

Part B – Health Facility Briefing & Design

20 Birthing Unit



iHFG

International Health Facility Guidelines

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20 Birthing Unit

1 Introduction

Description

The Birthing Unit provides facilities for the safe prenatal care, delivery and immediate postnatal care of mothers and their newborn babies. The number of delivery rooms and the size of the associated service areas shall be as required by the proposed obstetrical workload outlined in the Service Plan.

The Birthing Unit is associated with the Maternity Unit (or Obstetric Unit) which incorporates of the following areas:

- Maternity Inpatient unit for mothers suffering from antenatal complications
- Maternity Inpatient unit for postnatal care, normal or complicated
- General Care (Well Baby) Nursery for newborn babies requiring minimal care
- Special Care Nursery for newborn babies requiring care for complications arising from medium risk factors
- Neonatal Intensive Care Unit (NICU) may be incorporated into Maternity Unit or with Critical Care Units according to the Operational Policy of the facility

This FPU will address Birthing Unit facilities and requirements specifically. Refer to the Maternity Unit FPU in these Guidelines for Antenatal and Postnatal Inpatient Unit, General Care Nursery and Special Care Nursery. Neonatal Intensive Care (NICU) will be the subject of a separate FPU.

2 Functional and Planning Considerations

Operational Models

Hours of Operation

The Unit will operate on a 24 hour per day basis, with admissions at any time of the day or night.

Models of Care

Maternity care including antenatal care, delivery and postnatal care may be provided in a number of different ways that will impact on the organisation and provision of facilities including:

- Midwife-managed or midwife case load care, where care is delivered by a single midwife or by a group/ team of midwives, from both hospital and community settings
- Obstetrician-led care, where an Obstetrician is the main provider of antenatal care and is present for the birth. Nurses provide postnatal and sometimes intrapartum care
- General practitioner-led care, where a medical doctor provides the majority of the antenatal care with referral to specialist obstetric care as needed. Obstetric nurses or midwives perform intrapartum and immediate postnatal care but not at a decision-making level as the Medical doctor is present during the birth
- Shared Care, which may include General Practitioners, Midwives, Obstetrician and/ or Consultants (such as Neonatal Specialists)
- Woman Centred Care where women have the choice of delivery method, practitioner and location, whether in hospital, in a Birthing Centre or at home.

The actual care of expecting mothers may be varied by the facility to some extent to cater for cultural differences and preferences. This may include additional services such as aroma therapy (water based or oil based), or Birthing Balls.

A traditional Obstetrical model of care is based on the patient being moved between areas dedicated to the individual processes. The preferred design for a Birthing Unit however, particularly for smaller birthing centres, includes a number of self-contained rooms fitted out to perform several of the processes, without the patient having to move.

These models are explained in greater detail below.

Labour, Delivery, Recovery Model (LDR)

It is highly recommended that the LDR model is adopted. LDR design model accommodates the delivery process from labour through delivery and recovery of mother and baby within the one room. The room is equipped to handle minor complications. The patient is only moved from this room in the case of complications requiring surgery (e.g. to the Caesarean section delivery room) or after recovery, to an in-patient room. LDR rooms are for single occupancy. LDR is the default model within these Guidelines.

Labour, Delivery, Recovery, Postpartum Model (LDRP)

Room design and capability to handle emergencies are similar to LDR rooms. The LDRP model eliminates an additional move to postpartum care. Equipment is moved to the room as needed, rather than moving the patient to an alternative room. This model is particularly relevant in the increasing demand for early discharge, within 24 hours.

The models chosen could change depending on the pregnancy's risk factors. The size of the Birthing unit is another element influencing the care delivery strategies. A more traditional arrangement, which includes a separate Birthing Suite and maternity in-patient beds, may be used by larger Birthing facilities. The LDR and LDRP models' numerous self-contained rooms are included in the layout that smaller Birthing centres want.

General Practice Shared Care Model (GPSC)

With varied degrees, midwives, general practitioners, and obstetricians collaborate in the GPSC paradigm. It usually only applies to low-risk pregnancies since women who are pregnant at such risk levels need more specialized treatment (note: pregnancy risk can alter during the course of the pregnancy). The majority of prenatal and postnatal care is delivered by a general practitioner, while hospital staff handles inpatient and outpatient obstetric care.

This traditional Obstetrical model is based on the patient being moved between areas dedicated to the individual processes. Facilities enabling the successful collaboration between caregivers should be considered.

If the Birthing Unit does not provide a standalone Special Care Nursery or Neonatal Intensive Care Unit, a Level 1 (General Care) nursery may be provided.

Planning Models

The Birthing Unit may be provided as a:

- Unit within the Maternity Unit in a Hospital facility
- Stand-alone facility in a community setting, which may also be referred to as a Birth Centre (or names such as Mothercraft)

For ease of access for patients in labour, a ground floor location for the Birthing Unit is recommended; however, ready access via lifts is acceptable. The Unit will require easy 24-hour access for patients arriving by private vehicles, taxi cabs and ambulances. A ground floor location or directed lift access is therefore preferable.

The Birthing Unit will require rapid access to an operating unit for emergency Caesarean Section deliveries and this may be achieved by incorporation of an Operating Room within the Unit or convenient and rapid access to the main Operating Unit within a hospital. Inclusion of operating facilities within the Unit will be determined by the Service Plan and Operational Policy. If the unit utilises a separate Operating Unit, convenient access shall be provided. Rapid and convenient access can be defined as the following:

- 180 meters must be able to be horizontally travelled in 3 minutes at 1 metre per second or;
- A combination of horizontal and vertical travel. This can be achieved with vertical travel at 3 meters per second, plus 45 seconds waiting for the lift as well as horizontal travel at 1 meter per second to a maximum of 3 minutes total travel time

The Birthing Unit shall be located and designed to prohibit non-related traffic through the unit. When Delivery Room and Operating Rooms are in proximity, access and service arrangements shall be such that neither staff nor patients need to travel through one area to reach the other.

