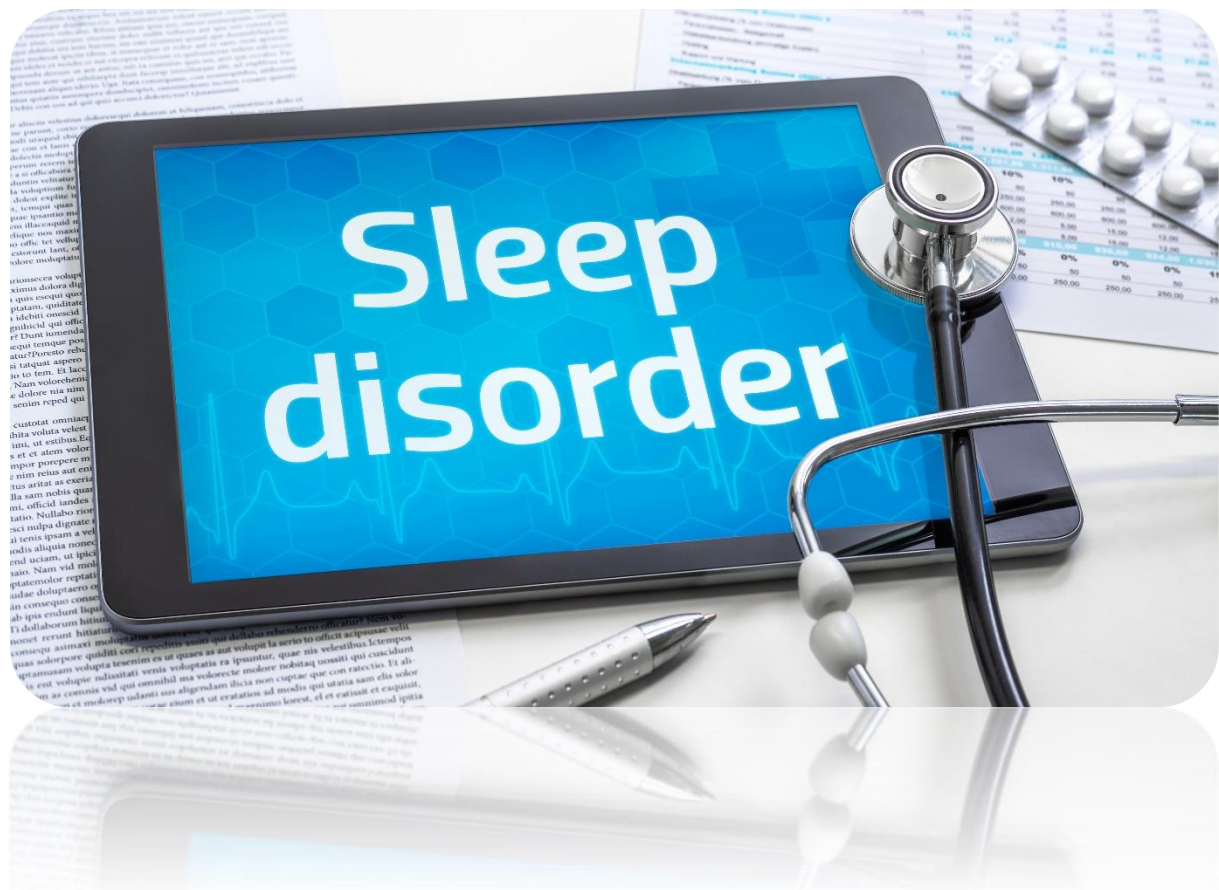


DOH Health Facility Guidelines 2022

Part B – Health Facility Briefing & Design 405 Sleep Lab Unit



Executive Summary

Sleep Lab Unit is a facility provided for the diagnosis of a variety of sleep disorders. This is accomplished within a monitored, overnight accommodation where a patient's mental and body activities during sleep can be measured and recorded.

