Australasian Health Facility Guidelines

Part B - Health Facility Briefing and Planning

0520 – Operating Unit

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Australasian Health Facility Guidelines

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01 INTRODUCTION

1.1 PREAMBLE

This Health Planning Unit (HPU) has been developed for use by the design team, project managers and end users to facilitate the process of planning and design.

The Operating Unit HPU was originally developed for NSW Health and issued for Australasian use in 2006. This revision has been informed by an extensive consultation process during 2017 and included clinical experts and post occupancy evaluation of recent developments.

1.2 INTRODUCTION

1.2.1 General

This HPU outlines the specific requirements for the planning and design of an Operating Unit. In the context of this HPU it is used to describe the facilities for preoperative management of day only, day of surgery admission (DOSA) patients, inpatients and emergency patients and second stage recovery and discharge facilities for day only patients.

This document does not include planning or spatial requirements for medical imaging rooms that are being planned as part of operating units in selected hospitals, e.g. intraoperative MRI.

This document should be read in conjunction with the Australasian Health Facility Guidelines (AusHFG) generic requirements described in:

- Part A: Introduction and Instructions for Use;
- Part B: Section 80 - General Requirements and Section 90 - Standard Components Room Data and Room Layout Sheets;
- Part C: Design for Access, Mobility, OHS and Security;
- Part D: Infection Prevention and Control; and
- Part E: Building Services and Environmental Design.

Additional AusHFG resources that complement this HPU include:

- HPU 270 Day Surgery/Procedure Unit;
- HPU190 Sterilizing Services Unit;
- HPU 440 Medical Imaging Unit;
- HPU 430 Front of House Unit which can be used to plan an admissions unit; and
- HPU155 Ambulatory Care Unit which can be used to plan preadmission clinics.

1.3 POLICY FRAMEWORK

Before undertaking a project, planners and project staff are encouraged to familiarise themselves with jurisdictional plans, policies and guidelines relating to surgical services. Key reference materials include:

- Australian College of Perioperative Nurses (ACORN) Standards for Perioperative Nursing in Australia 14th edition;
- Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010);
- Australian and New Zealand College of Anaesthetists (ANZCA) Professional Standards including PS4 Recommendations for the Post-Anaesthesia Recovery Room (2006);

- AS/NZS 4187:2014 Reprocessing of reusable medical devices in health services organisations (Standards Australia 2014); and
- Infection Control in Endoscopy, Gastroenterological Nurses College of Australia, 3rd Edition (2010).

Information relating to jurisdictional policies and guidelines are listed in the Appendices.

1.4 DESCRIPTION

The Operating Unit is a self-contained, physically distinct and environmentally controlled area. The Unit will accommodate perioperative care which includes the:

- preoperative phase which includes patient management prior to the surgery or procedure to the point of transfer to the operating room;
- intraoperative phase which includes surgery or procedures; and
- post-operative phase which begins with first stage recovery until a patients is transferred to an inpatient unit or discharged.

Activity undertaken within an Operating Unit will include elective and emergency surgery. A large percentage of surgery will be elective, with most patients being admitted on the day of procedure with many being day only admissions.

Operating Units will vary depending on the size, scale and role delineation of the health service. These Units may range from a single operating room, used a few days a week, through to large services with over 20 operating rooms. The number of rooms will affect the operational and design solution. It is increasingly likely that tertiary and quaternary services will continue to implement new technology, equipment and procedures that will influence space requirements. Examples include digital environments, hybrid theatres, robotics and major medical equipment such as CT (fixed and mobile).

The surgical environment is planned and designed to reduce the risk of infection for patients and staff. Considerations include air-handling systems, the use of materials that are easy to clean and maintain, the flow of people (staff and patients), materials (clean and dirty) and access control.

The Operating Unit should be sufficiently flexible to accommodate the day-to-day fluctuations in surgical and procedural caseload and enable the adoption of these emerging technologies. The range of patients being managed within the Operating Unit will include children, adults and those with special needs, e.g. obstetric procedures, bariatric and those with cognitive impairment. In addition, these environments are also used for clinical training for a range of students and clinical staff.

1.4.1 Terminology

Hybrid Operating Room

An operating room with a fixed imaging platform designed to perform minimally invasive surgery and enable conversion to an open procedure.

Digital Operating Room

These rooms provide the visual and digital information integration to support minimally invasive and image guided surgery.

Video integration (in-theatre) is the transfer of video from instrumentation, i.e. endoscope or camera (in-light camera) to the display screens (either ceiling or wall mounted display screens). Video integration can also occur outside of the theatre with the transfer of streamed video from instrumentation or cameras to an external location such as a training room or device.

Digital integration can be used for a range of functions including generation of worklists from the eMR, retrieving PACS images for review during a procedure, customisation of the theatre, room lighting and music.

Reusable Medical Device (RMD)

A medical device (often referred to as surgical instruments) that is designated or intended by its manufacturer as suitable for reprocessing and reuse.

Robotics

Robotics used in surgery is similar to laparoscopic surgery so that it can be performed using minimally invasive techniques. Robotics offer greater precision and control than is possible with conventional techniques. Two broad types of systems are used including:

- large robotic units, e.g. DiVinci that can be difficult to manoeuvre are often sited within a nominated operating room; and
- haptic robot arms, tactile feel technology systems, which are more mobile.

02 PLANNING

2.1 OPERATIONAL MODELS

2.1.1 Hours of Operation

The hours of operation of an Operating Unit will vary according to the level of service, model of care and operational policies. Large tertiary units will provide services 24/7 subject to planned closures and arrangements for emergency surgery during those periods. Smaller units may provide an on-call service after hours and at weekends. Consideration will need to be given to the safety of staff working out of normal business hours.

2.1.2 Models of Service Delivery

The model and range of services to be provided will determine the component parts and configuration of the Operating Unit and the functional relationships required with other clinical services. Some examples are described below.

Integrated Unit

A fully integrated unit provides all the facilities for preoperative, intraoperative and post-operative management of all patients including day of surgical admission (DOSA) patients. It may or may not have access to an extended day only (EDO) Unit.

Perioperative Model

Facilities for preoperative management of DOSA patients and post-operative care of day patients may be undertaken in a separate unit that could additionally operate as an Extended Day Only Unit. Patients undergoing planned surgery as day-only or day-of-surgery admissions are admitted to a dedicated facility prior to surgery. Surgery and first stage postoperative recovery are undertaken in the Operating Unit. DOSA patients are transferred to an inpatient unit. Day-only cases are transferred to the Perioperative Unit for pre-discharge care.

Collocated Operating Unit and related procedural services

This is a model whereby operating rooms and a range of other specialty procedure rooms, e.g. interventional angiography, endoscopy and cardiac catheterisation rooms, are collocated, allowing for easy access to anaesthetic support and shared use of perioperative facilities thus reducing unnecessary duplication.

2.2 OPERATIONAL POLICIES

2.2.1 General

The following issues should be considered in the development of the operational model for the Unit, as they will all impact the configuration of the Unit and overall space requirements.

Operational policies should be developed as part of the project planning process. Refer to Part B Section 80 General Requirements for further information.

2.2.2 Access

Three zones are identified within the Operating Unit to ensure that patient outcomes are optimised. These include:

- **unrestricted** areas where staff and visitors may wear street clothes or perioperative attire. Examples of these areas includes change rooms, entries and public areas;
- **semi-restricted** areas where staff and selected visitors are usually wearing perioperative attire. In some cases, visiting staff may instead be wearing a uniform, e.g. handover of patients. These areas may including holding areas, recovery and other support spaces; and

- **restricted** areas are only accessible by approved staff wearing perioperative attire, e.g. operating and procedure rooms.

The 'red line,' use of colour or other treatments concept can still be used to provide visual cues to staff working within the Operating Unit to reinforce restricted access areas. This will be used in addition to electronic access control systems.

Refer to ACORN Standard – Equipment and Environment.

2.2.3 Case Assembly Set-up

Assembly or set-up is the process of compiling all of the reusable medical devices and sterile consumables required for each surgical case or procedure. A range of equipment may be used for case assembly including:

- shopping trolley-like containers - one surgical case per trolley;
- shelved trolleys that may contain the requirements for several surgical cases; and
- case carts - one surgical case per cart.

The requirements for the next day's cases will be assembled using information related to the procedure and surgeon preferences. The carts or trolleys will be stored unopened overnight in a dedicated area, usually a sterile supply room or sterile core. The opening and laying out of the reusable medical device (RMD) packs and sterile consumables occurs in the operating/procedure room and is performed under sterile conditions by the circulating nurse for use by the instrument nurse who is 'scrubbed.'

2.2.4 Consignment and Loan Reusable Medical Devices (RMD)

Most Operating Units utilise consignment (loan) RMD, the majority of which are orthopaedic instruments. As many as 10 trays delivered in crates/boxes will be delivered for each surgical case. A designated area in the Sterilizing Services Unit (SSU) will be needed to receive, receipt and reprocess the loaned RMD. The items will then be sent to the Operating Unit and stored until needed.

For further information refer to:

- AusHFG HPU190 Sterilizing Services Unit; and
- Design and handling of surgical instrument transport cases, a guide on health and safety standards, WorkCover NSW, May 2011.

2.2.5 Management of Prosthetics

Prosthetics may arrive with consignment and loan instruments, or separately. On arrival, the prosthetics will be checked through a Radio Frequency Identification Device (RFID) reader (where available) and then stored within an identified area, e.g. sterile store, fridge within the Operating Unit. Once a case is completed, the related prosthetics are again checked through the RFID reader to update information relating to stock on hand.

2.2.6 Immediate Use Sterilization

Immediate use ('flash') sterilizers are designed for one-off sterilization of RMD (e.g. an instrument which has been inadvertently left out of a set or dropped) and are generally located in an Operating Unit. Most health services do not support the use of flash sterilizers and instead have implemented systems within the Sterilizing Services Unit to ensure urgent items can be processed in a timely way. These systems categorise urgency and can provide the necessary support so that clinical care is not compromised.

Where immediate use sterilization is undertaken in the Operating Unit, it must comply with AS/NZS 4187:2014 Reprocessing of Reusable Medical Devices in Health Service Organizations. Spatial requirements for this equipment are not included in the document.

2.2.7 Clean-up

Reusable medical devices should be wiped clean with a sponge after immediate use by nursing staff. In some selected orthopaedic cases, RMD are soaked during the case as the debris can be difficult to remove once it is left for a period of time.

Recommended cleaning methods will be prescribed by the manufacturer of the RMD in their instructions for use. Manual cleaning and rinsing of an RMD should only be used where it is deemed necessary by the manufacturer and this will occur in the SSU.

Once a case is completed and the count is finalised, used equipment will be transferred to the clean-up room when carts/trolleys are stripped of sharps, waste and instrument trays. Staff will collect covered trolleys and transfer RMD to the SSU for reprocessing.

Where a surgical waste management system is in use, and this will be specialty dependent, these units will usually be docked within the clean-up room. It is likely that one of these units will serve six to eight operating rooms.