Access to an outdoor area is also desirable for patient recreation; this may be provided as a courtyard in a multi-storey facility. Patients often benefit from walking for pain management.

If the main operating theatres are utilised for Emergency C section, one of them should be assigned as an Emergency C section Theatre; this theatre must not be booked for other types of surgery including elective C section.

The functional needs of the unit should take priority over location requirements. However, some consideration should be given to reducing disturbing sounds (from on-site and off-site) such as sirens and traffic, and avoiding disturbing views, such as cemeteries and mortuaries.

The hours of operation of other units should be considered when planning the location of the Birthing Unit. Staff should not be working in an isolated area and the spatial organisation should enable staff to observe and assist each other. Staff should not have to travel through unoccupied areas at night.

The placement of the Birthing Unit within the spatial plan may also take into account the accessibility of women and their supporters to food and retail amenities that may be offered within a hospital setting.

Functional Areas

The Birthing Unit consists of the following functional areas:

- Entry/ Reception area including:
 - Waiting areas for families and provisions for children
 - Public amenities including parenting facilities and play area
 - Consult/ Interview room for discussions with patients and family members
 - Storage for wheelchairs
- Birthing Suite with:
 - A dual-purpose room for assessment/ examination and recovery
 - Delivery rooms
 - Associated Ensuites and Bathrooms
 - Waiting areas within the Birthing Unit for support persons and families
- Support Areas including:
 - Beverage making facilities
 - Bays for storage, Linen, blanket warmer as required, Resuscitation Trolley and mobile equipment
 - Cleaner's room
 - Clean Utility/ Medication Room
 - Dirty Utility
 - Disposal Room
 - Handwashing facilities at entries and exits
 - Staff Station
 - Storerooms for sterile stock, equipment and general supplies
- Staff Areas including:
 - Change Rooms with lockers, toilets and showers
 - Meeting Rooms
 - Offices and write-up/ handover rooms
 - Overnight On-call rooms
 - Staff Room including beverage making facilities
- Optional Operating Rooms area for emergency caesarean sections with
 - Operating Room
 - Baby resuscitation: may be in the same room or situated at a separate but immediately adjacent location. Reasonable privacy is required between the mother's area and baby's area
 - Scrub room
 - Holding and Recovery bays
 - Support areas including clean-up and sterile stock room

Entry/ Reception Area

The Reception is the receiving hub of the unit and should therefore ensure the security of the entire Unit through access control. The Reception may be used for the registration of expectant mothers; alternatively this can occur at the Staff Station within the Birthing Suite, according to Operational Policy. Good access from Reception to the nursing administration offices and education areas is beneficial.

Patients, their supporters and members of the public will need to have good access to amenities including separate male/ female toilet facilities, prayer rooms (a minimum of 1 prayer room per gender, per floor) and waiting areas. A separate waiting area for families should be provided, preferably with a small play area for children.

A Consult/ Interview room may be included for private discussions with patients and families.

Birthing Suite

The Birthing Suite caters for all the processes surrounding the birth of a newborn: assessment, labour, delivery (with/ without intervention), bonding between mother and baby (and the greater family), resting and recovery and finally, the transfer to a maternity inpatient unit or discharge in case of a community midwifery programme. Alternatively most of these processes will take place in one dedicated room in the LDRP model of care. The balance of this FPU will focus on the LDR model described previously.

A Birthing Suite shall include:

- Delivery rooms, (typically LDR type), each with an Ensuite containing shower and toilet facilities, provision of a bath is optional. Birthing units require acoustic privacy from other parts of the unit
- An Examination/ Assessment Room; a multi-purpose room for consultations, examinations and if required, for delivery (this may be identical to an LDR room for maximum flexibility)
- Family/ supporters facilities, allowing them to take part in the entire delivery process, including provision for partners to stay overnight; this may be provided within the LDR Delivery Rooms
- Staff and support areas including Beverage Bay, Storage, Utilities, Staff Change areas and Staff Rooms

Birthing Rooms and Ensuites are to comply with Standard Components particularly for essential inclusions which contain provisions for maternal and baby resuscitation equipment and services. Refer to Standard Components Delivery Room, Ensuite – Delivery Room and Bathroom for details.

Water Birthing

If water birthing is included in the Operational Policy, the Delivery Room will require direct access to a water pool area; this may be integrated within the Delivery Room. Water pools may be a fixed item or removable and will need to be installed to manufacturer's specifications. Additional considerations include:

- Provision of non-slip surfaces to the area
- Provision of grab rails for patients
- Provision of conveniently located emergency call and patient/ nurse call buttons
- Provision of medical gases including nitrous oxide and oxygen used for pain relief to the pool area
- Provision of sufficient space to enable a patient lifter and staff to access the pool in the event of a patient needing to be lifted out of the pool
- Ongoing cleaning and disinfection of the pool
- Disposable covers may be considered for birthing pools

Note: These Guidelines do not suggest or recommend water birthing as a safe or appropriate birthing option. Operators should take full responsibility for the choice of Water Birthing.

Support and Staff Areas

Support Areas will include Bays for linen, resuscitation trolley, mobile equipment, Cleaners Room, Clean and Dirty Utilities, Disposal Room, Staff Station and Store Rooms for consumable stock, sterile stock and equipment.

