

# DHA Health Facility Guidelines 2019

Part B – Health Facility Briefing & Design

200 – Intensive Care Unit - General



☎ 800342 (DHA) | 🌐 dha.gov.ae

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## Executive Summary

This Functional Planning Unit (FPU) covers the requirements of a general Intensive Care unit (ICU). Intensive Care is a dedicated critical care unit for the support, monitoring and treatment of critically ill patients who require invasive life support, high levels of medical and nursing care and complex treatment. Patients in the general ICU include adults of all ages, acuity, frailty and all levels of disability, ICU is also increasingly dealing with patients with co-morbidities such as obesity, diabetes and renal dysfunctions.

In smaller hospitals with a lower Role Delineation Levels ICU may be combined with other critical care units such as High Dependency Unit (HDU), Paediatric Intensive Care Unit (PICU) or Coronary Care Unit (CCU). A step-down ICU is referred to as HDU and are physically identical to ICU, however with different levels of nursing (1:1 vs 2:1). Units at RDL 3 are likely to be a HDU. At other RDL's ICU and HDU may be provided back to back in the same area.

The Functional Zones and Functional Relationship Diagrams provided indicate the ideal external relationships with other key departments and hospital services. This includes relationships with Emergency Unit, Operating Unit, Inpatient Units and Diagnostic units such as Medical Imaging and Laboratory and support units such as Pharmacy and Biomedical Engineering. Optimum internal relationships are demonstrated in the diagram according to the functional zones whilst indicating the important paths of travel.

Design Considerations address a range of important issues including visibility, finishes, clearances and building services requirements.

The Schedules of Accommodation are provided using references to Standard Components (typical room templates) and quantities for typical units at Role Delineation Levels (RDL) 4 to 6 with 8, 12 and 24 beds.

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

Users who wish to propose minor deviations from these guidelines should use the **Non-Compliance Report (Appendix 4 in Part A)** to briefly describe and record their reasoning based on models of care and unique circumstances.

The details of this FPU follow overleaf.



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## 200. Intensive Care Unit - General

### 1 Introduction

The General Intensive Care Unit (ICU) is part of a broader category known as Critical Care. Other Critical Care Units include High Dependency Unit (HDU), Paediatric Intensive Care Unit (PICU), Neonatal Intensive Care Unit (NICU) and Cardiac Care Unit (CCU).

General ICU is optimised for the support, monitoring and treatment of critically ill adult patients who require invasive life support, high levels of medical and nursing care and complex treatment. ICU provides a concentration of clinical expertise, technological and therapeutic resources which are coordinated to care for the critically ill patients.

Patients in the General ICU include adults of all ages, acuity, frailty and all levels of disability. ICU increasingly deals with patients with co-morbidities such as obesity, diabetes and renal dysfunction.

### 2 Functional & Planning Considerations

#### 2.1 Operational Models

The ICU provides services 24 hours a day, seven days a week.

The level of Intensive Care service available should support the intended Role Delineation Level (RDL) of the hospital. The role of a particular ICU will vary according to staffing, facilities and support services as well as the type and number of patients it has to manage.

There are a number of models applicable to Intensive Care Units as follows:

##### 2.1.1 Combined Critical Care

The Combined Critical Care may include an ICU, HDU and/or CCU, often located in non-metropolitan hospitals where flexibility of bed utilisation and staff-efficiency is important. This allows short and medium-term intensive care patients to be managed appropriately when required,



and at other times, the Unit may be used for the more common cardiology or high dependency patients. These Units have lower medical and nursing demands and are usually staffed on an average nurse/patient ratio of less than 'one to one'.

### **2.1.2 Combined General Intensive Care**

In this model ICU consists of all patient specialties such as cardiothoracic surgery, orthopaedics, neurosurgery, and general medical patients. These Units usually have a combination of ICU and HDU beds.

This model may be adopted where there are limited numbers of sub-specialty critical patients. The disadvantage of this model is that if the general intensive care is fully occupied, critical sub specialty cases may need to remain in standard inpatient units for treatment.

### **2.1.3 Hot Floor**

Hot Floor refers to the location of one or more Intensive Care Unit types such as Medical ICU, Surgical ICU, CCU and HDU on the same floor and adjacent to Operating Unit or Emergency Unit.

The Hot Floor model has the principal advantage of shared resources, concentration of clinical talent and resources. While recommended, this option is not mandatory. Other Advantages of the Hot Floor model include:

- enables standardisation of equipment across the Hot Floor avoiding duplication and minimises service costs
- assists practitioners particularly medical and nursing to develop expertise in the specialties
- prevents access blockage to general ICU beds optimising patient throughput

The disadvantages of a Hot Floor involve:

- the management of a large group of nurses and doctors



- infection control risks including cross infection of patients in collocated units

#### **2.1.4 Separate Intensive Care Units**

This model covers a range of specialty Intensive Care Units provided as separate, self-sufficient units in different locations, with an independent management structure for each unit.

Advantages of this model include:

- may help to avoid bed blockages by allowing different groups to control the Intensive Care resources
- encourages the development of sub-specialty medical and nursing skills

Disadvantages include duplication of management, policies and procedures and physical isolation of units that may make staffing more difficult.

