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GOVERNMENT OF DUBAI

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DUBAI HEALTH AUTHORITY

DHA Health Facility Guidelines 2019

Part B – Health Facility Briefing & Design

90 – Day Surgery/ Procedure Unit

800342 (DHA) | dha.gov.ae

@dha_dubai

Dubai Health Authority

Executive Summary

The Functional Planning Unit (FPU) covers the requirements of a Day Surgery/ Procedure Unit. A Day Surgery/ Procedure Unit is where operative or endoscopic procedures are performed; and admission, preparation and procedure occur within the same day and recovery/ discharge is completed within a 24-hour period. The Unit will have access to or include one or more Operating Rooms (or Procedure Rooms), with provision to deliver anaesthesia and accommodation for the immediate post-operative recovery of patients.

The Day Surgery/ Procedure Unit FPU describes operational, functional and design requirements for a range of ambulatory surgical services to be accommodated in hospitals or stand-alone facilities.

The Functional Zones and Functional Relationship Diagrams indicate the ideal external relationships with other key departments and hospital services. For the Day Surgery/ Procedure Unit located within a hospital campus, a relationship with the Operating Theatre, Endoscopy Unit and Sterile Supply Unit (SSU) should be considered. All of these are also available as FPU's of these Guidelines.

Design Considerations address a range of important issues including Accessibility, Acoustics, Safety and Security, Building Services Requirements and Infection Control. This FPU describes the minimum requirements for support spaces of a typical Day Sugery/ Procedure Unit at Role Delineation Levels 2 to 6. The typical Schedule of Accommodation is provided using Standard Components (typical room templates) and quantities for quantities for these numbers.

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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90. Day Surgery/ Procedure Unit

1 Introduction

1.1 Description

A Day Surgery/ Procedure Unit is where operative or endoscopic procedures are performed; and admission, preparation and procedure occur within the same day and recovery/ discharge is completed in aperiod less than 24-hours. The Unit will have access to or include one or more Operating Rooms (or Procedure Rooms), with provision to deliver anaesthesia and accommodation for the immediate post-operative recovery of patients.

The range of procedures that may be undertaken in a Day Surgery/Procedures Unit may include:

- Surgical procedures, particularly ENT, Dental, Plastic Surgery, Ophthalmology
- Endoscopy - gastrointestinal, respiratory, urology;
- Electroconvulsive Therapy (ECT) for mental health inpatients
- Day medical procedures including intravenous infusions and minor treatments
- Interventional imaging including angiography, cardiac catheter procedures undertaken in imaging Units

A table of defined day procedure surgeries which may be considered under a Day Surgery/ Procedure Unit can be found in the **Role Delineation Framework** in **Part A – Administrative Provisions, Appendix 6** in these Guidelines.

In the context of this Functional Planning Unit, the term Surgery has the same meaning as Procedure. For specific details on provisions for Endoscopy, refer to **Endoscopy Unit**, in these Guidelines.

2 Functional & Planning Considerations

2.1 Operational Models

The range of options for a Day Surgery/ Procedure Unit may include:

- A standalone centre, fully self-contained
- A dedicated fully self-contained unit within a hospital
- A unit collocated with a clinical specialty such as Gastroenterology or Respiratory Medicine, within a hospital
- A unit collocated with the Operating Unit with some shared facilities.

If the facility is part of a Hospital or other Medical Facility, some services can be shared, as appropriate to minimise duplication.

2.2 Hours of Operation

In a Day Surgery / Procedure Unit the hours of operation will depend on the model of care adopted. Typically, Day Surgery units operate through the day and patients are discharged in late afternoon or evening. Unfortunately under this model, the surgical facilities are wated in mid to late afternoon.

However, if the 23 hour surgery model of care is adopted, the facility may operate through the night. Operations may occur at any time. For example operations may occur in late afternoon or evening with the patients recovering overnight and being discharged in early morning. In short, under the 23 hour surgery model the admission and discharge for a patient can occure in any period less than 24 hours regardless of the exact starting or finishing time. As a result the facility may be open 24 hours.

2.3 Models of Care

Up to 70% of all surgery may be performed as Day Surgery as opposed to Inpatient Surgery. Every surgical case performed as Day Surgery will save between 1 and 3 bed-days[1] as inpatient unit (IPU)

beds will not be occupied by the patient. This will save costs whilst preserving valuable IPU beds for major inpatient surgery.

Models of care will reflect the service plan and operational policies of the facility. Models of care provide arrangements to improve patient flow and may include:

- Day Surgery, for same day patients who are discharged home before midnight
- 24-hour Surgery, as above but recovery overnight and discharge home in the morning with the facility connected to a hospital
- DOSA (Day of Surgery Admission), as above followed by transfer to an inpatient unit or short stay unit for extended recovery. The DOSA unit can only exist as a unit on a hospital campus, connected to a hospital.

2.3.1 Day Surgery

Day Surgery patients will generally undergo a pre-admission assessment to streamline admission procedures.

Day Surgery patients should be organised to arrive very early (e.g. 6 am) with the aim of starting surgery as soon as possible (e.g. at 7 am). Day Surgery patients will recover in the unit and go home before the evening. This means sufficient time should be set aside for the last patient's recovery. The last surgery may be around 4 pm or earlier. In a typical stand-alone Day Surgery centre, all patients are discharged; and the facility is closed before midnight.

For some very minor procedures, the patient may not undergo general anaesthesia or may wake up immediately after surgery. These patients do not require Stage 1 Recovery and following the procedure they can be taken directly to Stage 2 Recovery.

The typical Day Surgery patient flow is demonstrated below:

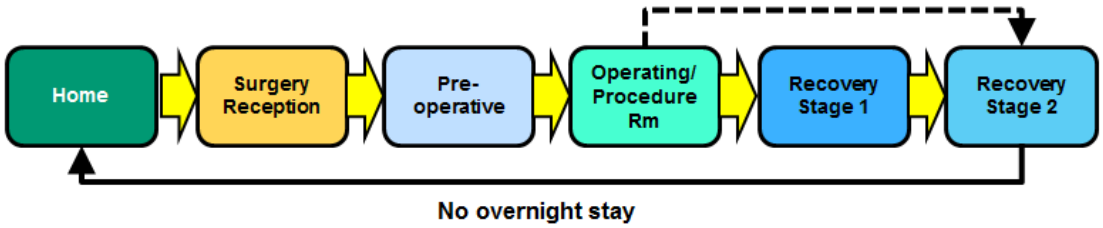


Figure 1: Day Surgery patient flow

2.3.2 Outpatient Surgery

Under the above Outpatient Surgery model, the Stage 2 Recovery facilities will be unused overnight. This is seen as a waste of resources and valuable investment, resulting in the introduction of 24 Hour Surgery. Outpatient Surgery model is similar to Day Surgery, but there is no limit on how late the surgery can take place.