Many services will separate waste so that the streaming of waste is optimised (i.e. general, clinical and recyclable). In selected clean-up rooms, cytotoxic waste streaming will also occur.

2.2.8 Medical Imaging

The use of medical imaging in the Operating Unit is increasing. This is in part due to the trend towards less invasive procedures. A range of equipment is used including:

- mobile imaging such as; image intensifiers (II), general x-ray, ultrasound, video laryngoscopes for tracheal intubation, stereotactic equipment and in some instances, mobile CT; and
- fixed imaging such as C-arms, angiography, CT, ultrasound and in some circumstances MRI.

Mobile equipment needs to be ‘parked’ in a dedicated location when not in use with consideration of recharging requirements. New technology, such as a mobile CT is very large. Selected rooms will require radiation shielding (or electro-magnetic shielding for MRI) and personal protective equipment (PPE) while others will just require PPE for staff (refer to Section 3.3.10).

In hybrid environments, the fixed imaging unit is best designed so that it can be parked away from the sterile field. This makes the room more flexible when this technology is not being used.

Matters relating to shielding and signage are detailed in Section 3 Design.

2.2.9 Patient Preoperative Preparation and Holding

The operational model for the Operating Unit will determine the need for preoperative holding bays and patient change facilities and amenities. The space allocation of holding bays provides sufficient space for a patient to change into a theatre gown. In this case additional patient change rooms may not be required. Alternatively, patients may change into a theatre gown prior to surgery and walk into the anaesthetic bay or operating room. In such cases, holding bays for elective surgery patients may not be required and instead be replaced with a ‘gowned’ waiting area. Inpatients will typically be transferred on a bed.

2.2.10 Pre-Admission Clinics

These clinics are typically located in an ambulatory care zone of a health care facility to support day of surgery admission processes. Facilities will include consult rooms with access to medical imaging.

2.2.11 Clinical Support Services

Pathology

A range of pathology related activities support an Operating Unit including:

- **frozen sections** whereby a fresh tissue specimen is taken in the operating room, reviewed by an anatomical pathologist and then results provided to the surgeon within a 20 minute timeframe. Where a pathology department is located close-by, a courier will take the specimen to the pathology department where a scientist and pathologist will be on standby to freeze, slice and stain the specimen so that it can be examined on a microscope by the anatomical pathologist. The results will be relayed from the pathologist to the surgeon so the surgical procedure can continue. This approach means that the time of pathology staff is better used.

  Where a hospital does not have an anatomical pathology service on site, or the pathology service is located some distance from the Operating Unit, technology can be used to provide timely advice. A scientist will need to be present within the Operating Unit but the pathologist will work remotely. The slide will usually be prepared (as outlined above) in a dedicated space in the Operating Unit. The slide will then be placed under a microscope with camera attachment and sent to the pathologist where it will be viewed;

- **other tissue specimens** that are not time critical will be placed in formalin and sent to the pathology department for preparation and examination. Most samples will be transported in pre-filled specimen containers. Larger specimens require formalin to be decanted and a suitable exhaust ventilation system will be needed to manage fumes. Staff will also need PPE;

- **point of care testing**

- **blood storage** within an Operating Unit may be needed if the distance from the main blood storage supply in the pathology unit is considered to be too far. This matter will usually be referred to a health services transfusion committee for consideration.

Medications

Central storage for medications will be needed within an Operating Unit with decentralised storage needed to support holding and recovery. Many services will locate a drug safe within each operating room module in either the anaesthetic or operating room. There are pros and cons of each approach including:

- the anaesthetic bay can be accessed throughout the day so the medications can be checked at each shift without disturbing ongoing surgical cases. In turn, this room is not always supervised; and

- the operating room is occupied throughout the day so medications are supervised. Nursing staff do have to access the room to check the count which can be disruptive.

Ideally, refrigerated medications will be centrally stored within the Operating Unit and accessed as required.

Biomedical Engineering

A room for equipment testing and repair is ideal, especially in large Operating Units. This room will be accessed by biomedical engineering staff who will require access to a workbench, storage for equipment and consumables. Where staff need to maintain a back-up anaesthetic machine, a place to ‘park’ this large unit will be needed along with a medical services panel so that all gases used by the machine can be tested. Given the size of some equipment the doorway requires a 1400mm clear opening.

2.2.12 Patient Property

Requirements may vary depending on the patient type. For example:

- inpatients being transferred to the Operating Unit will have no belongings to manage;
- patients presenting for a day of surgery procedure who will then require an inpatient stay may need to store luggage so a locked room within the Operating Unit is useful for storage until the patient is transferred to an inpatient unit; and
- day-only patients may instead have access to a locker that they can access in pre and post-operative settings. They will be encouraged to limit the amount of personal items that they bring for the day.

2.2.13 Education and Training

Staff will need access to meeting, education and training space within the Operating Unit. As it is ideal to minimise movement within the operating room to reduce potential contamination of the surgical field, cameras can now transmit video and images to an alternate site such as a device or meeting room either within, or external to the Operating Unit. These cameras form part of the digital integration system.

2.3 PLANNING MODELS

2.3.1 General Principles

The operational model chosen for the Operating Unit will greatly influence the planning model adopted. The location of units such as; Day Surgery Unit, EDO Unit, SSU, admissions, bookings and administrative services will have an impact on the selection of the planning model.

2.3.2 Number of Operating Rooms

The number of operating and procedure rooms is described in the clinical services plan and will be determined by:

- the case mix and complexity of the surgical and procedural caseload as defined in the service plan;
- surgical and technology trends that may influence future patterns of activity;
- the anticipated volume of procedures including some assumptions regarding the anticipated number of cancellations;
- operating hours, such as the length of time a room operates per day e.g. eight to 10 hours;
- management of emergencies; and
- the length of changeover time between procedures.

The number of rooms will then be used to estimate the number of recovery bays or rooms required and the extent and configuration of support and other facilities. The ANZCA recommends 1.5 Stage 1 recovery bays per operating room to manage expected peak loads in activity (2006).

The cost of hybrid operating rooms is significant so where they are planned, a good understanding of the type of work that can be undertaken in these rooms is needed. There are many procedures that will not suit this type of room, e.g. where stirrups or traction is needed.

2.3.3 Operating Room Sizes

Advances in surgical techniques and the use of new equipment and technology are driving a requirement for larger operating rooms. The sizes listed in this HPU are minimum sizes and a final space allocation will depend on many factors including surgical case mix and use of new equipment and technology in the room, e.g. robotics.

The usable floor area should be considered. For every door into the operating room or item fixed onto a wall, the usable space in the room is reduced. Careful consideration should be given to the number of doors and fixed workstations and their locations in terms of their impact on usable floor area.

Flexibility of use should be considered when planning new units. The impact of this planning principle may result in the adoption of one operating room size, rather than a mix of standard and large sizes. This allows for a change in case mix over time and provides a more flexible footprint when new technologies or practices are adopted. For operating room sizes, refer to the Schedule of Accommodation.

Hybrid rooms will require additional floor space to accommodate fixed imaging and will need to be supported by an attached control room.

2.3.4 Operating Room Layout

Operating rooms should be planned to consider the flow of patients, staff (including those who are scrubbed), a range of supplies and equipment and waste. Operational practices may affect layouts, e.g. a preference for a dedicated and direct entry door to the operating room from the scrub bay.

Wherever possible the layout should be consistent but this should not interfere with function and usability.

There are two options for operating room layout - single handing and mirror reversal. Single handing means that the layout of each room is identical including door locations and the layout of equipment and fittings. Single handing may provide benefits including enhanced safety, a reduced rate of errors, and more intuitive use by staff and ease of staff training. However, this configuration presents fewer opportunities for sharing support rooms. Operating rooms are frequently configured in pairs and this generally results in mirror imaging of operating room layout. This maximises opportunities for sharing facilities such as scrub bays and clean-up rooms.

The Operating Unit Modules (appendix 5.5) illustrate the two approaches and sharing possibilities.

2.3.5 Generic Versus Specialised Operating Rooms

Where possible, a standard approach should be used to plan and design operating rooms to improve flexibility over time, promote efficiency and reduce errors. Even so, volumes and specialist requirements may impact on this approach. For example:

- a number of specialties now use microscopes in the operating room. They are typically stored within the room. Microscopes are typically large and mobile (with the exception of ophthalmic microscopes);
- an obstetric operating room will need additional gases located on the wall to support a newborn. Tertiary centres may need to support triplets; and
- grouping cardiac theatres in pairs allows them to share specialised facilities such as perfusion rooms. These operating rooms are generally larger with some specialised fixed equipment.

Planners should identify the anticipated surgical casemix so that any specialist equipment or procedure that may drive the need for a larger footprint is considered.

2.3.6 Location

There are a number of other issues and planning parameters that will require evaluation prior to commencing the internal planning of the Unit as described in the following sections.

Many Operating Units will require a large footprint and it is not unusual for project teams to have to consider locating some functions on a different but connected level of the building, e.g. change rooms and SSU.

2.3.7 Arrangement of Operating Rooms

Traditional operating unit designs featured clean and dirty zones and completely separate corridor systems for patients and for clean and dirty goods. In contemporary practice, operational policies play a greater role in managing and controlling the different flows but control of these flows remains a key issue in unit design.

Single Corridor Design

A single corridor is an option where goods, clean and used and all pre and post-operative patients traverse the one corridor. This option works well when the main circulation corridor is sufficiently wide to permit separation of the passage of patients on beds, goods and waste. It can also provide an opportunity for natural light within operating rooms.

Race Track Design

This model aims to separate dirty from clean traffic by controlling the use of each corridor. Sterile stock and RMD storage is usually centralised in a sterile ‘core’ which prevents duplication of supplies and staff. While a central sterile core is a good option for operational efficiency, the use of this approach on a large number of operating rooms means that travel distances to recovery become significant. First stage recovery should be located so it is easily accessible from each operating room. In large units, a sterile core option can be used but for a smaller number of rooms.

Clusters and Pods

A cluster of two to four operating rooms with a shared sterile stock store is a model often considered during the planning stages. Clusters of rooms are often grouped around surgical specialities. The operating costs of providing dedicated staff and stock duplication in this arrangement of Operating Rooms need to be considered.

This model can add to the corridor space and circulation space and staff may prefer the extra space to be allocated to stock storage.

Dedicated Operating Rooms with Fixed Equipment

This model dedicates particular operating rooms to specific types of surgery using fixed equipment for specialities such as urology with a dedicated table and drainage, and ophthalmology with ceiling-mounted microscopes. This may be beneficial in larger units where work volumes justify this specialisation. In smaller units the benefits of flexible use of operating rooms usually outweighs the benefits of specialisation. However, fixed equipment can preclude the multifunctional use of the room and if a piece of equipment needs servicing or repair, the room cannot be used. Fixed radiology equipment is large and difficult to clean and may not be required for all cases.

2.3.8 Dedicated Medical Imaging Rooms

Dedicated medical imaging rooms can be located within the Operating Unit (such as MRI and CT) adjacent to the operating rooms that will access this technology.