## **2.2 Bed Numbers and Complement**

Intensive care bed numbers may vary depending on the service plan of the facility, however, beds should ideally be arranged in groups (or pods) of no more than 12 beds (plus/minus 2), in order to optimise and balance efficiency with size, monitoring and close, patient-focussed care. If more than 12 beds are required by the Service Plan, then additional pods or groups should be added, each with a staff station and the required support rooms.

Intensive Care beds should be provided in a ratio of 1 ICU bed to 1 Operating Room at RDLs 4, 5 and 6. At RDL 3, HDU is only required and Stage 1 Recovery Beds may count as HDU.

All single critical care bedrooms can accommodate patients requiring standard contact isolation, but least one negative pressure isolation room with anteroom should be provided within each pod of 12 or 14 beds.



Positive pressure throughout the unit is not mandatory, however, it is subject to the clinical service plan of the hospital.

### 3 Unit Planning Models

The ICU should be located in a quiet zone that avoids or minimises:

- disturbing sounds (ambulances, traffic, sirens)
- disturbing sights (morgue, cemeteries etc.)
- problems associated with prevailing weather conditions (excessive sun exposure etc.)

The location should enable expansion if additional beds are required in the future.

In smaller ICU plans, all bedrooms should be visible from the Staff Station. In larger units, direct visibility into each room becomes Geometrically impossible. In such situation, each two ICU rooms should share one reporting station with computer support for the direct observation of the rooms.

#### 3.1 Functional Zones

Intensive Care Unit consists of the following Functional Areas:

- Entry/ Reception, which may be shared with adjoining units including:
  - Reception
  - Waiting areas, separate for Males and Females and sized to accommodate family members, with access to public amenities
  - Meeting room that may be used as a Distressed Relatives Room
- Patient areas with:
  - Single bed bays or rooms
  - Isolation rooms, positive and/or negative pressure
  - Ensuites which are shared with a group of beds
- Support areas consisting of:
  - Staff Station, Reporting Station and write-up areas





- Beverage Bay and Bays for linen, resuscitation trolley, laboratory facilities and mobile equipment
- Clean and Dirty Utility Rooms
- Medication Room
- Store Rooms for equipment, general stock and sterile supplies
- Biomedical Workshop
- Staff Areas including:
  - Meeting Room
  - Offices
  - Overnight stay Bedroom and Ensuite for On-call medical staff
  - Staff Room
  - Storage for files and stationery
  - Change rooms with toilets, shower and lockers.

Some of the Functional Areas are specific to each unit and some may be shared with adjoining or collocated Units.

The above zones are briefly described below.

### **3.1.1 Entry/ Reception Area**

According to the hospital operating policy, a Reception and visitor's / relatives' Waiting Areas may be provided immediately outside the entry to the ICU, but away from patient and staff traffic areas.

It is desirable that waiting areas have provision for a drink dispenser, television and comfortable seating. An Interview Room which may be used for distressed relatives should be available.

This area needs access to separate male/female toilet facilities and prayer rooms. The Entry/ Reception Area may be shared between up to 3 ICU Pods or Units depending on the design.

### **3.1.2 Patient Areas**

Patient Bed Bays, Enclosed Rooms, Isolation Rooms, Ensuites and Bathrooms shall be provided according to the numbers in the Service Plan.

It is recommended that ensuites be provided at a ratio of 1:6 beds and 1 for each isolation room.



The ICU room size should be sufficient to accommodate the patient, necessary personnel, monitoring capabilities, life support equipment and support services with safety considerations.

Work surfaces and storage areas must be adequate enough to maintain all necessary supplies and permit the performance of all desired procedures without the need for staff to leave the room.

A Procedure Room may be included if required by the Operational Policy of the Unit, located within or immediately adjacent to the Unit. One special Procedures Room may serve several ICUs in close proximity. The Procedure Room requires access for a bed and image intensifier. Consideration should be given to ease of access for patients transported from areas outside the ICU.

ICU beds may be open with bed screen separation or alternatively may be fully enclosed. There should be a ratio of no less than 50% of the rooms configured as enclosed single rooms (including isolation rooms). The balance may be designed as open bays with bed screen separation as minimum. In RDL 5 and 6 hospitals, where possible, enclosed single rooms are preferred to open bays.

In RDL 3 hospital, ICU beds are automatically regarded as HDU or CCU beds. The space standards remain the same as those for ICU beds.

All Patient areas are to comply with Standard Components included in these Guidelines.

### **3.1.3 Support Areas**

Support Areas include Bays for linen, resuscitation trolley, mobile equipment, Cleaners Room, Clean and Dirty Utilities, Disposal Room, Staff Station, Reporting Stations and Store Rooms for consumable stock, sterile stock and equipment. The optimum numbers and sizes of these support facilities are provided for each ICU pod up to 12 beds (plus/minus 2 beds). For ICU bed numbers more than 14, break the unit down to two or more pods. For example, in order to accommodate 20 ICU beds, consider breaking down into two pods of 10 beds or one pod of 12 and one pod of 8 beds.



#### **3.1.3.1 Biomedical Workshop**

Dependent upon the size and intended use of the ICU, a dedicated equipment maintenance service may be accommodated within the hospital or a 24 hour on-call emergency service made available.

