

Australasian Health Facility Guidelines

Part B - Health Facility Briefing and Planning 0340 – Adult Acute Inpatient 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 by the Australasian Health Infrastructure Alliance (AHIA). This revision has been informed by an extensive consultation process that was completed in 2020.

The document is intended to be used by design teams, project managers and end users to facilitate the process of planning and design.

1.2 INTRODUCTION

This HPU outlines the specific requirements for the planning and design of an adult acute inpatient Unit. It should be read in conjunction with AusHFG generic requirements described in:

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

This HPU is focussed on adult acute inpatient units. The following AusHFG HPUs address the requirements of service specific inpatient units:

- 260 Cardiac Care Unit;
- 510 Maternity Unit;
- 540 Paediatric / Adolescent Unit;
- 610 Rehabilitation Inpatient Unit;
- 132 Child and Adolescent Mental Health Unit;
- 134 Adult Acute Mental Health Inpatient Unit;
- 135 Older Peoples Acute Mental Health Inpatient Unit; and
- 136 Non Acute Mental Health Unit.

1.3 POLICY FRAMEWORK

Before undertaking a project, planners and project personnel should familiarise themselves with individual jurisdiction plans, policies, service specific guidelines and reports. Information relating to jurisdictional policies and guidelines are listed in the Appendices in the References and Further Reading section.

1.4 DESCRIPTION

DESCRIPTION OF AN INPATIENT ACCOMMODATION UNIT

An acute inpatient unit provides overnight accommodation for the diagnosis, care and treatment of acute inpatients by multidisciplinary teams.

Whilst facilitating the delivery of services to patients, the unit should also provide facilities to support the needs of families, carers and staff.

In larger healthcare facilities, medical and surgical sub specialities may be accommodated in dedicated units, e.g. cardiac services, neurology / neurosurgery, orthopaedics, etc. In smaller facilities, the unit may accommodate a mix of general medical and surgical, paediatric, palliative care and maternity patients.

The needs of highly specialised units such as burns, infectious diseases and spinal injuries units are not addressed in this HPU.

02 PLANNING

2.1 OPERATIONAL MODELS

2.1.1 Models of Care

Inpatient care is delivered by multidisciplinary teams including nursing, medical and allied health staff. Patient care may vary from those with high nursing observation / care needs to those requiring medical interventions yet are independent in most activities of daily living.

Key principles relating to the model of care for acute inpatient units include:

- patients are cohorted by service specialty and acuity;
- clinical pathways may be established for high volume services;
- patient care is focussed on patient maintenance and recovery, optimising clinical outcomes and minimising the length of stay;
- integration of the multidisciplinary team is essential to support early mobilisation, prevent avoidable deterioration, and support safe and timely discharge;
- privacy and dignity for the patient, their carers and family are promoted at all times;
- family and carers are encouraged to be involved in the care process; and
- patient, visitor and staff safety are high priorities and include minimising risks associated with hospital acquired infections, medication errors, and falls.

Staff work practices have changed significantly in recent years in response to the increasing provision of single bedrooms; the use of point of care clinical information systems; and the implementation of bedside handovers. This has changed the way staff care for their patients with technology enabling staff to be located closer to the patients they care for.

The future service capacity requirements and models of care will inform the size and type of unit(s) to be provided. This may include consideration of the following:

- dedicated speciality versus mixed specialty units (this will depend on the size and capability of the facility);
- speciality clusters within a single unit;
- short stay units (<48 hours);
- the management of high acuity patients with significant nursing care needs;
- the management of elderly patients including those with dementia and other forms of cognitive impairment;
- the management of patients with behaviours of concern; and
- the management of patients known or suspected to be infected with pathogens for which additional precautions are required.

Where possible, generic inpatient unit solutions should be promoted to support future changes to the clinical case mix, models of care and technology.

2.1.2 Short Stay Units

Inpatient units may be managed and operated as short stay units, for patients requiring rapid assessment and with an anticipated length of stay of less than 48 hours. Examples include a Medical Assessment Unit (MAU) and a Rapid or Acute Assessment Unit.

Short stay units that are focussed on a length of stay of less than 24 hours, e.g. emergency short stay units, are described in HPU 300 Emergency Unit.