Two models for the use of these imaging rooms are emerging. Either the imaging modality is moved via tracks to the patient in the operating room or the patient is moved to the imaging room. In both cases the option of accessing the imaging room at other times, e.g. for use by intensive care patients is desirable so the location within the complex may need to consider this requirement. In either case, there will be a requirement for a control room.

2.3.9 Opportunities for Sharing Space

Perioperative Units can have predictable peaks and troughs in activity which may provide opportunities to share space. Holding bays may be used in the morning to prepare patients for their procedure. As preoperative activity decreases during the day, these spaces may be used to recover patients attending for day-only procedures. Consideration needs to be given to mixing these two groups of patients and this could be addressed in the design stage of planning.

2.3.10 Multi-storey Units

There may be occasions when there is insufficient floor area for the entire Operating Unit to be accommodated on one floor. All patient-related facilities should be collocated but facilities such as staff change rooms, staff lounge, meeting and training rooms and some offices may be located on a floor above or below the main Operating Unit.

In this model, ease of access to operating rooms and the recovery area via internal lift and, where possible, stairs is essential. Stairs and lifts should be centrally located and designed so that clothing disciplines can be maintained.

Stairs should be of adequate width to accommodate the anticipated traffic. Adequate communication facilities are required to reach staff in case of emergency, e.g. phone, pager or annunciator system. Additional staff toilets should be provided on the main floor near where staff work.

2.4 FUNCTIONAL AREAS

2.4.1 Unit Functional Zones

The Operating/Perioperative Unit comprises the following functional zones:

- entry, reception and waiting for the reception and identification of patients to the unit with general supervision of day-to-day administrative management of the unit, control of the main entry and general administrative tasks;
- holding area for the medical admission, holding and preparation of patients prior to their surgery or procedure;
- operating room where procedures are carried out. This generally comprises operating room, anaesthetic room, scrub bay, exit lobby and clean-up areas;
- clinical support areas such as utilities and storage;
- recovery area(s) where patients are assisted through the process of recovering from the effects of surgery and anaesthesia. This may be stage 1, stage 2 and discharge; and
- staff areas – office space and amenities including male and female change rooms, staff room and teaching and meeting spaces.

2.4.2 Entry, Reception and Waiting

Day of surgery admissions will present to a main reception point where a clerical admission will be finalised. Waiting space will be needed to accommodate the patients and at least one carer, Visitor amenities, such as toilets, should be provided unless located nearby. This area is classified as an unrestricted zone and will act as a control point for entry into semi-restricted areas of the Unit. Inpatients will not use this entry point.

2.4.3 Preparation and Holding

Nursing staff will collect day of surgery admission (DOSA) patients and undertake a nursing admission (if required) and baseline observations. The patient will then change into appropriate attire and if required nursing staff will undertake treatment such as eye drops. Patients may also require an anaesthetic review.

Facilities to support these activities may include change rooms, patient toilets, 'changed' waiting areas, holding bays with beds and access to interview and consult rooms. Where patients are wheeled into the operating room, one holding bay per room is typically provided to support both inpatients and day of surgery patients.

Arrangements for the management of children may need to be considered so some separation from adults is achieved. This may include a separate room or pod of holding bays.

A staff control point may be located between the preparation, holding and operating rooms where a patient is identified and checked for surgery. This site may also act as a coordination centre for larger services.

2.4.4 Operating Room Module

An operating room module will comprise of an anaesthetic room, an operating room, a scrub bay, an exit bay and clean up room. In most cases, this module will also include a sterile store for holding consumables, RMD and trolleys with stock assembled but unopened for the next number of cases. In the case of hybrid rooms, a control room will also form part of the module.

The module is configured so that the patient flow in and out of the operating room is optimised and staff travel distances are very short.

Examples of modules are contained in the Appendices.

2.4.5 Clinical Support

The Operating Unit is a major user of RMD and sterile stock and the size of the **sterile store(s)** and its relationship to the Operating Rooms is of high importance. The use of disposable instruments, linen and other supplies is increasing which will impact on the total amount of space. A receiving and de-boxing area will be needed.

Storage for a wide range of **equipment** will be needed. Considerable attention should be given to the quantity, size and range of equipment to be stored and to storage locations and storage methods in order to maximise efficiency, reduce unnecessary duplication and minimise staff travel. In large units particularly, an equipment tracking system may be installed. This equipment will be stored in a range of locations including:

- the operating room. For example, much of the equipment routinely used within a room will be stored there. Specialist equipment, such as a robot, may also be stored in the room it is routinely used;
- equipment rooms for equipment not in everyday use; and
- equipment bays should be provided for storage or parking of equipment in regular use such as balloon pumps, lead aprons, warming devices, and auxiliary lamps. Additional space may be required to store mobile imaging equipment.

Other rooms needed to support the Unit include:

- medication store;
- dirty utility accessible to pre and post-operative holding areas;
- disposal and cleaners rooms;
- pathology room; and
- linen bays.

2.4.6 Recovery

Three stages of recovery are detailed in this section however, the provision of stages 2 and 3 will be dependent on the model of service delivery. For example, where services provide a dedicated day only/day of surgery unit, the main Unit may only provide Stage 1 recovery. Where these functions are combined, all three stages are typically provided.

Services that treat paediatric patients may provide a separate zone in the discharge area designed specifically for the recovery of children. Alternatively, paediatric cases could be scheduled or cohorted.

Stage 1 Recovery accommodates unconscious patients who require constant observation and monitoring with, ideally, a one-to-one patient to nurse ratio. Open plan bays will be provided so that they can be observed from a staff station.

Recovery Stage 2 accommodates:

- patients who have regained consciousness after anaesthesia but require further observation;
- patients who have undergone procedures with local anaesthetic who may 'bypass' recovery stage 1.

Depending on the size and complexity of the service, these spaces may also be used to hold patients prior to their procedure as the peaks in activity change across the day.

Bays will be arranged in an open-plan arrangement with direct access to Stage 1 and Stage 3 areas. Depending on the patient, access to recliner chairs or a trolley bay is needed.

Access is required to toilets and a beverage bay.

Recovery Stage 3 (Discharge Lounge) will accommodate comfortable chairs with adequate space between them for small tables. Centres which have a high volume of more rapid turnover patients with shorter first stage recovery, e.g. endoscopy, cystoscopy, ophthalmology, plastic surgery may require larger discharge lounges with more chairs to avoid overcrowding.

Access is required to toilets, lockers and a beverage bay.

Access to a small interview room is also required for confidential follow-up discussions and instructions. Depending on configuration, this room may be shared with holding.

The exit from the discharge area may be separate from the admission entrance.

2.4.7 Staff Areas – Office Space and Amenities

Facilities include:

- change rooms which will include toilets, showers and lockers;
- staff room;
- meeting/tutorial room; and
- office space to support the service.

Definition of space for areas such as change rooms and staff rooms will be dependent on a good understanding of staffing numbers (and gender in the case of change rooms) so adequate space is provided. As staff are in surgical attire, they typically do not leave the Unit.

2.5 FUNCTIONAL RELATIONSHIPS

2.5.1 External

Patients may enter the Unit from a number of locations. Some of these will be emergencies in need of urgent surgery or procedure. Direct access is needed for the SSU.

Ready access is needed to:

- emergency unit;
- birthing suite;
- ICU/NICU;
- helipad via lift;
- anaesthetic clinical department; and
- surgical inpatient units.

To minimise stress to patients and other hospital users, transfer of patients between these units and the Operating Unit should be rapid, direct and discreet and the use of public corridors and lifts avoided.

Other units that are intimately linked with the day-to-day running of the Operating Unit and are often planned as a part of the Unit include:

- perioperative/extended day only unit; and
- SSU.

Other units that may require a functional link include;

- pathology unit, including the blood bank; and
- medical imaging.

2.5.2 Internal

Planning of an Operating Unit is complex and requires the correct relationships to be achieved between the functional zones listed previously. Key issues to be managed include:

- logical orderly patient flow from arrival at reception, through preoperative holding, operating rooms and recovery back to either the perioperative unit, an inpatient unit or discharge to home;
- ready access to sterile stores and equipment from all operating rooms;
- the ability of staff to monitor the condition and safety of patients at all times;
- the ability of staff to manage some patient groups, e.g. children with some degree of separation;
- maintenance of patient privacy; and
- the efficient management of the Unit, in particular, consideration of staffing and equipment costs.

03 DESIGN

3.1 ACCESS

Access to the Operating Unit should be controlled but will need to accommodate:

- patients visiting for planned procedures;
- patients from inpatient units or the emergency department;
- a range of staff and students, many who will need to get changed into surgical attire on entry;
- the movement of consumables, equipment, linen and waste; and
- the movement of RMD to and from SSU.

Generally, this is achieved by having one only point of entry for DOSA, day only patients and the public (planned), and separate security-controlled entries for inpatients, staff and goods and supplies.

Operating Units are zoned to control access as described in Section 2.2.2.

During design, a clear understanding of these zones will be needed to ensure access control mechanisms are incorporated.

3.2 PARKING

Consideration should be given to drop-off parking for DOSA and day only patients and non-emergency ambulances. In addition, staff may be on-call and will need to get to the Operating Unit without delay so systems for parking for these staff will be needed.

For staff parking, refer to AusHFG Part C: Section 6.0 Security.

3.3 DISASTER PLANNING

A management plan should be in place that describes the role of the healthcare facility and jurisdictional plans. In case of a disaster, elective cases may be cancelled and these facilities used to provide additional unplanned capacity.

Refer to AusHFG Part B Section 80 General Requirements for further information.

3.4 INFECTION CONTROL

Due to the invasive procedures undertaken, infection control is a key consideration in the design and planning of the Operating Unit. Aseptic techniques are used by the perioperative team to minimise the patient's risk of exposure to microorganisms when the body's natural defences are breached during a surgical procedure.

Specific issues include:

- air handling (airflow management, air filtration, pressure gradients and humidity) as described in Section 3.10.4;
- access control (as described in Sections 2.2.2 and 3.1);
- hand hygiene, both surgical scrub and in other clinical areas throughout the Unit. While a 'rub-scrub' may replace a traditional water scrub, the scrub sink design is likely to remain the same, with additional dispensers added;

- design of selected spaces such as operating rooms to identify zones such as the sterile field, within the room. This sterile field includes 'the area immediately surrounding the draped patient, the sterile surgical personnel and the sterile draped instrument tables and equipment' (ACORN, Standard 2);
- adequate storage to accommodate a range of requirements including sterile consumables and RMD, unsterile consumable, medications, anaesthetic consumables and equipment, linen, operating room attire and equipment;
- surfaces and finishes to promote easy cleaning. This can be challenging where there is significant wall and ceiling mounted equipment;
- selecting equipment that is easy to clean. Personal computers are increasingly being used in the operating room and all components, including keyboards, should be easy to clean;
- detailing of ceiling mounted equipment to ensure that cabling is enclosed and cannot easily collect dust;
- cleaning and waste management. The location of clean-up rooms close to operating rooms will provide an easily accessible area to store cleaning equipment and dispose of used RMD, used consumables and fluids; and
- the management of patients with infections (airborne, droplet and contact). Consideration of patient management pre, during and post procedure needs to be considered, e.g. scheduling cases, where practicable, at the end of the list. The use of negative pressure environments within an operating theatre is not an option as the air handling system needed to prevent surgical site infections is positive.