This same service would cover the Operating, Emergency and Medical Imaging Units.

If a dedicated workshop is provided, its location should be in an area that is equally accessible to all of the departments mentioned above. The facility should have a degree of sound-proofing and be accessible from a non-sterile area.

#### **3.1.3.2 Laboratory Facilities**

The ICU must have available 24-hour clinical laboratory services. When this service cannot be provided by the central hospital laboratory, a satellite laboratory within or immediately adjacent to the ICU must serve this function. The Satellite facility must be able to provide minimum chemistry and haematology testing, including arterial blood gas analysis. This is a mandatory requirement.

#### **3.1.4 Staff Areas**

Offices / workstations are required for senior staff in full time administrative roles according to the approved positions in the Unit. Offices / workstations for medical staff and some nursing staff (manager/ specialists/ registrars/ educators) may be located as part of the Intensive Care Unit where required for clinical functions or adjacent in an administrative area, to facilitate unit co-ordination, educational and research activities.

A Staff Room shall be provided within the unit for staff to relax and prepare beverages. Inclusion of a window to the outside is desirable

Staff need close access to gender segregated Change Rooms that include Toilets, Shower and Lockers.



ICU requires access to adequate facilities for staff education and meetings. Teaching facilities should allow staff to access simulation training and competency assessment within the unit. These facilities may be used by the multidisciplinary team.

#### **3.1.4.1 Overnight Accommodation**

On-call rooms shall be provided for the medical staff. On-call rooms may be within the Unit or within a close proximity outside the Unit. Consideration should be given to the provision of overnight accommodation for relatives. This is dependent upon the size and intended function of the ICU. A motel type bed-sitter level of provision is recommended. Natural light is not mandatory for On-call rooms.

#### **3.1.5 Shared Areas**

Like elsewhere in the facility, sharing space, equipment and staffing should be promoted, both within the Unit and with other units on the same floor. Where spaces are shared, the size should be modified proportionally to suit the combined function or number of occupants.

The extent of rooms/ spaces that may be shared between ICU and an adjoining PICU, CCU or HDU is determined by the size of the overall ICU itself. Large units may be entirely self-contained with regard to clinical spaces but may still share some staff amenities and teaching spaces. Shared Areas may only include:

- Reception
- Treatment/ Procedure Room
- Some Support Rooms: Equipment Stores, Cleaners Room, Disposal Room and Pantry
- Public Toilets
- Gender Segregated Visitor Lounge and Family Visiting Room/s
- Staff Room and Toilets.



## 4 Functional Relationships

A Functional Relationship can be defined as the correlation between various areas of activity which work together closely to promote the delivery of services that are efficient in terms of management, cost and human resources. Correct Functional Relationships are identified below.

### 4.1 External Relationships

It is desirable that the Intensive Care Unit has ready access to:

- Emergency Unit, for urgent admissions
- Operating Unit, for urgent patient transfers
- Coronary Care Unit/ High Dependency Unit
- Inpatient Units for patient transfers
- Medical Imaging particularly for chest x-rays and CT scanning
- Laboratory Services (also via pneumatic tube)
- Pharmacy
- Biomedical Engineering

Principal relationships with public areas include:

- Easy access from the Main Entrance of a facility
- Easy access to public amenities
- Easy access to parking for visitors

Principal relationships with Staff Areas

- Ready access to staff amenities which may be centrally located and shared.

### 4.2 Internal Relationships

Optimal internal relationships to be achieved include those between:

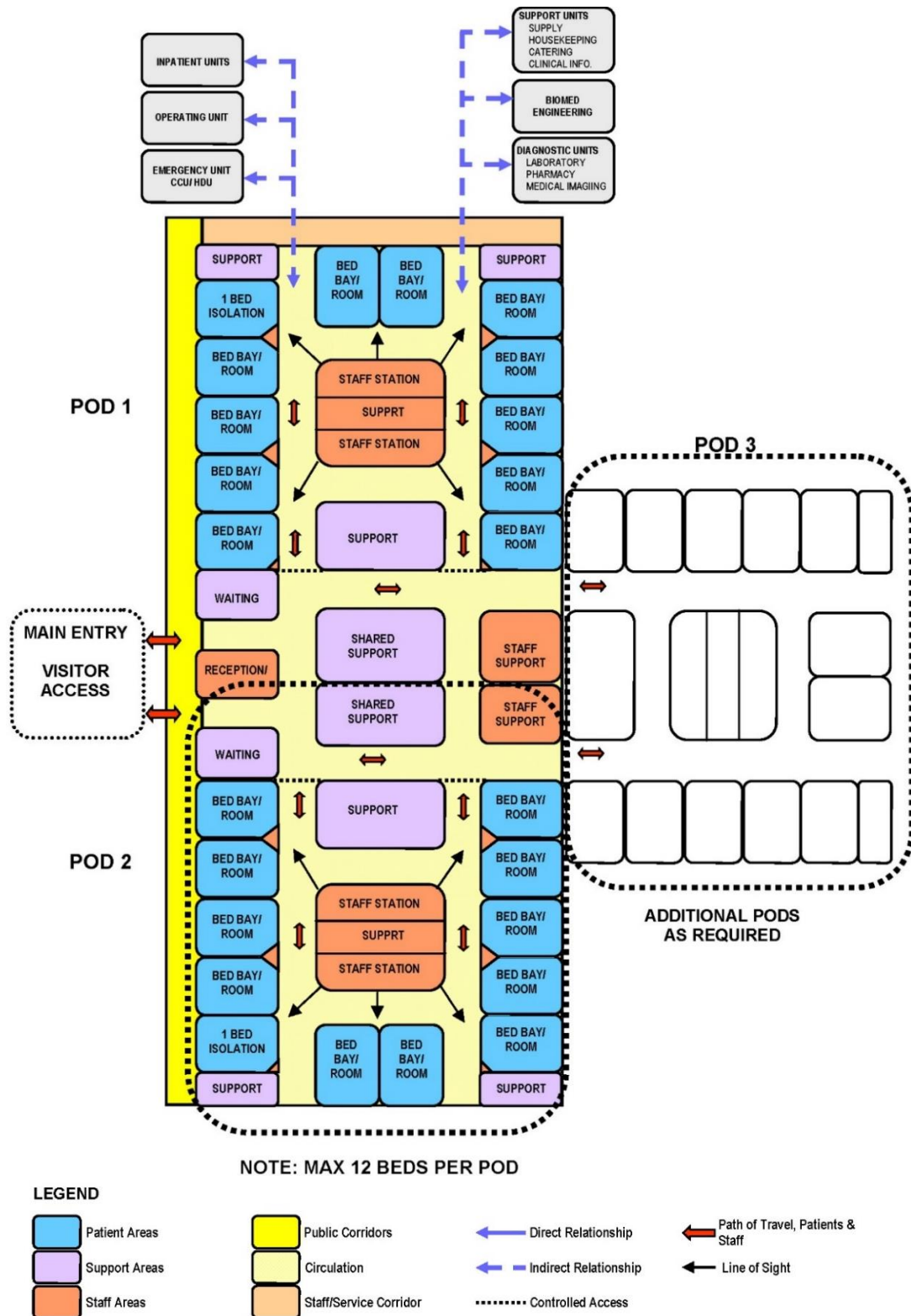


- Patient occupied areas forming the core of the unit, which require direct access and observation by staff
- Staff station/ s and associated areas that need direct access and observation of patient areas and ready access to administration areas.
- Alternatively, a series of Reporting Stations located off the corridor between each pair of ICU rooms for the immediate observation of two bedrooms.
- Clinical Support Areas such as Utility and storage areas that need to be readily accessible to both patient and staff work areas, involving minimum walking distance
- Waiting areas located on the perimeter of the unit with access to lifts and circulation corridors
- Shared support areas that should be easily accessible from the units served.



### 4.3 Functional Relationships Diagram

The optimum functional relationships of a typical Intensive Care Unit are demonstrated in the diagram below.





Important and desirable external functional relationships outlined in the diagram include:

- Clear Goods/Services and Bed Access
  - Access to/ from key clinical units associated with patient arrivals/ transfers via service corridor
  - Access to/ from key diagnostic facilities - Medical Imaging, Laboratory and Pharmacy via service corridor
  - Discrete service access for Biomedical Engineering, Supply, Catering, Housekeeping and Clinical Information Units.
- Clear Public Entrance
  - Entry for visitors directly from a public corridor to Reception and Waiting
  - Access to / from key public areas, such as the main entrance from the public corridor

Important and desirable internal relationships outlined in the diagram include:

- Bed Room(s) on the perimeter to maximise access to windows or borrowed light
- Staff Station is centralised for maximum patient visibility and access
- Clinical support areas located close to Staff Station(s) and decentralised for ease of staff access
- Reception and Administrative areas located at the Unit entry for control over entry corridors.

## 5 Design Considerations

### 5.1 Patient Treatment Areas

Patients must be situated so that healthcare providers have direct or indirect visualization, with variety of monitoring at all times. This approach permits the monitoring of patient status under both routine and emergency circumstances. The preferred design is to allow a direct line of vision between the patient and the central Staff Station or Reporting Stations. In ICUs with a modular design, patients should be visible from their respective nursing substations.





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

### **5.1.1 Bedside Monitoring**

Each intensive care bed should have the capacity for individual monitoring. Bedside monitoring equipment should be located to permit ease of access and viewing, but should not interfere with the visualisation of, or access to the patient. The bedside nurse and/or monitor technician should be able to observe the monitored status of each patient at a glance. This goal can be achieved either by a central monitoring at staff stations, or by bedside monitors that permit the observation of more than one patient simultaneously. Neither of these methods is intended to replace bedside observation.

Weight-bearing surfaces that support the monitoring equipment should be sturdy enough to withstand high levels of strain over time. It should be assumed that monitoring equipment increase in volume over time. Therefore, space and electrical facilities should be designed accordingly.

### **5.1.2 Renal Dialysis Facilities**

Dialysis facilities including reverse osmosis water and drainage should be provided to patient bedrooms according to the Unit's Operational Policy. As a minimum, dialysis facilities should be provided in each Isolation Room/s, plus one per pod outside isolation room. Refer to **Part E - Engineering Services** for details.