2.1.3 High / Close Observation Units

High acuity patients who have or who are at risk of life-threatening conditions and require one-to-one or one-to-two nursing care should be accommodated in a critical care unit. However high or close observation units and beds, providing an intermediate level of care between intensive care and general ward care, may be provided within an inpatient unit depending on the model of care, service profile and role delineation defined in the Clinical Services Plan.

These may be provided as a dedicated unit for a particular clinical specialty or a combination of subspecialties, or the Clinical Services Plan may nominate the collocation of a number of high or close observation beds within specialty inpatient units, e.g. respiratory, cardiology and neurosurgery.

While acuity adaptable beds should be provided across the unit, a decision may be made to notionally identify some beds as high observation.

2.1.4 Clinical Specialties

The clinical specialties to be accommodated within the unit should be defined given there are often specific service requirements that will have an impact on planning and design. For example, there are specific planning and design considerations associated with cardiac, respiratory, orthopaedic and haematology/oncology units as outlined in Section 2.4.2.

However, future changes to the clinical specialties and associated models of care should be anticipated and generic inpatient unit solutions implemented where possible.

2.1.5 Staffing Models

The staff establishment should be identified early in the planning process including the proposed nursing model and allocated nursing staff (based on Nursing Hours per Patient Day – NHPPD). This will inform the configuration of the unit and required work space and amenities to appropriately support staff to deliver services safely and efficiently.

There are three main groups of staff working within an inpatient unit:

- unit-based staff (full time, part time and casual) who provide continuous care as part of a multidisciplinary team;
- visiting professional staff who provide episodic or specialist care; and
- support services staff.

Volunteers may provide a range of intermittent services according to operational policy.

Students may be visiting on ward rounds or based in a unit in a supernumerary, short-term capacity.

Staffing levels will vary for each unit, depending on the size of the unit and patient acuity.

Access to work space in clinical and non-clinical areas is essential. The allocation of work space will require reference to local jurisdictional policies.

2.2 OPERATIONAL POLICIES

2.2.1 General

Operational policies have a major impact upon the planning and design and capital and recurrent costs of health facilities. Project teams should review their design proposals with these in mind and be able to demonstrate that the capital and recurrent cost implications of proposed operational policies have been fully considered. Operational policies may have hospital-wide application or be unit specific. A list of general operational policies that may apply can be found in Part B: Section 80 General Requirements.

2.2.2 Hours of Operation

The hours of operation of an Inpatient Unit are usually 24 hours per day, seven days per week.

2.2.3 Management of Special Patient Groups

Considerations relating to a number of special patient groups are outlined below.

Bariatric Patients

The unit should provide a physical environment that supports the optimal care of bariatric patients, with appropriate consideration of staff safety.

Bariatric facilities and equipment are routinely provided when a patient's weight exceeds 150kgs.

The number of dedicated bed rooms and ensuites provided for these patients should be assessed in terms of the percentage of obese people in the catchment population, review of recent admitted patient activity and the service level or role delineation of the particular hospital.

A standard bariatric bed room and ensuite supports the management of patients up to 250kgs. These rooms may be flexibly used for other patient care including where significant additional equipment is required or space to accommodate a bed should a carer need to stay over.

The provision of 'super' bariatric bed rooms and ensuites, for the management of patients up to 450kg, should be restricted to selected healthcare centres only to ensure that safe and effective care is provided. The size and location of equipment, fitting and fixtures makes this room almost impossible to safely use for other patient care.

The impact of larger equipment such as beds, electric bed movers, chairs and wheelchairs, and the associated space requirements in the use of this equipment such as door widths, turning space in corridors, lift access and the storage of equipment should be considered.

Manual handling issues associated with transfer and lifting of these patients should be addressed. Specific operational policies should indicate how bariatric patients may be managed in the Unit. This will include consideration of ceiling mounted patient lifters and the approach to weighing bariatric patients, e.g. using specialised beds with in-built scales.

Elderly Patients

There is an increasing proportion of patients who are old and frail with multiple co-morbidities. Physical and cognitive limitations may underlie and possibly exacerbate the condition or conditions for which the patient has been admitted. Such conditions may include dementia or confusional states, mobility issues, and hearing and vision impairments.