The use of heating and cooling devices for cardiac bypass procedures has been identified as a risk as some units have been contaminated with Mycobacteria chimaera, refer to (https://www.tga.gov.au/alert/infections-associated-heater-cooler-devices). The equipment can also discharge steam within the operating room. It is likely that new equipment will be developed that locates this equipment adjacent to the cardiac operating room. Spatial requirements have not been reflected in this document, however, this may be considered in future should new products become available in Australia.

For further information refer to:

- AusHFG Part D: Infection Prevention and Control;
- Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010);
- Hand Hygiene Australia;
- ACORN Standards S2 Aseptic Technique and S7 Infection Control;
- AS/NZS 4187:2014 Reprocessing of reusable medical devices in health services organisations (Standards Australia 2014); and
- jurisdictional policies.

3.5 ENVIRONMENTAL CONSIDERATIONS

3.5.1 Natural Light

An Operating Unit is a workplace for staff and where possible, access to natural light is highly desirable. This includes the provision of windows within an operating room, staff rooms and recovery.

3.5.2 Windows in Operating Rooms

An operating theatre is a workplace. An external aspect may be achieved by locating the operating rooms on external walls or around an internal light court.

Borrowed daylight may be achieved by locating windows in the operating room opposite a corresponding window in a corridor running between the operating room and external wall. Depending on the purpose of the corridor, these windows can be useful for supervision and training purposes.

Many procedures require black-out so windows will need coverings to control light and glare within the room. Consideration must be given to the use of laser and the potential for laser light to be reflected from glass.

Windows or viewing panels in doors to lead-lined operating or other rooms should be protected to maintain the level of protection required. See the section on glazing in Part C: Section 3.0 Space Standards and Dimensions.

3.5.3 Interior Décor

Colour can be used to avoid an institutional atmosphere. However, in areas where patient observation is critical such as operating rooms, anaesthetic rooms, recovery, holding areas, colours should be chosen that do not alter the observer's perception of skin tones. Interior decor should be calming and offer positive distractions to reduce stress. Features that distract patients, e.g. artwork may also be helpful.

An operating room will typically have an area identified as the location where the bed is positioned in the operating room. This identifies the ‘sterile’ zone but the vinyl used in this area is typically a darker colour so that staining does not occur. While it is important that vinyl is selected so that instruments can be found, the use of white and other light shades can become discoloured through the use of surgical scrub and patient preps.

3.6 SPACE STANDARDS AND COMPONENTS

3.6.1 Human Engineering

Human engineering covers those aspects of design that permit effective, appropriate, safe and dignified use by all people, including those with disabilities. It includes occupational ergonomics, which aims to fit the work practices, furniture, fittings and equipment (FF&E) and work environment to the physical and cognitive capabilities of all persons using the Unit.

The requirements of occupational health and safety and antidiscrimination legislation will apply. Refer to AusHFG Part C: Section 7.0 Safety and to OHS legislation.

3.6.2 Ergonomics

Operating Units should be planned and designed to prevent exposure of patients, staff, visitors and maintenance personnel to avoidable risks of injury.

Examples include:

- floor finishes that prevent slips and falls, especially in areas where water and other fluids will be used, e.g. scrub bays, operating room, clean-up;
- automatic opening doors in rooms where beds pass through, e.g. exit bay. Where sliding doors are used at the entry to an anaesthetic preparation room, automation is not needed and locating a suitable button for door release is problematic;
- manual handing including transfer of the patient to the operating table. This risk is increased where bariatric patients are managed;
- managing cables so that trips and falls are avoided;

- workstations, particularly those used within the operating room that allow the user to work in a comfortable position; and
- systems to locate equipment (real time locator systems) can result in the need for less equipment as staff can find what they need. This will reduce clutter over time.

Refer to Part C: Section 730, Human Engineering for further information.

3.6.3 Access and Mobility

Accessible toilets, showers and change rooms should be provided as necessary for patients, public and staff and must comply with AS/NZS 1428:2010 Design for Access and Mobility (Set) (Standards Australia, 2010) and the Building Code of Australia. Also Refer to Part C: Section 730, Human Engineering.

3.6.4 Building Elements

Building elements include; walls, floors, ceilings, doors, windows and corridors and are addressed in detail in Part C: Section 3.0, Space Standards and Dimensions. Ensure that doorways are sufficiently wide and high enough to permit the manoeuvring of wheelchairs, trolleys and equipment without risk of damage or manual handling risks.

3.7 SAFETY AND SECURITY

3.7.1 Safety

Employers and employees have a statutory obligation to ensure the health, safety and welfare of all employees at work.

The design of the Unit should seek to prevent injury, reduce the number of potential hazards and be safe by design.

Hazards that may be found in the Operating Unit environment include:

- exposure to infectious substances;
- exposure to surgical plume;
- exposure to lasers and radiation;
- exposure to anaesthetic gases; and
- manual handling issues.

Healthcare facilities utilising lasers or intense light in their treatments are now able to do so with clearer guidance, with the importance of staff training and best practice featuring prominently in the publication of a revised standard, AS/NZS 4173:2018 - Safe Use of Lasers and Intense Light Sources in Health Care. The impact of this standard will go beyond hospitals, extending to private medical facilities, dental practices and the cosmetic industry.

For further information on the management of hazards refer to:

- AS/NZS 4173: Safe use of lasers and intense light sources in health care (Standards Australia, 2018);
- ACORN Standard, Staff and Patient Safety which details issues such as fatigue, laser safety, sharps and patient positioning;
- ACORN Standard, Equipment and Environment which details issues such as anaesthetic gas pollution and electrosurgical equipment;
- NSW Health Guideline GL2015_002 Work Health and Safety - Controlling Exposure to Surgical Plume, 2015; and

- ARPANSA Radiation Protection Series No. 14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008).

3.7.2 Security

Access control systems will be needed to ensure that only those authorised will have access to restricted areas of the Unit. Duress points may also be needed at staff stations and receptions. Patient and visitor escorted access only will be provided beyond the waiting area.

The design will need to consider that staff may work out of hours and will access operating rooms, recovery areas and staff amenities.

Refer to individual jurisdiction guidelines and to Part C: Section 6.0 Security.

3.8 FINISHES

3.8.1 General

As with most units, the selection of finishes for the Operating Unit is influenced by both durability and infection control.

The finishes in the Operating Unit should be easy to clean, hard wearing and impervious to moisture. Refer to:

- Part C: Section 3.0 Space Standards and Dimensions;
- Part D Section 4.0 Surfaces and Finishes for further information; and
- Room Data Sheets and Room Layout Sheets for recommended finishes and further information.

3.8.2 Floor Finishes

Floor finishes should be impervious to moisture, easily cleaned, stain resistant, comfortable for long periods of standing and suitable for wheeled traffic such and beds and equipment. In operating rooms and procedure rooms, the colour should allow for sufficient contrast to find small dropped items. Light coloured floors can stain easily and a darker colour is often preferred. In areas where fluids are likely to fall on the floor, the floor covering used should be fit for purpose, e.g. scrub bays, operating rooms and travel areas from scrub to gowning areas.

A slip resistant, resilient floor finish with welded joints and coved skirtings is considered appropriate throughout the Unit with higher slip resistance specified for wet areas. Carpet may be used in waiting areas, staff areas and offices where appropriate. Where there are changes in types of floor finishes, e.g. vinyl to carpet, there should not be a change in floor levels. Ridged cover strips and humps where two surfaces meet represent an infection control risk, and a safety hazard for potential slips, trips and falls. Refer to Part C: Section 3.0 Space Standards and Dimensions for further information.

3.8.3 Wall Finishes

Due to the high number of trolley movements in the Unit, wall protection is an important issue. Wall and corner protection is required wherever there is the potential for damage. All wall surfaces in the Operating Unit are subject to the cleaning protocols documented in the operational policies for the Unit.

Ceramic tiles are not recommended within an operating room and floor to ceiling wall vinyl is preferred.

Gaps between dissimilar surfaces should be avoided. For example, avoid gaps between the top edge of vinyl skirting and wall, window frames and walls etc.

While flush mounted equipment such as display screens may be desirable, the size may change over time causing issues. All areas where possible gaps between dissimilar materials may occur should be checked and sealed prior to occupation.

3.8.4 Ceiling Finishes

Ceiling performance requirements include; aesthetics, acoustics, infection control, access to services and durability. With a significant amount of ceiling mounted equipment access is needed.

Key risks in operating rooms include potential for drop-down contamination, splash or soiling. The material chosen should meet the performance requirements and there may be a need for supporting operational policies to be developed to maintain relevant standards. Acoustic tiles should not be used in key clinical and related areas such as the operating room and sterile stores. Ceilings will be subjected to the cleaning protocols documented in the Operational Policy for the Unit.

3.8.5 Bench Tops

Consideration should be given to the use of the bench tops and the type of material most suitable to the task. Bench tops should be of a smooth, impervious finish, resistant to damage and stains. Joins should be avoided if possible because they are difficult to keep clean. A range of products is suitable, e.g. laminates (providing post-forming or other means of avoiding jointing is considered), and synthetics such as moulded acrylic and stainless steel.

3.8.6 Window Treatments

Window treatments to patient bed areas may require external or internal (between double glazing) treatments for light and temperature control.

See Part C: Section 3.0, Space Standards and Dimensions for further information.

3.8.7 Cleaning Requirements

The cleaning policy of the Operating Unit should be determined during the design period. Design layout, fittings, furnishings, floor coverings and finishes will have significant impact on the cleaning of the Unit. Ledges, corners and all other surfaces which are difficult to clean should be minimised.

Facilities should be provided that will assist in the efficient cleaning of the Unit such as suitable location of power outlets, adequate storage for cleaning materials and equipment, waste disposal and hand washing facilities.

3.9 FIXTURES, FITTINGS AND EQUIPMENT

3.9.1 Definition

Within the context of the AusHFG, Room Data Sheets (RDS) and Room Layout Sheets (RLS), Fixtures and Fittings are defined as follows:

- **Fixtures**: Refers to fixed items that require service connection, e.g. electrical, hydraulic, mechanical and includes basins, light fittings, clocks, medical service panels, etc., but excluding fixed items of serviced equipment such as operating lights; and
- **Fittings**: Refers to fixed items attached to walls, floors or ceilings that do not require service connections such as curtain and IV tracks, hooks, mirrors, blinds, joinery, pin boards etc.

Also refer to Part C: Design for Access, Mobility, OHS and Security, Space Standards and Dimensions and to the Standard Components - Room Data Sheets (RDS) and Room Layout Sheets (RLS) for further detailed information.

3.10 BUILDING SERVICE REQUIREMENTS

3.10.1 General

In addition to topics addressed below, refer to:

- Part E; Building Services and Environmental Design; and
- jurisdictional guidelines relating to engineering services.