Like elsewhere in the facility, sharing space, equipment and staffing should be promoted, both within the Unit and with other units. Within the unit, sharing of staff stations, support and waiting areas may be possible between the different zones. Toilet facilities, prayer rooms and educational spaces could be shared with other units. Where spaces are shared, the size should be modified proportionally to suit the number of occupants.

Operating Room/s and Support Facilities

If provided within the Obstetric Unit, emergency Operating Rooms shall have:

- Operating Room to comply with Standard Components – Operating Room, General; provision should be made for twin baby resuscitation areas within the Operating Room
- Scrub-up/ Gowning Bay to comply with Standard Components Scrub-up/ Gowning
- Clean-up Room
- Two patient bed bays for recovery for each Operating Room, to comply with Standard Components Patient Bay, Recovery Stage 1

An Anaesthetic Room is optional as anaesthetics are generally administered in the Operating Room in urgent cases, however the room may be used for patient preparation and administration of spinal/ epidural anaesthetics.

The time taken to travel to the Operating Room from the Delivery Room ideally should not exceed three minutes. An assessment of the distance between the Delivery Room and the Operating Rooms should be done taking into consideration the average speed of travel and whether lifts are involved including any delays associated with lift travel.

3 Functional Relationships

External Relationship

Obstetric emergencies can rapidly result in life threatening situations for the mother or neonate.

The Birthing Unit requires rapid access to:

- Operating Unit
- Anaesthetic Services
- Intensive Care Unit – General and Neonatal
- Emergency Unit (for urgent admissions from Emergency Unit)
- Ambulance transport parking bay
- Helipad

The Birthing Unit should be in close proximity to:

- Short term parking/ drop off bay for dropping off expectant mothers
- Hospital car parking and public transport access points
- Outpatients/ Women's' Health Units
- Inpatient antenatal and postnatal Units
- General Care Nursery
- Special Care/ Neonatal Intensive Care Nursery
- Flower delivery drop off and parking bay

Other departments that may relate to the Birthing Unit include Community Maternity services, Day Only Units, Medical Imaging (particularly for obstetric ultrasound), Pathology and Pharmacy services.

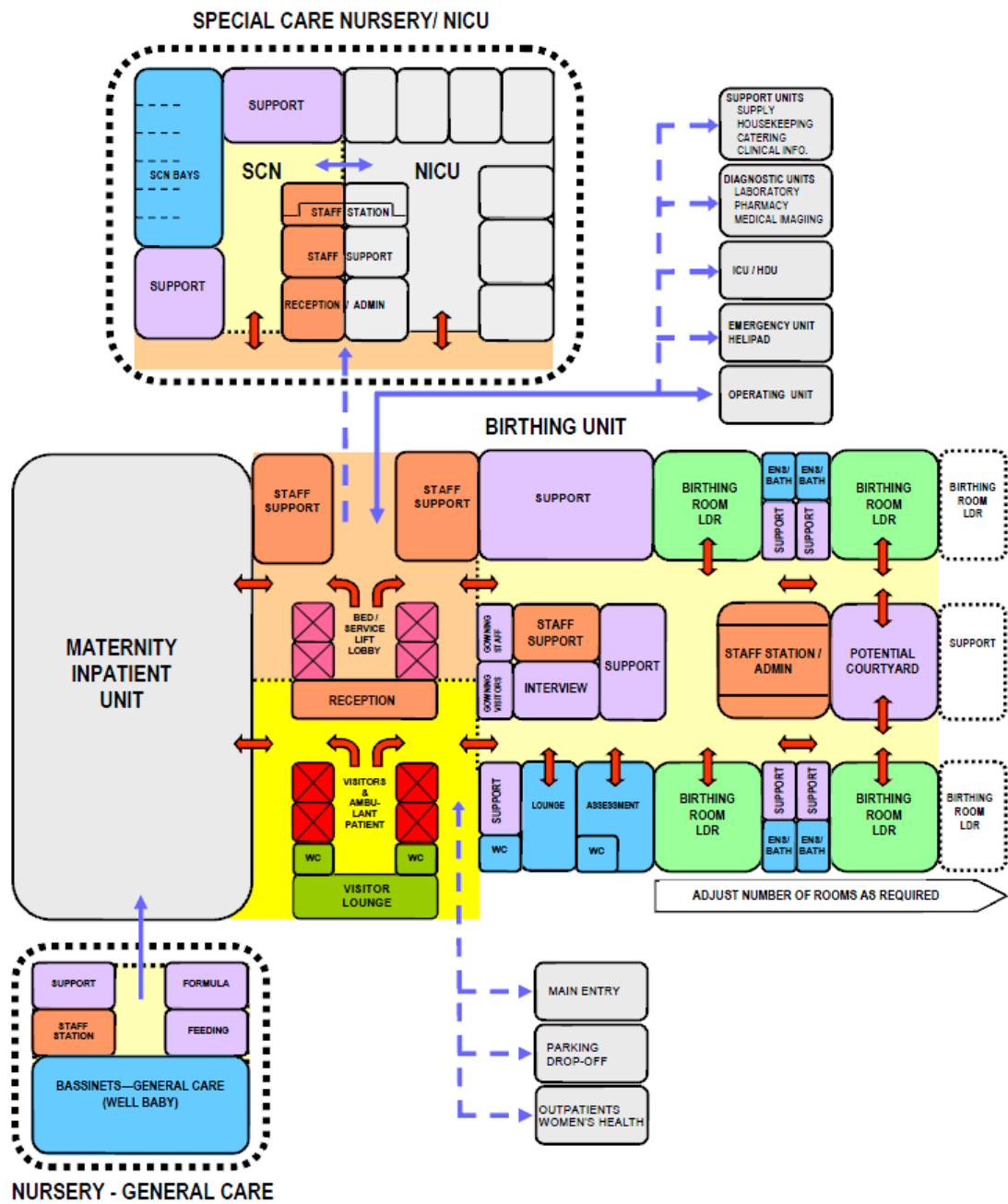
Internal Relationships

The Reception area at the entrance to the Unit should provide access control for all visitors to the Birthing Unit. Adjacent to Reception separate Waiting areas may be provided for females and families. From the Reception, direct access to assessment/ consultation/ examination, and delivery rooms shall be provided.