The patient may be admitted in late afternoon and undergo surgery as late as 10 pm. Then the patient will recover overnight in the Recovery Stage 1 facilities and be discharged the next morning before the incoming patients require this facility for example, by approximately 7 am the following morning.

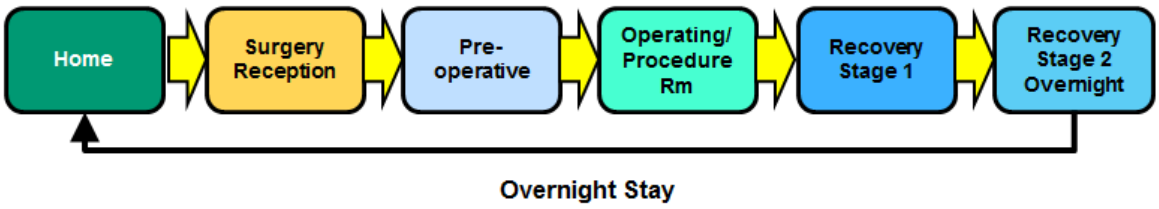


Figure 2: 24 Hour Surgery patient flow chart

2.3.3 Same-day Surgery (or Day of Surgery Admissions- DOSA)

This is similar to Day Surgery; but is applies to facilities which are on a hospital campus only. Unlike the Day Surgery however, there is no expectation for the patient to recover and go home the same day or even overnight. This model allows the patient to be admitted to the hospital on the 'day of surgery', not earlier.

The patient will follow the same process as Day Surgery patients, however may undergo more complex surgery, then recover in an Inpatient Unit between 1 and 4 days. Therefore, unlike Day Surgery, Same-day Surgery can continue into the late hours of the night (e.g. 10 pm). After Stage 1 Recovery, Same-day Surgery (DOSA) patients are formally admitted to an Inpatient bed, not before. This will save one bed-day for each DOSA patient, which will save costs for the health system. It also preserves one bed-day for inpatient surgery or medical use.

As this model depends on access to an Inpatient Unit, it only suits stand-alone facilities which are on a hospital campus and can link the DOSA unit to an Inpatient Unit.

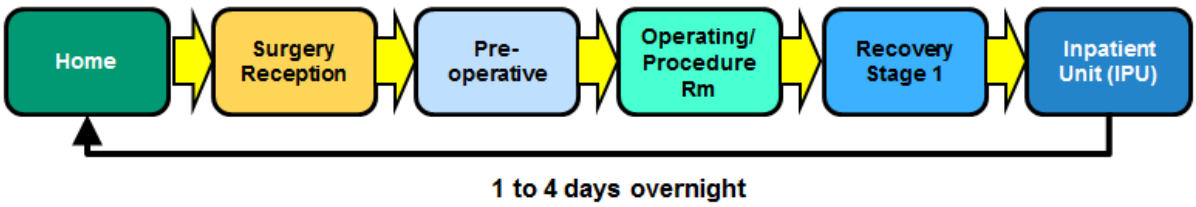


Figure 3: Same-day Surgery/ DOSA patient flow chart

2.3.4 23 Hour Surgery

Under all of the above models, the Stage 2 Recovery facilities will be unused overnight. This is seen as a waste of resources and valuable investment, resulting in the introduction of 23 Hour Surgery. This model is similar to Day Surgery, but there is no limit on how late the surgery can take place. A patient may be admitted in late afternoon and undergo surgery as late as 10 pm. Then the patient

will recover overnight in the Recovery Stage 1 facilities and be discharged the next morning before the new patients require this facility. Discharge can occur by around 7 am the following morning. Therefore, the only different between 23 Hour Surgery and Day Surgery is the addition of overnight nursing and suitable facilities for the patients' overnight stay (eg toilets, showers and reasonable privacy). Under this model, the patient admission and discharge should occur in a period of no more than 24 hours regardless of the starting and finishing time. Under the 23 hour surgery model, patients may not be kept for more than 24 hours unless the facility is attached to a Hospital. Even so, the patient must be transferred to a bedroom within an Inpatient Unit.

In any Day Surgery facility operating overnight, the staffing and services attending to the patients must be equal to the day time with no compromises.

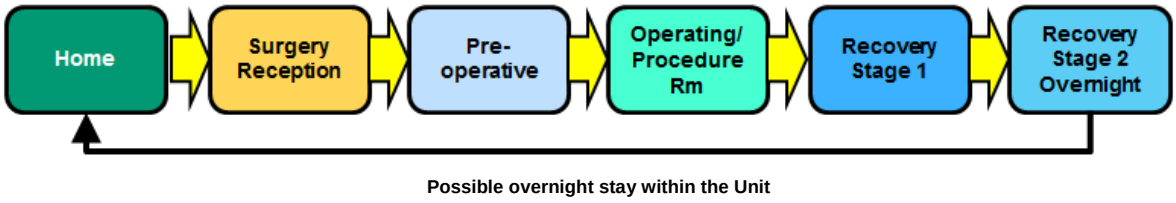


Figure 4: 23 Hour Surgery patient flow chart

3 Unit Planning Models

There are a number of basic and acceptable planning geometries for Day Surgery Units. Most plans can be reduced to one of these geometric models, which can be referred to by their names. Therefore, it is desirable to fully understand the correct configuration and the best potential of each option, in order to adapt to the local conditions.

Planning models may include:

- Combined operating and procedure rooms with appropriate numbers of holding and recovery spaces

- Co-located peri-operative unit, for admission of day surgery and day-of-surgery (DOSA) patients
- Co-located pre-admission outpatient unit for sharing of administrative support and waiting areas.

Refer to the Operating Unit FPU for a detailed discussion of planning models suitable for operating rooms including:

- Single corridor
- Racetrack corridor
- Provision of an integrated sterilising unit or centralised sterilising unit.

3.1 Location

The Day Surgery/ Procedure Unit must be located and arranged to prevent non-related traffic through the suite and may be located in the same zone as acute surgery in order to share support facilities and services.

