

INDEX

	Description
503160 390 .0.10	INTRODUCTION
	Preamble
	Introduction
	Policy Statement
	Description of Unit
	PLANNING
	Operational Models
	Operational Policies
	Planning Models
	Functional Areas
	Functional Relationships
	DESIGN
	Access
	Car Parking Requirements
	Disaster Planning
	Infection Control
	Environmental Considerations
	Space Standards and Components
	Safety and Security
	Finishes
	Fixtures and Fittings
	Building Services Requirements
	COMPONENTS OF THE UNIT
	General
	Standard Components
	Non-Standard Components
	APPENDICES
	Schedule of Accommodation
	Functional Relationships Diagram
	Checklists
	References and Further Reading

INTRODUCTION

Preamble

- 503161 390 .1.00 This Guideline reflects the increasing emphasis and evidence in the field of perinatal medicine on the importance of the physical environment on newborn development in the short and long term with particular and especial reference to
- light – both natural and artificial - in terms of protecting vulnerable undeveloped retina, visual pathways and establishment of normal circadian rhythms
 - temperature and humidity control
 - the negative impact of excessive noise on hearing and brain development and means to control that noise and
 - infection control.

Equally as important is increasing recognition of the importance of direct family involvement in care, but more importantly, in the decision-making process with regard to that care. There is evidence to suggest that parenting education and participation in care may reduce lengths of stay, readmission rates and improve long term outcomes.

This Guideline also examine initiatives such as transitional care (or care-by-parent), home care and support, and lactation support as part of the Baby Friendly Hospital Initiative –“an effort by UNICEF and the World Health Organization to ensure that all maternities, whether free standing or in a hospital, become centers of breastfeeding support”. www.unicef.org

The needs of staff are also of great importance and the Guideline recognises that environment can have a major impact on staff satisfaction, recruitment and retention in what is a highly specialised and potentially very stressful field with high risk of “burnout”. There is evidence to show that reduction of stress improves quality of care and staff health and well-being.

It also recognises that education and staff training are integral elements of tertiary neonatology and facilities for these activities are addressed.

A wide range of guidelines and literature from around the world have been consulted and all the recent literature is emphasizing the same priorities – units must be baby-centred, family-centred and staff-oriented.

Introduction

503162 390 .2.00 GENERAL

The Guide to the Role Delineation of Health Services (NSW Health, Third Edition 2002) defines 6 levels of Neonatal Services. However, for the purpose of developing a facility for newborns, 3 levels of newborn care are generally applied.

Level 1 refers to healthy newborns without complications of 37 weeks gestation or greater and birth weight 2,500 grams or greater. Facilities for this category of baby are excluded from this Guideline but details may be found in the Maternity Unit Guideline. Every unit providing maternity (birthing) services will require, as a minimum, facilities for resuscitation and stabilisation prior to transfer to a higher level Neonatal Unit with which it will normally have formal networks even though the majority of babies will room in with their mothers.

The Special Care Nursery for Level 2-only newborns are described in the Guideline for Maternity Facilities (HPU 510) where the Nursery may be collocated with maternity beds and birthing rooms to form an integrated Unit. Nevertheless, the design principles outlined in these Guidelines apply equally to these Nurseries. This Guideline specifically addresses facility requirements for Neonatal Intensive Care and Special Care Nurseries where they form a discrete Unit as part of a Women’s Hospital / Centre or a Children’s Hospital.

Part B - Health Facility Briefing and Planning

503163 390 .3.00 DEFINITION OF LEVELS OF CARE 2 AND 3

Level 1 – Refer previous section.

The following descriptions may be used as a general guide but are not necessarily all-inclusive and may need to be modified / adapted to local conditions.

Level 2 - Special Care Nursery - 3 levels:

High dependency care includes:

- Acute care short of life support
- Immediate step-down care from Level 3

Low dependency care includes:

- A range of mild to moderately ill babies and
- Convalescent babies.

Long term care includes:

- Babies with ongoing conditions not yet suitable for home care; includes oxygen-dependent babies and some with neurological and surgical conditions.

Level 3: Neonatal Intensive Care

Applies to babies requiring continuous life support and comprehensive care for complex and critical illness and prematurity. Level 3 may be further subdivided into 3 levels differentiated by the capability to provide advanced medical and surgical care.

Level 3A

Babies with birth weight of more than 1000 g and gestational age of more than 28 weeks. Continuous life support can be provided but is limited to conventional mechanical ventilation.

Level 3B

Babies with extremely low birth weight (1000 g or less) and 28 or less weeks' gestation requiring advanced respiratory support such as high-frequency ventilation and inhaled nitric oxide.

Requires on-site access to a full range of paediatric medical subspecialties and medical imaging on an urgent basis including CT, MRI and echocardiography.

Paediatric surgical specialists and anaesthetists either on site or at a closely related institution to perform major surgery.

Level 3C units have the capabilities of a level 3B unit and are only located in Children's Hospitals that can provide extracorporeal membrane oxygenation (ECMO) and surgical repair of serious congenital cardiac malformations requiring cardiopulmonary bypass.

Source: American Academy of Pediatrics, Levels of Neonatal Care, Committee on Fetus and Newborn, Pediatrics, 2004; 114;1341-1347.

Policy Statement

503164 390 .4.00 Models of Maternity Service Provision across NSW – Progressing Implementation of the NSW Framework for Maternity Services, NSW Health, April 2003.

Description of the Unit

503165 390 .5.00 DEFINITION OF HEALTH PLANNING UNIT (HPU)

Part B - Health Facility Briefing and Planning

A Neonatal Intensive Care Unit (Level 3) is a discrete and environmentally-controlled unit designed, equipped and staffed to care for premature and medically unstable or critically ill newborns who require constant nursing care and supervision, complicated surgical procedures, continuous respiratory support or other intensive interventions.

The Special Care Nursery caters for newborns requiring less care and supervision -although not necessarily excluding respiratory support - but who are not sufficiently stable to be discharged, and it may serve as a step-down from intensive care.

Spatial requirements for each of these categories varies but there must be the flexibility to minimise unnecessary moving of infants from bay to bay.

503166 390 .6.00 GENERAL DESIGN

Design and layout must be “baby-centred”, “family-centred” and must provide appropriate facilities for staff comfort, efficiency and “time-out” when needed.

“The design shall allow for flexibility and creativity to achieve the stated objectives.”

Recommended Standards for Newborn ICU Design
Report of the Fifth Consensus Conference on Newborn ICU Design
January 2002, Clearwater Beach, Florida

503167 390 .7.00 BABY-CENTRED

Unit design must create an environment that:

- provides facilities to enable best clinical practice from full life support to convalescent care
- allows optimal infant development via attention to noise reduction, light and temperature controls
- allows easy family access 24 hours/day
- minimises risk of adverse occurrences, especially infection
- provides flexibility for future changes in practice and technology.

503168 390 .8.00 FAMILY-CENTERED

Unit design must recognize the pivotal role of the parents and other family members as part of the baby’s care team. The environment must:

- create a welcoming entry
- provide adequate space and facilities for families at the cotside
- provide live-in parent accommodation within the Unit
- allow for privacy and encourage physical contact, attachment and breastfeeding / expression of breast milk
- provide quiet facilities for counselling, grieving and care planning
- provide “retreat” facilities
- facilitate communication with staff.-

503169 390 .9.00 STAFF-ORIENTATED

Unit design must provide optimal working conditions and facilities for staff that provides / allows for:

- a pleasant and supportive working environment
- flexibility in staff allocation and ease of staff movement
- good access to and observation of patients. Observation may be direct and via remote monitoring
- implementation of good infection control and occupational health & safety

Part B - Health Facility Briefing and Planning

practices

- appropriate information technology and communication systems
- staff lounge and adequate staff amenities
- continuing education and training facilities
- facilities for clinical research
- necessary office and administration space.