## **5.2 Environmental Considerations**

### **5.2.1 Acoustics**

The Intensive Care Unit should be designed to minimise the ambient noise level within the unit and transmission of sound between patient areas, staff areas and public areas. Consideration should be



given to the location of noisy areas or activity, preferably placing them away from quiet areas including patient bedrooms and bed bays.

Signals from staff call systems, alarms from monitoring equipment, and telephones add to the sensory overload in critical care units. Without reducing their importance or sense of urgency, such signals should be modulated to a level that alert staff members yet be rendered less intrusive.

For these reasons, floor coverings that absorb sound should be used while keeping infection control, maintenance, and equipment movement needs under consideration. Walls and ceilings should be constructed of materials with high sound absorption capabilities. Ceiling soffits and baffles help reduce echoed sounds. Doorways should be offset, rather than being placed in symmetrically opposed positions, to reduce sound transmission. Counters, partitions, and glass doors are also effective in reducing noise levels.

Acoustic treatment is required to the following:

- Patient Bedrooms and Ensuites
- Interview and meeting rooms
- Procedure rooms
- Staff rooms
- Change Rooms, toilets and showers.

Refer also to **Part C - Access, Mobility and OH&S** in these Guidelines.

### **5.2.2 Natural Light**

The use of natural light should be maximised throughout the Unit. Windows are an important aspect of sensory orientation and psychological well-being of patients and staff, and all enclosed ICU rooms as possible should have windows to reinforce day/ night orientation. If windows cannot be provided in each room, an alternate option is to allow a remote view of an outside window or



skylight. In multi-bed areas separated by curtains, natural light may be borrowed via other naturally lit spaces such as a central atrium or an adjoining glazed corridor.

### **5.2.3 Privacy**

The design of the Intensive Care Unit needs to consider the contradictory requirement for staff visibility of patients while maintaining patient privacy. Unit design and location of staff stations offer varying degrees of visibility and privacy.

Each bed shall be provided with bed screens to ensure privacy of patients undergoing treatment in the room. Refer to the Standard Components for examples.

Other factors for consideration include:

- Use of windows in internal walls and/or doors, provision of privacy blinds
- Location of external areas, courtyards or atriums facing bedroom windows to prevent others from viewing into ICU bed and treatment spaces

## **5.3 Space Standards and Components**

### **5.3.1 Bed Spacing / Clearances**

Bed dimensions become a critical consideration in ascertaining final room sizes. The dimensions noted in these Guidelines are intended as minimums and do not prohibit the use of larger rooms where required.

All patient beds must comply with standard components for fittings, furniture, mechanical and electrical services and staff call systems including the clearances that they imply.

In critical care bedrooms, a minimum of 1200mm clearance around both sides and the foot of the bed is recommended. At the head of the bed, a minimum of 300mm clearance should be allowed between the bed and any fixed obstruction or wall.



#### **5.4 Doors**

Door openings to ICU Bedrooms shall have a minimum of 1400mm clear opening to allow for easy movement of beds and equipment.

#### **5.5 Size of the Unit**

The number of beds shall be determined by the facility's service plan. The recommended maximum number of beds visible from a single central staff station in an ICU should not exceed 12 beds.

#### **5.6 Safety and Security**

The Intensive Care Unit shall provide a safe and secure environment for patients, staff and visitors, while remaining a non-threatening and supportive atmosphere conducive to recovery.

The facility, furniture, fittings and equipment must be designed and constructed in such a way that all users of the facility are not exposed to avoidable risks of injury.

Security issues are important due to the increasing prevalence of violence and theft in health care facilities.

The arrangement of spaces and zones shall offer a high standard of security through the grouping of like functions and the provision of optimum observation for staff. The level of observation and visibility has security implications. Control over access and egress from the Unit is mandatory.

#### **5.7 Drug Storage**

Drugs prescribed at the hospital should not be stored in the patient bedrooms or bed bays. All drugs should be managed by the responsible nurses via a Medication Room.

Optionally the Medication Room may be interconnected with a Clean Utility room as long as the requirements of both functions are accommodated.

Medications may be manually stored and managed, or alternatively automated Medication

Management systems may be utilised. Controlled, semi-controlled or narcotic drugs as per Federal



Law must be kept in a secure cabinet within the Medication Room with alarm. The room requires controlled staff only access and may include CCTV surveillance.

A refrigerator is required to store restricted substances and must be lockable or housed within a lockable storage area. The Medication Room must have space for parking a medication trolley.

## **5.8 Finishes**

Finishes including fabrics, floor, wall and ceiling finishes, should be pleasant and non-Institutional as far as possible. The following additional factors should be considered in the selection of finishes:

- Acoustic properties
- Durability
- Ease of cleaning
- Infection control
- Fire safety
- Movement of equipment.

In areas where clinical observation is critical such as bedrooms and treatment areas, lighting and colour selected must not impede the accurate assessment of skin tones.

Walls shall be painted with lead free paint and wall protection provided where bed or trolley movement occurs such as corridors, patients' bedrooms, storage and treatment areas.