3.2 Functional Zones

The Day Surgery/ Procedure Unit consists of a number of Functional Areas or zones:

- Entry/ Reception including:
  - Reception and Waiting
  - Consulting and Interview rooms
  - Storage for files, photocopier and printers
  - Public amenities, toilets for waiting patients and relatives unless available nearby.
- Patient Holding and Preparation including:
  - Holding bed bays
  - Staff Station
  - Change rooms and changed waiting areas (separate for males and females), optional if holding bays are provided

  - Patient toilets and lockers
- Operating/ Procedure Areas with:
  - Operating rooms, appropriate to the procedures to be undertaken in the unit
  - Anaesthetic induction rooms (optional)
  - Scrub bays
  - Exit bays to provide for bed parking during operative procedures
  - Clean-up rooms shared between operating rooms
  - Sterile stock and consumables storage
- Recovery Areas that may also be used for extended recovery where patients are discharged within 24 hours:
  - Stage 1 recovery bed bays for immediate post-operative/ recovery
  - Stage 2 recovery bed and chair spaces for continued recovery and staff supervision
  - Recovery Lounge areas/ stage 3 recovery for patients recovered, changed and ready to be discharged
  - Support areas including utilities, storage for linen, stock
  - Patient Toilets
  - Patient Shower if Stage 1 recovery areas are used for short overnight accommodation
- Support Areas including:
  - Storage for mobile equipment and consumable stock used in the unit
  - Cleaner's room
- Staff Areas incorporating:
  - Change rooms with showers, toilets and lockers
  - Offices
  - Meeting Room (optional)

3.3 Key Unit Areas and Functions

Some of the above zones and components are described and critical guidance is provided below:

3.3.1 Entry

A covered Entry is required for dropping off patients and collection of patients after surgery. The Entry may be a shared facility and should have convenient access from the car parking area. The

covered Entry may be used for patients requiring ambulance transport to and from other facilities. In stand-alone Day Surgery buildings, it is desirable to separate the external building Entry from the Day Surgery Reception area with a public lobby.

3.3.2 Reception

The Reception is the receiving hub of the Day Surgery/ Procedures Unit for patients and accompanying relatives. The reception also serves as the main access control point for the unit to ensure the security of the unit. Patients must announce their presence and register at the reception. This may be accomplished manually or electronically.

3.3.3 Waiting

Waiting areas should allow for the discrete separation of females, families and children. Waiting areas should provide suitable seating for a range of occupants including those with limited mobility, play areas for children accompanying adults and will require access to amenities. Waiting areas should be sized to accommodate the maximum number of visitors and waiting relatives.

3.3.4 Clinical Records

A secure room or cupboard should be provided with provision for storage, collating and retrieval of paper based clinical records. If geographically appropriate, and if the Day Procedures Unit is part of, or attached to, an acute hospital, the general clinical records facility might be used in lieu of a dedicated and separate storage.

3.3.5 Patient Holding/ Preparation Areas

3.3.5.1 Consult / Interview Rooms

A number of rooms will be required for patient consultation and Interview prior to Procedures. The quantity of rooms will be determined by the Service Plan and Operational Policy of the Unit.

Provide Consult and Interview rooms to comply with Standard Components.

3.3.5.2 Patient Change Areas

Separate areas may be provided for patients to change from street clothing into hospital gowns and be prepared for surgery, unless patient holding bays are provided. The patient change areas should be located close to patient locker areas and "changed" waiting areas. Design of Change Areas is to facilitate management of patient lockers, patient property and keys.

3.3.5.3 Holding Area

Patient Holding Bed Bays may be provided where patients may change into hospital gowns and wait for their procedure on a bed or trolley. Additional holding areas may be provided for "changed" patients to wait in chairs before an operation or procedure. Patient Holding bays and "changed" waiting spaces will require access to patient toilets. The Holding area will include a Staff Station for patient supervision and direct visibility. Separation of Male and Female areas may be required.

3.3.6 Operating/ Procedures Areas

3.3.6.1 Operating/ Procedure Rooms

The design of the Operating / Procedure Rooms must allow for adequate space, ready access, free movement and demarcation of sterile and non-sterile zones. Operating Rooms are to comply with Standard Components. Minimum operating room sizes suitable for all procedures which may be performed on a day-only basis including the use of general anaesthesia is 42m^2. Operating rooms used exclusively for minor operations/ procedures without the use of general anaesthesia may be as small as 36m^2, however 42m^2 is recommended.

3.3.6.2 Operating Room/s for Endoscopy

The number and function of Endoscopy rooms will be determined by the Service Plan or Feasibility Study.

Room sizes for Endoscopy may vary, dependent upon:

- The use of video equipment

- Electrosurgical laser treatment
- Fluoroscopy equipment installed
- Multiple endoscope activity
- Multiple observers
- The use of X-ray (image intensifying)

Where basic endoscopy is to be performed, the room size shall be no smaller than 36m^2. Where video/ imaging equipment is used, the room size should be a minimum of 42m^2. Larger sizes, where possible, are recommended for flexibility and future developments. The ceiling height shall be 3000mm.

Operating Rooms for Endoscopy shall be fitted out as for a Minor Operating Room, for example, it will be suitable for general anaesthetic with appropriate medical gases, power, lighting, air-conditioning and ventilation. Staff assistance call shall be provided. Consideration shall also be given to the special requirements of laser equipment.

A clinical scrub up basin shall be provided outside the entrance to the Operating Room/s for Endoscopy. Direct access to the Clean-Up Room is recommended. Impervious wall, floor and ceiling treatments are essential for ease of cleaning.

If a procedure room is used for both day surgeries and endoscopy procedures, it must be positively pressured. In such scenario, Bronchoscopy procedures will **not** be permitted in the same procedure room as they require negative pressurisation. Switchable air pressurisation (from negative to positive or vice versa) is not permitted with no exceptions.

3.3.7 Scrub Bay

Scrub facilities shall be located adjacent to the Operating Rooms and Endoscopy Rooms. Scrub Bays require sufficient enclosure to ensure the mechanical ventilation system can extract the air

and create a relative negative pressure. This is to contain the floating droplets of water and minimise the spread of contaminants potentially floating in the air and within the droplets.

Scrub bays do not require a door to the corridor, however there must be a door access to the operating room. For clarity, scrub bays created directly inside the operating rooms are not permitted. Also, open scrub troughs along the main Operating Unit corridors are not considered desirable. However, in case of dedicated Endoscopy Rooms, an additional hand wash facility may be provided inside the room.

The door from the scrub bay to the operating room may be dedicated and direct. Alternatively, surgeons and nurses can use the main doors to the operating room as long as electric doors are provided with knee, elbow, gesture or similar activation pads.

Direct doors from scrub rooms to the operating rooms should ideally be light doors, opening both ways by light pressure. This allows the surgeons and nurses to enter the operating rooms backwards without touching the door or door handle.

Optionally, a window may be provided between the scrub bay and the operating room. This allows the surgeons to observe the way the room is being set up for the next case.

3.3.8 Recovery Areas

Recovery areas shall be separated into male and female zones with sufficient privacy screening.

There are two types of Recovery space, which are used in according to the operational models explained earlier in these guidelines.