The implementation of appropriate operational policies and design approaches can provide environments that are inherently accessible to older people, while having no impact on other patients accommodated on the unit.

All Inpatient Unit environments should assist the needs of these patients to support restoration or maintenance of independence in a safe environment.

Relevant design considerations are included in Section 2.4.2 and Appendix 5.3 outlines principles for designing environments for patients with dementia.

Patients with Behaviours of Concern

Patients presenting with behaviours of concern may be caused by a range of conditions, including general medical conditions, e.g. acute delirium, brain injury, dementia, intoxication or withdrawal and mental health conditions.

When assessing and managing these patients within inpatient units the safety of the patient, staff and others is the priority. Staff should conduct a risk assessment to determine operational responses that will be needed to support the safe care of the patient in the acute inpatient environment. Operational responses may include managing the patient in a single bedroom, removing equipment from the bedroom, locating the patient near the staff station and ensuring optimal line of sight or close observation. Ongoing assessment of these patients is required as their needs may change rapidly.

2.2.4 Clinical Support Services

Allied Health Services

Allied health staff are integral members of multidisciplinary teams. The level of service provided will depend on the service case mix, acuity of the patient and local approaches. Allied health staff may be permanently allocated to an inpatient unit or may provide a visiting service.

Generally, the initial consultation and therapy management plan is provided at the patient bedside, however certain assessments, e.g. cognitive assessments, may require quiet spaces to minimise distraction. Space and facilities for unit-based therapy may be provided depending on the service case mix and patient acuity as outlined in section 2.4.5.

Further information is provided in HPU 140 - Allied Health / Therapy Unit.

Medication Management

Consider arrangements for the secure delivery, storage, management and administration of medications in the Inpatient Unit as this will affect the space, equipment and ICT systems required.

Pharmacy staff should be consulted when assessing medication and intravenous fluids storage requirements for each Unit. Some specialties, such as Oncology, may have greater storage needs.

The location of medication stores should minimise travel distances, noise, and disruption to staff undertaking medication-related activities in order to reduce error.

Options for administering medications within the Inpatient Unit include:

- lockable medication trolleys;
- lockable bedside lockers; or
- automated dispensing systems – fixed or mobile solutions.

Appropriate investigation and analysis of automated dispensing units is recommended prior to confirmation of the preferred system. If automated dispensing systems are to be used, consider the dimensions of the units (either fixed or mobile) and the provision of power and network connections.

Mobile dispensing units will need to be docked for recharging or may run on batteries.

The preferred approach for clinical pharmacists and nursing staff to access electronic medication management systems will require confirmation to inform the ICT requirements.

Security and control of access to medication stores should comply with local legislative / jurisdiction requirements.

Medical Imaging

The majority of patients from acute inpatient units, when well enough, will be transported to the Medical Imaging Unit for their imaging examination. However, in some instances, mobile modalities will be brought to the patient.

Given the high volume of patient flows between the Medical Imaging and Inpatient Units, the location of medical imaging services requires consideration, as noted in Section 2.5 Functional Relationships.

Pathology

The provision of pneumatic tubes should be considered for efficient access to pathology services.

2.2.5 Non-Clinical Support Services

Operational approaches to non-clinical / 'back of house' support services require definition during the planning process. This will include the management of food services, linen, waste, cleaning and supplies.

Food Services

The food services model for the health facility will impact on the planning and design requirements for inpatient units. For example, some facilities will require a bay to store a meal trolley while food trays are distributed to patients, whereas for other facilities the meal trolley will be transported directly to patient bedrooms and then returned to the kitchen while a separate trolley will be used to collect finished meal trays.

Consideration also needs to be given to patients requiring modified diets and/or enteral feeding, which will need to be stored on the inpatient unit.

Linen

The delivery and collection of clean and dirty linen will be operationally separated to reduce infection control risks.

Linen bays will be provided to store clean linen and dirty linen will be placed in dirty linen skips in the dirty utility rooms ready for collection.