Direct access to a climate controlled internal garden or courtyard for mothers and their supporters would be beneficial.

These relationships are demonstrated in the Functional Relationship Diagram below.

Functional Relationship Diagram
 Birthing Unit (All Models)



LEGEND

- | | | | | |
|---------------|------------------------|------------------|-----------------------|----------------------------------|
| Patient Areas | Procedural Areas | Public Amenities | Direct Relationship | Path of Travel, Patients & Staff |
| Support Areas | Circulation | Public Corridors | Indirect Relationship | Controlled Access |
| Staff Areas | Staff/Service Corridor | Public Lifts | Service Lifts | |

Important external Relationships identified in the diagram above include:

- External access and entry for arriving patients, directly from an access corridor or via a lift
- Close access for emergency patients from a helipad or Emergency Unit
- Close access to Operating Unit
- Access to service Units via a service corridor
- Ready access to Neonatal ICU/ Special Care Nursery and Maternity Inpatient Units

The optimal internal relationships are demonstrated in the diagram above:

- Reception located with control of access for visitors
- Waiting area at the Unit entry and within the Unit for families
- Ready access between Birthing Suite, Nurseries and Maternity Inpatient Units
- Separate entrances to the Unit for staff and visitors
- Staff Station located centrally to Delivery Rooms
- Support areas decentralised, located close to treatment areas for staff convenience

4 Design Considerations

Patient Treatment Areas

Birthing Unit design involves recognising and respecting the diverse needs, values and circumstances of each patient.

As 24-hour access is required to the Unit, a dedicated drop off zone and entry with rapid access to the Birthing Unit or lifts that transport patients directly to the Birthing Unit is required. After-hours access requires careful consideration, it should be well sign-posted and conveniently located.

Delivery Rooms (LDR & LDRP)

Each Delivery Room (LDR or LDRP) should be for a single occupancy and include a neonatal resuscitation space and equipment storage within the room.

The trend in Delivery Room design is to provide a home-like environment with concealed services and procedural lighting. Additional considerations include:

- Privacy screening from the corridor
- Temperature control within the room for mother and baby
- Space for patients to walk around the room with sufficient supports
- Provisions within the room to support a variety of pain relief methods such as bean bags, alternative seating areas and shelves for patients to lean on at standing and sitting heights
- Provision of soothing music or aromas
- Operating theatre should be equipped to cater to multiple births. Allowance should be provided for two baby positions in the emergency C – Section room for this purpose

Current research indicates the bed should not be the focal point in the room, indicating to the patient that the bed is the centre of attention. Consideration should be given to location of comfortable seating as the focal point and the Ensuite and bathing areas within the room to create privacy.

Delivery Rooms (LDR & LDRP) fittings, furniture, fixtures, equipment and services must comply with Standard Components Delivery Room.

Ensuite Bathrooms and Showers

The Delivery Room will require an Ensuite Bathroom or Ensuite Shower with toilet. The shower should have dual shower sprays in opposing directions.

If a Bathroom is provided, it will require an island bath with access around the bath for patient lifting, as well as steps and rails for safe patient access.

Environmental Considerations

Acoustics

The Unit in general should be isolated from disturbing sounds of traffic and sirens of ambulances, either through its strategic location or through applying sound absorption and insulation techniques.

The following areas require careful consideration of acoustic privacy:

- Noisy spaces such as Waiting and play areas shall be located further away from the treatment spaces and staff areas
- Loudspeakers, paging systems and music in common areas
- Interview areas with patients where confidential information is discussed must not be overheard in adjacent areas
- Delivery sounds must not be audible outside confines of space

Natural Light/ Lighting

Natural light and views through a window is essential and shall be available in all Delivery Rooms and is desirable in-patient lounge areas and staff rooms. Windows are an important aspect of sensory orientation and psychological well-being of patients.

All high acuity care areas such as Delivery Rooms (including Bathrooms/ Ensuites), assessment rooms, baby examination/ resuscitation areas require colour-corrected lighting to allow staff to observe natural skin colour. Lighting in Delivery Rooms should be dimmable for patient comfort.

Privacy

Privacy is essential for both the Assessment and Delivery Rooms. Avoid direct views into the room from the outside, through the windows and through the door – i.e. do not provide door viewing panels and a privacy curtain should be allowed for. Furthermore, the foot end of the bed should be facing away from the door or the access point.

Interior Décor

Interior décor includes colour, textures, surface finishes, fixtures, fittings, furnishings, artworks and atmosphere. It is desirable that these elements are combined to create a calming, non-threatening environment that meets the expectations of patient, staff and visitors.

Delivery rooms, lounges, treatment, and reception areas should be open and inviting, of domestic scale and décor rather than institutional. Access to outdoor areas is desirable.

Colours should be used in combination with lighting to ensure that they do not mask skin colours particularly in rooms where clinical observation takes place.