## **5.9 Curtains / Blinds**

Each window shall have partial blackout facilities to allow patients to rest during the daytime. If blinds are to be used the following applies:

- Vertical blinds and Holland blinds are preferred over horizontal blinds as they do not provide numerous surfaces for collecting dust



- Horizontal blinds may be used within a double-glazed window assembly with a knob control on the bedroom side.

Privacy bed screens must be washable, fireproof and cleanly maintained at all times. Disposable bed screens may also be considered.

## **5.10 Building Services Requirements**

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

### **5.10.1 Information and Communication Technology**

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

- Electronic Health Records (EHR) which may form part of the Health Information System (HIS)
- Hand-held tablets and other smart devices
- Picture Archiving Communication System (PACS)
- Paging and personal telephones replacing some aspects of call systems
- Data entry including scripts and investigation requests
- Bar coding for supplies and records
- Data and communication outlets, servers and communication room requirements
- Optional availability of Wi-Fi for staff and patients and their visitors.

### **5.10.2 Staff Call**

Hospitals must provide an electronic call system next to each inpatient bed to allow for patients to alert staff in a discreet manner at all times



All calls are to be registered at the Staff Stations and must be audible within the service areas of the Unit including Clean Utilities and Dirty Utilities. If calls are not answered the call system should escalate the alert accordingly. The Staff Call system may also use mobile paging systems or SMS to notify staff of a call.

#### **5.10.3 Patient Entertainment Systems**

Patients may be provided with the following entertainment/ communications systems according to the Operational Policy of the facility:

- Television
- Telephone
- Radio
- Internet (through Wi-Fi).

#### **5.10.4 Heating Ventilation and Air-conditioning (HVAC)**

The Unit should be air-conditioned with adjustable temperature and humidity for patient comfort.

All HVAC units and systems are to comply with services identified in Standard Components and

**Part E – Engineering Services.**

#### **5.10.5 Medical Gases**

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

#### **5.10.6 Pneumatic Tube Systems**



The Intensive Care Unit may include a pneumatic tube station, as determined by the facility Operational Policy. If provided the station should be located in close proximity to the Staff Station or under direct staff supervision.

### **5.10.7 Hydraulics**

Warm water must be supplied to all areas accessed by patients within the Intensive Care Unit. This requirement includes all staff handwashing basins and sinks located within patient accessible areas.

Refer to **Part E - Engineering Services** for details.

## **5.11 Infection Control**

### **5.11.1 Hand Basins**

Handwashing facilities shall be provided in the corridors, critical care bed rooms and other rooms as specified by the Standard Components.

Hand-washing facilities shall not impact on minimum clear corridor widths. At least one handwashing bay should be located in close proximity to the Staff Station and unit entry/exit. At least one additional handwashing bay should be located close to the entrance. Hand basins are to comply with Standard Components Bay - Hand-washing and **Part D - Infection Control**.

Hand Basins in patient bedrooms should be used solely for infection control purposes and utilised only by staff. Patients should use hand basins provided in bathrooms for personal purposes. Staff may not use the patient ensuite hand wash basin.

### **5.11.2 Antiseptic Hand Rubs**

Antiseptic hand rubs should be located so they are readily available for use at points of care, at the end of patient beds and in high traffic areas.





The placement of antiseptic hand rubs should be consistent and reliable throughout facilities.

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 Hand Wash Bays. Both are required.

### **5.11.3 Isolation Rooms**

The ICU shall include at least one negative pressure Isolation Room in Level 5 and 6 facilities. Entry shall be through an airlock. Clinical hand-washing, gown and mask storage, and waste disposal shall be provided within the airlock. An Ensuite - Special, directly accessible from the Isolation Room, shall also be provided. For further information on Isolation Rooms refer to **Part D – Infection Control** in these Guidelines.

## **6 Standard Components of the Unit**

Standard Components are typical rooms within a health facility, each represented by a Room Data Sheet (RDS) and a Room Layout Sheet (RLS).

The Room Data Sheets are written descriptions representing the minimum briefing requirements of each room type, described under various categories:

- Room Primary Information; includes Briefed Area, Occupancy, Room Description and relationships, and special room requirements)
- Building Fabric and Finishes; identifies the fabric and finish required for the room 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
2	Provided by the Client and installed by the builder
3	Provided and installed by the Client

- Fixtures and Equipment; includes all the serviced equipment typically located in the room along with the services required such as power, data and hydraulics; 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, Heating, Ventilation and Air conditioning (HVAC), 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 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 that 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

The Intensive Care Unit consists of Standard Components to comply with details described in these Guidelines. Refer also to Standard Components Room Data Sheets (RDS) and Room Layout Sheets (RLS) separately provided.



## **6.1 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.

### **6.1.1 Bay - Pneumatic Tube**

The Bay - Pneumatic Tube should be located at the Staff Station/s under the direct supervision of staff for urgent arrivals. The location should not be accessible by external staff or visitors.

Requirements include:

- The bay should not impede access within staff station areas
- Racks should be provided for pneumatic tube canisters
- Wall protection should be installed to prevent wall damage from canisters



## 7 Schedule of Accommodation

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

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

The Schedule of Accommodation are developed for particular levels of services known as Role Delineation Level (RDL) and numbered from 1 to 6. Refer to the full **Role Delineation Framework (Part A - Appendix 6)** in these guidelines for a full description of RDL's.