Recovery Stage 1 - After operations which require general anaesthesia, patient is taken to Recovery Stage 1 and kept there until the effect of anaesthesia dissipates, patient is conscious and gag reflex is present. During stage 1 recovery close monitoring of the patient is essential.

Following Recover Stage 1, patients who undergo “Day Surgery” are moved to Stage 2 Recovery, vacating the bed bays for new patients. Patients who stay overnight under the “24-hour surgery” model, stay in Stage 1 Recovery unless Stage 2 recovery is equipped with beds and sufficient privacy similar to Recovery Stage 1 Recovery.

The number of bed bays in the Stage 1 Recovery Area will be dependent upon the nature of surgery or procedures performed as outlined in the Operational Policy and the proposed throughput. On balance, considering the nature and fast throughput of Day Surgery facilities, it is considered that as a minimum, 1.5 Stage 1 Recovery bed bays per Operating Room shall be provided (and rounded up).

The Stage 1 Recovery area will require the following support facilities:

- Staff station/s with a centrally located resuscitation trolley
- Bays for linen and mobile equipment
- Clean Utility
- Dirty Utility
- Store room.
- Patient toilets and showers, if used for overnight stay under “24-hour surgery” model

Recovery Stage 2 - Patients undergoing Day Surgery require a Stage 2 Recovery area. Patients who undergo general anaesthetic must first spend some time in Recovery Stage 1 as explained above. Then they move to Recovery Stage 2 on foot or wheel chair. Stage 2 recovery requires, as a minimum, a number of comfortable recliners. However, a percentage of bed bays may also be incorporated for patients who may feel uncomfortable on recliners.

Patients who undergo local anaesthesia or are already awake upon leaving the operating room may be taken directly to Recovery Stage 2, by-passing Recovery Stage 1.

The number of recliner/bed bays in the Stage 2 Recovery Area will be dependent upon the following:

- Nature of surgery or procedures typically performed as outlined in the Operational Policy
- The expected throughput based on the surgery time + change-over
- The expected recovery times

For fast throughput operations, more Stage 2 recovery bays are required. All of the above factors may change on a daily basis and over time. Therefore, on balance it is considered that as a minimum 2 (but ideally 3) Stage 2 recovery bays per Operating Room shall be provided.

Within Recovery Stage 2 patients may remain in surgical gowns or change back to street clothes. Whilst in Recovery Stage 2 patients may want to drink or eat, therefore access to facilities for serving drinks and light meals such as sandwiches should be provided.

Depend on the operational model, Recovery Stage 2 may be combined back to back with the Pre-operative areas, but management should ensure in-coming and out-going patients are not mixed or confused.

In facilities which mainly cater for Day Surgery, Recovery Stage 2 may be placed back to back with Recovery Stage 1.

All Recovery bed bays, recliner bays and support areas shall comply with the details identified in Standard Components Room Data Sheets and Room Layout Sheets.

3.3.9 Discharge Lounge

Following Recovery Stage 2, patients may be discharged via the reception/ waiting area. Optionally, in larger facilities (e.g. more than 6 operating rooms) a dedicated Discharge Lounge (also referred

to as Departure Lounge or Recovery Stage 3) may be provided for a formal hand-over of the patient to family members or carers.

3.3.10 Administration Areas

General and individual offices shall be provided as required for unit administration, record holding and management, clerical and professional staff. These shall be separate from public and patient areas with provision for confidentiality of records.

Office spaces shall be provided for the Unit Manager, or Nurse Manager, medical and administrative staff as required.

Offices are to comply with Standard Components.

3.3.11 Staff Areas

Appropriate Change Rooms, toilet and showers shall be provided separately for male and female personnel (nurse, doctors and technicians) working within the Operating Unit. The Change Rooms shall contain adequate lockers, showers, toilets, hand basins and space for donning surgical attire and booting. Staff Change Rooms shall be arranged to encourage a one-way traffic pattern so that personnel entering from outside the surgical suite can change and move directly into the Operating Unit.

Alternatively, the entrance to the Change Rooms may be planned in direct view of a Staff Station at the entrance to the Operating Unit. The Change Room entrance door shall be provided with locks or electronic access devices to prevent the entry of unauthorised persons into the Operating Unit.

4 Functional Relationships

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

4.1 External Relationships

The Day Surgery/ Procedure Unit as defined here is a stand-alone facility. However, it may also be on a hospital campus, sharing certain services to avoid duplication. External relationships within a hospital campus include the following:

- Pre-Admission Clinic (part of Outpatient Clinics)
- Main Entrance Unit
- Medical Imaging Unit
- Laboratory Unit
- Inpatient Unit (if used as part of a DOSA operational model- refer to Operating Unit for details)
- Clinical Records Unit
- Administration Unit
- Catering Unit

4.2 Internal Relationships

Within the Unit, key functional relationships are governed by certain principles including:

- Unidirectional patient flow from arrival at Reception, through Changing, Holding, Surgery or Endoscopy, Recovery, then discharge to home
- Staff access to the unit via change rooms

- Transfer of sterile instruments from SSU
- Transfer of sterile supplies and consumables to the unit

The Internal Relationships are best demonstrated by Functional Relationship Diagrams.