3.10.2 Planning For Future Technology - Adaptable Infrastructure

Consideration should be given to planning for flexibility in order to adapt to new technology solutions and capability as they become available. This may include:

- structural considerations for floors and ceilings;
- planning for future access to conduits/wiring to enable ease of wiring new equipment;
- infrastructure for digital operating rooms.

3.10.3 Ceiling Structure

Increasingly, services and equipment are ceiling rather than floor mounted. Increasing use of IT and medical imaging within Operating Units results in additional space being used within the ceiling space above operating rooms. The design of these rooms will require significant coordination to set out imaging equipment with ductwork, pendants, HEPA filters, access panels and lighting.

Ceiling heights also need to accommodate equipment requirements such as operating lights and ceiling mounted equipment. Provide appropriately designed, rigid support structures located above the finished ceiling.

3.10.4 Air Handling

Operating Units will be air-conditioned and particular parameters apply to the operating rooms and the sterile stores. Considerations include:

- operating rooms will each have separate air handling units and separate exhaust systems that are best located as close as practical to the areas served; and
- some operating rooms have extensive IT and medical imaging equipment included which places a high heat load onto the room. This will need to be considered in the design of air handling systems.

Dedicated computer rooms supporting selected imaging modalities and AV equipment cupboards will require a dedicated cooling system to mitigate the build-up of heat within the small enclosed environment. These cooling systems will be separate from that of the operating theatre.

Provide ventilation, air-conditioning and humidity in accordance with relevant standards, and to meet the needs of the patient and clinical team. Temperatures may range from 16 to 28˚C. Refer to:

- jurisdictional policies and guidelines, e.g. Section 7.8.3 in the NSW Health PD2016_020 Engineering Services Guideline;
- AS 1668.2:2002 The Use of Ventilation and Air-conditioning in Buildings, Part 2; and
- ASHRAE Standards TV2.4 Particulate Contaminants.

3.10.5 Medical Gases

Locate the main storage of medical gases outside the unit, reticulated internally to gas outlets. Provision should be made for additional separate storage of reserve gas cylinders necessary to complete at least one day's procedures and for special gases that are not reticulated.

Requirements are detailed in Standard Components.

3.10.6 Information Technology and Communications

Operating rooms and the broader suite of facilities within an Operating Unit are becoming increasingly integrated with other ICT infrastructure with a significant reliance on audio visual equipment to integrate video and biomedical equipment with display and output destinations such as display screens. When planning an Operating Unit consider:

- wireless technology. This will facilitate many devices including workstations on wheels (WOW) and other equipment;
- the increasing use of point of care clinical systems used during a surgical procedure. This requires access to:
    - display screens to view results, PACS images etc.
    - PCs to access electronic medical records (EMR) and to discuss matters with other members of the multi-disciplinary team. It is now common for PC access to be needed to support surgical, anaesthetic and nursing staff within an operating room;
- technology to assist with the management of:
    - consumables, e.g. bar coding
    - equipment, e.g. RTLS
    - prosthetics, e.g. reader systems
    - RMD tracking
- call systems including staff assist porter or orderly and emergency call systems;
- patient monitoring systems, including telemetry;
- high speed networks to support the requirements of digital operating rooms and other equipment;
- cameras within selected operating rooms to:
    - record patient information (photos and videos). While vendors will provide limited archival storage when a system is purchased, an ongoing system to store these images will be needed
    - broadcast footage from the procedure for the purposes of training and education;
- management systems for consumables such as bar coding; and
- education requirements, such as teleconferencing and videoconferencing capability.

Consideration may be given to ensuring IT cables are ‘4K ready’ so that in future 3D images can be provided.

In addition, the integration required to support a digital environment will generally require the inclusion of an AV equipment cupboard dedicated to each room. This is ideally placed directly outside of the operating room so it can be accessed without interrupting the surgical case. The cupboard will have access to both the front and rear of the rack by sufficient side space or swing mechanism, without compromising any of the cabling and connections to the rack.

In future, information provided by display screens within an operating room may be replaced or supplemented with augmented reality (AR) technology where a surgeon views critical information on a set of glasses.

3.10.7 Electrical Services

Considerations include:

- electrical installation must comply with AS/NZS 3000 Electrical installations – patient areas;
- all patient areas within the Operating Unit will be wired at least as body protected electrical areas;
- patient areas should only be wired as cardiac protected electrical areas as defined in AS/NZS 3000, that is where cardiac-type procedures are regularly and routinely undertaken. In the case of an Operating Unit, this includes cardiac and thoracic theatres and interventional radiology;
- stand-by lighting and power systems (also known as back-up or emergency power) will be provided in accordance with AS/NZS 3009 Standby Power System. Within an operating room, 100% of all power outlets will be connected to the emergency supply, or a UPS supply;
- uninterruptible power supply (UPS) for critical equipment. In an operating room, this may include operating lights, pendants, monitors and anaesthetic machines or monitors, operating theatre integration products and integrated imaging systems; and
- provision of GPOs in equipment bays and equipment storage rooms so that equipment can be recharged.

Additional requirements are contained in the following codes and standards including:

- National Construction Code;
- AS/ANZ 3000 Electrical Installations; and
- jurisdictional guidelines relating to engineering services.

Service requirements are also detailed for key rooms such as an operating room, in the AusHFG Standard Components.

3.10.8 Signage

Specialised signage requirements may include:

- lasers in use; and
- x-ray in use.

3.10.9 Radiation Shielding

Imaging equipment is increasingly used in Operating Units. Radiation shielding will be needed in rooms with:

- fixed fluoroscopy units (i.e. single plane and bi-plane angiography, floor or ceiling mounted C-arms);
- where provided, rooms containing other fixed imaging modalities such as CT or MRI.

A shielding assessment must carried out by a consulting radiation expert (CRE) and a report produced for the facility, detailing the extent of shielding required.

Other operating rooms will not have fixed imaging equipment, but will use mobile units such as image intensifiers. There may be no need for radiation shielding when these are used as the amount of ionising radiation may be low and classified as a low-risk. Again, a shielding assessment must carried out to determine the likely radiation exposures. Staff will need access to PPE.

As the radiation safety issues are considerable, it is recommended that medical imaging staff are included in planning related to this equipment, both fixed and mobile.

This document does not include planning, design or spatial requirements for planning rooms such as intraoperative MRI. Planning teams should refer instead to the HPU 440 Medical Imaging and seek advice from recently planned projects.

3.10.10 Commissioning an Operating Unit

Prior to commissioning an operating unit, air sampling must be undertaken as outlined in ACORN Standard Equipment and Environment.

04 COMPONENTS OF THE UNIT

4.1 STANDARD COMPONENTS

Standard Components Rooms/spaces are defined as:

- standard components (SC) which refer to rooms or spaces for which room data sheets, room layout sheets (drawings) and textual description have been developed;
- standard components – derived rooms are rooms, based on a SC but they vary in size. In these instances, the standard component will form the broad room 'brief' and room size and contents will be scaled to meet the service requirement; and
- non-standard components which are unique rooms that are usually service-specific and not common.

The standard component types are listed in the attached Schedule of Accommodation.

The current Standard Components can be found at: www.healthfacilityguidelines.com.au/standard-components.

4.2 NON-STANDARD COMPONENTS

Non-Standard Components are unit-specific and are listed and described below:

ANAESTHETIC WORKROOM AND BIOMEDICAL EQUIPMENT

Description and Function

This is area for the repair, maintenance and calibration of both anaesthetic and biomedical equipment, and a work base for anaesthetic and biomedical technicians when visiting the Unit.

Location and Relationships

It may be located on the perimeter of the Unit with internal and external access.

Considerations

Fixtures and fittings may include:

- medical gases - oxygen, suction, medical air, nitrous oxide;
- power for recharge and checking;
- workbenches;
- storage shelving for small items;
- sink; and
- hand basin.

AUDIOVISUAL WORKROOM

Description and Function

This is a room for audio-visual technicians to manage the recording, editing, broadcast and storage of video images used for teaching purposes.

Location and Relationships

Locate in a non-restricted part of the Unit with ready access from outside the Unit. Irregular access to the Operating Rooms may be required for camera maintenance.

Considerations

Fixtures and fittings may include:

- benches;
- storage cupboards;
- computers; and
- power outlets.

EXIT BAY

Description and Function

Functions and activities include;

- egress of the patient and used equipment at the conclusion of a procedure;
- storage of patient bed while procedure is in progress;
- storage of clean bed linen and used linen trolley (optional);
- location for fluid warming cabinet; and
- storage of table accessories.

Location and Relationships

Direct access is required:

- into the Operating Room; and
- from the Operating Room into the corridor.

Considerations

Where a scrub bay is collocated, a foot pedal will be needed so that staff can operate doors without compromising sterility. This pedal should be located so staff do not have to access around or near the patient bed that may be held nearby.

A GPO will be needed for recharging the patient bed and other equipment, and wall protection will be required.

PERFUSION ROOM – STORE AND SET UP

Description and Function

An area for cleaning, set up and maintenance of perfusion equipment. In sizing, consider the volume of equipment, machines, number of staff accessing this space and the specialty theatres served.

Location and Relationships

Direct access is required to the Operating Rooms in which the equipment is used and the Perfusion Store.

05 APPENDICES

5.1 SCHEDULE OF ACCOMMODATION

A Schedule of Accommodation for Operating Units follows.

The ‘Room/Space’ column describes each room or space within the Unit. Some rooms are identified as ‘Standard Components’ (SC) or as having a corresponding room which can be derived from a SC. These rooms are described as ‘Standard Components – Derived’ (SC-D). The ‘SD/SD-C’ column identifies these rooms and relevant room codes and names are provided.

All other rooms are non-standard and will need to be briefed using relevant functional and operational information provided in this HPU.

In some cases, Room/Spaces are described as ‘Optional' or ‘o’. Inclusion of this room/space will be dependent on a range of factors such as operational policies or clinical services planning.

The model of care, size and scale of surgical and procedural services will need to be determined before detailed spatial planning to begin.

Three scenarios have been outlined to demonstrate how support space changes as the size and scale of a service changes. These scenarios are intended to be indicative only and local requirements should be based on detailed clinical service planning. In addition, office space and staff amenities will be based on detailed workforce planning.