Waste Management

Operational policies for waste management and waste minimisation should be supported, particularly with regard to:

- waste flows;
- types of sizes of various containers for waste;
- provision and location of dirty utility rooms and disposal rooms;
- provision and location of recycling bins; and
- location of sharps containers.

The management of clinical and related wastes should be in accordance with:

- AS/NZS 3816:2018 Management of Clinical and Related Wastes (Standards Australia);
- Part D Infection Prevention and Control.

Cleaning

Appropriately located cleaner's rooms are required for direct access to cleaning equipment, cleaning agents and consumables. Storage of bulky cleaning equipment is usually shared between several inpatient units.

Storage and Supplies

Consumables and equipment stores should be located and organised to ensure ease of access by staff.

Refer to Section 2.4.3 for key design considerations relating to inpatient unit storage.

2.2.6 Information, Communications and Technology

Information, Communications and Technology (ICT) are key enablers for inpatient units to optimise patient care and service efficiencies. ICT systems necessary to support clinical and operational requirements should be assessed during the planning and design process to ensure an appropriate level of capability is provided, that supports future flexibility. The integration of systems should be promoted to support operational efficiencies through automation and the exchange of data between systems.

All units should be designed to support electronic clinical information systems and digitally enabled operational workflows. Consideration needs to be given to the method and location of entering and retrieving patient information. This may occur at the bedside via workstations on wheels or other mobile devices, fixed PCs, and/or at staff stations.

Other key operational considerations include; communication systems, telehealth, electronic medication management and automated medication dispensing systems. Further detail regarding ICT requirements is included in Section 3.0 Design.

2.2.7 Telehealth

Telehealth is becoming increasingly common and important for clinical operations and education purposes. A telehealth strategy will need to be considered in the early stages of planning that is consistent with jurisdictional approaches and service networking arrangements.

Facilities for videoconferencing and consultations are required for patient consultations with specialist clinicians; to enable clinicians in remote locations to discuss cases; and for staff education.

2.3 PLANNING MODELS

2.3.1 Overarching Planning Principles

This HPU supports the provision of an optimally therapeutic environment for the assessment, care and treatment of patients.

It is critical that the physical environment is flexible and can adapt over time in response to change including models of care, patient case mix and nursing care models. Where possible, generic solutions should be adopted, with standard approaches to inpatient unit bed numbers, and the configuration of beds.

The design of the Inpatient Unit should:

- reflect the service needs of the patients to be accommodated;
- contribute to patient recovery, improved patient outcomes and decreasing length of stay;
- maximise patient safety and reduce the risk of errors and accidents;
- be aesthetically pleasing for patients and staff with optimal access to natural light;
- enable staff to feel valued and supported through provision of a safe and rewarding working environment;
- optimise work flows for clinical and support staff including when staffing levels are varied such as overnight;
- enable greater levels of observation in response to increased patient acuity, including observation of the patient from the corridor and entry door;
- achieve minimum clearances around the bed and through doorways. This will ensure staff can safely and effectively deliver care and operate equipment such as patient lifting hoists, emergency equipment and mobility aids;

- incorporate standardised unit and room design and layouts to assist with the rapid orientation of casual and visiting staff;
- provide informal spaces (corridors or alternative locations) to promote collegial communication and support and enable clinical teaching and informal case discussions to be conducted without disturbing traffic flows, causing undue noise or compromising patient privacy; and
- minimise staff travel distances.

2.3.2 Unit Location

Inpatient units should be in a quiet location with a pleasant outlook wherever possible. The unit should not be located near sources of noise or sights that may disturb its occupants.

Inpatient Units should be collocated in a 24-hour operating area of the health service to maximise the safety of patients and staff and ensure staff are not working in isolation or need to traverse unoccupied areas at night.

Patient transport between units should be considered, e.g. from the Emergency Department and to and from Medical Imaging Unit, to minimise transportation distances and separate this traffic from public travel routes.

2.3.3 Unit Size

The total number of inpatient beds provided will be informed by clinical services planning and will be dependent on the service needs of the individual healthcare facility. Decisions regarding the size and composition of individual inpatient units will reflect an appropriate break up of total bed numbers and should also be guided by the Clinical Services Plan. Where possible a standard inpatient unit size and layout should be provided to support flexibility over time.