503170 390 .10.00 COT NUMBERS AND MIX

The number of cots and mix of levels will be determined by the Service Plan. Not all units will operate Level 3 cots (although all will need facilities for resuscitation, stabilisation and transfer) but most units with Level 3 cots will also have Level 2 cots, and occasionally accommodation for normal Level 1 babies.

“The number of cots in the SCN is determined by the spectrum of patients managed and the admission and discharge policies of the unit. In particular, the ability to transfer babies to other hospitals with SCNs or to Hospital-in-the-Home (HITH) or other home-supervised care will influence the number of cots required. In general, two to four SCN cots are required for each NICU cot”. (ANZNU Design Group – Draft Guidelines May 2004)

Cot numbers should aim for an average occupancy rate of 75% to allow for emergencies e.g. unexpected multiple births, retrievals. (UK Neonatal Staffing Study Group. 2002.)

For the purpose of this Guideline, the Schedule of Accommodation details 50 cots – 20 Level 3 including 4 isolation rooms and 30 Level 2 - but this is indicative only in order to develop a logical list of the rooms /spaces required to support a given number of cots. Planners must adjust the cot numbers and support spaces in the Schedule of Accommodation to suit individual circumstances.

503171 390 .11.00 FUTURE DEVELOPMENTS

- Increasing technological support / equipment
- Increasingly sophisticated information systems
-
- Increasing rate of pre-term delivery (in part at least because of older maternal age)
- Increased survival rates of all gestational ages
- Increase in multiple births
- Earlier discharge with community support
- Transitional Care (refer Section 15.00)
- “Kangaroo Care”: (A method of skin-to-skin contact to promote parent/infant bonding especially for stable premature babies).
www.austprem.org.au/journey/nicu/kangaroo_care
- Increasing use of nitric oxide in the treatment of very premature infants
- Improvements in neurodevelopmental care – management of noise and light
- Long term follow-up
- Increased requirement for staff study/in-service
- Nurse practitioners
- Increased requirements for senior medical to sleep in unit for quality of care and medico-legal reasons
- Increasing trend towards single rooms
- More demand for families to live in.

Operational Models

503172 390 .12.00 HOURS OF OPERATION

The unit will operate 24 hours per day, 7 days per week. Parents will have round-the-clock access to the Unit.

Emergency admissions will be from the Delivery Suite, Operating Suite or external retrieval so 24 hour readiness for admissions is essential

503173 390 .13.00 SINGLE ROOMS

There is an increasing amount of data advocating increasing spatial separation of neonates including single rooms (for Level 3 neonates only), the advantages of which may be described as follows:

- Increased privacy – acoustic and visual
- Possibility of continuum of care from admission to transition / discharge
- Greater flexibility for parental involvement
- Better infection control
- Individual environmental control of noise, light, temperature
- Minimisation of the need for overnight parent accommodation that – in most instances – rarely meets demand.

Provision of dividing doors between rooms may facilitate management of multiple births and ease of parental access.

If single rooms are the chosen option, continuous high quality electronic monitoring of all clinical parameters to a central console and/or a master/slave system will be required plus sophisticated staff call systems and access to patient information from remote locations. These technologies are available.

Disadvantages

- Increased capital cost – additional square metres, handbasins, doors, glazing
- Diminished physical observation requiring sophisticated electronic monitoring systems and the cost of those systems
- Implications for staffing and impact on recurrent costs
- May impose staffing difficulties when staff leave for breaks
- Limits opportunities for parents to socialise with other parents and obtain peer support thus creating a degree of isolation. If this option is selected, it is important that communal family rooms are provided and centrally located to the cots - not in a remote location - so that parents can get some rest and socialisation without being too far from their babies.

503174 390 .14.00 MODELS OF CARE

Assuming open cot bays, traditionally infants have been separated according to level of acuity i.e Level 3 intensive care and Level 2 special care. This model does however require some cot movement between nurseries - step-down to Level 2 from Level 3 or upwards if condition deteriorates and this may have a negative impact on families who have developed close relationships with the parents of other babies and staff.

One alternative model is a flexible room arrangement that locates infants according to their gestation development and allows the infant to remain in the same cot space – or at least cot bay - for the duration of length of stay. This minimises infant movement, facilitates cohort management and staff support and continuity of care. If this model is chosen, it will have considerable impact on design issues such as provision of medical gases, pendants etc. and all bays in a given nursery may not be identical. However, in large neonatal units the “flexible room arrangement” that would minimise infant movement would require virtually

Part B - Health Facility Briefing and Planning

all cot spaces to be able to take Level 3 babies that in the current climate is not supportable by space nor cost of fittings.

At least 2 levels of care, and possibly more need to flow through the unit. The movement of babies between levels in fact is rarely a negative impact, and indeed most families appreciate the positive aspect of progressing through levels of care; this is often seen as a “graduation”. Separating levels of care also allows distribution of staff according to skillmix.

503175 390 .15.00 TRANSITIONAL CARE UNIT (TCU)

As distinct from Parent - Infant Rooms.

Edited extract from “Designing a Neonatal Unit”, British Association of Perinatal Medicine, May 2004.

In the context of neonatal services, “Transitional Care” may have two connotations:

1. The group of babies almost ready for discharge who can be cared for almost exclusively by their parents with assistance and support from unit staff. (Important to remember that these babies are still “inpatients” but not the mother even if occupying a bed). (This category of babies are addressed under “Parent – Infant Accommodation in Section 390.34.00)
2. Those infants with a spectrum of conditions that previously required admission to the SCN and may now be managed at the mothers’ bedsides. Examples include phototherapy, prophylactic IV antibiotics, hypoglycaemia when it is believed there is no underlying serious pathology, mild respiratory disease not requiring oxygen supplementation and babies of 34 and 35 weeks gestation who are establishing breastfeeding. In this instance, both mother and baby may be considered as inpatients.

Practices vary widely, and thus the number of such beds required is difficult to estimate. The Transitional Care Unit may be seen either as an extension of the neonatal unit or may be more cost-effective managed via a better resourced postnatal unit. However, the babies will require neonatal nursing supervision.

Facilities at the baby cot area include:

- Four GPOs
 - One oxygen, one suction and ideally one medical air outlet
- (Edited from ANZNN Draft Guidelines).

Operational Policies

503176 390 .16.00 GENERAL

Examples of general hospital policies relevant to most units such as linen supply, waste management etc can be found in Part A of these Guidelines.

503177 390 .17.00 FAMILY INVOLVEMENT

Parents will be encouraged to participate not only in the physical care of their babies but be intimately involved and a partner in the decision-making process regarding care - but only to the extent that they feel comfortable doing so.

They should be able and encouraged to spend as much time as they wish at the cotside.

Part B - Health Facility Briefing and Planning

There also needs to be an area within the Unit where parents may go to relax away from the “intensity” of the cotside.

503178 390 .18.00 FAMILY PROPERTY

Need for lockers and hanging space. For the immediate family, lockable cupboard/s at cotside. For other visitors (overcoats etc) Locker Bay near Entry or in/near Family Lounge. Note that keys get lost so some alternative means of securing items should be considered.

503179 390 .19.00 RESUSCITATION

Facilities for neonatal resuscitation should be carefully thought out for each zone of the Nursery.