6 OPERATING ROOM UNIT

ENTRY/ RECEPTION / WAITING AREA

Note 1: This area will receive patients and their carers where services provide day only and day of surgery admission (DOSA) services. Patients from inpatient units will not enter via this area.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
RECL-12	Reception/ Clerical, 12m2	Yes	1	12.0	
WAIT-10	Waiting, 10m2	Yes	1	10.0	
MEET-9	Meeting Room, 9m2	Yes	1	9.0	may also accommodate office and interview functions
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	optional; include if no shared facilities available nearby
WCPU-3	Toilet - Public, 3m2	Yes	1	3.0	optional; include if no shared facilities available nearby
Intradepartmental (discounted) circulation				30%	

PREOPERATIVE HOLDING AREA

Note 2: A range of support space provided where day of surgery admissions are received such as showers, change rooms etc.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-H-9	Patient Bay - Holding, 9m2	Yes	6	9.0	1 per OR; sized for trolleys, but some may be recliner chairs; where patients walk into the procedure areas, a waiting room may be provided instead
INTF	Interview Room	Yes	1	9.0	interviews with nursing staff to check details and undertake baseline observations
SHPT	Shower - Patient, 4m2	Yes	1	4.0	
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	
CHPT-D	Change Cubicle - Accessible, 4m2	Yes	1	4.0	
	Property Bay - Patient		1	1.0	quarter height lockers assumed
BHWS-B	Bay - Handwashing, Type B	Yes	2	1.0	refer to AusHFG Part D for further details; accessible from OR and patient holding areas
BLIN	Bay - Linen	Yes	1	2.0	min. 1 per 16 Patient Bay - Holding; corridor location with ready access to Bays
BBW	Bay - Blanket/ Fluid Warmer	Yes	1	1.0	blanket warmer only
Intradepartmental (discounted) circulation				40%	

OPERATING ROOM AREA

Note 3: Provide 1 anaesthetic room per operating room for Levels 5/6. The number of anaesthetic rooms for Levels 3 and 4 to be determined during planning with consideration to operational policy and throughput. A larger size of 18m2 may be required in some cases although the use of sliding doors at the entry to the room will maximise available space.

Note 4: The number of operating rooms will be determined for each project based on consideration of throughput and casemix

Note 5: Consideration may be given to a larger operating room for highly specialised surgery. Examples include a hybrid operating room which will typically be planned at 75m2 and require an attached control room and computer equipment room.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
ANAE-16	Anaesthetic Preparation Room, 16m2	Yes	6	16.0	refer note 3
ORGN	Operating Room, General	Yes	6	60.0	refer notes 2, 3 and 4
SCRB-4	Scrub Up, 4m2	Yes	6	4.0	
	Exit Bay		6	12.0	1 per Operating Room; if shared between 2 rooms, increase to 16m2; area includes approx 1m2 space for AV integration server cupboard which must be temperature controlled
CLUP-10	Clean-Up Room - Shared, 10m2	Yes	3	10.0	1 per 2 ORs, or 15m2 if shared between 3 ORs; fluid management system dock will not be required to every Clean-Up Room
Intradepartmental (discounted) circulation				40%	

CLINICAL SUPPORT AREAS

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
	Bay - Blanket/ Fluid Warmer			0	shared
BLIN	Bay - Linen	Yes	3	2	1 per 2 Operating Rooms; corridor recess with ready access to Operating Rooms
BMEQ-4	Bay - Mobile Equipment, 4m2	Yes	3	4	1 bay per 2 Operating Rooms; provide power outlets for recharging
STGN-9	Store - General	Yes	1	20	for Non-Sterile/ Deboxing storage
STSS-20	Store - Sterile Stock	Yes	6	20	20m2 per Operating Room; direct relationship to SSU; may be provided as a single area (STSS-CC) or smaller rooms (STSS-20) to support a pair or pod of Operating Rooms
STGN-9	Store - General	Yes	1	10	IV and other fluid storage
STEQ-20	Store - Equipment	Yes	1	36	plan at 6m2 per Operating Room, for major equipment
STEQ-20	Store - Equipment	Yes	1	30	plan at 5m2 per Operating Room, for minor equipment
	Anaesthetic Workroom & Biomedical Equipment		1	10	optional; dedicated space for units of 16 ORs or more
STGN-9	Store - General	Yes	1	15	anaesthetic store for consumables
CLRM-5	Cleaner's Room, 5m2	Yes		5	provide at least 1 room per 1000m2; ready access to all areas of the unit, preferred on perimeter; one room may be sized to accommodate a scrubber

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
DISP-10	Disposal Room	Yes	1	10	
BLST	Blood Store	Yes	1	2	may be for whole health care facility
BPATH	Bay - Pathology	Yes	1	9	optional; frozen sections etc; may also be used to store freezer to support orthopaedic work
STDR-10	Medication Room	Yes	1	6	
	Office - Write-up, 3m2		3	3	optional; 1 per 2 Operating Rooms
WCST	Toilet - Staff, 3m2	Yes		3	number and location so staff have access close to where they work
Intradepartmental (discounted) circulation				40%	

RECOVERY AREA

Note 6: Where day only or EDO services are provided, refer to HPU270 Day Surgery/ Procedure Unit for details.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-RS1	Patient Bay - Recovery, Stage 1, 9m2	Yes	9	9	1.5 bays per Operating Room
SSTN-10	Staff Station, 10m2	Yes	1	10	Staff Station Recovery
CLUR-12	Clean Utility/ Medication Room, 10m2	Yes	1	10	direct access from Recovery Area, may be shared with Preoperative Holding Area
DTUR-10	Dirty Utility, 10m2	Yes	1	10	direct access from Recovery Area, may be shared with Preoperative Holding Area
BLIN	Bay - Linen	Yes	1	2	1 per 16 spaces
BBW	Bay - Blanket/ Fluid Warmer	Yes	1	1	1 per 16 spaces
STGN-8	Store - General	Yes		6	large enough for cots, IV poles, blood warmers, etc; low traffic area, access to patient holding large equip and delivery trolleys; wide and shallow preferred
BRES	Bay - Resuscitation Trolley	Yes		1.5	access from Operating Rooms and Preoperative Holding Area; number to be determined on local requirements
BHWS-B	Bay - Handwashing, Type B	Yes	3	1	
Intradepartmental circulation				40%	

STAFF AREAS - AMENITIES

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
CHST-35	Change - Staff (Male/Female)	Yes	1	30	indicative only; peak access periods need to be assessed; separate male and female needed
SRM-18	Staff Room	Yes	1	20	smaller units may share as appropriate; external window desirable
	Toilet - Accessible, 6m2		0	0	shared
Intradepartmental (discounted) circulation				40%	

STAFF AREAS – OFFICE AND SUPPORT SPACE

Note 7: Allocation of office space should be determined locally using jurisdictional polices.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
OFF-S9	Office - Single Person, 9m2	Yes		9	e.g. Nurse Unit Manager
	Office - Workstation, 4.4m2			4.4	
STPS-8	Store - Photocopy/ Stationery, 8m2	Yes		8	
MEET-12	Meeting Room, 12m2	Yes		12	quantity to be determined by service demand, may be used for educational purposes
Intradepartmental (discounted) circulation				25%	

10 OPERATING ROOM UNIT

ENTRY/ RECEPTION / WAITING AREA

Note 1: This area will receive patients and their carers where services provide day only and day of surgery admission (DOSA) services. Patients from inpatient units will not enter via this area.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
RECL-12	Reception/ Clerical, 12m2	Yes	1	12.0	
WAIT-10	Waiting, 15m2	Yes	1	15.0	
MEET-9	Meeting Room, 9m2	Yes	1	9.0	may also accommodate office and interview functions
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	optional; include if no shared facilities available nearby
WCPU-3	Toilet - Public, 3m2	Yes	1	3.0	optional; include if no shared facilities available nearby
Intradepartmental (discounted) circulation				30%	

PREOPERATIVE HOLDING AREA

Note 2: A range of support space provided where day of surgery admissions are received such as showers, change rooms etc.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-H-9	Patient Bay - Holding, 9m2	Yes	10	9.0	1 per OR; sized for trolleys, but some may be recliner chairs; where patients walk into the procedure areas, a waiting room may be provided instead
INTF	Interview Room	Yes	1	9.0	interviews with nursing staff to check details and undertake baseline observations
SHPT	Shower - Patient, 4m2	Yes	1	4.0	
WCPT	Toilet - Patient, 4m2	Yes	1	4.0	
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	
CHPT	Change Cubicle - Patient, 2m2	Yes	1	2.0	
CHPT-D	Change Cubicle - Accessible, 4m2	Yes	1	4.0	
	Property Bay - Patient		1	2.0	quarter height lockers assumed
BHWS-B	Bay - Handwashing, Type B	Yes	3	1.0	refer to AusHFG Part D for further details; accessible from OR and patient holding areas
BLIN	Bay - Linen	Yes	1	2.0	min. 1 per 16 Patient Bay - Holding; corridor location with ready access to Bays
BBW	Bay - Blanket/ Fluid Warmer	Yes	1	1.0	blanket warmer only
Intradepartmental circulation				40%	

OPERATING ROOM AREA

Note 3: Provide 1 anaesthetic room per operating room for Levels 5/6. The number of anaesthetic rooms for Levels 3 and 4 to be determined during planning with consideration to operational policy and throughput. A larger size of 18m2 may be required in some cases although the use of sliding doors at the entry to the room will maximise available space.

Note 4: The number of operating rooms will be determined for each project based on consideration of throughput and casemix

Note 5: Consideration may be given to a larger operating room for highly specialised surgery. Examples include a hybrid operating room which will typically be planned at 75m2 and require an attached control room and computer equipment room.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
ANAE-16	Anaesthetic Preparation Room, 16m2	Yes	10	16.0	refer note 3
ORGN	Operating Room, General	Yes	10	60.0	refer notes 2, 3 and 4
SCRB-4	Scrub Up, 4m2	Yes	10	4.0	
	Exit Bay		10	12.0	1 per Operating Room; if shared between 2 rooms, increase to 16m2; area includes approx 1m2 space for AV integration server cupboard which must be temperature controlled
CLUP-10	Clean-Up Room - Shared, 10m2	Yes	5	10.0	1 per 2 ORs, or 15m2 if shared between 3 ORs; fluid management system dock will not be required to every Clean-Up Room
Intradepartmental (discounted) circulation				40%	

CLINICAL SUPPORT AREAS

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
BBW	Bay - Blanket/ Fluid Warmer	Yes	2	1.0	
BLIN	Bay - Linen	Yes	5	2.0	1 per 2 Operating Rooms; corridor recess with ready access to Operating Rooms
BMEQ-4	Bay - Mobile Equipment, 4m2	Yes	5	4.0	1 bay per 2 Operating Rooms; provide power outlets for recharging
STGN-9	Store - General	Yes	1	30.0	for Non-Sterile/ Deboxing storage
STSS-20	Store - Sterile Stock	Yes	10	20.0	20m2 per Operating Room; direct relationship to SSU; may be provided as a single area (STSS-CC) or smaller rooms (STSS-20) to support a pair or pod of Operating Rooms
STGN-9	Store - General	Yes	1	12.0	IV and other fluid storage
STEQ-20	Store - Equipment	Yes	1	60.0	plan at 6m2 per Operating Room, for major equipment
STEQ-20	Store - Equipment	Yes	1	50.0	plan at 5m2 per Operating Room, for minor equipment
	Anaesthetic Workroom & Biomedical Equipment		1	15.0	optional; dedicated space for units of 16 ORs or more
STGN-9	Store - General	Yes	1	25.0	anaesthetic store for consumables
	Audiovisual Workroom		1	12.0	
CLRM-5	Cleaner's Room, 5m2	Yes		5.0	provide at least 1 room per 1000m2; ready access to all areas of the unit, preferred on perimeter; one room may be sized to accommodate a scrubber