Industrial Award conditions which may prescribe nurse to patient ratios and staffing profiles (medical, nursing and allied health), particularly during night shift, need to be taken into consideration.

Operationally efficient units may range from 24 to 32 beds, with multiples of four beds, i.e. 24, 28 and 32 bed units, recommended to support common staffing arrangements.

Inpatient units may be subdivided into pods or clusters for different clinical specialities or levels of acuity. The size of pods also needs to consider efficient nursing arrangements and may vary depending on the clinical needs of the unit and organisation of multidisciplinary teams.

The requirements of rural and regional facilities should be considered, particularly where there is often a mixed service profile.

2.3.4 Unit Configuration

The planning of Inpatient Units has evolved significantly and there is no one particular layout that has been found to be universally superior. In all cases, the final decision may be a response to the physical constraints of the site, local service needs and operational policies.

Key planning considerations relating to the inpatient unit configuration include:

- the unit layout, e.g. single corridor; double corridor or 'race-track'; or hybrid arrangements with a mix of single and double corridors;
- the required mix of bedroom types, i.e. single versus multi-bed rooms;
- standardised room layouts, e.g. same handed design;
- decentralised or centralised staff bases; and
- inboard, outboard or nested ensuites.

The proposed unit configuration should be informed by the following:

- the provision of optimal patient observation;
- efficient staffing arrangements and work practices including consideration of the nursing model and allocated resourcing (Nursing Hours per Patient Day - NHPPD);
- the location of the unit and consideration of the varying requirements relating to metropolitan, regional and rural sites.
- the need to control entries and exits and avoid potential entrapment points;
- access to clinical and operational support areas, e.g. equipment storage, utility rooms, in relation to bed numbers and staff travel distances; and
- efficient allocation of space including circulation areas.

2.3.5 Bedroom Mix

The mix of bedroom types, i.e. single versus multi-bed, should be determined in the planning and briefing stages. The impact on capital and recurrent costs should be identified and evaluated as per usual cost benefit processes.

There is no single recommended solution regarding the optimal or preferred proportion of single bedrooms to be provided. Determination of the ideal mix is outside the scope of this Guideline and will need to be determined by individual jurisdictions on a project by project basis.

Key considerations relating to the appropriate proportion of single bedrooms include:

- patient case mix with regard to acuity, dependency and clinical complexity;
- local population catchment characteristics such as Indigenous and cultural considerations;
- requirements relating to a range of different types of patients, e.g. age, disability and gender;
- privacy needs and expectations balanced by the need for observation of patients by staff;
- healthcare acquired infection rates and associated need for isolation facilities;
- capital funding - single rooms impose additional capital costs in regard to increased floor area including circulation space, additional ensuite requirements and associated fittings, plus longer runs required for medical gases and power. In addition, the need for greater floor area may impact on the land footprint required; and
- impact on recurrent costs with regard to staffing requirements, including nursing, cleaning and maintenance.

The higher the proportion of single rooms, the greater may be the impact on staff observation and staff travel distances, an important consideration given the ageing workforce. Depending on the configuration of beds and travel distances, it may become necessary to support decentralised staff stations and other support areas.

As a result, the need to balance the perceived benefits of a higher proportion of single rooms against the additional costs imposed may require consideration of the project budget and cost / benefit analysis of spending on competing priorities.

Single Bedroom Advantages and Disadvantages

Advantages:

- provides greater levels of patient privacy, particularly relating to use of ensuites;
- enables individual control over noise, light levels and temperature all of which facilitate better quality rest and sleep and reduced patient stress;
- better addresses issues of age, gender, and patient compatibility;

- facilitates family participation in the patient's episode of care; which may be an important component of the services model of care;
- provides greater flexibility in bed management and reduced patient transfers / room moves;
- increased ability to isolate and manage infectious patients;
- increased flexibility and space to care for higher acuity patients and accommodate the additional equipment required;
- provides a more appropriate environment for the management of terminally ill and dying patients;
- enables separate accommodation of patients with poor hygiene or incontinence who may contaminate the environment of others;
- provides a more appropriate environment for patients with behaviours of concern;
- enables patients to more easily follow their religious and cultural beliefs; and
- supports provision of treatment at the bedside reducing the need to transfer patients to other clinical spaces, e.g. treatment rooms.