The types of disorders may include:

- Sleep apnoea
- Insomnia
- Restless leg syndrome (RLS)
- Others

According to the DOH regulations, a Sleep Lab Unit may be provided:

- As part of a Hospital Inpatient Unit
- As an attachment to a Day Care Surgery Centre

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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1. Sleep Lab Unit

1.1 Introduction

The prime function of the Sleep Lab Unit is to provide overnight accommodation in a controlled and monitored environment where a patient's mental and body activities during sleep can be measured and recorded. Recording brain waves, heart rate, breathing pattern, oxygen levels in the blood and limb movement, assist to identify and diagnose sleep disorders such as sleep apnoea, insomnia, restless leg syndrome (RLS) etc.

The Unit must provide a home-like environment with quiet & relaxing facilities and conditions to meet the needs of patients as well as the workplace requirements of staff.

1.1.1 Description

A Sleep Lab Unit is commonly provided within a hospital or day care surgery setting taking advantage of a range of shared facilities. Its functions require provision of overnight accommodation with clinical staff on duty. Patients suffering from sleeping disorders will be admitted for an overnight stay (or in some cases during the day) at the Unit to measure and record the physiological and brain activities.

Patients attending a Sleep Lab Unit are not regarded as high risk patients..

The following studies may be conducted at the Sleep Unit:

- Polysomnography (PSG) – this test is conducted overnight where brain activity, breathing activity and muscle activity will be monitored and tracked.
- Multiple Sleep Latency Test (MSLT) – this test will be conducted through a 24 hours cycle where a PSG test will be conducted over night then follow by scheduled naps throughout the day.
- CPAP Titration – this type of test is mainly prescribed to patients who is suffering from sleeping disorders.
- Split Night Study – Both the PSG and CPAP Titration are performed over night with one after the other.
- Maintenance of Wakefulness Test (MWT) – this is a full-day test used to measure how awake

Considering the function of a Sleep Lab and its operational hours, it is most efficient to have the Unit collocated with an Inpatient Unit in a hospital.

1.2 Functional & Planning Considerations

1.2.1 Operational Models

The Sleep Lab Unit will generally operate on a 7 days per week basis but with hours that typically span across from early evening till the following morning.

The Sleep Lab Unit is a separate specialty (Service Line) with an independent management structure. However, it could be collocated with the Inpatient Unit or Day Care Surgery Centre for clinical and staffing support but zonally separated. Some inpatient facilities such as bedrooms may have a dual use function, where they can be used either as a general Inpatient bedroom, or a sleep lab bedroom, incorporating the features of both.

Option 1- Located at a Hospital

A Sleep Lab Unit, when located in a hospital, is often strategically placed within an Inpatient Unit (IPU) as they both provide overnight accommodation and are staffed 24/7. A typical patient bedroom in the IPU will have sufficient space and can be converted for sleep studies by simply adding the required equipment. In this model, the sleep testing room (patient room) should be located in a quiet part of the IPU away from regular traffic and potential noise.

Option 2- Located as part of a Day Care Surgery Centre

If the Sleep Lab Unit is located as part of a Day Care Surgery Centre, it should be located close to the entry of the facility but zonally separated as it will typically operate outside the regular operational hours of the facility. Any required and shared support services should also be made available during these hours when the Sleep Lab is functioning, but the rest of the facility may be closed. One or more testing bedrooms, with sufficient space for the equipment and a comfortable patient bed with attached ensuite should be provided for the patient. The Control/ Technical Room will be located sufficiently close to the patient testing bedroom(s).

If the facility provides fully enclosed rooms for Pre/Post surgery with attached ensuite bathrooms, the same can be adapted for dual use as part of the Sleep Lab function.

1.2.2 Functional Zones

The Sleep Lab Unit may be provided at different sizes as required. The minimum provision comprises of three rooms – a patient bedroom for testing, an ensuite attached to the patient bedroom and a Control/ Technical room with monitoring equipment. Other required support services can be shared with adjoining units as long as they remain accessible to the Sleep Lab Unit during its operational hours.