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
DISP-10	Disposal Room	Yes	1	15.0	
BLST	Blood Store	Yes	1	2.0	may be for whole health care facility
BPATH	Bay - Pathology	Yes	1	9.0	optional; frozen sections etc; may also be used to store freezer to support orthopaedic work
STDR-10	Medication Room	Yes	1	10.0	
	Office - Write-up, 3m2		5	3.0	optional; 1 per 2 Operating Rooms
WCST	Toilet - Staff, 3m2	Yes		3.0	number and location so staff have access close to where they work
Intradepartmental (discounted) circulation				40%	

RECOVERY AREA

Note 6: Where day only or EDO services are provided, refer to HPU270 Day Surgery/ Procedure Unit for details.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-RS1	Patient Bay - Recovery, Stage 1, 9m2	Yes	15	9.0	1.5 bays per Operating Room
1BR-H-12	1 Bed Room - Holding, 12m2	Yes		12.0	optional, for infectious patients, feeding mothers etc; alternatively, patients placed last on list and recovered in Operating Room
SSTN-10	Staff Station, 12m2	Yes	1	12.0	Staff Station Recovery
CLUR-12	Clean Utility/ Medication Room, 12m2	Yes	1	12.0	direct access from Recovery Area, may be shared with Preoperative Holding Area
DTUR-12	Dirty Utility, 12m2	Yes	1	12.0	direct access from Recovery Area, may be shared with Preoperative Holding Area
BLIN	Bay - Linen	Yes	1	2.0	1 per 16 spaces
BBW	Bay - Blanket/ Fluid Warmer	Yes	1	1.0	1 per 16 spaces
STGN-8	Store - General	Yes		6.0	large enough for cots, IV poles, blood warmers, etc; low traffic area, access to patient holding large equip and delivery trolleys; wide and shallow preferred
BRES	Bay - Resuscitation Trolley	Yes		1.5	access from Operating Rooms and Preoperative Holding Area; number to be determined on local requirements
BHWS-B	Bay - Handwashing, Type B	Yes	4	1.0	
Intradepartmental circulation				40%	

STAFF AREAS - AMENITIES

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
CHST-35	Change - Staff (Male/Female)	Yes	1	50.0	indicative only; peak access periods need to be assessed; separate male and female needed
SRM-25	Staff Room	Yes	1	30.0	smaller units may share as appropriate; external window desirable
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	unless readily available elsewhere
Intradepartmental (discounted) circulation				40%	

STAFF AREAS – OFFICE AND SUPPORT SPACE

Note 7: Allocation of office space should be determined locally using jurisdictional polices.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
OFF-S12	Office - Single Person, 12m2	Yes		12.0	e.g. Unit Director
OFF-S9	Office - Single Person, 9m2	Yes		9.0	e.g. Nurse Unit Manager
OFF-2P	Office - 2 Person Shared, 12m2	Yes		12.0	e.g. CNC/ Educator
	Office - Workstation, 4.4m2			4.4	
STPS-8	Store - Photocopy/ Stationery, 8m2	Yes		8.0	
MEET-L-30	Meeting Room, 30m2	Yes		30.0	quantity to be determined by service demand, may be used for educational purposes
Intradepartmental (discounted) circulation				25%	

16 OPERATING ROOM UNIT

ENTRY/ RECEPTION / WAITING AREA

Note 1: This area will receive patients and their carers where services provide day only and day of surgery admission (DOSA) services. Patients from inpatient units will not enter via this area.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
RECL-15	Reception/ Clerical, 15m2	Yes	1	15.0	
WAIT-30	Waiting, 30m2	Yes	1	30.0	
MEET-9	Meeting Room, 9m2	Yes	1	9.0	may also accommodate office and interview functions
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	optional; include if no shared facilities available nearby
WCPU-3	Toilet - Public, 3m2	Yes	2	3.0	optional; include if no shared facilities available nearby
Intradepartmental (discounted) circulation				30%	

PREOPERATIVE HOLDING AREA

Note 2: A range of support space provided where day of surgery admissions are received such as showers, change rooms etc.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-H-9	Patient Bay - Holding, 9m2	Yes	16	9.0	1 per OR; sized for trolleys, but some may be recliner chairs; where patients walk into the procedure areas, a waiting room may be provided instead
SSTN-10	Staff Station, 10m2	Yes	1	10.0	only allocated for larger units as Reception could be the base used for smaller units
INTF	Interview Room	Yes	2	9.0	interviews with nursing staff to check details and undertake baseline observations
SHPT	Shower - Patient, 4m2	Yes	1	4.0	
WCPT	Toilet - Patient, 4m2	Yes	1	4.0	
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	
CHPT	Change Cubicle - Patient, 2m2	Yes	2	2.0	
CHPT-D	Change Cubicle - Accessible, 4m2	Yes	1	4.0	
	Property Bay - Patient		1	3.0	quarter height lockers assumed
BHWS-B	Bay - Handwashing, Type B	Yes	4	1.0	refer to AusHFG Part D for further details; accessible from OR and patient holding areas
BLIN	Bay - Linen	Yes	1	2.0	min. 1 per 16 Patient Bay - Holding; corridor location with ready access to Bays
BBW	Bay - Blanket/ Fluid Warmer	Yes	1	1.0	blanket warmer only
CLUR-8	Clean Utility/ Medication Room - Sub, 8m2	Yes	1	8.0	optional; direct access from patient holding areas, may be shared with Recovery Area
DTUR-S	Dirty Utility - Sub, 8m2	Yes	1	8.0	increase to 12m2 if shared with Recovery Area
Intradepartmental circulation				40%	

OPERATING ROOM AREA

Note 3: Provide 1 anaesthetic room per operating room for Levels 5/6. The number of anaesthetic rooms for Levels 3 and 4 to be determined during planning with consideration to operational policy and throughput. A larger size of 18m2 may be required in some cases although the use of sliding doors at the entry to the room will maximise available space.

Note 4: The number of operating rooms will be determined for each project based on consideration of throughput and casemix

Note 5: Consideration may be given to a larger operating room for highly specialised surgery. Examples include a hybrid operating room which will typically be planned at 75m2 and require an attached control room and computer equipment room.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
ANAE-16	Anaesthetic Preparation Room, 16m2	Yes	16	16.0	refer note 3
ORGN	Operating Room, General	Yes	16	60.0	refer notes 2, 3 and 4
SCRB-4	Scrub Up, 4m2	Yes	16	4.0	
	Exit Bay		16	12.0	1 per Operating Room; if shared between 2 rooms, increase to 16m2; area includes approx 1m2 space for AV integration server cupboard which must be temperature controlled
CLUP-10	Clean-Up Room - Shared, 10m2	Yes	8	10.0	1 per 2 ORs, or 15m2 if shared between 3 ORs; fluid management system dock will not be required to every Clean-Up Room
Intradepartmental (discounted) circulation				40%	

CLINICAL SUPPORT AREAS

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
BBW	Bay - Blanket/ Fluid Warmer	Yes	2	1.0	
BLIN	Bay - Linen	Yes	8	2.0	1 per 2 Operating Rooms; corridor recess with ready access to Operating Rooms
BMEQ-4	Bay - Mobile Equipment, 4m2	Yes	8	4.0	1 bay per 2 Operating Rooms; provide power outlets for recharging
STSS-20	Store - Sterile Stock	Yes	16	20.0	20m2 per Operating Room; direct relationship to SSU; may be provided as a single area (STSS-CC) or smaller rooms (STSS-20) to support a pair or pod of Operating Rooms
STGN-9	Store - General	Yes	1	20.0	IV and other fluid storage
STGN-9	Store - General	Yes	1	30.0	for Non-Sterile/ Deboxing storage
STEQ-20	Store - Equipment	Yes	1	96.0	plan at 6m2 per Operating Room, for major equipment
STEQ-20	Store - Equipment	Yes	1	80.0	plan at 5m2 per Operating Room, for minor equipment
	Anaesthetic Workroom & Biomedical Equipment		1	20.0	dedicated space for units of 16 ORs or more
STGN-9	Store - General	Yes	1	50.0	anaesthetic store for consumables
	Perfusion Room - Set-up		1	20.0	assumes cardiothoracic operating rooms are provided; can be shared
	Store - Perfusion		1	20.0	assumes cardiothoracic operating rooms are provided; can be shared

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
	Audiovisual Workroom		1	12.0	
CLRM-5	Cleaner's Room, 5m2	Yes		5.0	provide at least 1 room per 1000m2; ready access to all areas of the unit, preferred on perimeter; one room may be sized to accommodate a scrubber
DISP-10	Disposal Room	Yes	1	20.0	
BLST	Blood Store	Yes	1	2.0	may be for whole health care facility
BPATH	Bay - Pathology	Yes	1	9.0	frozen sections etc; may also be used to store freezer to support orthopaedic work
STDR-10	Medication Room	Yes	1	10.0	
	Office - Write-up, 3m2		8	3.0	optional; 1 per 2 Operating Rooms
OFF-S9	Office - Single Person, 9m2	Yes	1	9.0	duty anaesthetics
WCST	Toilet - Staff, 3m2	Yes		3.0	number and location so staff have access close to where they work
Intradepartmental (discounted) circulation				40%	

RECOVERY AREA

Note 6: Where day only or EDO services are provided, refer to HPU270 Day Surgery/ Procedure Unit for details.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
PBTR-RS1	Patient Bay - Recovery, Stage 1, 9m2	Yes	24	9.0	1.5 bays per Operating Room
1BR-H-12	1 Bed Room - Holding, 12m2	Yes		12.0	optional, for infectious patients, feeding mothers etc; alternatively, patients placed last on list and recovered in Operating Room
SSTN-10	Staff Station, 10m2	Yes	2	10.0	Staff Station Recovery
CLUR-14	Clean Utility/ Medication Room, 14m2	Yes	1	14.0	direct access from Recovery Area, may be shared with Preoperative Holding Area
DTUR-12	Dirty Utility, 12m2	Yes	1	12.0	direct access from Recovery Area, may be shared with Preoperative Holding Area
BLIN	Bay - Linen	Yes	2	2.0	1 per 16 spaces
BBW	Bay - Blanket/ Fluid Warmer	Yes	2	1.0	1 per 16 spaces
STGN-8	Store - General	Yes		10.0	large enough for cots, IV poles, blood warmers, etc; low traffic area, access to patient holding large equip and delivery trolleys; wide and shallow preferred
BRES	Bay - Resuscitation Trolley	Yes		1.5	access from Operating Rooms and Preoperative Holding Area; number to be determined on local requirements
BHWS-B	Bay - Handwashing, Type B	Yes	6	1.0	
MEET-9	Meeting Room, 9m2	Yes	1	9.0	optional; may be used for interview and other purposes
Intradepartmental circulation				40%	

STAFF AREAS - AMENITIES

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
CHST-35	Change - Staff (Male/Female)	Yes	1	80.0	indicative only; peak access periods need to be assessed; separate male and female needed
SRM-35	Staff Room	Yes	1	60.0	smaller units may share as appropriate; external window desirable
WCAC	Toilet - Accessible, 6m2	Yes	1	6.0	unless readily available elsewhere
Intradepartmental (discounted) circulation				40%	