Resuscitation of infants in humidicribs may be carried out in situ. However, it may not be appropriate in a multi-cot Level 2 nursery with babies in bassinets, therefore each nursery should have ready access to resuscitation facilities, either fixed within a dedicated resuscitation room/bay or via a mobile resuscitaire. Fixed facilities should include an open radiant-heated cot with appropriate facilities including oxygen, medical air and suction, power outlets, laryngoscopes, equipment for assisted ventilation and a secure store of drugs. Location of a “fixed” bay must be carefully considered.

503180 390 .20.00 NEONATAL FOLLOW-UP

Regular follow-up services may be provided for certain categories of neonates up to 8 years of age to assess neurodevelopment.

Depending on the operational policy of the hospital, how clinic sessions are organised and actual attendance numbers, there may be psychosocial advantages for families and staff to attend follow-up clinics close to the Unit in appropriately equipped rooms (an examination surface, good procedure lighting and everything required for weighing, phlebotomy and transcutaneous bilirubinometry) rather than booking rooms in an Outpatients Clinic. However this may depend on the need for access to support services such as Audiology, Physiotherapy and Developmental Psychology assessments (the latter requiring access to observation room with one-way mirror) and the age of the child at the time.

However, a Consult / Exam Room located close to the NICU entrance but well away from sight or sound of the nurseries may be useful for ad hoc attendances.

503181 390 .21.00 NEONATAL PROCEDURES AND SURGERY

Children's Hospitals will usually perform neonatal surgery in the Operating Suite. However, some perinatal hospitals may need to perform surgery in the Unit as very unstable infants requiring surgical procedures (PDA ligation (patent ductus arteriosus - birth defect of the heart) / urgent laparotomy) and infants on oscillatory ventilation are not able to be moved safely.

A Procedure Room will be provided for this purpose with relevant lighting, medical gases, power supply. Inhalational anaesthetic agents are not used therefore gas scavenging is not required. The requirements for this room are described in Section 390.80.00 under Non-Standard Components.

Part B - Health Facility Briefing and Planning

In smaller units, an Isolation Room may be equipped for this purpose.

503182 390 .22.00 DOMICILARY / HOME CARE SERVICES

An office base for staff and storage facilities will be required if home care services are provided. These facilities may be located on the perimeter of the Unit with access to an Interview Room and easy egress.

503183 390 .23.00 EQUIPMENT CLEANING

Project staff will need to ascertain whether reusable items such as respiratory tubing, teats and bottles, will be processed in the Unit or sent to the Sterile Supply Unit. An Equipment Cleaning Room is described in Section 380.82.00 under Non-Standard Components.

503184 390 .24.00 STAFF ESTABLISHMENT

The staff establishment will/may include:

- medical staff (Clinical Director, fellows, consultants, registrars and junior medical staff)
- nursing staff (NUM, clinical nurse specialists, lactation consultant, home care nurses)
- educators
- clerical/administrative staff (ward clerk, secretary, data collectors)
- ancillary staff (aide, patient assistant)
- Allied Health staff (social workers, speech pathologist, pharmacist, physiotherapist & occupational therapist).

Provision of offices or workstations will depend on the establishment and the need to be located in/near the unit and will comply with DoH Policy Directive PD2005_576 Office Accommodation Policy – Public Health Organisations and Ambulance Service.

Staff attending on a sessional or irregular basis who are based elsewhere in the Hospital - Allied Health staff in particular - will need access to shared workstations.

503185 390 .25.00 STAFF:PATIENT RATIOS

The design, layout and configuration of the Unit should take into account the nurse to patient ratios that can be expected. These ratios will be determined by senior medical and nursing staff according to the infants' conditions and needs and the access to monitoring systems.

The increasing use of continuous positive airways pressure ventilation (CPAP) should not be viewed as a less intensive form of intensive care, but as a different kind of intensive care that can be just as demanding of nursing expertise.

Planning Models

503186 390 .26.00 LOCATION

Planners should try to provide a location and/or orientation that avoids direct sun into the Nurseries to minimise the need for critical sun protection; a southern aspect is preferred.

If in a Children's Hospital and depending on the size of the respective units, a

Part B - Health Facility Briefing and Planning

location adjacent to the Paediatric Intensive Care may be desirable with ready access to the Operating Suite.

If in a Women's Hospital/Centre, the Unit should be located on the same floor as or no more than one floor away from the Birthing Unit and Caesarean section operating rooms.

Care must be taken to avoid placing the actual nurseries adjacent to noise sources such as plant rooms, lifts and public lobbies.

Functional Areas

503187 390 .27.00 FUNCTIONAL ZONES

- Entry / Reception / Public Areas
- Family Areas
- Patient Areas
- Clinical Support Areas
- Staff Areas

503188 390 .28.00 ENTRY / RECEPTION / PUBLIC AREAS

The Reception will serve as the main organisation and communications "hub" for the Unit. It must be located to oversee the entry and therefore able to restrict and control traffic into the Nurseries. Space will be needed for delivery and holding of mail, gifts and flowers. It must create a welcoming and positive first impression.

There should be a clear and logical flow from the "hub" to clinical, support and family areas.

The area may include waiting, visitor toilets, child play area, interview rooms, consult/exam rooms if provided, manager's office, write-up rooms for attending staff (Allied Health etc) and photocopy/stationery store.

A handbasin may be located at the entry to the Nurseries and a locker bay for visitors for items such as overcoats, umbrellas etc that are best not taken into the nurseries.

Public toilets, phones and vending machines have been itemised in the Schedule of Accommodation but if available in a nearby central lobby, they can be excluded from the Unit Schedule.

503189 390 .29.00 COT BAY SIZES

With regard to the sizes of cot bays, guidelines from the UK, Canada, New Zealand, USA and Australia have been reviewed and the following represents the general consensus of opinion and recent projects.

All the following areas exclude centre aisles between facing cots, handbasins and any additional storage or workstation included in a room.

- Level 3: 14 sqm (This will accommodate pendants.)
- Level 2 High Dependency 12 sqm
- Level 2 Low Dependency 10 sqm
- Level 2 Long Term Care 12 sqm

Each bay should have a distinct "baby" zone and "parent" zone. Centre aisles between facing cots must be a minimum width of 2.4m in NICU and at least 2m in SCN.

503190 390 .30.00 CONFIGURATION OF COTS

Two, maximum 4 cots per bay for Level 3.

4-6 cots per bay in the Special Care Nursery (Level 2); some will be high dependency, some low dependency and a few will be allocated to longterm care.

The Unit must be zoned for maximum flexibility whilst minimising cot movement. Eg zone between low level 3 and high dependency level 2.

Project staff should consider supplying High Dependency Level 2 cots with the same number of electrical and gas outlets as Level 3 cots so that they can act as Level 3 cots in the event of a need to close parts of the NICU area (e.g. infection, other need for evacuation, unit refurbishment) or because of acute excess Level 3 workload. .

503191 390 .31.00 COT BAY REQUIREMENTS

Storage: Will be required for:

- disposable consumables – syringes, tubes, needles etc.
- infection control items – gloves, hand-rubs
- linen – small items
- baby cleaning items, nappies etc.

Storage of disposables, linen, etc. may be via fixed shelving or by a mobile trolley for each bay (as is the usual system in adult Intensive Care Units). This system allows easy cleaning and restocking and minimises dust collection and poor stock rotation and should be considered. Sharps disposal bins may also be mounted on the trolley. If shelving is used, allow 0.67 cubic meters for intensive care and 0.45 cubic meters for special care.