The table below shows a typical ICU at RDL 4 to 6 with 8, 12 and 24 beds. RDL 3 facilities are likely to include a High Dependency Unit (HDU) that may be collocated with another unit.

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



## 7.1 Intensive Care Unit

Note: Units at RDL 3 are regarded as High Dependency Unit and may be separate or collocated with an Inpatient Unit

ROOM/ SPACE	Standard Component Room Codes	RDL 3 Qty x m <sup>2</sup>			RDL 4 Qty x m <sup>2</sup>			RDL 5 Qty x m <sup>2</sup>			RDL 6 Qty x m <sup>2</sup>			Remarks
		4 Beds (HDU)			8 Beds			12 Beds			24 Beds			
<b>Entry / Reception</b>														
Reception/ Clerical	recl-10-d similar				1	x	10	1	x	12	1	x	12	May be shared with an adjacent unit
Waiting	wait-10-d similar wait-20-d simila wait-30-d	1	x	15	1	x	20	1	x	25	1	x	30	Separate M & F; 1.2 m2 per person; 1.5 m2 per wheelchair
Waiting - Family	wait-10-d similar wait-20-d similar wait-30-d similar	1	x	15	1	x	20	1	x	25	1	x	30	Optional, 1.2 m2 per person; 1.5 m2 per wheelchair
Meeting Room	meet-l-15-d				1	x	12	1	x	15	1	x	15	
Toilet - Public	wcpu-3-d	2	x	3	2	x	3	2	x	3	2	x	3	May share public amenities if located close
Toilet - Accessible	wcac-d	1	x	6	1	x	6	1	x	6	1	x	6	May share public amenities if located close
<b>Patient Areas</b>														
1 Bed Room - ICU/HDU	1br-icu-25-d	1	x	25	3	x	25	5	x	25	10	x	25	These are part of the mandatory 50% of the rooms which must be enclosed.
1 Bed Room - ICU/HDU, Class N Isolation	1br-icu-25-d	1	x	25	1	x	25	1	x	25	2	x	25	These are part of mandatory 50% enclosed rooms. Class N rooms should be provided at a ratio of 1 per 8 beds or part thereof. Positive pressure isolation rooms are subject to the clinical services plan.
Patient Bay - Critical	pb-24-d	2	x	24	4	x	24	6	x	24	12	x	24	These are part of the maximum 50% of open bays. In RDL 5 and 6, all enclosed rooms are recommended.
Anteroom	anrm-d	1	x	6	1	x	6	1	x	6	2	x	6	For Class N Isolation Rooms when provided
Ensuite - Super	ens-sp-d	2	x	6	4	x	6	7	x	6	14	x	6	Size for 'full assistance', i.e. 2 staff plus equipment
Procedure Room	proc-20-d				1	x	20	1	x	20	1	x	20	Optional, May be shared between 2 pods of 12 +/- 2 beds
<b>Support Areas</b>														
Bathroom-Assisted	bath-d similar	1	x	15	1	x	15	1	x	15	1	x	15	Optional, inclusion depends on operational policy of unit
Bay - Beverage	bbev-op-d bbev-enc-d	1	x	5	1	x	5	1	x	5	1	x	5	



ROOM/ SPACE	Standard Component Room Codes	RDL 3			RDL 4			RDL 5			RDL 6			Remarks
		Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			
		4 Beds (HDU)			8 Beds			12 Beds			24 Beds			
Bay - Blanket Warmer	bbw-1-d	1	x	1	1	x	1	1	x	1	1	x	1	Optional
Bay - Handwashing, Type A	bhws-a-d	1	x	1	2	x	1	3	x	1	4	x	1	At Unit entry and in Corridors; refer to Part D
Bay - Linen	blin-d	1	x	2	1	x	2	2	x	2	2	x	2	
Bay - Mobile Equipment	bmeq-4-d	1	x	4	1	x	4	2	x	4	2	x	4	
Bay - Pathology (Satellite Laboratory)	bpath-1-d similar	1	x	1	1	x	2	1	x	4	1	x	4	
Bay - Pneumatic Tube	NS	1	x	1	1	x	1	1	x	1	1	x	1	Optional, may be located with Pathology Bay or Staff Station
Bay - PPE	bppe-d	1	x	1.5	1	x	1.5	1	x	1.5	4	x	1.5	As required, may be combined with Bay-Handwashing
Bay - Resuscitation Trolley	bres-d	1	x	1.5	1	x	1.5	1	x	1.5	2	x	1.5	
Cleaners Room	clrm-5-d similar	1	x	6	1	x	6	1	x	6	1	x	6	Smaller units may share with a collocated unit
Clean Utility	clur-12-d	1	x	12	1	x	12	1	x	12	2	x	12	May be interconnected with Medication room
Medication Room	medr-10-d				1	x	10	1	x	10	1	x	10	May be interconnected with Clean Utility room
Clean Utility/ Medication Room	clum-14-d	1	x	14	1	x	14*	1	x	14*	2	x	14*	*Optional, if preference is to combine Clean Utility and Medication Room into a single Room, Minimum 14 m2
Dirty Utility	dtur-12-d similar dtur-14-d	1	x	10	1	x	12	1	x	14	2	x	14	
Disposal Room	disp-8-d similar	1	x	8	1	x	8	1	x	10	1	x	10	Inclusion depends on unit size & waste operational policies
Equipment Clean-up	ecl-10-d similar	1	x	8	1	x	8	1	x	8	1	x	10	Room size according to service requirements
Office - Clinical/ Handover	off-cln-d similar	1	x	10	1	x	15	1	x	15	1	x	20	Locate near staff station
Office - Write-up Bay	off-wi-1-d	2	x	1	4	x	1	7	x	1	14	x	1	1 per each enclosed bed room
Respiratory/ Biomedical Workroom	rewm-d							1	x	20	1	x	20	Inclusion depends on operational policy of unit
Staff Station	sstn-14-d similar sstn-20-d	1	x	12	1	x	18	1	x	20	2	x	20	
Store - Drugs	stdr-5-d	1	x	5	1	x	5	1	x	5	1	x	5	Optional
Store - Equipment	steq-10-d steq-14-d steq-20-d similar	1	x	10	1	x	14	1	x	14	1	x	30	May be subdivided
Store - General	stgn-8-d stgn-14-d stgn-20-d similar	1	x	8	1	x	14	1	x	14	1	x	30	May be subdivided
Store - Respiratory	steq-20-d similar										1	x	20	Inclusion depends on operational policy of unit
Store - Sterile Stock	stss-12-d similar stss-20-d similar	1	x	6	1	x	12	1	x	24	2	x	24	
<b>Staff Areas</b>														