Space Standards and Components

Accessibility

Design should provide ease of access for wheelchair bound patients in all patient areas including Assessment Rooms, Delivery Rooms and Lounges. Waiting areas should include spaces for wheelchairs (with power outlets for charging electric mobility equipment) and suitable seating for patients or their visitors with disabilities or mobility aids. The Unit may require provision for bariatric patients.

Doors

Doors used for emergency bed transfer within the Birthing or to Operating Units must be appropriately positioned and sized. A minimum of 1400mm clear opening is recommended for doors requiring bed/ trolley access.

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

Ergonomics/ OH&S

Design of clinical spaces including Delivery Rooms and Nurseries must consider Ergonomics and OH&S issues for patient, visitor and staff safety and welfare.

Refer to Part C - Access, Mobility and OH&S of these Guidelines for further information.

Size of the Unit

The number of Delivery Rooms required will be dependent on:

- The size of the population served by the Unit and demographic trends
- The average length of stay
- The number of booked Caesarean section deliveries
- Early discharge programmes
- Transfers from other units or hospitals

Assuming an LDR model where Delivery rooms may be occupied for 24 hours after admission; the following can be used as a guide:

- 3 Delivery Rooms with 1 Assessment room for up to 1,000 births
- 4 Delivery Rooms with 1 Assessment room for up to 1,500 births
- 5 Delivery Rooms with 1 Assessment room for up to 2,000 births
- 8 Delivery Rooms with 1 to 2 Assessment rooms for up to 3,000 births

Schedules of Accommodation have been provided for typical Birthing Units located within a hospital with 2, 4, 8 and 12 rooms.

Refer to Section 5 Schedules of Accommodation.

Safety and Security

The number of access points to the unit should be minimised. All entries should be under direct control of staff and daytime access is to be via the Reception area. After-hours access should provide direct access to the Birthing Suite. As a minimum, this entry point should be fitted out with video intercom and remote access hardware, allowing for 24 hours access for expectant mothers, support persons of patients in the Unit or parents of neonates.

All entry points should also be controlled through an Access Control System – a combination of reed switches, electric strike/ magnetic locks and card readers. Card readers should be provided on both sides of these entry points and these only should be deactivated in case of an emergency. CCTV surveillance of entry/ exit points is also recommended and if provided, should be monitored at a central control point.

To increase the safety of newborns, the use of electronic tagging may be implemented immediately from birth. This involves a combination of the infant wearing a tag around the ankle and sensor panels located at every access and egress point to the unit and possibly the entire hospital or facility.

All reception areas and staff stations are to have duress alarm buttons in obscure but easily accessible locations.

To promote OH&S safety of staff, where lifting devices are used for baths or pools within the delivery rooms, special attention should be given to the storage and handling of this equipment.

Finishes

A homely, non-clinical ambience is preferred for delivery rooms and lounge areas. Medical equipment and services should be easily accessible but concealed behind built in joinery or screens.

The Birthing Unit requires the following finishes:

- Floors that are smooth, impervious to moisture and easily cleaned
- Walls that are seamless, protected from trolley damage and easily cleaned
- Ceilings that are sealed and easily cleaned

Colours should be chosen carefully to avoid an adverse impact on the skin colour of patients and neonates.

Refer to Part C - Access, Mobility and OH&S of these of these Guidelines for more information on wall protection, floor finishes and ceiling finishes.

Fixtures, Fittings and Equipment

Patient and foetal monitoring such as cardiotocograph (CTG) monitors should be located to provide ready access to the patient and the monitor.

For specific information on fittings, fixtures and equipment typically included in the Unit refer to Part C - Access, Mobility and OH&S in these Guidelines, the Room Layout Sheets (RLS) and Room Data Sheets (RDS).

Building Service Requirements

Communications

The Birthing Unit will require efficient and reliable IT/ Communications services for effective operation of the Unit.

The following items relating to IT/ Communication shall be addressed in the design of the Unit:

- Electronic patient records and patient information systems
- Electronic forms and requests for investigations, pharmacy, catering, supplies
- Picture archiving communications systems (PACS)
- Telephones including cordless and mobile phones
- Computers, laptops and tablets
- Patient call, nurse assist call, emergency call systems
- Paging for staff and emergencies
- Duress systems, personal mobile duress systems may be considered
- Supply and records management systems including bar coding for supplies
- Wireless network requirements
- Videoconferencing requirements
- Communications rooms and server requirements

Nurse Call

Patient call, staff assist and emergency call facilities shall be provided in all patient areas including Assessment rooms, Delivery rooms, Lounges, Toilets, Ensuites and Bathrooms for patients and staff to request urgent assistance.

Individual call buttons will sound an announcement system. The circulation area should include annunciator panels strategically placed, especially in staff stations, staff rooms, and meeting rooms. These panels should be "non-scrolling" in nature so that all calls may be seen at once. In order to ensure that patients are not overly bothered at night, these call systems' audible signal should be controlled. At all instances, a discreet approach must be taken when alerting staff members.

Heating Ventilation and Air Conditioning (HVAC)

The Birthing Suite area should be maintained with positive pressure relative to adjacent areas.

The Delivery and Assessment Rooms should be between 20° C to 23° C, and should be individually adjustable allowing the temperature to be raised quickly to 25°-27° Celsius when a baby is born. The temperature control devices should be located within the room and should only be accessible to the staff.

To ensure confidentiality and reduce noise the ventilation ductwork should minimise transmission of sounds throughout the Unit.

Ventilation and proprietary scavenging systems should be designed to control occupational exposures to medical analgesic gases, used in delivery and recovery rooms.