Disposal: Each Nursery (or single room where provided) needs access to a dirty linen skip and bins for general and clinical waste.

Staff Work Area: The staff work area around the cot must meet local occupational health & safety standards. There must be adequate areas for charting – written and/or electronic.

Parent Facilities: There must be space for both parents to be at the cotside, with at least one “easy” chair for a parent to participate in “kangaroo” care.

There should be a designated lockable storage space for parents' belongings, and a display area for toys and mementos. A personal bulletin board is desirable.

503192 390 .32.00 ISOLATION ROOM

A least one isolation room is required in each NICU as part of the total complement of cots. A reasonable estimate is one isolation room per 10 NICU cots although Neonatal Units that have a high number of admissions from outside hospitals such as Units in paediatric hospitals may require more rooms. Isolation rooms should have the ability to provide support to the most complex patients that the NICU would care for

At least one room must be Class N – negative pressure ventilation with adjoining anteroom. (Refer to Section D – 820-24 of the Guidelines for further information).

An lobby outside the suite of rooms should be provided for storage of supplies

Part B - Health Facility Briefing and Planning

and a small staff workbase and handwashing and gowning facilities must be available so that staff and visitors cannot access the standard isolation rooms without first undertaking appropriate infection control precautions.

Removal of soiled materials must avoid contact with and contamination of other areas of the nursery.

All room exit doors require self-closing devices.

Rooms may be used as standard rooms when not occupied by an infectious infant.

The isolation room/s should be away from the entrance to the Level 3 Nursery

Dimension:

1 Level 3 cot - minimum 16 sqm

2 Level 3 cots – minimum 28 sqm,

1 Level 3 and 1 Level 2 cots - minimum 20 sqm.

Walls, windows, ceilings and floors must be sealed to avoid infiltration of air from the outside and other air spaces.

If observation windows are provide, they should be double glazed with integral Venetian blinds for privacy operable from inside the room.

All surfaces should be composed of materials that facilitate cleaning. Sound absorbing surfaces in floors and ceilings must be maximised.

A remote monitoring system to the main Staff Station or personalised staff alarm system will be required.

An emergency communication system must be provided.

503193 390 .33.00 FAMILY AREAS

Should include:

- Dedicated and appropriately designed cotside space
- Family Lounge/Dining including a Beverage Bay
- Child Play – may be part of the Family Lounge or a separate room adjacent to the Family Lounge.
- Toilet (disabled) with baby change table
- Education/Resource Room
- Office or facility for a parent support group (multipurpose room)
- Lactation Support – Refer Section 36.00
- Domestic laundry or access to same elsewhere in the Hospital for parents. Machines may be incorporated into the Equipment Cleaning Room if accessed by staff only.

503194 390 .34.00 PARENT – INFANT ACCOMMODATION

Purpose: Live-in rooms on the unit are required for multiple purposes:

- care-by-parent prior to discharge (transitional care)
- facilitation/establishment of breastfeeding even though not yet ready for discharge
- accommodation for parents whose baby is extremely ill as respite from the cotside
- parents of dying babies
- temporary acute stay accommodation following admission for parents who live

Part B - Health Facility Briefing and Planning

a long distance away prior to establishing other arrangements

The babies in these rooms will still be classified as inpatients, therefore the rooms must be within the secure area of the unit and adjacent to the other clinical areas.

The rooms may also be used for quiet interviews and educational purposes including discharge planning and parentcraft.

Number of Rooms: A reasonable minimum is one parent room per 10 beds (combined NICU and SCN). However, this number will depend on the unit's practice pattern, the size of the region served and other available options.

Fittings and Furnishings:

- Twin beds convertible to a double/ queen bed plus space for baby cot/s (including twins/ triplets)
- Direct access to basin, toilet and shower facilities that may be shared between rooms
- The infant cot area requires access to four GPOs, one oxygen, one medical air and one suction outlet.
- Telephone and emergency call facilities are required.
- Television (may be used for recreational and educational purposes)
- Internet data outlet
- Other furnishings should create a homely, private environment.

It may be appropriate to designate one room specifically for hospice care of dying babies with appropriate décor and art work and including facilities for bathing and laying out the baby and for light refreshments.

503195 390 .35.00 INTERVIEW / COUNSELLING / MULTIPURPOSE ROOMS

Rooms are required for counselling of distressed parents or planning ongoing care away from the demands of the Unit and free from interruption. These rooms should be multipurpose and may also be used for staff appraisal or policy discussions.

The rooms should be intimate in nature; the need for a telephone should be assessed and there should be no television. Careful thought should be given to décor and comfortable furnishings and soundproofing from adjacent areas is essential to ensure privacy.

A large unit will need at least two of these rooms – at least one per 20 cots.

503196 390 .36.00 LACTATION SUPPORT

In order to achieve Baby Friendly Hospital Initiative (BFHI) status, the following will be required:

- Workstation for Lactation Consultant
- Milk expressing area
- A comfortable room for breastfeeding if the mother prefers to do so away from the cotside. If sized for 3 or 4 mothers, it can serve as an area where mothers can get to know each other in an intimate setting. If the latter two areas are combined, the area used for expressing may need to be screened.
- Storage for breast pumps etc
- Access to an assist toilet

503197 390 .37.00 PATHOLOGY

Point-of-care testing is essential..

Part B - Health Facility Briefing and Planning

A bay or room for a blood gas analyser will be required that may be the location for a pneumatic tube transfer station if installed. Include a handbasin, storage and a computer.

503198 390 .38.00 IMAGING PROCEDURES, PROCESSING AND VIEWING

Mobile x-ray and ultrasound machines may be housed in the unit in their own bay or a dedicated imaging room. The space will also be used to store lead aprons and accessories. Processing needs should be discussed with Medical Imaging staff regarding development of straight films and possible provision of an in-unit laser printer for ultrasound films.

Standard power outlets will be required for recharge.

In new units, digital imaging and PACS is assumed and viewing may occur at the cotside, Staff Station, Viewing Area and other areas as nominated

503251 390 .38.05 MILK PREPARATION AND STORAGE

The Formula (or Milk) Room will need space and equipment (washer/disinfector) facilities for cleaning and sterilizing bottles and teats unless the sterilization function is handled in the CSSD.

Refrigerators and freezers will be required for storage of expressed breast milk. Consideration may need to be given to security of equipment and controlled access to the area as theft of expressed breast milk is increasing where access is unrestricted.

503199 390 .39.00 EQUIPMENT STORAGE

It is assumed that the Unit will clean and store its own equipment that will include:

- Ventilators, CPAP devices
- Incubators and bassinets
- Radiant heaters
- Phototherapy units
- Syringe pumps
- Pulse oximeters
- Cardiorespiratory monitors.

Storage may be divided into open plan equipment bay/s located central to the nurseries for equipment that needs to be readily and frequently accessed and an Equipment Store on the periphery of the Unit – with possible dual access from the main hospital corridor for delivery etc. All areas must be designed to provide both floor parking space and off-floor shelving with adequate power outlets for recharging battery-operated equipment.

Careful attention must be given to ventilation and temperature control where multiple items of heat-generating equipment are being charged particularly in an enclosed room.

Recommended Standards for Newborn ICU Design, Report of the Fifth Consensus Conference on Newborn ICU Design, January 2002, Clearwater Beach, Florida recommends a minimum allowance of 2.8m² for each intensive care cot and 1.7 for each special care cot. However, this may be unsustainable in spatial and cost terms and will need to be reviewed on a hospital-by-hospital basis according to the equipment to be stored.