The number of testing bedrooms may be increased according to the facility's service plan. The most typical minimum number is 3 and the maximum typical number is 10. However, there is no overall limit on the numbers. Up to 8 testing bedrooms can be efficiently monitored from one Control/ Technical room with monitoring equipment and are regarded as a "Pod". Facilities offering more than 8 testing bedrooms should be designed as two Pods or adjoining departments.

The above rooms are described below:

- Sleep Testing Room (patient bedroom) - The room should allow for a regular patient bed, handbasin, wardrobe, and storage area for consumables. Clearances around the bed should follow the same standards as described under the Inpatient Unit FPU within these guidelines. If the Unit conducts sleep studies for children, the room should have sufficient space to accommodate an extra bed for the accompanying adult. If sleep studies are scheduled for more than one patient per cycle, additional rooms, each with single occupancy should be provided. Shared bedrooms are not permitted. It is recommended that the internal finishes, colours and decoration be more domestic in style and less "hospital like".
- An Ensuite – The patient ensuite is to be directly accessible from the bedroom. In general, an Ensuite including a toilet, shower and hand basin must be available within each standard patient room. Ensuited shall provide sufficient space for the manoeuvring of a wheelchair and various types of mobility devices. Grab rails to be fitted to the WC pan and shower area. The same standards as an Ensuite Bathroom within an Inpatient Unit FPU will apply. However, it is recommended that the internal finishes, colours and decoration be more domestic in style and less "hospital like".
- Control/ Technical Room – This can be located either next to the sleep testing room or in proximity. This room will include control console, monitors and other required equipment

connected to the testing system in the patient room. A write-up bench as well as a cabling trench connecting equipment in the patient room should be provided. If located adjacent to the patient room, a window looking into the patient room can be considered but is not mandatory. The Control/ Technical rooms also have the same function as a Staff Station in an Inpatient Unit. However, these are in an enclosed room rather than within an open counter. Each Control/ Technical Room can monitor up to 8 Sleep Testing Room, regarded as a Pod.

- Staff and Support Facilities – A Sleep Lab requires the following support facilities, which may be provided as dedicated facilities, shared with an Inpatient Unit or an adjacent Outpatient Unit:
 - Reception
 - Waiting
 - Public WC (Male and Female, Accessible)
 - Office
 - Store (Records)
 - Store (Housekeeping)
 - Disposal Room
 - Cleaners Room
 - Linen Bay (or Room)
 - Staff Toilets
 - Staff Room
 - Server Room (Optional)
 - Consultation Room (Optional)
 - Lung Examination Room (Optional)

1.2.3 Sleep Lab Unit Pods

Up to 8 patient testing bedrooms are described as one “Pod” . The requirements related to each Pod can be described below:

- Each pod can be managed efficiently with one Control/ Technical Room. For more than 8 beds, the unit should be regarded as two pods, with separate Control/ Technical rooms. However other staff & support facilities and public amenities may be shared between the pods.
- For each pod, provide at least one testing bedroom and its attached ensuite bathroom sized and designed for bariatric use.
- For pods with 6 or more bedrooms consider providing a breakfast room with seating and tea/coffee making and serving bench with a sink and microwave. This room is not mandatory. Such a room can be shared between the pods but sized 15 m² or 1.5m² per patient bedroom number, whichever is larger.

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

1.3 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.

1.3.1 External Relationships

The Sleep Lab Unit is a discrete specialty (Service Line) and its operations are independent and self-sufficient. External Relationships are similar to an Outpatient Unit including access to:

- Carparking
- Any existing building entrance, lobby and waiting area
- Any existing building reception
- Any existing building public amenities

1.3.2 Internal Relationships

When the Sleep Lab Unit is located within a Hospital or Day Care Surgery Centre, the pathway from the main entrance to the unit should always be accessible after-hours.

If the Sleep Lab Unit is attached to, or part of a Day Care Surgery Centre, it should ideally be located close to the entrance to allow for after-hours access, when the rest of the facility is expected to be closed. If the Sleep Lab Unit relies on certain shared facilities with the rest of the facility, then access to these shared facilities must be available through the operational hours of the Sleep Lab Unit, even if the balance of the Outpatient facility may be closed.