ROOM/ SPACE	Standard Component Room Codes	RDL 3			RDL 4			RDL 5			RDL 6			Remarks
		Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			Qty x m <sup>2</sup>			
		4 Beds (HDU)			8 Beds			12 Beds			24 Beds			
Office - Single Person	off-s12-d							1	x	12	1	x	12	Director/ Service Manager
Office - Single Person	off-s9-d	1	x	9	1	x	9	1	x	9	2	x	9	Unit Manager
Office - Single Person	off-s9-d	1	x	9	1	x	9							Staff Specialists
Office - 2 Person Shared	off-2p-d							1	x	12	1	x	12	Nurse Educators, Staff Specialists, Clinicians
Office - Workstation/s	off-ws-d	1	x	5.5	2	x	5.5	4	x	5.5	8	x	5.5	Registrars, Nursing, Secretarial
Overnight Stay - Bedroom	ovbr-10-d							1	x	10	1	x	10	Optional
Overnight Stay - Ensuite	oves-4-d							1	x	4	1	x	4	Optional
Meeting Room	meet-l-15-d meet-l-30-d similar	shared			1	x	15	1	x	25	2	x	25	Quantity and size dependent on Service Plan
Bay - Beverage	bbev-op-d bbev-enc-d				1	x	5	1	x	5	1	x	5	Optional, near Meeting Room/s
Store - Files	stfs-10-d										1	x	10	Optional, depends on record storage operational policy
Store - Photocopy/ Stationery	stps-8-d similar	1	x	8	1	x	8	1	x	10	1	x	10	
Staff Room	srm-15-d srm-25-d similar	1	x	15	1	x	15	1	x	25	1	x	35	May be shared
Change - Staff (Male/Female)	chst-12-d similar chst-20-d similar	2	x	12	2	x	14	2	x	20	2	x	25	Toilets, Shower & Lockers; size depends on staff numbers
<b>Sub Total</b>		<b>372.5</b>			<b>607</b>			<b>862</b>			<b>1457</b>			
<b>Circulation %</b>				<b>40</b>			<b>40</b>			<b>40</b>			<b>40</b>	
<b>Area Total</b>		<b>521.5</b>			<b>849.8</b>			<b>1206.8</b>			<b>2039.8</b>			

Please note the following:

- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components
- Rooms indicated in the schedule reflect the typical arrangement according to the RDL and 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 shall reflect Key Planning Units (KPU) identified in the Clinical Service Plan and the Operational Policies of the Unit
- Room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual Unit
- Offices are to be provided according to the number of approved full-time positions within the Unit



## 8 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:

- AHIA, Australasian Health Facility Guidelines, Part B Health Facility Briefing and Planning, HPU 0360 - Intensive Care - General, Rev 6, 2016; refer to website:  
<https://healthfacilityguidelines.com.au/health-planning-units>
- DH (Department of Health) (UK), Health Building Note 57: Facilities for critical care, 2003, refer to website: [www.estatesknowledge.dh.gov.uk](http://www.estatesknowledge.dh.gov.uk)
- DHA (Ministry of Health – UAE), Unified Healthcare Professional Qualification Requirements, 2017, website:  
<https://www.haad.ae/HAAD/LinkClick.aspx?fileticket=2K19llpB6jc%3d&tabid=927>
- Guidelines for Design and Construction of Hospitals; The Facility Guidelines Institute, 2018 Edition; refer to website: [www.fgiguideines.org](http://www.fgiguideines.org)
- International Health Facility Guideline (iHFG) [www.healthdesign.com.au/iHFG](http://www.healthdesign.com.au/iHFG)