Disadvantages:

- no ability for well patients to socialise and support one another;
- patients may feel isolated and insecure or unsafe;
- staff may have decreased visibility of patients from the corridor. This may be significantly reduced with the use of internal glass walls containing internal venetians or roller blinds;
- increased staff travel distances with potential impact on staffing requirements;
- a greater number of ensuites plus the overall greater floor area will increase cleaning and maintenance costs over time; and
- increased capital cost associated with the increased floor area, additional ensuites and associated infrastructure requirements.

Multi-bed Rooms Advantages and Disadvantages

There are advantages and disadvantages associated with provision of multi-bed rooms, i.e. two or four bed rooms, as follows:

Advantages

- may be modified for higher dependency / high acuity patients and provide greater staff observation / supervision of those patients;
- patient socialisation with each other and families, particularly for longer stay patients (this is particularly supported by four bed rooms);
- greater feeling of security and interaction with staff;
- reduced construction, cleaning and maintenance costs associated with reduced floor space and bathrooms; and
- reduced staff travel distances.

Disadvantages

- noise;
- lack of privacy;
- disturbed sleep;

- infection prevention and control may be compromised, although patients with the same infection may be cohorted in the same room;
- burden of care on the well patients, particularly in two bed rooms;
- issues of patient incompatibility, particularly in two bed rooms; and
- need to move beds from room to room to maintain appropriate patient mix regarding acuity, gender, etc.

2.4 FUNCTIONAL AREAS

2.4.1 Functional Zones

Functional areas may be classified as follows (although such classification does not necessarily relate to location within the unit):

- patient and family care areas - bedrooms, ensuites, bathrooms and lounges;
- clinical support areas;
- shared areas; i.e. areas that may be shared by adjacent IPUs; and
- staff areas including education and training requirements.

Services provided; bed numbers and configuration; and operational policies may vary the zoning required.

2.4.2 Patient and Family Care Areas

Bedrooms

Bedrooms may be a mix of single rooms, two bed rooms and four bed rooms. The maximum bedroom capacity should be four patients.

The location of functional zones within a bed room varies depending on the room type. In a single bed room, the staff zone is located closest to the entry door. This enables staff to access the medical services panel quickly and easily. The patient / visitor zone is located on the other side of the bed. This area will include chairs for the patient and visitors and the location means that frequent interruptions by staff are avoided.

To encourage family engagement with care, bedrooms should provide seating for family members and secure storage for family and patient personal belongings.

A carer's lounge / day bed may be provided within the single bedrooms depending on the patient case mix, local operational policies and model of care.

Refer to the AusHFG standard components for patient bedrooms.

Ensuites and Bathrooms

All beds require direct access to an ensuite shower and toilet. Larger ensuites are provided for bariatric patients and disabled patients to meet accessibility requirements. Door sizes should support safe access of mobility equipment for both the patient and assisting staff. Refer to the AusHFG standard components for ensuites.

The use of space within the single room impacts on the size and location of the ensuite and thus the two rooms should be considered as a unit and not in isolation.

Access to the ensuite should minimise the number of directional turns a patient has to make to reach the toilet, which should be visible from the bed.

The requirements of AS1248 (Stds Aust 2003a) and the Disability Discrimination Act 1992 (Commonwealth of Australia 1992) apply to the provision of ensuites for patients who are normally independent wheelchair users.

The Building Code of Australia (BCA) requires one island-type plunge bath on each storey containing an inpatient area. However, if the method of bathing patients in inpatient areas is achieved via a means other than the use of an island-type plunge bath, a BCA Performance Solution Report prepared by the project architect may be sought to justify its omission. The Performance Solution Report must address BCA Performance Requirement FP2.1 in consultation with the relevant project stakeholders and must be approved by the BCA certifier during the design stage.