Part B - Health Facility Briefing and Planning

Depending on operational policies, optional inclusions within the Store may be:

- Workstation for the nominated Equipment Nurse for inventory and ordering and
- Workbench for a biomedical technician to undertake testing and minor repairs serviced with medical gases, power and voice/ data outlets.

503200 390 .40.00 SUPPLIES STORAGE

Bulk consumables and sterile supplies will be stored in the Clean Utility Room and a lightweight compactus may be considered (nappies, formula, linen, masks & gowns etc).

0.22 m3 for each cot for disposables such as syringes, needles, IV sets etc. (Reference - Recommended Standards for Newborn ICU Design, Report of the Fifth Consensus Conference on Newborn ICU Design, January 2002, Clearwater Beach, Florida)

503201 390 .41.00 PHARMACEUTICAL STORAGE

Medications and IV fluids may be stored in the Clean Utility or in a dedicated Medication Room. A refrigerator with temperature monitoring and alarm will be required and some units may require a separate refrigerator for vaccines. It is assumed that parenteral nutrition will be prepared in the main Pharmacy but there will need to be adequate storage space in the Unit.

503202 390 .42.00 MEDICAL GASES STORAGE

Storage will be required for nitric oxide cylinders and emergency supplies of oxygen and medical air, and transport cylinders (for evacuation).

503203 390 .43.00 INFANT RETRIEVAL

Intra-Hospital Transfers: Provision must be made for storage and recharging of equipment for intra-hospital transfers from delivery suites and between Neonatal Units e.g. to a Children's Hospital for surgery.

External Neonatal Retrieval Service: For those units where an external retrieval service is an integral component of the NICU, spatial and design requirements will depend on the following factors:

- the size of the team and its relationship to NICU staff – i.e. whether there is a separate team dedicated to transport
- the role of the team with regard to education.
- the need for administrative (including a computer for data entry) and education space
- the amount and type of equipment – including clothing
- the extent of the communication system
- the ownership of dedicated vehicles
- access to the emergency vehicle bay

503204 390 .44.00 STAFF OFFICES

The offices for the Nurse Manager and home care nurse/s may be located in the "Hub" of the Unit as may workstations for staff who attend irregularly.

The remainder of offices should be located in a staff-only zone clearly separated from family areas with, if possible its own key-controlled access separate from the

Part B - Health Facility Briefing and Planning

main entry. The offices must be supported by facilities for photocopying, stationery storage and paper shredding and recycling.

503205 390 .45.00 STAFF EDUCATION AREAS

- PACS viewing/discussion area for 3 to 4 staff
- Seminar Room for up to 30 staff depending on the size of the Unit. Access should avoid travel through clinical areas particularly if shared by non-unit staff on a booked basis
- A multifunctional skills lab can be invaluable for learning and practising simulated procedures. If provided, it should be equipped with a resuscitaire, incubator, ventilator, mannequin, a storage surface, and several chairs & medical gases. It may be separated from the Seminar Room by an operable wall.
- Library / Resource Room

503206 390 .46.00 ON-CALL ROOMS

There is an increasing trend for senior members of the medical staff to be on the unit at all times, therefore provision must be made for on-call rooms. The rooms must include a handbasin and have access to shower & toilet.

503207 390 .47.00 STAFF CHANGE ROOMS

Separate male and female locker rooms will be required providing quarter or half lockers and hanging space. Total locker numbers and ratio of male to female staff will need to be ascertained.

Assuming no permanent allocation, it is suggested that lockers be provided on the basis of 1 per cot (assuming a 1:2 nurse:patient ratio) plus up to 10 supernumerary staff. However if the operational policy allows for dedicated lockers, this number will need to be increased according to the staff establishment.

Unisex shower in the unit or ready access to a shower within the hospital.

503252 390 .47.05 STAFF LOUNGE

A dedicated staff room is essential for de-stressing and meal breaks. It should contain a beverage/dining area and a quiet sitting space. Size must reflect the number of staff using the room at any one time.

Natural lighting is essential and there is evidence to show that night staff require bright artificial light in order to maintain alertness when returning to dimly lit clinical areas. (Circadian rhythm effect).

Functional Relationships

503208 390 .48.00 EXTERNAL

Birth Unit (not applicable to units in Children's Hospitals) and Operating Unit with parent access to Recovery. There should be one floor only of separation with a key-controlled lift if horizontal adjacency cannot be achieved

Postnatal Inpatient Beds (less critical as mothers often discharged much earlier)

Part B - Health Facility Briefing and Planning

and will then spend their time in the NICU).

Helipad

Emergency Department Ambulance Bay

MRI Unit

Outpatient facilities in Paediatric Unit if clinics not conducted in Unit

Social work for child protection issues / clinics

Relationship with the local Children's Hospital

DESIGN

Access

503209 390 .49.00 EXTERNAL

- Drop off and parking for parents
- Access to long-term parking (regional families)
- Access for wheelchairs, prams and strollers
- Easy transfer of babies to the Operating Suite
- After hours – but separate - access for parents / staff
- Bed/trolley access for mothers from postnatal wards
- Keyed lift to Helipad or equivalent
- Ambulance
- Outside area readily accessible from the Unit to give families relief from the clinical environment

503210 390 .50.00 INTERNAL

Must allow access and ease of movement for an x-ray or ultrasound unit, a mother in a bed or on a trolley.

Minimise exits – public, staff, goods entry & waste removal.

It is worthwhile calculating the widest and longest object that may travel along the corridors. This may be a mother in a bed who is visiting her baby or a retrieval incubator plus staff. This can ensure that the journey can be safely accomplished in the shortest and most direct route and can facilitate decisions as to which way corridor doors should open, and whether they open automatically or by push-button or electronic access. Such travel patterns may inform the eventual design of the Unit and its connections with the rest of the hospital including evacuation plans.

Car Parking Requirements

503211 390 .51.00 For staff parking, refer to Part C, Clause 790 of these Guidelines for further information.

Disaster Planning

503212 390 .52.00 Evacuation plans must be in place.

Refer to Part B Clause 80 and Part C of these Guidelines for further information.

Infection Control

503213 390 .53.00 General

The importance of good infection control practices in the newborn environment cannot be overstressed.

Clinical handbasins will be provided at a ratio of 1:2 in intensive care and 1:4 special care cots and staff must not have to travel more than 6m from cot to basin.

Isolation rooms will be provided for babies with known infections and for babies transferred in until their infectious status is known. Facility for at least one Class N Isolation Room with Ante Room should be available.

Refer to Part D of these Guidelines for further information.

503253 390 .53.05 CLINICAL HANDBASINS

Clinical handbasins should be provided at a ratio of 1:2 in intensive care and 1:4 in the special care nursery and staff must not have to travel more than 6m from cot to basin. At least one basin must be available for children and people in wheelchairs.

The space occupied by the basins is additional to the size of the cot bay.

Design requirements:

- Hands-free operation is preferred.
- Water flow must not fall directly into the drain outlet
- Sized to avoid splashing and splash-back from the drain.
- No pooling allowed at the bottom of the basin.
- Pictorial hand-washing instructions at every sink.

Environmental Considerations

503214 390 .54.00 ACOUSTICS

"Numerous studies identify noise as a primary stressor for infants, patients and staff of health care facilities, with infants particularly disoriented by noise because their hearing is still immature, ... Noise can prevent an infant from reaping the developmental benefits of sleep, but noise can be reduced through acoustic and configuration modifications to the facility and modifications in staff behaviour through educational programs. However, some forms of noise, such as music, have been shown to be effective in reducing stress in infants by reducing cortisone levels in the brain that are associated with stress" Mardelle Shepley, Neonatal Intensive Care Unit Designs are critical to infant health, June, 2005.