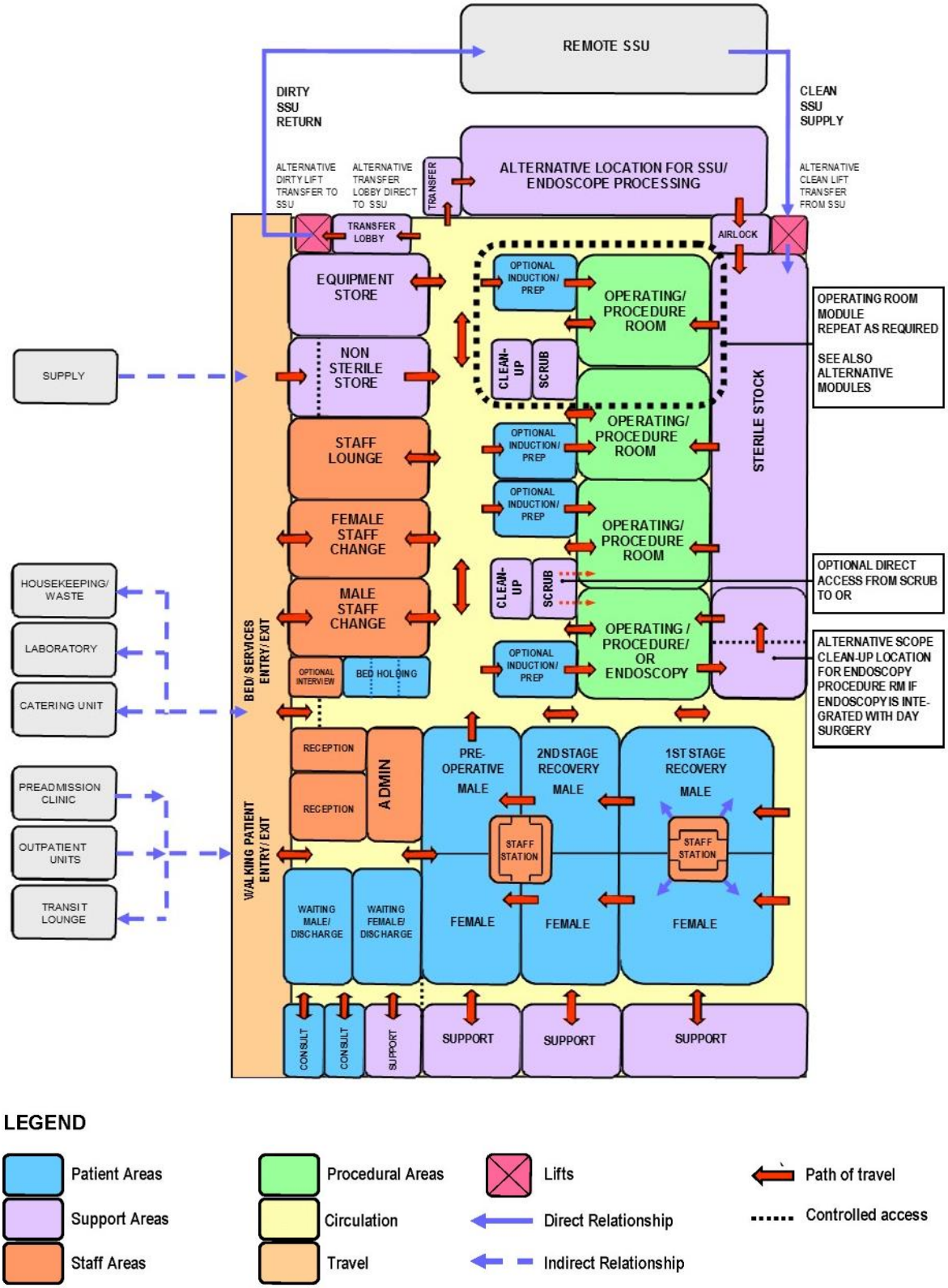
4.3 Functional Relationship Diagram

The requirements for infection control and patient management result in a number of planning 'models' that have proved successful through numerous built examples and many years of practice. For a detailed discussion of the various 'models' and their permutations refer to Operating Unit Functional Relationship Diagrams and the air pressurisation regimes required. The same requirements apply to Day Surgery Units.

Here, for convenience the Single Corridor model of surgery has been provided as it applies to a large majority of medium sized stand-alone Day Surgery centres.

For larger facilities, readers are referred to the Double Corridor model provided as part of the Operating Unit Functional Relationship Diagrams.

Note: Blue dotted lines and arrows refer to external relationships where the unit is located on a hospital campus as a stand-alone unit. These are not required when the unit is independent of a hospital.


REMOTE SSU
DIRTY SSU RETURN
CLEAN SSU SUPPLY
ALTERNATIVE DIRTY LIFT TRANSFER TO SSU
ALTERNATIVE TRANSFER LOBBY DIRECT TO SSU
TRANSFER
ALTERNATIVE LOCATION FOR SSU/ ENDOSCOPE PROCESSING
ALTERNATIVE CLEAN LIFT TRANSFER FROM SSU
TRANSFER LOBBY
AIRLOCK
EQUIPMENT STORE
NON STERILE STORE
STAFF LOUNGE
FEMALE STAFF CHANGE
MALE STAFF CHANGE
OPTIONAL INTERVIEW
BED HOLDING
OPTIONAL INDUCTION/ PREP
OPERATING/ PROCEDURE ROOM
CLEAN-UP
SCRUB
STERILE STOCK
OPERATING ROOM MODULE REPEAT AS REQUIRED
SEE ALSO ALTERNATIVE MODULES
OPTIONAL DIRECT ACCESS FROM SCRUB TO OR
OPERATING / PROCEDURE/ OR ENDOSCOPY
ALTERNATIVE SCOPE CLEAN-UP LOCATION FOR ENDOSCOPY PROCEDURE RM IF ENDOSCOPY IS INTE-GRATED WITH DAY SURGERY
SUPPLY
HOUSEKEEPING/ WASTE
LABORATORY
CATERING UNIT
PREADMISSION CLINIC
OUTPATIENT UNITS
TRANSIT LOUNGE
BED/ SERVICES ENTRY/ EXIT
W/ALKING PATIENT ENTRY/ EXIT
RECEPTION
ADMIN
PRE-OPERATIVE MALE
2ND STAGE RECOVERY MALE
1ST STAGE RECOVERY MALE
STAFF STATION
WAITING MALE/ DISCHARGE
WAITING FEMALE/ DISCHARGE
FEMALE
CONSULT
SUPPORT
LEGEND
Patient Areas
Support Areas
Staff Areas
Procedural Areas
Circulation
Travel
Lifts
Direct Relationship
Indirect Relationship
Path of travel
Controlled access

5 Design Considerations

5.1 Patient Treatment Areas

The Day Surgery / Procedure Unit should be designed to accommodate all types of patients using the Unit as determined by the operator's clinical service plan. This may include paediatric, bariatric or disabled patients.

The design should also be able to accommodate changes in equipment technology as well as changing workload and variability of throughputs. Use of standard rooms sizes are recommended to provide flexibility of design.

Pre-operative and post-operative patient facilities can be co-located, with reasonable zonal separation to share resources such as staff stations, utilities and storage, if required.

5.2 Environmental Considerations

5.2.1 Acoustics

Acoustic privacy is required in Operating Rooms, Procedure rooms, Interview, Treatment rooms and any rooms where confidential information will be discussed.

The transfer of sound between clinical spaces should be minimised to reduce the potential of staff error from disruptions and miscommunication and to increase patient safety and privacy. Noisy areas such as Staff rooms should be located away from procedural areas.

5.2.2 Natural Light

The need for an external view from the Operating Room is an important consideration. Provision of windows need to consider the following:

- Vision from the Operating Room could be through a corridor, set up area or directly to the external environment.

- Many procedures require black-out, so any windows should incorporate black-out features.
- There are heating, cooling and shading implications for windows in the Unit located on the outside of the building that may have an impact on the recurrent costs for maintenance and cleaning
- Viewing windows from a corridor to the Operating Room can be useful for supervision and training purposes
- Windows to Recovery, Staff Lounge and SSU areas where staff spend a majority of their time should be given a high priority.

