							10	x	12	Qty will depend on No. of Birthing Rooms, beds and service plan. Minimum of 12m ² for open bay SCN
Neonatal Bay - Resuscitation	nbicu-e-i similar							1	x	17	For resuscitation and transfer prep; in addition to neonatal bays
Neonatal Special Care - Isolation Room - Negative Pressure	nbicu-e-i similar							2	x	18	Provide according to Service Plan but no less than 2 for up to 12 Special Care bays
Neonatal Special Care - Isolation Room - Positive Pressure	nbsc-i similar										Provide according to Service Plan
Anteroom	anrm-i							2	x	6	For Isolation Room, Negative & Positive Pressure
Bathing/ Examination	baex-i							1	x	10	
Support Areas											
Bay - Blanket/ Fluid Warmer	bbw-1-i							1	x	1	
Bay - Handwashing, Type A	bhws-a-i							7	x	1	One for every two cots and at Unit entry and Staff Stations; refer to Part D
Bay - Linen	blin-i							2	x	2	

Part B: Health Facility Briefing & Design
Intensive Care Unit - Neonatal (NICU)

Room/ Space	Standard Component Room Codes	This column is not used			This column is not used			RDL ALL Qty x m2 12 Cots			Remarks
Bay - Mobile Equipment	bmeq-4-i						1	x	4		
Bay - Pathology	bpath-3-i						1	x	3	Point of Care testing	
Bay - Pneumatic Tube	bpts-i						1	x	1	Optional, may be located with Pathology Bay or Staff Station	
Bay - PPE	bppe-i						3	x	1.5	As required, may be combined with Bay-Handwashing	
Bay - Resuscitation Trolley	bres-i						1	x	1.5	Neonatal resuscitation trolley	
Cleaner's Room	clrm-6-i						1	x	6	Smaller units may share	
Clean Utility	clur-12-i						1	x	12	May be interconnected with Medication room.	
Medication Room	medr-10-i similar						1	x	12	May be interconnected with Clean Utility room.	
Clean Utility/ Medication Room	clum-14-i						1	x	*	*Optional, if preference is to combine Clean Utility and Medication Room into a single Room, Minimum 14 m2	
Dirty Utility	dtur-12-i						1	x	12		
Disposal Room	disp-8-i						1	x	8	May be shared	
Equipment Clean-up	ecl-10-i similar						1	x	12	For dismantling & cleaning cots, incubators & equipment	
Feeding Room	feed-2p-i						2	x	7	Located adjacent to Formula Room; Single rooms min. 4m ² and shared rooms (2 bays) min. 7m ² .	
Formula Room	form-i						1	x	10	Includes milk storage	
Office - Write-up (Shared)	off-wis-i						1	x	12	May be collocated with Staff Station	
Procedure Room	proc-20-i						1	x	20		
Staff Station	sstn-20-i						1	x	20	6 staff seated	
Store - Equipment	steq-25-i similar						1	x	24	Based on a minimum of 2 m ² per cot	
Store - General	stgn-12-i						1	x	12	Consumable stock and sterile packs	
Store - Sterile Stock	stss-12-i similar						1	x	10		
Treatment Room	trmt-14-i						1	x	14	Optional	
Parent Support Areas										Optional	
Parent Lounge/ Dining/ Kitchenette	Inpa-20-i similar						1	x	35	Optional, communal space, 8, 12 persons	
Parent Overnight Stay Bedroom	ovbr-10-i						1	x	10	Optional	

Part B: Health Facility Briefing & Design
Intensive Care Unit - Neonatal (NICU)

Room/ Space	Standard Component Room Codes	This column is not used			This column is not used			RDL ALL Qty x m2 12 Cots			Remarks
Parent Overnight Stay Ensuite	oves-4-i							1	x	4	Optional
Parent Property Bay	prop-3-i similar							1	x	4	Optional, Lockers for parents visiting
Change Gown Up/ Gown Down (Male/ Female)	gw-dn-i gn-up-i							2	x	6	Optional, for parents and visitors; separate for male and female
Staff Areas											
Office - Single Person	off-s9-i							1	x	9	SCN Manager
Office - 2 Person Shared	off-2p-i							1	x	12	Medical, Nursing, Allied Health as required
Office - Clinical / Handover	off-cln-i							1	x	15	
Office - Workstations	off-ws-i							2	x	5.5	Clerical support, Nursing, Medical as required
Meeting Room	meet-l-20-i							1	x	20	Meetings, Education
Staff Room	srm-30-i							1	x	30	
Change - Staff (M/F)	chst-14-i							2	x	14	Toilet, Shower and Lockers; may be shared with adjoining unit
Toilet – Staff (M/F)	wcst-i							2	x	*	If Staff Change is shared and located outside the Unit, provide one staff toilet for each male/ female within the Unit.
Sub Total								645			
Circulation %								40			
Total Area								903			

Please note the following:

- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components.
- Rooms indicated in the schedule reflect the typical arrangement.
- All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines.
- Exact requirements for room quantities and sizes shall reflect Key Planning Units (KPU) identified in the Clinical Service Plan and the Operational Policies of the Unit.
- Room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual Unit.
- Offices are to be provided according to the number of approved full-time positions within the Unit.

8 References and Further Reading

In addition to Sections referenced in this FPU, i.e. Part C- Access, Mobility, OH&S and Part D - Infection Control and Part E - Engineering Services, readers may find the following helpful:

- DH (Department of Health) (UK) Health Building Note 09-03: Neonatal Units, 2013, refer to website:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147879/HBN_09-03_Final.pdf
- Guidelines for Design and Construction of Hospitals, The Facility Guidelines Institute, 2022 Edition; refer to website: www.fgiguideines.org