Ambient (i.e. background) noise levels should not exceed an hourly Leq 40-45 dB(A) (AS/NZS 2107:2000 – Acoustics-... - Intensive Care)

Noise control measures may include:

- Acoustic ceiling tiles with a noise reduction co-efficient of at least 0.9. (May depend on local infection control policies)
- Double glazing
- Flooring with sound-absorbing qualities
- Duct baffles
- Walls of sound absorbing materials
- Special acoustic insulation for noise-producing equipment at the cotside. Noise output should be a criterion when selecting equipment

503215 390 .55.00 LIGHTING IN CLINICAL AREAS

All clinical areas should have controlled natural lighting for the development of circadian rhythms in the infants and to enhance staff performance and wellbeing.

Direct overhead ambient lighting in the infant care space must be avoided as well as direct lighting outside the area that may be in the infant's line of sight to minimise danger or damage to the developing retina, visual pathways and developing brain.

Lights should be angled or designed to reduce reflection off the incubator canopy.

"Light levels should be no brighter than needed to complete a task, and individualized lighting should be available at each baby station,... Individualized lighting ... is the best compromise to meet the needs of the infant and the staff because lighting needed by infants may not be comfortable to staff. Reduced lighting also has been shown to significantly reduce conversation levels among staff, the primary contributor to noise in an intensive care unit.

Mardelle Shepley, professor of architecture at Texas A&M, "Neonatal intensive care unit designs are critical to infant health" Jun 17, 2005, 03:32

Thus the infant care space should have three separate light sources and controls:

- General room ambient lighting – controlled by dimmer.
- Individual work space lighting – not direct on infant with controls to allow immediate darkening of any cot position to permit transillumination. (The passing of a light through the walls of a body part or organ to facilitate medical inspection).
- Observation/procedure light for every infant space.
-

Lighting must be colour-corrected to natural lighting. Refer to AS1680 Part 5.

Ambient lighting levels in cot bays shall be adjustable, through a range of at least 100 to 600 lux as measured at each bedside. Refer to AS1680 Part 2:

Recommendations for specific tasks and interiors

503216 390 .56.00 PROCEDURE LIGHTS

Each NICU cot must have a local light for emergency use, observation and procedures. This light should be appropriate in intensity and area of focus and may be adjustable.

High Dependency Level 2 cots require 1 procedure light per cot

Low Dependency Level 2 cots require access to 1 mobile procedure light per work area

Lights must be shaded to minimise shadow and glare to adjoining cots.

503217 390 .57.00 TEMPERATURE CONTROL

The UK report suggests that "babies' cots should be placed so that at all times they are at least 610mm from external windows. [This may be difficult to achieve in all instances]. There should be double-glazing to minimise radiant heat loss, and some shading to prevent rooms from overheating. The latter can be achieved by reflective [or tinted] glass, [integral] Venetian blinds ... internal washable blinds."

UK Report - The NICU "should be air-conditioned throughout and should have the following standards (as specified by the Fifth Consensus Conference in NICU Design:)

- Air temperature of 22-26 deg C (72-78 deg F)
- Relative humidity of 30-60%

Part B - Health Facility Briefing and Planning

- A minimum of six air-changes per hour
- Minimising of draughts on or near infant beds
- Filtration of ventilation air at least 90% efficient.”

Individual thermostats.

Air-conditioning / ventilation outlets located with care to avoid draughts over a cot.

503218 390 .58.00 PRIVACY

Essential – both visual and speech.

503219 390 .59.00 INTERIOR DESIGN

“Color selection relative to infants is largely inconsequential, (she says) because of their lack of visual perception, but with regard to adults, studies have indicated persons in high anxiety situations prefer pastels rather than saturated colors. Common sense, (she says), dictates that color schemes should be subdued so they don't interfere with accurate reading of the infants' skin color.

Space Standards and Components

503220 390 .60.00 ERGONOMICS

Refer Part C of these Guidelines for information.

503221 390 .61.00 HUMAN ENGINEERING

Refer Part C of these Guidelines for information.

503222 390 .62.00 ACCESS AND MOBILITY

For retrieval teams – in and out.

Single point of public entry.

Separate entry for staff ideal but not essential.

Refer Part C of these Guidelines for information.

503223 390 .63.00 DOORS AND CORRIDORS

Refer Part C of these Guidelines for information.

503224 390 .64.00 WINDOWS

Location and design of windows in the Nurseries requires careful planning to provide maximum sun protection. Able to be shuttered; consider the need for double glazing.

Shading devices must be neutral in colour or opaque to minimise colour distortion from transmitted light.

Part B - Health Facility Briefing and Planning

Windows from nurseries into corridors may interfere with family privacy so should be carefully considered. If provided, they should be double glazed with integral Venetian blinds controlled from within the cot bay/nursery.

Safety and Security

503225 390 .65.00 SAFETY

There must be adequate space around the cot to enable staff to work safely – particularly in an emergency and for easy access for equipment such as x-ray and ultrasound units and a mother's bed.

Also refer to Section C 709 for further information.

503226 390 .66.00 SECURITY

The security system should protect the physical safety of infants, families and staff in the Unit and in particular should minimise any risk of infant abduction.

Single controlled entry for the public and visitors.

Consider closed circuit television with phone or intercom for after-hours access.

Separate staff entry and entry for goods and waste removal - if provided - must be by smart card access or similar.

Emergency exits to be alarmed.

Baby security tag system.

Ready access to duress alarms for staff.

Finishes

503227 390 .67.00 WALL PROTECTION

Refer to Part C of these Guidelines

503228 390 .68.00 FLOOR FINISHES

Floor finishes should have the following features:

- Sound absorbing
- Comfort for staff
- Visually attractive
- Minimising resistance to movement of heavy equipment
- Easily cleaned and maintained
- Durable
- Minimise growth of micro-organisms

Carpet should be considered for non-clinical areas.

Also refer to Part C of these Guidelines

503229 390 .69.00 CEILING FINISHES

Sound-absorbing; acoustic tiles/finishes with NRC (noise reduction co-efficient) of

Part B - Health Facility Briefing and Planning

at least 0.9 is required in all clinical areas and main support areas, with the possible exception of isolation rooms, which nevertheless require maximum sound-reduction strategies.

Also refer to Part C of these Guidelines

Fixtures & Fittings

- 503230 390 .70.00 Cot bays must be designed to allow all monitoring equipment to be readily visible and within safe reach of staff. This may require special mounting devices for monitors (articulated arms), rails or shelving at appropriate height and position. The height of monitors and other equipment should be adjustable.

Also refer to part C of these Guidelines and to the Room Data Sheets (RDS) and Room Layout Sheets (RLS) for further detailed information

Building Service Requirements

- 503231 390 .71.00 INFORMATION TECHNOLOGY AND MANAGEMENT SYSTEMS

Systems generally must be compatible with overall hospital systems

There will be facilities for x-ray viewing and a local Neonatal Information System will operate at each cot bay.

An electronic medical record can be expected within the life span of the Unit. Design should anticipate this eventuality so that introduction does not cause major disruption to the environment or functioning of the Unit.

Communications: There must be systems for optimal fail-safe communications between staff, and for parents to communicate by telephone with cotside staff. This will include an emergency call system and nurse assist system.

Information Technology: Fibre optic cabling is required at each cotside for information systems, monitoring and PACS.