5.2.3 Privacy

The design of the patient areas within the Day Surgery Unit needs to consider the contradictory requirement for staff visibility of patients while maintaining patient privacy. Unit design and location of staff stations will offer varying degrees of visibility and privacy. The expected patient acuity, age, gender and level of dependency should be considered.

Each bed bay or recliner bay in pre-op and post-op areas shall be provided with bed screens (curtains) to ensure privacy of patients when needed. Refer to the Standard Components Room Data Sheets and Room Layout Sheets for examples.

The following features shall be integrated to the design of the Unit:

- doors and windows to be located appropriately to ensure patient privacy and not comprise staff security
- discreet spaces to enable confidentiality of discussions related to a patient and storage of patients' medical records
- privacy screening to bed and chair bays
- Consultation, Interview and Preparation rooms should not be visible from public or waiting

areas; examination couches should not face the door

- location of patient change areas to provide direct access to waiting areas to prevent patients in gowns travelling through public areas when changed before and after procedures.
- separation of male, female and paediatric changing rooms and waiting areas

5.3 Accessibility

5.3.1 External

The Unit will require a weatherproof vehicle drop-off area with easy access for less-mobile and wheelchair bound patients. Drop off areas may be shared in Units located within a hospital. Access to other units in the facility should be convenient, covered and not through public thoroughfares.

5.3.2 Internal

All patient areas should be wheelchair accessible and designed to comply with relevant accessibility standards. Reception desks and Staff stations should provide wheelchair accessible counters.

5.4 Doors

All entry points, doors or openings requiring bed/trolley access including Operating/ Procedure Rooms are recommended to be a minimum of 1400mm wide, unobstructed. Larger openings may be required for special equipment, as determined by the Operational Policy, to allow the manoeuvring of equipment without manual handling risks and risk of damage.

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

5.5 Ergonomics/ OH&S

Design of clinical spaces including Operating and Procedure rooms must consider Ergonomics and OH&S issues for patient and staff safety and welfare. Particular attention should be given to storage of stock and equipment, to minimise manual handling and provide minimum distances between shelving aisles.

Refer to Part C – Access, Mobility, OH&S of these Guidelines for more information.

5.6 Size of the Unit

The size of the Day Surgery/Procedure Unit as defined by the number of Operating/ Procedure rooms will be determined by the Clinical Services Plan (CSP) or Feasibility Study establishing the intended services scope and complexity and population catchment served.

5.7 Safety & Security

Internal spaces and zones should offer security through grouping functions, controlling access and egress from the Unit and providing optimum observation for staff. Patient holding, procedural and recovery areas will require restricted and controlled access to prevent unauthorised entry by visitors or others.

The Day Surgery 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.

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

5.8 Finishes

Finishes including fabrics, floor, wall and ceiling finishes, should be appropriate to the highly clinical nature of this unit including the following considerations:

- Ease of cleaning
- Infection control
- Acoustic properties

- Durability
- Fire safety
- Movement of equipment and impact resistance

Day Surgery/ Procedure Units shall have the following finishes:

- Floors that are smooth, non-slip, impervious, continuous and cleanable with aggressive chemical agents.
- Wall finishes which are seamless, impervious and washable
- Ceilings which are smooth and impervious and cleanable
- Floors and ceiling finishes should be anti-bacterial and anti-fungal
- Intersections of walls and ceilings to be smooth without any gaps or joints

In areas where clinical observation is critical such as Operating/ Procedure rooms, Recovery and bed bays, lighting and colour selected must not impede the accurate assessment of skin tones.

For further information and details refer to Part C – Access, Mobility, OH&S within these Guidelines.

5.9 Curtains and Blinds

Windows that require screening within the entire Operating Unit shall be double glazed with internal blinds. Surface mounted blinds or window curtains are not permitted in Day Surgery/ Procedure Unit due to difficulty in cleaning and maintaining a dust free environment.

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

Privacy bed screens must be provided to each bed bay in Holding and Recovery areas. Privacy bed screens must be washable, fireproof and cleanly maintained at all times. Disposable bed screens may also be considered.

5.10 Building Service 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

The Day Surgery/ Procedure Unit will require special consideration of the following IT/ Communications systems:

- Electronic Health Records (EHR) which may form part of the Health Information System (HIS), incorporating Patient Administration System (PAS).
- Hand-held tablets and other smart devices
- Picture archiving communications systems (PACS) and location of monitors
- Paging and personal telephones replacing some aspects of call systems
- Voice and data cabling for telephones and computers
- Bar coding systems for supplies and records
- Wireless network requirements
- Videoconferencing requirements for meeting rooms
- Digital operating room requirements particularly linkages to seminar and education facilities for teaching purposes
- Communications rooms and server requirements.

5.10.2 Staff Call

Patient, Staff Assist and Emergency Call facilities shall be provided in all patient bed areas (e.g. Anaesthetic Induction Rooms, Holding bays, Recovery bays, Lounges, Change Rooms and Toilets) in order for patients and staff to request for urgent assistance.

Staff assist and Emergency call facilities are required in each Operating and Procedure room.

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

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 Wifi)

5.10.4 Heating, Ventilation and Air conditioning (HVAC)

The Operating Rooms will require special air-conditioning with positive pressure, HEPA filtration. Temperature, humidity and air changes per hour are to comply with relevant standards and guidelines established in Part E of these guidelines as well as other standards and guidelines referenced. Individual Operating Room temperatures should be controllable by staff from within the room.

Refer to **Part E - Engineering Services** in these Guidelines for specific details.

5.10.5 Medical Gases

The Day Surgery Unit shall provide medical gases and quantities of outlets identified in Standard Components Room Data Sheets and Room Layout Sheets to Operating/ Procedures rooms and various Pre-op and Post-op bed bays.

Each space routinely used for administration of inhalation anaesthesia or analgesia shall include a gas scavenging system to vent waste.

Medical Gases must be dedicated to each patient. Gas outlets may not be shared between two patients in bed/chair bays.

Refer to **Part E - Engineering Services** in these Guidelines for medical gases technical requirements.

5.10.6 Radiation Shielding and Radiation Safety

Procedure Rooms that are used for undertaking imaging procedures require radiation shielding. A certified physicist or qualified expert will need to assess the plans and specifications for radiation protection as required by the relevant local radiation/nuclear safety authorities. A radiation protection assessment will specify the type, location and amount of radiation protection required for an area according to the final equipment selections, the layout of the space and the relationship between the space and other occupied areas.

Incorporate all radiation protection requirements into the final specifications and building plans and re-evaluate radiation protection if the intended use of a room changes, equipment is upgraded, or surrounding room occupancy is altered. Consideration should be given to the provision of floor and ceiling shielding when rooms immediately above and below are occupied.