Refer to Part E - Engineering Services for relevant HVAC standards applicable to Delivery Rooms.

Medical Gases

Oxygen, medical air and suction will be required to each Assessment and Delivery Room for mother and baby resuscitation. Consideration should be given to provision of additional medical gases in Delivery Rooms for twin deliveries. Oxygen/ nitrous oxide used in the Birthing Suite will require scavenging suction. For stand-alone Birthing Units a gas bottle store and manifold room will be required located within an external enclosure, adjacent to road access.

Refer to Part E - Engineering Services for relevant standards related to medical gas installations.

Infection Control

General

The placenta is considered contaminated/ clinical waste and should be disposed of according to the hospital waste management policy. Disposal using placental macerators is not appropriate and should be avoided. Freezer storage should be provided within the unit to allow for collection by the family, for cultural reasons. Placenta disposal using cultural methods should also be accommodated.

Hand Basins

Each Assessment and Delivery Room will include a clinical scrub basin. Handwashing basins will be required at the Unit entry and exit, Staff Stations and in corridors.

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

Antiseptic Hand Rubs

Corridor handbasins may be replaced with Antiseptic Hand Rub dispensers, depending on infection control policies. Antiseptic Hand Rubs are to comply with Part D - Infection Control, in these guidelines. Antiseptic Hand Rubs, although very useful and welcome, cannot fully replace Handwash Bays. A combination of both is required.

Refer to Part D – Infection Control for additional details

Isolation Rooms

The need for Negative Pressure Delivery Isolation rooms is to be evaluated by an infection control risk assessment and will reflect the requirements of the Service Plan.

5 Standard 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.

Standard Components have considered the required design parameters described in these Guidelines. Each FPU should be designed with compliance to Standard Components - Room Data Sheets and Room Layout Sheets, nominated in the Schedules of Accommodation in Appendices of this FPU.

Non-Standard Rooms

Non-standard rooms are rooms are those which have not yet been standardised within these Guidelines. As such there are very few Non-standard Rooms. These are identified in the Schedules of Accommodation as NS.

Bay - Neonatal Resuscitation

A Bay for assessment, resuscitation, treatment and transfer preparation of Neonates with critical conditions.

A handwash bay (type A) must be located in close proximity. Resuscitation diagnostic equipment such as infant resuscitation trolley, and ventilator must be provided. Isolated power (IPS) must be provided.

6 Schedule of Equipment (SOE)

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

Room/ Space	Standard Room Code	Item Description	Qty	Remarks
Delivery Room	birm-i	Air flowmeter	2	1- for mother and 1- for baby
		Bassinet	1	
		Bed: birthing, electric	1	
		Infusion pump: double channel	1	Qty TBC by project
		Infusion pump: epidural	1	Qty TBC by project
		Infusion pump: syringe	1	Qty TBC by project
		IV pole: mobile	2	
		Light: exam/ procedure, dual, recessed	1	
		Light: procedure, single, mobile	1	optional depending on operational requirements
		Locker: bedside	1	
		Monitor: physiologic, intrapartum, maternal/ foetal	1	
		Oxygen flowmeter	2	for mother
		Oxygen flowmeter: low flow	1	for baby
		Suction adapter	2	for mother
		Suction adapter: low flow	1	for baby
		Table: overbed	1	
Warmer unit: neonatal, with resuscitation	1			
Examination/ Assessment Room	exas-b-i	Diagnostic set: wall mounted	1	optional depending on operational requirements
		Doppler: foetal, handheld	1	
		Light: examination, ceiling	1	
		Monitor: physiologic, antepartum, CTG	1	
		Oxygen flowmeter	1	
		Stretcher: OB/ Gyn	1	or birthing bed depending on operational requirements
		Suction adapter	1	
Ultrasound scanning unit: OB/ Gyn	1			

7 Schedule of Accommodation

The Schedule of Accommodation (SOA) provided in the Appendices of this FPU 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 comprises of the sub-total areas of these rooms plus an additional percentage of the sub-total applied as the circulation (corridors within the Unit). Circulation is represented as a percentage is the minimum recommended target area. Any external areas and optional rooms/ spaces are not included in the total areas in the SOA.

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

Any proposed deviations from the mandatory requirements, justified by innovative and alternative operational models may be proposed within the departure forms included in Part A of these guidelines for consideration by the health authority for approval.

The table below shows a typical SOA for a 2, 4, 8, and 12 rooms for the Birthing Unit within a health facility.