Communication Rooms: In order to support the technology, it is vital that Communications Rooms are sized for flexible server space and a large enough central backbone.

- 503232 390 .72.00 TELEPHONES

Hospital telephones in Nurseries should have a light call indicator and low ringing tones to minimise noise. Cordless phones are preferred.

Use of mobile phones at the cotside should similarly be either prohibited or ringing tones turned off.

A telephone outlet should be provided to each NICU cot bay although actual telephones may be restricted to one per 2 Level 3 cots and 1 per four Level 2 cots.

- 503233 390 .73.00 CLOCKS

A clock must be clearly visible from each cot space; this may be via read-out on the cardiac monitor. The Reception, Staff Station, Treatment Room and all nurseries where provided must have a synchronised clock system.

Building Service Requirements

503234 390 .74.00 ARRANGEMENTS FOR MEDICAL SERVICES

A decision will need to be made – sooner rather than later – regarding facilities for provision of medical services and which system is to be installed in the various levels of nursery. Options include:

- Pendant
- Beam system
- Horizontal wall ducts with cabinetry or
- Vertical columns/ducts

and comparative costs will influence the decision.

Ceiling-suspended pendants with single or double articulated arm provide flexibility but occupy more space around the cot, may interrupt natural light and can appear intimidating.

The gantry system is a beam suspended from the ceiling and allows various items of equipment to be attached and moved to suit particular patient circumstances.

Services may be supplied from horizontal or vertical wall-mounted panels/ducts that may be incorporated into cabinetry. It is possible to combine these panels / ducts with rails for mounting monitors etc. This option is more cosmetically pleasing, less intrusive into the cot space, less intimidating, preserves all available natural light and is less expensive. It may however be harder to clean and is less flexible.

Regardless of which option or mix of options is selected, the arrangement of outlets must be identical at each cot so that staff can be familiar with their work zone wherever they are. If a Skills Lab is provided, outlets should be similarly arranged.

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Medical Services Requirements Per Cot :

LEVEL 3

- +Power outlets (GPOs)-20 minimum of which at least 1/3 to be on emergency supply
- +Oxygen-3 minimum
- +Medical Air-3 minimum
- +Suction-3 - 4 if required for nitric oxide scavenging

LEVEL 2 HIGH DEPENDENCY

- +As per Level 3 so they can act as NICU cots when necessary

LEVEL 2 LOW DEPENDENCY -May vary between areas (As per Room Data Sheet)

- +Power outlets (GPOs)-8
- +Oxygen-2
- +Medical Air-2
- +Suction-2

LEVEL 2 LONG TERM CARE

- +Power outlets (GPOs)-6
- +Oxygen-2
- +Medical Air-1
- +Suction-1

503235 390 .75.00 ELECTRICAL SERVICES (ANZNU Guidelines)

Part B - Health Facility Briefing and Planning

All electrical systems will be cardiac protected.

Uninterruptible power supply (UPS) must be available to provide continuous emergency power to NICU [Level 3] equipment. The equipment connected to UPS will be determined by a number of factors including:

- the vital nature of the equipment – e.g. ventilators
- the need for continuous power – e.g. monitor data continuity
- the existence of in-built batteries – e.g. I.V. pumps
- high current drain making items such as incubators unsuitable for UPS.

503236 390 .76.00 USE OF NITRIC OXIDE

Nitric oxide (a vasodilator) is being increasingly used in the treatment of very premature infants. It is usually provided by portable cylinder as required. It may be reticulated from a local manifold but unless reticulated to all Level 3 cots for maximum flexibility, this would be a very costly exercise as stainless steel pipes and fittings are required to ensure corrosion does not occur. And additional scavenging outlets will be required at each cot. It is not recommended

Cylinders may be stored in a well-ventilated Gases Store or in the Equipment Room.

COMPONENTS OF THE UNIT

General

503237 390 .77.00 The Neonatal Intensive Care and Special Care Nursery Unit will consist of a combination of Standard Components and Non-Standard Components.

Standard Components

503238 390 .78.00 Standard Components must comply with details in Standard Components described in these Guidelines. Refer also to Standard Components Room Data and Room Layout Sheets.

Provide the Standard Components as identified in the Schedule of Accommodation.

Non-Standard Components

503239 390 .79.00 Provide the Non-Standard Components as identified in this section and in the Schedule of Accommodation, according to the Operational Policy and Functional Brief.

503240 390 .80.00 PROCEDURE ROOM

DESCRIPTION AND FUNCTION

A room equipped for:

- laser therapy for retinopathy of prematurity
- ligation of patent ductus arteriosus (PDA) or
- drainage of the peritoneum following bowel perforation

The treatment room may also double as a consult/exam room.

The room should be a minimum of 14 sqm, 20 sqm preferred.

Part B - Health Facility Briefing and Planning

LOCATION AND RELATIONSHIPS

Central location close to but away from the main Nurseries.

CONSIDERATIONS

Laser screening and in-use warning lights.
Radiant heater.
Pendant or ducts as for a Level cot bay.
Gases as per Level 3 cot bay.

503241 390 .81.00 CONSULT / ASSESSMENT ROOM

DESCRIPTION AND FUNCTION

The room may be used for:

- Assessment and work-up of infants referred from community for review for admission.
- Follow-Up Clinics
- Alternative Interview Room.

May be occupied by clinicians and family for up to 4 hours.

LOCATION AND RELATIONSHIPS

Locate in the "Hub" of the Unit to prevent unnecessary traffic through clinical areas.

CONSIDERATIONS

- Heat table.
- Scales
- Exam light
- Comfortable chairs
- Desk

503242 390 .82.00 EQUIPMENT CLEANING ROOM

DESCRIPTION AND FUNCTION

Room where equipment is disassembled, cleaned and sterilised / disinfected – including ventilators, respiratory tubing etc. (Teats and bottles may be processed in the Milk Room).

LOCATION

At the perimeter of the Nurseries near the Equipment Store.

CONSIDERATIONS

Oxygen, suction and medical air outlets
"Wet" bench and sink/s
Respiratory tubing disinfectant
"Dry" bench for reassembly
Handbasin.

May also contain washing machine and dryer for baby clothing.

Design and layout must allow natural progression from dirty to clean with dual

Part B - Health Facility Briefing and Planning

access if this can be achieved.

APPENDICES

Schedule of Accommodation

503243 390 .83.00 A Generic Schedule of Accommodation for a Intensive Care-Neonatal /Special Care Nursery Unit at Level 2 and 3 follows. For Level 2 only, Refer HPU 510 - Maternity Unit.

ENTRY/RECEPTION/HUB

Note : Assumes public toilets available nearby, otherwise include.

ROOM/SPACE	Standard Component			Levels 2 & 3	Remarks
ENTRY/RECEPTION/HUB				Qty x m2	For Level 2 only, Refer HPU 510 - Maternity Unit
WAITING	yes			1 x 20	Designed to enable separation of family groups. May include phones and vending
BAY - VENDING				1 x 3	2 machines
BAY - PHONE X 2				1 x 2	1 phone - disabled access
BAY - WATER DISPENSER				1 x 1	
TOILET - DISABLED / BABY CHANGE	yes			1 x 5	
BAY - HANDWASH TYPE C	yes			1 x 2	Refer Standard Components for description of "Type C"
BAY - LOCKERS				1 x 1 (o)	For visitors' use
RECEPTION	yes			1 x 12	For 1-2 staff
STORE - PHOTOCOPY / STATIONERY	yes			1 x 8	
OFFICE - NURSE UNIT MANAGER	yes			1 x 9	
OFFICE - HOME CARE NURSES				1 x 16 (o)	Assumes 2 staff plus 4 sqm storage
OFFICE - DUTY MEDICAL	yes			1 x 12	2 staff. If 3 staff - 15 sqm
WRITE-UP ROOM	yes			1 x 13	"Hot" desks. 4-6 workstations @ 2.2 per station
CONSULT / ASSESSMENT ROOM	yes			1 x 12	No. to be determined.
COUNSELLING/MULTIPURPOSE ROOM	yes			2 x 12	

503244 390 .84.00 PATIENT AREAS
Note : Proposed 50 Cots in Patient Areas-Cot numbers and mix of levels are representative only for purposes of generating a schedule.