5.10.7 Hydraulics

Warm water supplied to all areas accessed by patients within the Unit must not exceed 43 degrees Celsius. This requirement includes all staff handwash basins and sinks located within patient accessible areas.

5.11 Infection Control

Consideration of Infection Control is important in the design of this Unit. Separation of clean and dirty workflows in treatment and clean-up areas and separation of patient care areas and contaminated spaces and equipment is critical to the function of the Unit and to prevent cross infection. Procedure/ Operating rooms will be used for a variety of clients whose infection status may be unknown. Standard precautions must be taken for all clients regardless of their diagnosis or presumed infectious status. Staff hand washing facilities, including disposable paper towels, must be readily available and highly visible.

Standard precautions apply to the Day Surgery Unit areas to prevent cross infection between patients, staff and visitors.

5.11.1 Hand Wash Basins

Clinical hand-washing facilities shall be provided within all patient holding and recovery areas and convenient to the Staff Stations. The ratio of provision shall be a minimum of one clinical hand-washing facility for every four patient bays in open-plan areas.

Refer also to **Part D - Infection Control** in these Guidelines for additional information.

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.

5.12 Restricted Staff Access

It should be noted that hospital staff may not enter the unit without first changing in the change rooms provided. This also applies to staff delivering patients on beds and trolleys, those delivering rood for the staff rooms and those delivering boxes to the non-sterile store. Design should restrict the access to staff who deliver the items mentioned above but are not required to enter the unit in person. The typical solution is a hand-over zone where items are passed from the outside to the inside, across a table, through a hatch or across a red line.

5.13 Drug Storage

Controlled or dangerous drugs must be kept in a secure cabinet with alarm according to operational and drug storage policies.

A lockable refrigerator or a refrigerator located within a lockable room is required to store restricted substances.

5.14 Add-on Modules

A number of compatible modules may be integrated with a typical Day Surgery/ Procedure Unit. These modules include Catheter Labs and Endoscopy.

In doing so, the procedural areas (e.g. Cath Lab or Endoscopy Room) may be grouped together with the Day Surgery Operating Rooms or slightly separated.

The patient management area such as Reception, Pre-op and Post-op may also be integrated with the balance of the Operating Unit.

Refer to separate FPU's for the requirements of these facilities and ensure all items are provided or shared within an integrated unit.

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 Operating Unit will consist of Standard Components to comply with details described in these Guidelines. Refer 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 and are separately covered below.

6.1.1 Exit Bay

The Exit Bay is an area adjacent to the Operating/ Procedure rooms which is designed to hold the patient bed/trolley during the procedure. The Exit Bed Bay should consider and include the following:

- 1 Exit Bay must be provided per Operating / Procedure Room

- Adequate space to accommodate patient bed without encroaching on circulation corridor
- Adequate power should be provided to recharge the bed and any equipment attached

6.1.2 Discharge Lounge (or Recovery Stage 3)

Discharge Lounge is the waiting area in which mobile patients once dressed await discharge and pick-up by relatives. The design of the discharge lounge should consider the following:

- Comfortable seating, ideally recliner lounges, for ambulant patients
- Ready access to refreshment facilities and patient toilets
- Readily accessible Nurse Call system
- Discharge lounge may be located away from the unit, for example at the main entrance, convenient for vehicle pick-up
- Ideally a minimal staff base comprising a design should be provided to monitor the patients to the last moment before they exist the facility. It should be noted that until this occurs, the patient is still in the care of the facility

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 theroom 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 Framwork** (**Part A - Appendix 6**) in these gduielines for a full description of RDL's.

The table below shows three alternative SOA's for 3 sizes, 2 OR's 4 OR's and 12 OR's. Due to the nature of a Day Surgery Centre, it may apply to all Role Delineation Levels (RDL's) from 2 to 6. RDL's. Role Delineation Levels 1, being Primary Care does not apply.

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.

For stand-alone facilities, designers may add any other FPU's required such as Main Entrance Unit, Medical Imaging Unit etc based on the business model.

Note: For dedicated Endoscopy Unit SOA refer to Endoscopy Unit FPU provided in these Guidelines.

7.1 Stand-alone Day Surgery / Procedures Unit

ROOM/ SPACE	Standard Component Room Codes						RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			Remarks
							2 Rooms			4 Rooms			12 Rooms			
Entry/ Reception																
Reception/ Clerical	recl-10-d similar recl-15-d similar						1	x	12	1	x	15	1	x	20	2, 3 & 4 staff respectively
Waiting	wait-10-d wait-15-d wait-30-d						1	x	10	1	x	15	1	x	30	Divided into male/female areas
Waiting - Family	wait-15-d wait-20-d wait-30-d						1	x	15	1	x	20	1	x	30	
Store - Files	stfs-10-d similar						1	x	8	1	x	10	1	x	10	Optional if electronic records in use
Store - Photocopy / Stationery	stps-8-d similar						1	x	8	1	x	10	1	x	10	Include secure paper/ recycling bin as required
Toilet - Accessible	wcac-d						1	x	6	1	x	6	1	x	6	Include baby change facilities as necessary; May share with common areas if close
Toilet - Public	wcpu-3-d						1	x	3	2	x	3	2	x	3	May share toilets in common areas if close
Patient Holding/ Preparation																
Bay - Handwashing, Type B	bhws-b-d						1	x	1	1	x	1	3	x	1	
Bay - Linen	blin-d						1	x	2	1	x	2	1	x	2	

ROOM/ SPACE	Standard Component Room Codes							RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			Remarks
								2 Rooms			4 Rooms			12 Rooms			
Change Cubicle - Accessible	chpt-d-d							2	x	4	4	x	4	8	x	4	Optional if holding bays provided, Male/ Female
Consult/ Exam Room	cons-d							1	x	13	1	x	13	2	x	13	
Interview Room	intf-d similar							1	x	9	1	x	12	2	x	12	
Patient Bay - Holding	pbtr-h-10-d							2	x	10	4	x	10	12	x	10	1 per OR; may also be used for recovery
Property Bay	prop-3-d similar							1	x	2	1	x	3	2	x	3	Patient lockers
Staff Station	sstn-5-d similar sstn-14-d similar							1	x	8	1	x	10	1	x	15	
Toilet - Accessible	wcac-d							1	x	6	1	x	6	1	x	6	For Patient
Toilet - Patient	wcpt-d													1	x	4	
Shower - Patient	shpt-d							1	x	4	1	x	4	1	x	4	Optional
Waiting - Sub	wait-sub-d similar wait-10-d							2	x	5	2	x	7	2	x	10	Optional, Changed waiting space
Operating/ Procedure Area																	
Operating Room - Minor	orms-d										2	x	36	6	x	36	For minor operations including general anaesthetic
Procedure Room	proc-25-d										1	x	25	1	x	25	For local anaesthetic
Operating Room - General	orgn-d							2	x	42	2	x	42	6	x	42	OR size dependent on clinical service provided
Anaesthetic Induction Room	anin-d							2	x	15	4	x	15	12	x	15	Optional, depending on operational policy
Scrub Up / Gowning	scrb-6-d							2	x	6	4	x	6	12	x	6	1 per OR
Exit Bay	NS							2	x	8	4	x	8	12	x	8	1 per OR; bed parking during procedures
Clean-up Room	clup-7-d							1	x	7	2	x	7	6	x	7	Note 2: 1 shared between 2 ORs
Store - Sterile Stock	stss-20-d similar							1	x	20	1	x	40	2	x	60	$10m^2$ per general surgery ORs
Recovery Areas																	
Patient Bay-Recovery Stage 1	pbtr-rs1-12-d similar							4	x	9	8	x	9	24	x	9	1.5 bays per OR in Stage 1; may separate M / F
Patient Bay-Enclosed Recovery Stage 1	pbtr-rs1-12-d similar													2	x	12	As required for isolation, paediatrics etc