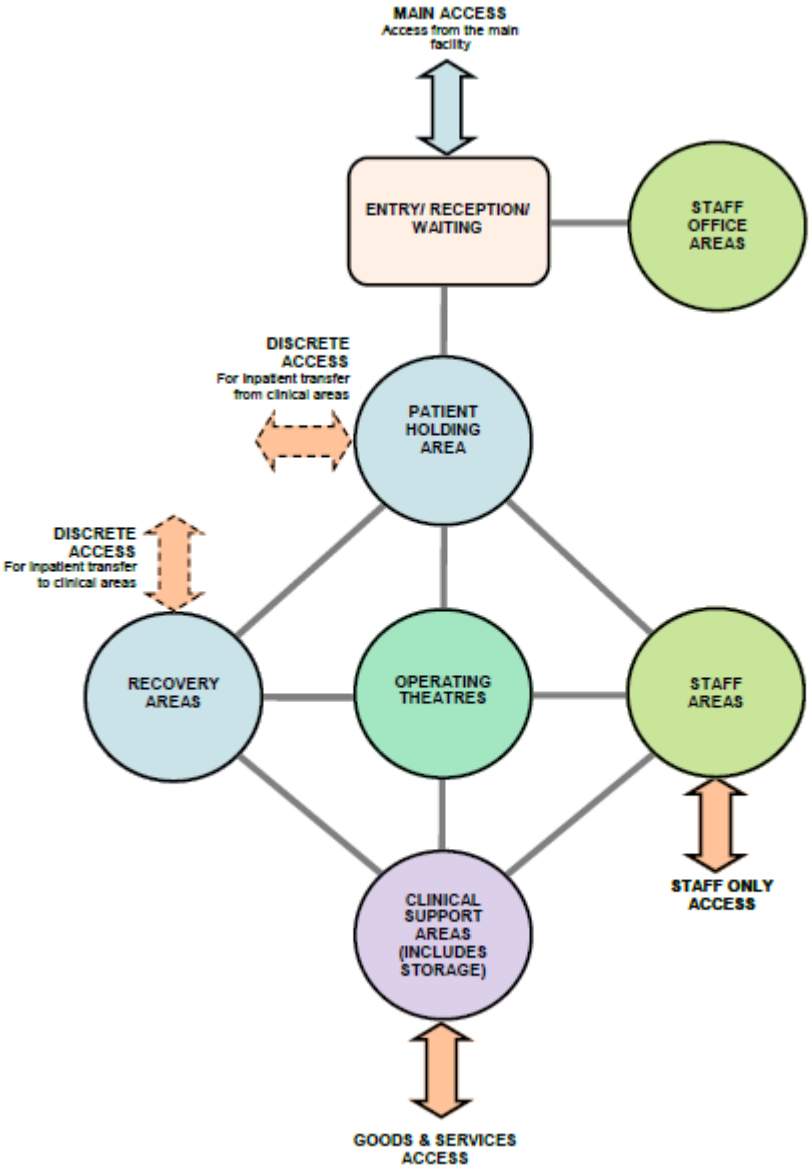
STAFF AREAS – OFFICE AND SUPPORT SPACE

Note 7: Allocation of office space should be determined locally using jurisdictional polices.

CODE	ROOM/SPACE	SC/SC-D	NO.	SIZE m2	REMARKS
OFF-S12	Office - Single Person, 12m2	Yes		12.0	e.g. Unit Director
OFF-S9	Office - Single Person, 9m2	Yes		9.0	e.g. Nurse Unit Manager
OFF-2P	Office - 2 Person Shared, 12m2	Yes		12.0	e.g. CNC/ Educator
	Office - Workstation, 4.4m2			4.4	
STPS-8	Store - Photocopy/ Stationery, 8m2	Yes	1	8.0	
MEET-L-55	Meeting Room	Yes		50.0	quantity to be determined by service demand, may be used for educational purposes
Intradepartmental (discounted) circulation				25%	

5.2 FUNCTIONAL RELATIONSHIPS/DIAGRAMS

A diagram showing the functional relationships in the zones of the Operating Unit is shown below.



5.3 CHECKLISTS

Refer to the planning checklists at the end of Parts A, B, C and D of these Guidelines for general requirements.

5.4 REFERENCES

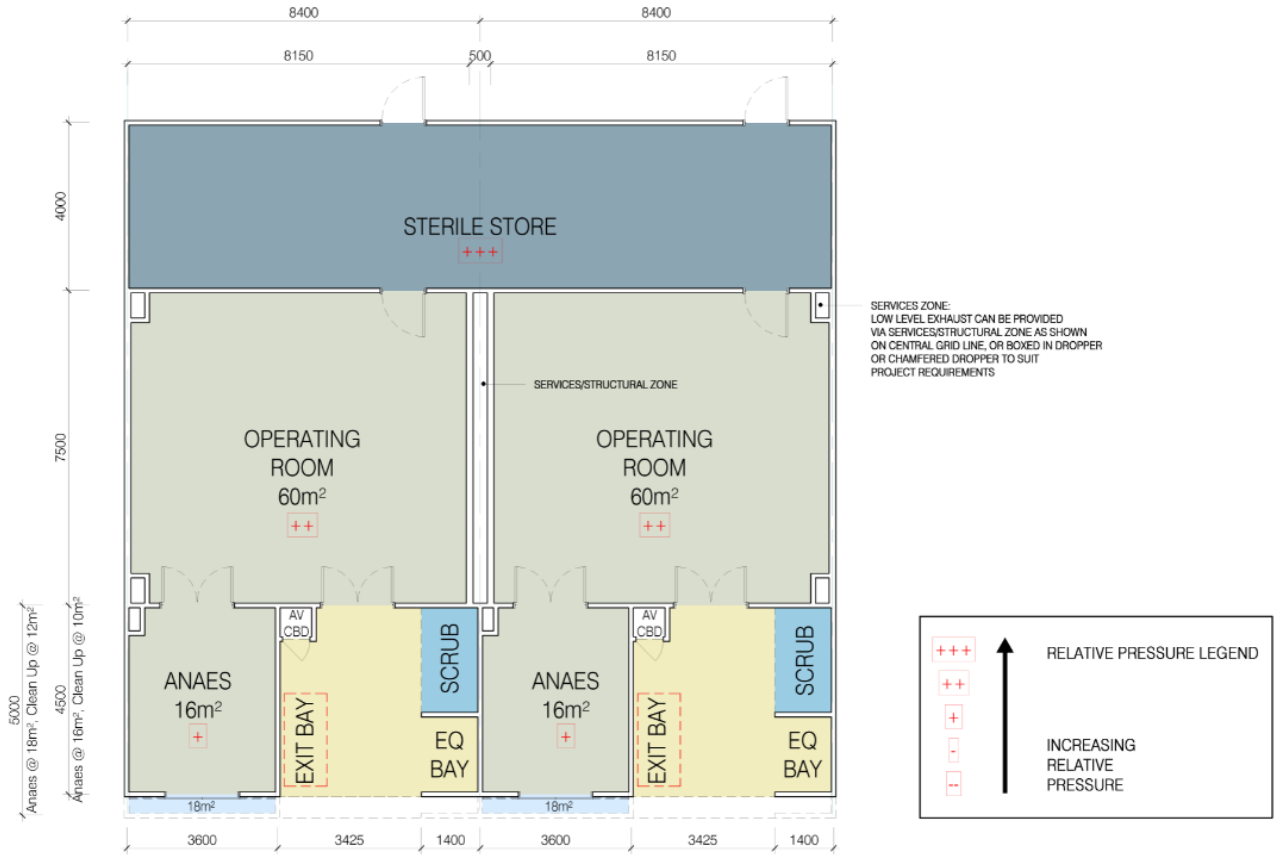
- AHIA, 2016, AusHFG Part B: Section 90, Standard Components, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, Part B: Section 80, General Requirements, Australasian Health Facility Guidelines Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, Part C: Design for Access, Mobility, Safety and Security, Space Standards and Dimensions, Australasian Health Facility Guidelines Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, Part D: Infection Prevention and Control, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016 HPU 270 Day Surgery/ Procedure Unit; Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016 HPU 190 Sterilizing Services Unit; Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016 HPU 44 Medical Imaging Unit; Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016 HPU 430 Front of House Unit; Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016 HPU 155 Ambulatory Care Unit; Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- ARPANSA Radiation Protection Series No. 14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008)
- Australian College of Perioperative Nurses ACORN Standards for Perioperative Nursing in Australia 14th edition;
- Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010);
- Australian and New Zealand College of Anaesthetists (ANZCA) Professional Standards including PS4 Recommendations For The Post-Anaesthesia Recovery Room (2006)
- Australian and New Zealand College of Anaesthetists 2008, T1 - Recommendations of Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations - Interim Review 2008, ANZCA.
- AS/NZS 4187:2014 Reprocessing of reusable medical devices in health services organisations (Standards Australia 2014)
- Hand Hygiene Australia, http://www.hha.org.au
- Infection Control in Endoscopy, Gastroenterological Nurses College of Australia, 3rd Edition (2010).
- NSW Health Guideline GL2015_002 Work Health and Safety - Controlling Exposure to Surgical Plume, 2015
- NSW Health Guideline GL2016_020 Engineering Services Guideline
- Standards Australia, 2007, AS/NZS 3000: Electrical installations (known as the Australian/New Zealand Wiring Rules) (Standards Australia, 2007), Standards Australia, Sydney NSW
- Standards Australia, 2004, AS/NZS 4360 Risk Management (Standards Australia, 2004), Standards Australia, Sydney, NSW

- Standards Australia, 2011, AS/NZS 3003 Electrical Installations - Patient Areas (Standards Australia, 2011), Standards Australia, Sydney NSW
- Standards Australia, 2010, AS/NZS 1428:2010 Design for Access and Mobility (Set) (Standards Australia, 2010),
- Standards Australia, 2012, AS 1668: The Use of Ventilation and Air-conditioning in Buildings. Mechanical Ventilation in Buildings (Standards Australia, 2012), Standards Australia, Sydney, Australia
- Standards Australia, AS/NZS 4173: Safe use of lasers and intense light sources in health care (Standards Australia), Standards Australia, Sydney, Australia
- Standards Australia, AS/NZS 3009: Electrical Installations – Emergency Power Supplies in Hospitals (Standards Australia, 1998), Standards Australia, Sydney, NSW
- WorkCover NSW, Design and handling of surgical instrument transport cases, a guide on health and safety standards, WorkCover NSW, May 2011.

5.5 OPERATING UNIT MODULES

Typical **layouts** of key rooms that support the operating room are shown at 5.5.1, 5.5.2 and 5.5.3. The purpose of these layouts is to demonstrate how these spaces might be configured but also to demonstrate that each standard component has been developed to work as a set of components. These layouts are indicative only and other configurations are possible.

5.5.1 Suite 1 – Handed layout



5.5.2 Suite 1 – Mirrored layout

5.5.3 Suite 2 – Mirrored layout