If a Sleep Lab Unit is located as part of a Day Care Surgery Unit, its corridors and facilities leading to the Testing Bedrooms and Control/ Technical room must be kept separate from the clean corridors of the Day Surgery Unit leading to the operating rooms. Only the areas of the Day Care Surgery Unit which are open to the public and the staff without changing into theatre gowns may be linked to the Sleep Lab Unit. These include Reception, Waiting, Public Amenities, Staff Amenities and Consultation rooms. The Pre/Post operative areas of the Day Care Surgery may be designed for dual purpose and serve as part of the Sleep Lab Testing bedrooms. However, the operations must be separated by time. For example, the Sleep Lab operation can start after the Day Care Surgery operations finish for the day.

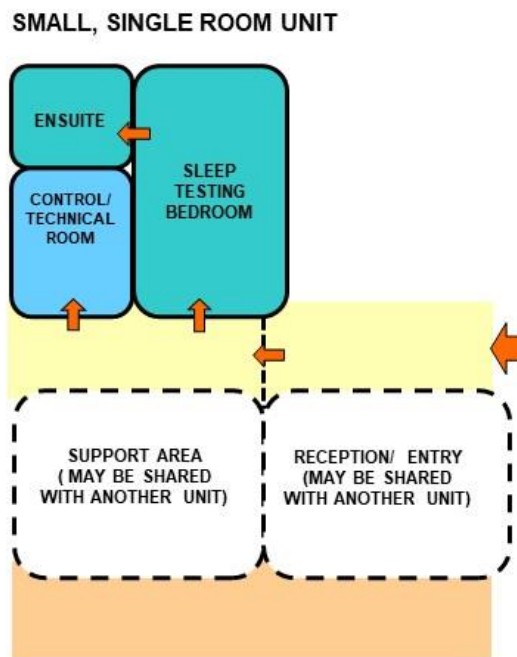
If the sleep lab is located within an Inpatient Unit at a hospital, considering that the facility is already a 24-hour operation, the exact location is flexible. However, it is highly recommended that it should be located in a quiet zone away from main traffic and potential noise.

For a small Sleep Lab Unit, it would be ideal for the three minimum required rooms to be collocated in a compact arrangement as much as possible, rather than disbursed through a larger facility such as an Inpatient Unit or Day Care Surgery Unit.

1.3.3 Functional Relationships Diagram

The functional relationships of a typical Sleep Lab Unit are best demonstrated in the diagram below. More than one testing rooms can be provided in a Unit where a Control/ Technical room can be shared between two or more testing rooms.

Sleep Lab Unit Functional Relationship Diagram

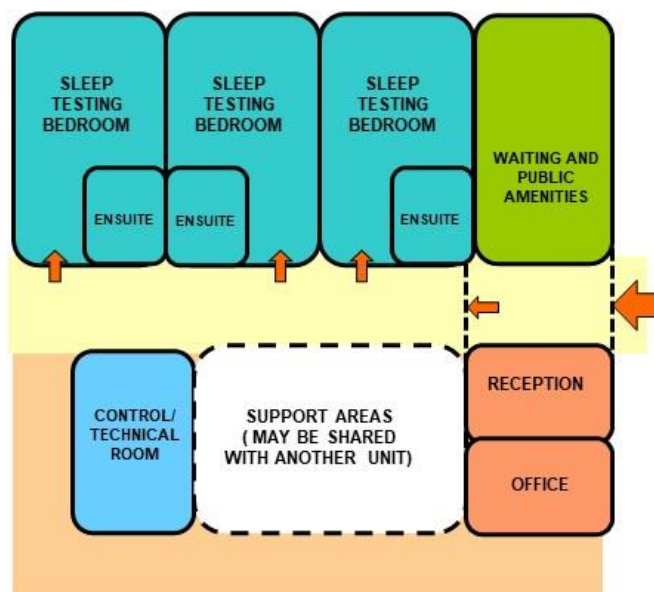


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Sleep Lab Unit Functional Relationship Diagram