ROOM/ SPACE	Standard Component Room Codes							RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			Remarks
								2 Rooms			4 Rooms			12 Rooms			
Patient Bed Bay - Recovery Stage 2	pbtr-h-10-d							4	x	10	8	x	10	24	x	10	2 Bed Bays per OR in Stage 2, may separate M/ F. A minimum of 2 bed bays is required. **Note 1**
Patient Chair Bay - Recovery Stage 2	lnpt-rs2-d similar							2	x	6	4	x	6	12	x	6	1 chair Bay per OR., may separate M / F. Minimum acceptable is multi-movement recliners at 70% of overall total. **Note 1**
Lounge - Recovery Stage 3	NS							6	x	4	12	x	4	36	x	4	Optional,3 chairs per OR in Stage 3; 4m^2 per chair, may separate M / F
Bay - Blanket/ Fluid Warmer	bbw-1-d							1	x	1	1	x	1	1	x	1	Optional
Bay - Handwashing, Type A	bhws-a-d							4	x	1	8	x	1	22	x	1	1 per 4 bed/ chair bays
Bay - Linen	blin-d							1	x	2	1	x	2	2	x	2	
Bay - Resuscitation Trolley	bres-d							1	x	1.5	1	x	1.5	2	x	1.5	
Clean Utility/ Medication	clum-14-d similar							1	x	12	1	x	14	2	x	14	
Dirty Utility	dtur-12-d dtur-14-d							1	x	12	1	x	14	2	x	14	Includes Waste Disposal
Staff Station	sstn-14-d similar							1	x	10	1	x	14	2	x	14	To oversee all recovery spaces
Toilet - Accessible,	wcac-d							1	x	6	1	x	6	2	x	6	For Patient
Toilet - Patient	wcpt-d							1	x	4	2	x	4	6	x	4	
Support Areas																	
Bay - Mobile Equipment	bmeq-4-d							1	x	4	2	x	4	4	x	4	
Cleaner's Room	clrm-6-d							1	x	6	1	x	6	2	x	6	
Store - Equipment/ General	steq-14-d similar stgn-14-d similar steq-20-d similar stgn-20-d similar							1	x	15	1	x	20	2	x	30	With access for Recovery
Staff Areas																	**Note 2**
Change - Staff, Male/ Female	chst-12-d similar chst-20-d similar							2	x	10	2	x	14	2	x	40	
Office - 2 person	off-2p-d										1	x	12	1	x	12	Clerical/ administrative support
Office - Clinical/ Handover	off-cln-d similar							1	x	12	1	x	15	1	x	20	Medical/ Nursing workstations
Office - Single Person	off-s9-d							1	x	9	1	x	9	1	x	9	Unit Manager

ROOM/ SPACE	Standard Component Room Codes						RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			RDL 2-6 Qty x m^2			Remarks
							2 Rooms			4 Rooms			12 Rooms			
Meeting Room	meet-l-15-d similar						1	x	12	1	x	15	1	x	20	May share with an adjacent unit
Staff Room	srm-15-d similar srm-25-d similar						1	x	15	1	x	25	1	x	40	May be shared with the Operating Unit
Sub Total									**571.5**			**984.5**			**2492**	
Circulation %									**40**			**40**			**40**	
Area Total									**800.1**			**1378.3**			**3488.8**	

Note 1: Stage 2 Recovery may be all in chairs or a mix of chairs and beds. The recommended percentage of each is 70% multi-movement comfortable recliners and 30% bed bays. The minimum acceptable is just recliners.

Note 2: Offices to be provided according to the number of approved full-time positions within the Unit

Please also note the following:

- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components
- 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 identified in the service plan and the 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

8 Further Reading

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

- International Health Facility Guideline (iHFG) www.healthdesign.com.au/ihfg
- ASHRAE American Society of Heating Refrigeration and Air-conditioning Engineers, HVAC design manual for hospitals and clinics, 2003 refer to website: https://www.ashrae.org/standards-research--technology/standards--guidelines
- Ministry of Health UAE, Unified Healthcare Professional Qualification Requirements, 2017, refer to website: https://www.haad.ae/haad/tabid/927/Default.aspx
- Health Regulation Sector (DHA), Day Surgical Centre Regulation, 2012, refer to website: https://www.dha.gov.ae/Documents/Regulations/Day%20Surgical%20Center%20Regulation.pdf
- CDC Centres for Disease Control and Prevention, Guideline for Disinfection and Sterilisation in Healthcare Facilities, 2008, refer to website http://www.cdc.gov/hicpac/pdf/guidelines/Disinfection_Nov_2008.pdf
- DH (Department of Health) (UK) , HBN 10-02 Day Surgery facilities. refer to website: https://www.gov.uk/government/collections/health-building-notes-core-elements
- DH (Department of Health) (UK) Health Building Note HBN 00-03 Clinical and clinical support spaces, 2013, refer to website: https://www.gov.uk/government/collections/health-building-notes-core-elements
- Guidelines for Design and Construction of Hospitals and Outpatient Facilities; The Facility Guidelines Institute, 2014 Edition refer to website www.fgiguidelines.org
- Nurse/Midwife: Patient Ratios, ANMF, Australian Nursing and Midwifery Federation, 2016;

refer to website

http://www.anmfvic.asn.au/~/media/f06f12244fbb4522af619e1d5304d71d.ashx

- Australasian Health Facility Guidelines, Part B Health Facility Briefing and Planning, HPU 0270 Day Surgery Procedure Unit, 2016; refer to website:

  https://healthfacilityguidelines.com.au