PATIENT AREAS					
COT BAY - LEVEL 3	yes			16x 14	Area excludes basins, additional trolleys and equipment & circulation between facing cots

Part B - Health Facility Briefing and Planning

BAY - HANDWASHING TYPE A	yes				8 x 1		1 per 2 cots; part of Nursery. Refer to Standard Components for description of "Type A"
BAY - PERSONAL PROTECTIVE EQUIPMENT (PPE)	yes				8 x 1		Collocate with handbasins
COT BAY - LEVEL 2 HIGH DEPENDENCY/LONGTERM CARE	yes				16 x 12		Excludes basins & circulation
COT BAY - LEVEL 2 LOW DEPENDENCY	yes				14 x 10		Excludes basins & circulation
BAY - HANDWASHING TYPE A	yes				8 x 1		1 per 4 cots minimum; part of Nursery
BAY - PERSONAL PROTECTIVE EQUIPMENT (PPE)	yes				8 x 1		Collocate with handbasins
BATHING/EXAM AREA					1 x 12		For Level 2 Nursery
ISOLATION ROOM - CLASS N	yes				2 x 16		
ANTE ROOM	yes				2 x 6		As required for Class N Isolation Rooms
ISOLATION ROOM - STANDARD					2 x 16		
ISOLATION ROOM LOBBY	yes				1 x 8		Outside the isolation rooms for linen, small staff base, supplies, etc
NEONATAL BAY - GENERAL CARE	yes				4 x 6 (o)		Optional - For "unqualified" babies who are unable to nursed at the mother's bedside
BAY - LINEN / BLANKET WARMER	yes				3		Number will depend on layout and access
BAY RESUSCITATION TROLLEY	yes				2		Number will depend on layout and access
TREATMENT ROOM					1 x 20		
PARENT-INFANT ROOM					4 x 14		Refer Section 390.34.00
PARENT SHOWER / TOILET	yes				2 x 5		

503245 390 .85.00 CLINICAL SUPPORT AREAS

CLINICAL SUPPORT AREAS							
STAFF STATION					1 x 20		
OFFICE - CLINICAL/HANDOVER	yes				1 x 12		
CLEAN UTILITY/MEDICATIONS	yes				1 x 12		0.22 m2 per cot for sterile supplies.
BAY - PATHOLOGY					1 x 4		Bench 1200x800; analyser, ice machine, handbasin. Incl. pneumatic transport station if
MILK STORAGE ROOM					1 x 14		Refrigerators and freezers
LINEN CUPBOARD					1 x 1 (o)		For small items that are not processed by the Linen Service - baby clothes etc
IMAGING ROOM					1 x 6		X-ray / ultrasound. Refer 390.38.00
EQUIPMENT CLEAN-UP / SET-UP					1 x 16		For cleaning cots, incubators, dismantling & cleaning respiratory equipment.

Part B - Health Facility Briefing and Planning

STORE - CONSUMMABLES / STERILE PACKS					1 x 12		Based on 0.22 sqm per cot. Assumes compactus
STORE - EQUIPMENT					1 x 96		Based on 2 sqm per cot. Include space for biomedical assessment & repair
DISPOSAL ROOM					1 x 10		
CLEANER'S ROOM	yes				1 x 5		
BIOMEDICAL WORKSHOP					(o)		Optional depending on location relative to ICU, OR
STORE - INTRA-HOSPITAL TRANSPORT EQUIPMENT					1 x 8		
STORE - RETRIEVAL EQUIPMENT					(o)		Space requirements will depend on the role of the retrieval service. Refer 390.43.00.

503246 390 .86.00 FAMILY SUPPORT AREAS Note : For immediate family only.

FAMILY SUPPORT AREAS							
FEEDING / EXPRESSING ROOM					1 x 12		For expressing milk & breast feeding. 3-4 mothers
PARENT LOUNGE / DINING / BEVERAGE					1 x 20		Up to 12 people.
CHILD PLAY AREA	yes				1 x 10		For siblings. 2.5 sqm per child
PARENT RESOURCE AREA					1 x 9		Quiet room for use of laptop, literature & other resources.
TOILET - PARENT, DISABLED	yes				1 x 5		With baby change table
TOILET - PARENT	yes				1 x 3		
LAUNDRY: DOMESTIC					1 x 6 (o)		Baby and parent clothing. Incorporate linen cupboard for small items
DISCOUNTED CIRCULATION %					40%		

503247 390 .87.00 STAFF OFFICES & AMENITIES Note : Requirements will be determined by the Staff Establishment and will include office space for research staff as appropriate.

STAFF OFFICES & AMENITIES							
OFFICE - CLINICAL DIRECTOR	yes				1 x 12		
OFFICE - CONSULTANTS	yes				9		Determined by staff establishment
OFFICE: LACTATION NURSE					1 x 12		Includes storage
OFFICE - SOCIAL WORKER	yes				1 x 12		2 staff
OFFICE - WORKSTATIONS - MEDICAL	yes				5.5		
OFFICE - WORKSTATIONS - NURSING	yes				5.5		

Part B - Health Facility Briefing and Planning

STORE - PHOTOCOPY/STATIONERY	yes				1 x 8	
SEMINAR ROOM	yes				1 x 30	Up tp 20 staff
SKILLS LABORATORY					1 x 20	Adjacent to Tutorial Room. Operable wall optional. Provide medical gases.
LIBRARY / REFERENCE ROOM					1 x 9	
PACS VIEWING/CASE CONFERENCE					1 x 9	For 3 -4 staff
STAFF ROOM	yes				1 x 40	
CHANGE ROOM / TOILETS - FEMALE					1 x 18	60 quarter lockers, hanging space, 2 toilets
CHANGE ROOM / TOILETS - MALE					1 x 6	10 quarter lockers, 1 toilet
SHOWER - STAFF (UNISEX)	yes				1 x 3	
OVERNIGHT ROOM	yes				2 x 10	
DISCOUNTED CIRCULATION %					32%	

Functional Relationships

503248 390 .88.00 A diagram of key functional relationships is attached.

Checklists

503249 390 .89.00 Refer also to Part C of these Guidelines for Security general requirements. For Planning Checklists refer to Part A, B, C & D of these guidelines.

References and Further Reading

503250 390 .90.00 Design Guidelines for Neonatal Units for Australia and New Zealand. First Draft – 17th May 2004, Dr. Neil Roy, Divisional Director (Medical) – Neonatal Services, Royal Women’s Hospital, Melbourne and Dr. Carl Kuschel, Director of Neonatal Unit, National Women’s Hospital, Auckland, New Zealand for the Australia & New Zealand Neonatal Network.

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FUNCTIONAL RELATIONSHIP DIAGRAM –INTENSIVE CARE – NEONATAL/ SPECIAL CARE NURSERY

The following diagram sets out the relationships between zones in a Neonatal / Special Care Nursery