MEDIUM, 3 ROOM UNIT

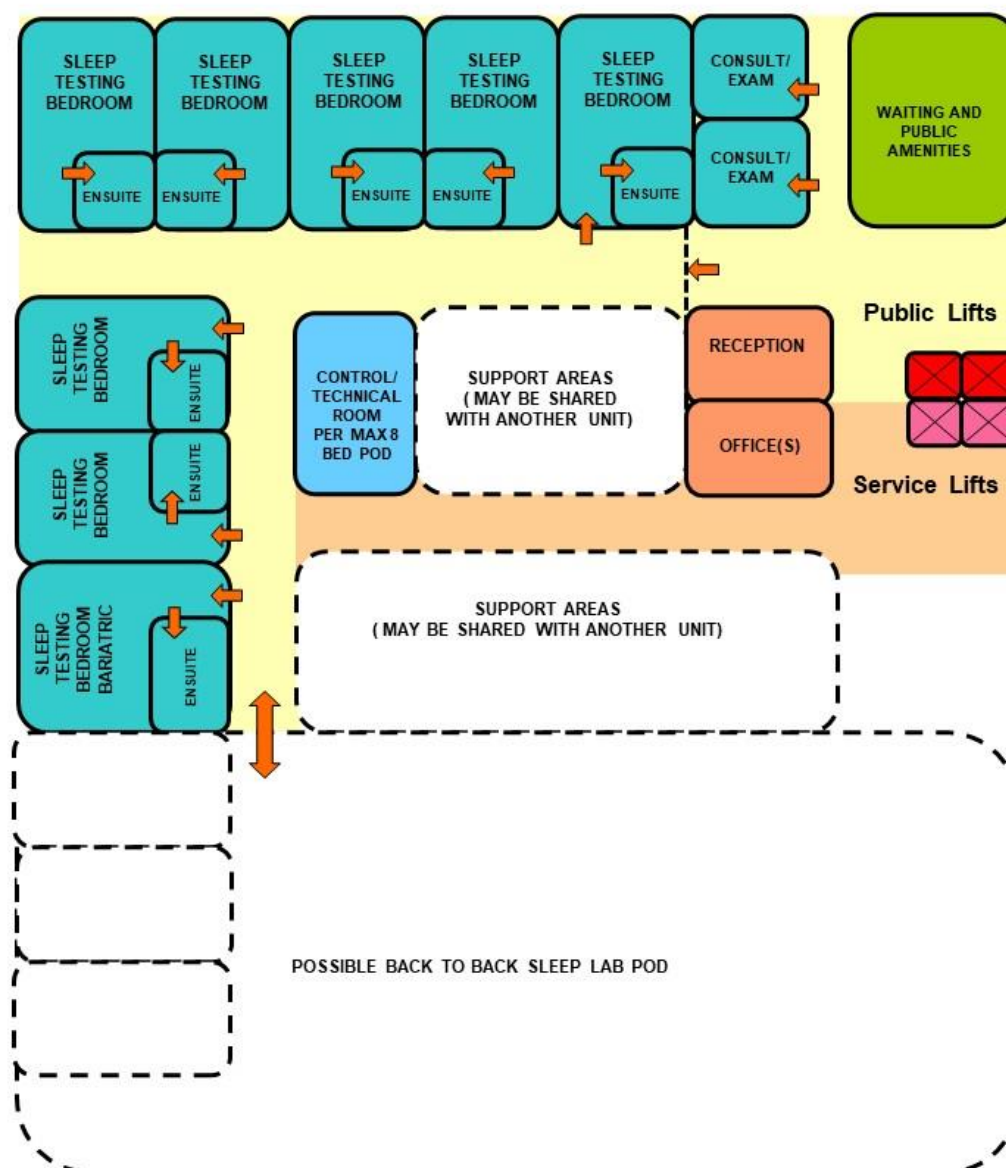


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Sleep Lab Unit Functional Relationship Diagram

LARGE, 8 ROOM UNIT



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1.4 Design Considerations

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

1.4.1 Environmental Considerations

Acoustics

The Sleep Lab 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.