Birthing unit located within a health facility

ROOM/ SPACE	Standard Component Room Codes	RDL ALL Qty x m ² 2 Rooms			RDL ALL Qty x m ² 4 Rooms			RDL ALL Qty x m ² 8 Rooms			RDL ALL Qty x m ² 12 Rooms			Remarks
Entry / Reception														
Reception/ Clerical	recl-10-i similar				1	x	10	1	x	12	1	x	12	Provides access control to the unit
Waiting (Male / Female)	wait-sub- k wait-10-i wait-20-i				2	x	5	2	x	10	2	x	20	Divided into male/ female/ family areas
Play Area	plap-10-i similar	1	x	10	1	x	10	1	x	10	1	x	10	Adjacent to family waiting
Parenting Room	par-i				1	x	6	1	x	6	1	x	6	May share with another collocated unit
Bay - Wheelchair Park	bwc-i similar	1	x	2	1	x	4	1	x	4	1	x	4	May share with another collocated unit
Consult/ Exam Room	cons-i				1	x	14	1	x	14	1	x	14	Optional
Store - Files	stfs-10-i similar				1	x	8	1	x	10	1	x	10	For clinical records; optional if electronic records used
Toilet - Accessible	wcac-i							2	x	6	2	x	6	May share with another collocated unit
Toilet - Public	wcpu-3-i				2	x	3	2	x	3	2	x	3	Male/ Female; May share with another collocated unit
Patient Areas		2 Rooms			4 Rooms			8 Rooms			12 Rooms			
Examination/ Assessment (Delivery Room)	exas-b-i				1	x	23	1	x	23	2	x	23	In addition to Delivery Rooms; includes 2.5m ² store within the room; also used as a Delivery room.
Delivery Room	birm-i	2	x	30	4	x	30	8	x	30	12	x	30	Includes scrub basin and 3 m ² store within the room
Ensuite - Delivery Room	ens-br-a-i or ens-br-b-i	1	x	5	3	x	5	5	x	5	7	x	5	Two options provided, they are either with or without bath but both have showers. Minimum requirement is to provide a shower. A larger ensuite is recommended.
Majlis	maj-30-i										1	x	30	Optional; Qty to be determined by the Service Plan of the Hospital
Waiting (Male/ Female)	wait-10-i wait-15-i wait-20-i similar				2	x	10	2	x	15	2	x	25	Within Birthing Suite, for support persons
Procedure Room	proc-20-i	1	x	20	1	x	20	1	x	20	1	x	20	Optional; with resuscitation facilities, separate from resus in LDR Room
Support Areas														

ROOM/ SPACE	Standard Component Room Codes	RDL ALL Qty x m ² 2 Rooms			RDL ALL Qty x m ² 4 Rooms			RDL ALL Qty x m ² 8 Rooms			RDL ALL Qty x m ² 12 Rooms			Remarks
		1	x	5	1	x	5	1	x	5	1	x	5	
Bay - Beverage	bbev-ip-i bbev-enc-i	1	x	5	1	x	5	1	x	5	1	x	5	
Bay - Blanket/ Fluid Warmer	bbw-1-i	1	x	1	1	x	1	1	x	1	1	x	1	Optional
Bay - Handwashing, Type B	bhws-b-i	1	x	1	1	x	1	2	x	1	3	x	1	At entry to the Suite and in Corridors
Bay - Linen	blin-i	1	x	2	1	x	2	2	x	2	2	x	2	
Bay - Mobile Equipment	bmeq-4-i	1	x	4	1	x	4	2	x	4	2	x	4	
Bay - Resuscitation Trolley	bres-i	1	x	1.5	1	x	1.5	1	x	1.5	1	x	1.5	Adult resuscitation trolley
Cleaners Room	clrm-6-i	1	x	6	1	x	6	1	x	6	1	x	6	
Clean Utility	clur-8-i clur-12-i similar	1	x	8	1	x	8	1	x	12	1	x	14	
Dirty Utility	dtur-12-i similar	1	x	10	1	x	10	1	x	12	1	x	12	
Disposal Room	disp-8-i similar				1	x	8	1	x	10	1	x	10	
Medication Room	medr-10-i similar				1	x	10	1	x	12	1	x	14	
Clean Utility/ Medication	clum-14-i				1	x	14	1	x	14	1	x	14	*Optional if Clean Utility and Medication Room provided.
Staff Station	sstn-14-i similar sstn-20-i	1	x	10	1	x	10	1	x	14	1	x	20	May be provided as small sub stations to a group of rooms
Store - Equipment	steq-10-i similar steq-14-i	1	x	6	1	x	10	1	x	14	1	x	14	May be subdivided and located near Delivery rooms
Store - General	stgn-8-i similar stgn-14-i	1	x	6	1	x	10	1	x	10	1	x	14	
Store - Sterile Stock	stss-12-i similar	1	x	6	1	x	12	1	x	12	1	x	12	
Staff Areas														
Bay - Beverage	bbev-ip-i bbev-enc-i				1	x	4	1	x	5	1	x	5	Optional, near Meeting Room
Change - Staff (Male/Female)	chst-12-i similar chst-20-i	2	x	10	2	x	12	2	x	14	2	x	20	Toilets, Shower & Lockers; size depends on staff numbers
Meeting Room	meet-l-15-i meet-l-30-i similar	shared			1	x	15	1	x	15	1	x	25	May be shared
Office - Clinical/ Handover	off-cln-i				1	x	15	1	x	15	1	x	15	Locate near staff station

ROOM/ SPACE	Standard Component Room Codes	RDL ALL Qty x m ² 2 Rooms			RDL ALL Qty x m ² 4 Rooms			RDL ALL Qty x m ² 8 Rooms			RDL ALL Qty x m ² 12 Rooms			Remarks
Office - Single Person, 12 m ²	off-s12-i				1	x	12	1	x	12	1	x	12	Note 1; Service Manager
Office - Single Person, 9 m ²	off-s9-i	1	x	9	1	x	9	1	x	9	2	x	9	Note 1; Unit Manager
Office - 2 Person, Shared	off-2p-i							1	x	12	1	x	12	Note 1; Nurse Educators, Specialists, Clinicians
Overnight Stay - Bedroom	ovbr-10-i	1	x	10	1	x	10	1	x	10	1	x	10	Optional
Overnight Stay - Ensuite	oves-4-i	1	x	4	1	x	4	1	x	4	1	x	4	Optional
Staff Lounge (Male / Female)	srm-15-i similar				2	x	15	2	x	15	2	x	15	May divide into Male & Female areas
Sub Total				171.5			434.5			641.5			880.5	
Circulation %				35			35			35			35	
Area Total				231.5			586.6			866.0			1188.7	

Operating Rooms Area (Optional)