Reticulated medical gas outlets (oxygen and suction) may be considered in ensuites on selected specialised units in line with local jurisdictional policies. This is required where oxygen therapy is required to support patients undertaking ADLs and who have low exercise tolerance, e.g. respiratory units, to avoid safety hazards associated with long lengths of oxygen tubing from the bedroom and to avoid low supply associated with portable oxygen cylinders. Suction may be required where it is essential to ensure the safety of the patient, e.g. patients with a high level spinal cord injury.

Patient and Family Lounges

Patient lounges provide an opportunity for socialisation, a destination and a space to meet with family and friends. This space should be provided within the envelope of the Inpatient Unit to enable staff to supervise easily.

Access to beverage making facilities is highly desirable, however the operational management of this facility will require consideration.

An alternative to a dedicated patient lounge may be provision of a family or visitor room such as the Whanau room in New Zealand.

Where a visitors' lounge or / Whanau Room is provided, consideration should be given to the local cultural context to ensure the rooms meets the needs of the local community. It should be located and designed to accommodate child visitors without disruption to other patients, their families and visitors. The need to accommodate more than one family group should also be considered.

Design Solutions to Support Elderly Patients

The following design approaches should be considered on all inpatient units to support elderly patients including those with dementia, who make up a significant proportion of patients across all clinical specialties:

- ensure easy and visible access to toilets including directional night lighting and contrasting colour for toilet seats;
- maximise exposure to daylight;
- minimise glare;
- provide adequate and appropriate artificial lighting with the opportunity for varied lighting including some constant low-level lighting for night time;
- provide non-slip and slip resistant floor coverings to minimise falls;
- minimise clutter;
- use of acoustic strategies to minimise noise;
- avoid use of contrast within floor surfaces, e.g. patterns and/or features;
- use of signage colour and contrast for wayfinding and orientation;
- design circulation areas to provide a walking route that allows patients to move about the unit with opportunities for engagement and access to areas to sit with visitors, whilst providing the ability to control entries and exits and minimise the extent of unsupervised space; and

- locate and design outside areas to ensure they can easily be viewed by patients (and accessed where appropriate).

Refer to:

- Appendix 5.3 for information regarding designing environments for patients with dementia, as extracted from: Fleming, R. and Bennett, K. (2013) The Environmental Audit Tool. Dementia Training Study Centre, University of Wollongong.
- NSW Agency for Clinical Innovation, 2014, Aged Health Network – ‘Key Principles for Improving Healthcare Environments for People with Dementia’.

Design Solutions to Support Clinical Specialties

Generic inpatient unit solutions should be promoted where possible. However, a number of variations to the generic approach may be required to meet the specific requirements of individual clinical specialties. Examples include:

- most cardiac and some general medical units undertake telemetry monitoring of patients. This requires consideration of the space for accommodation of the monitoring equipment and antenna locations;
- respiratory units will usually require a higher than average number of negative pressure isolation rooms with anterooms for respiratory isolation of patients (note dedicated infectious diseases units have specific design requirements outside the scope of this HPU);
- orthopaedic units require allied health areas within the unit, or in immediate proximity, to facilitate efficient therapy. In addition, there is a need for large equipment stores for a range of mobility aids and traction devices. The toilets and showers need to accommodate an increased proportion of wheelchair-bound patients including patients with extended leg plasters. Large therapy areas and equipment stores are also required for acute neurological, spinal and geriatric inpatient units;
- specialist haematology or oncology units undertaking allogenic bone marrow transplants require positive pressure isolation rooms and may also incorporate a radioactive isotope isolation room. Refer to HPU500 - Nuclear Medicine Unit. A separate cluster or pod of rooms may be modified for this purpose; and
- high or close observation units will require consideration of design solutions that support high levels of observation and monitoring.

2.4.3 Clinical Support Areas

Areas accessed by staff in the management of the patient are detailed in the schedule of accommodation at Appendix 5.1:

The functional areas should reflect the Unit configuration as determined by the planning team.

Staff Station(s)

Staff stations should be organised around three zones:

- Main staff station located to control the movements of patients, staff and visitors entering and leaving the unit and for receipt of mail, flowers, etc., delivered to the unit. The ward clerk is generally located in this area with ready access to photocopier, files etc.;
- A clinical work room to be used by the multidisciplinary team to access patient records, locate a ‘journey board’, view medical images, make phone calls and conduct small meetings; and

- Decentralised spaces, to allow closer proximity of staff to the patients, may be considered for immediate work associated with patient care. This is facilitated by the use of electronic record systems and point of care management. Decentralised staff stations require close access to dirty utility rooms and frequently used equipment.