Acoustic treatment will be required to the patient bedroom.

Refer to **Part G – Acoustics** of these Guidelines for more information.

Natural Light

Access to an external window is not required given the sleep testing area should be without daylight as a 'timeless' space.

Privacy

Depending on the design of the Unit, observation from the common corridor outside the patient room may be required if the control room is not adjacent the testing room. In this scenario, the sleep testing room should be located away from the main traffic to avoid visibility for other patients and visitors in the area.

1.4.2 Accessibility

Bedrooms and ensuites should comply with accessibility requirements in line with regional and international standards; including NFPA. Accessible bedrooms and ensuites should enable normal activity for wheelchair dependant patients,

1.4.3 Doors

Door openings to inpatient bedrooms shall have a minimum of 1350mm clear opening (ideally 1400mm) to allow for easy movement of beds and equipment.

1.4.4 Safety and Security

The facility, furniture, fittings and equipment must be designed and constructed in such a way that children and all other users of the facility are not exposed to avoidable risks of injury. Fittings, surfaces and furniture should have rounded edges and no small, removable elements. All cupboards should be provided with locks.

Units should be assessed and must meet security provision checklists as seen in **Part C - Access, Mobility, OH&S** of these Guidelines.

1.4.5 Finishes

Finishes including building fabric, floor, wall and ceiling finishes, should be relaxing 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, colour selected must not impede the accurate assessment of skin tones. Walls shall be painted with lead free paint.

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

1.4.6 Fixtures, Fittings and Equipment

Curtains / Blinds

Each patient room shall have blackout facilities (blinds or lined curtains) when an external window is provided to the patient testing room.

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

If blinds are to be used instead of curtains, the following will apply:

- 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.

1.4.7 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.

Information and Communication Technology

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

- Electronic patient records and patient information systems
- Telephones including cordless and mobile phones
- Computers, laptops, hand-held tablets and other smart devices
- Patient call, nurse assist call, emergency call systems
- Paging for staff and emergencies
- Supply and records management systems including bar coding for supplies
- Data and communication outlets, servers and communication room requirements
- Wireless network requirements for staff, patients and visitors.

Nurse Call

Patient call, staff assist, and emergency call facilities shall be provided in the Patient Room and Ensuite for patients and staff to request urgent assistance.

Heating Ventilation and Air-conditioning (HVAC)

The air temperature in inpatient areas should be capable of being maintained along with relative humidity, both should be adjustable.

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

Medical Gases

Oxygen and suction must be provided to all inpatient beds, while medical air is optional dependent of the service being provided. Medical gases will be provided for each bed according to the quantities noted in the **Standard Components Room Data Sheets**.

Hydraulics

Warm water supplied to all areas accessed by patients within the Inpatient Unit should be ideally at 38 degrees Celsius and must not exceeds 43 degrees Celsius. This requirement included all staff handwash basins located within patient accessible areas.

1.4.8 Infection Control

Hand Basins

Provide hand washing facilities in the patient bedroom.

Hand basins are to comply with **Standard Components – “Bay - Hand-washing”** and **Part D - Infection Control**.

Hand Basin in the patient bedroom 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.

Antiseptic Hand Rubs

Antiseptic hand rubs should be located so they are readily available for use at points of care or at the end of patient beds.

Antiseptic based 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.

1.5 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.

1.6 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 Sleep Lab Unit with a single testing room. If more than one patient bed room is required for testing, simply provide module of the "Patient Areas" as shown in the SOA below. Consultation rooms may be located in a separate Outpatient Unit where the operational hours are generally during the day. However for larger facilities Consultation/ Examination rooms can also be provided within the Sleep Lab Unit.

The SOA table below shows typical arrangements for 1 bed, 3 bed and 8 bed Sleep Lab facility. The 8 bed facility shows the maximum number of beds which can be monitored from one Control Room, regarded as one full Pod.

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 DOH for approval.