Operating Rooms Area (Emergency C-Sections)		1 OR Room			Optional - Dependent on Service Plan
		Qty x m ²			
Air Lock	airl-6-i	1	x	6	Entry to Operating Room area
Operating Room	orgn-i	1	x	42	
Anaesthetic Induction Room	anin-i	1	x	15	Optional
Bay - Neonatal Resuscitation	NS	1	x	10	Optional
Scrub-up/ Gowning	scrb-6-i	1	x	6	
Patient Bay – Stage 1 Recovery / Holding	pbtr-rs1-12-i similar	2	x	9	Optional. 2 Beds per Operating Room. Recovery may be shared with Assessment Room
Bay - Handwashing, Type A	bhws-a-i	1	x	1	
Clean-up	clup-7-i	1	x	7	
Change - Staff	chst-12-i similar	1	x	6	A second change room maybe required depending of operation policy; Toilet and shower are optional.
Staff Station/ Clean Utility	sscu-i	1	x	9	
Store - Sterile Stock	stss-12-i	1	x	12	
Sub Total				89	

Circulation %		40	
Area Total		124.6	

Please also 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 according to the sample bed numbers.
- All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines.
- Exact requirements for room quantities and sizes will 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.
- Staff and support rooms may be shared between Functional Planning Units dependent on location and accessibility to each unit and may provide scope to reduce duplication of facilities.
- Offices to be provided according to the number of approved senior full-time positions within the Unit.

8 Future Trends

When planning for future developments the following trends should be considered:

- Increased prevalence of obesity in teenage and adult women
- Steep rise in caesarean births
- Demand for midwife led care throughout the pregnancy, birth, and post-natal period
- Recognition that the physical and sensory surroundings, including access to the outdoors, significantly impacts upon patients and their carers during birthing
- Recognition that flexible delivery rooms, where medical equipment is discreetly stored and the patient bed is not the focal point, enhances birthing experiences
- Demand for deep tubs/ baths to facilitate immersion in all positions, enhanced by ledges for support persons. Showerheads with pulsing features, fixed support rails, hammocks and resting ledges improve patient experience
- Expectation by families/ carers that live-in accommodation can be provided
- Strong preferences for one patient room to facilitate birthing and post-natal period
- Patient demand for control over heating, lighting, and visitor access
- Early discharge into community support programs
- Ongoing development in support, monitoring, diagnostic, security, and treatment technology
- Ongoing development in electronic medical records and information technology
- Infant and facility security systems developments
- Recognition that midwives and birth attendants require a retreat space within the delivery room to complete documentation and provide separation from the patient and carers

9 References and Further Reading

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

- Annabelle, S., Maralyn, F., Christine, C. and Caroline, H. (2010). Examining the content validity of the Birthing Unit Design Spatial Evaluation Tool (BUDSET) within a woman-centred framework. Elsevier Inc.
http://www.ncbi.nlm.nih.gov/pubmed/?term=Foureur%20M%5BAuthor%5D&cauthor=true&cauthor_uid=23181648
- Australia and New Zealand College of Anaesthetists (ANZCA) Recommendations for Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations. <http://www.anzca.edu.au/resources/professional-documents/pdfs/ps55-2012-recommendations-on-minimum-facilities-for-safe-administration-of-anaesthesia-in-operating-suites-and-other-anaesthetising-locations.pdf>
- Australasian Health Facility Guidelines, Part B Health Facility Briefing and Planning, 0510 - Maternity Unit, 2016 https://aushfg-prod-com-au.s3.amazonaws.com/HPU_B.0510_6_0.pdf
- Davis, D., Homer, C., Leap, N., Forbes, I. and Foureur, M. (2011). Testing the birth unit design spatial evaluation tool (BUDSET) in Australia: a Pilot Study. Vendome Group, LLC. https://www.researchgate.net/publication/51000564_Testing_the_Birth_Unit_Design_Spatial_Evaluation_Tool_BUDSET_in_Australia_a_pilot_study
- Gov.UK DH (Department of Health) Children young people and maternity services. Health Building Note 09-02: Maternity care facilities, 2008, refer https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147876/HBN_09-02_Final.pdf
- Foureur, M., Davis, D., Fenwick, J., Leap, N., Iedema, R., Forbes, I. and Homer, C. (2010). The relationship between birth unit design and safe, satisfying birth: Developing a hypothetical model. *Midwifery*, 26(5), pp.520--525. [http://www.midwiferyjournal.com/article/S0266-6138\(10\)00090-2/abstract](http://www.midwiferyjournal.com/article/S0266-6138(10)00090-2/abstract)
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- NSW Department of Health, (2008). Primary Maternity Services in Australia. Australian Health Ministers' Advisory Council. http://www.ahmac.gov.au/cms_documents/Primary%20Maternity%20Services%20in%20Australia.pdf
- Sandall, J., Soltani, H., Gates, S., Shennan, A. and Devane, D. (2013). Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, 8. http://www.cochrane.org/CD004667/PREG_midwife-led-continuity-models-versus-other-models-care-childbearing-women
- Stenglin, M. and Foureur, M. (2013). Designing out the Fear Cascade to increase the likelihood of normal birth (Journal article). *Midwifery*. [http://www.midwiferyjournal.com/article/S0266-6138\(13\)00123-X/abstract](http://www.midwiferyjournal.com/article/S0266-6138(13)00123-X/abstract)
- University of Technology Sydney (AUS). 'Birthing Unit Design Guideline' 2013. Retrieved from: <http://www.worldhealthdesign.com/birthing-Unit-design-researching-newprinciples.aspx> February 2014