1.6.1 Sleep Lab Unit

ROOM/ SPACE	Standard Component Room Codes	All RDLs Qty x m2			All RDLs Qty x m2			All RDLs Qty x m2			Remarks
Unit Size		1 bedroom			3 bedrooms			8 bedrooms			
Entrance/ Reception											
Reception	recl-10-d similar	1	x	5	1	x	10	1	x	10	Optional; may be shared with other units
Waiting	wait-sub—d similar	1	x	5	1	x	10	1	x	15	Optional; may be shared with other units
Toilet - Public	wcac-6-d	2	x	6	2	x	6	2	x	6	Optional; may be shared with other units
Patient Areas											
Sleep Testing Room	1br-st-18-d similar	1	x	18	3	x	18	8	x	18	Similar to a regular Patient Bedroom with additional storage and work benches for equipment

ROOM/ SPACE	Standard Component Room Codes	All RDLs Qty x m2			All RDLs Qty x m2			All RDLs Qty x m2			Remarks
Unit Size		1 bedroom			3 bedrooms			8 bedrooms			
Ensuite - Standard	ens-st-d	1	x	5	3	x	5	7	x	5	Directly accessible from Patient Room
Sleep Testing Room, Bariatric	1br-ba-20d							1	x	20	Provide one per pod with 6 beds or more
Ensuite - Bariatric	Ens-ba-7d							1	x	7	Provide one per pod with 6 beds or more
Control/ Technical Room	NS	1	x	8	1	x	10	1	x	12	May be used for observation if adjacent to Patient Room; provide work benches for monitoring equipment with cabling from the Patient Room
Consult/ Exam Room	cons-d				1	x	13	2	x	13	Optional. May also be provided in an Outpatient Unit. Size one for bariatric patients.
Lung Function Test Room	cons-d similar							1	x	13	Optional.
Breakfast Room	Srm-15-d similar				1	x	10	1	x	16	Optional- may be shared as Staff Room/ Staff Meeting room. Min 10m2 or 2m2 per bedroom.
Staff and Support Areas											
Office, Unit Manager	off-s12-d similar	1	x	12	1	x	9	1	x	12	Optional, may be shared with other Units
Office, 2 person shared	off-2p-d				1	x	12	2	x	12	May be shared with other Units
Bay - Handwashing, Type B	bhws-b-d	1	x	1	1	x	1	1	x	1	Staff access to at least one HWB within the Unit
Dirty Utility	dtur-8-d	1	x	8	1	x	8	1	x	8	May be shared with other Units
Disposal Room	disp-8-d similar	1	x	4	1	x	4	1	x	4	May be shared with other Units
Store – General/ Equipment	steq-10-d	1	x	10	1	x	10	1	x	15	Size as per service demand and operational policies; may be shared with other Units
Cleaner's Room	clrm-6-d	1	x	6	1	x	6	1	x	6	May be shared with other Units
Bay – Linen	blin-d	1	x	2	1	x	2	1	x	2	May be shared with other Units
Bay – Beverage, Open Plan	bbev-op-d	1	x	5	1	x	5	1	x	5	May be shared with other Units. Not required if breakfast room is provided.
Toilet – Staff	wcst-d	2	x	3	2	x	3	2	x	3	May be shared with other Units
Sub Total		108			197			393			
Circulation %		35			35			35			
Total Areas		146			266			530.5			

Please note the following:

- Consultation room(s) may be provided in the separate Outpatient Unit. If required, consult rooms with required support services can be located within the Sleep Lab Unit. Also refer to separate FPU - Outpatient Unit.
- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the FPU

- Rooms indicated in the schedule reflect the typical arrangement according to the bed numbers
- Exact requirements for room quantities and sizes will reflect Key Planning Units (KPU) identified in the Clinical Service Plan and the Operational Policies of the Unit
- All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines

1.7 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:

- Guidelines for Design and Construction of Health Care Facilities; The Facility Guidelines Institute, 2014 Edition; refer to website www.fgiguide.org
- International Health Facility Guideline (IHFG), refer to website: www.healthdesign.com.au/ihfg
- NFPA, National Fire Protected Association, refer to website: <https://www.nfpa.org/>