Storage – Equipment

Equipment should be located and organised to ensure ease of accessibility by staff. This would include equipment bays or storage areas within the inpatient unit.

Items used frequently for an individual patient may be stored in the bed room or ensuite, e.g. shower chair.

Items used regularly for a group of patients, e.g. lifters, scales, mobile sphygmomanometers, may be stored locally in mobile equipment bays.

Equipment, particularly larger equipment that is floor-parked, needs to be defined so that appropriate storage space can be allocated. Specialist units, e.g. spinal injuries and orthopaedics, may have additional equipment requirements that will need to be accommodated. Suitable storage should be provided to store a range of equipment, particularly larger equipment to reduce damage, ensure efficient use of space and prevent workplace health and safety (WHS) issues.

Power outlets should be provided for recharging in both mobile equipment bays and equipment stores.

Rarely used items such as high cost equipment, bariatric equipment or equipment requiring cleaning and maintenance, e.g. pressure relieving mattresses, may be stored in a central equipment store that serves all clinical units.

The shape and configuration of storage areas requires consideration, and the use of equipment tracking systems may also be considered.

Storage – Sterile Supplies and Consumables

Sterile supplies should be stored in a 'clean store' in a manner that maintains the integrity of packs and prevents contamination from any source, e.g. dust, vermin, sunlight, water, condensation, etc. Storage areas should be temperature and light controlled and easily cleaned.

Supplies should be stored off the floor, with the lowest shelf at least 250mm above floor level to avoid mechanical damage during cleaning. The top shelf should be lower than 1700mm to support WHS requirements.

Boxes and non-sterile consumables should be stored in a 'general store' on the unit.

Refer to:

- AusHFG Part D Infection Prevention and Control
- AS 4187: Reprocessing of reusable medical devices in health service organisations.

2.4.4 Staff Areas

Staff Work Areas

Office space for the Unit Manager and senior nursing staff, such as clinical nurse educators, is usually provided within the envelope of the Inpatient Unit. Visiting staff will require access to a write-up area at staff stations and within the clinical workroom.

Local jurisdictional policies relating to the provision of staff work areas will guide the allocation and arrangement of staff work areas.

Meeting and Teaching Areas

Meeting and tutorial rooms provide space for students and staff to undertake education and ongoing skills maintenance and development. These rooms should be used flexibly and sized to accommodate the maximum number of staff and students regularly utilising the space. The number of spaces to be provided should reflect the frequency of use.

Where possible, these spaces should be located to enhance use by different staff groups from both within and external to the unit without compromising day to day operation of the unit due to excessive through traffic.

In some instances, consideration may need to be given to simulation teaching spaces within the unit. This would be project specific and should be determined during the service planning stage of the project.

Staff Amenities

Staff toilets should be immediately accessible within the envelope of the unit.

Staff handbag-sized lockers should be available within the unit for all staff. Access to full change facilities should be available somewhere in the healthcare facility.

A staff room should be readily accessible and may be shared between units for use by all staff and students on a ward floor. Ideally, a small lounge or similar space should be available within each unit for staff to take short breaks and debrief in private amongst their peers. This room usually includes a small beverage-making facility.

2.4.5 Shared Areas

Areas shared with adjacent Inpatient Units may include:

- visitor / public amenities;
- treatment / procedure room (where provided);
- allied health areas and storage space;
- disposal room;
- bathroom (refer to Section 2.4.2); and
- equipment storage.

Visitor and Public Amenities

Visitors should have ready access to toilets including an accessible toilet (Stds Aust 2009). These facilities are best centrally located outside the perimeter of the Unit and may be shared by more than one unit.

Treatment and Procedure Rooms

A Post Occupancy Evaluation (POE) of recently delivered inpatient units in NSW determined that treatment rooms were poorly utilised for their intended purpose of undertaking minor procedures. Minor procedures are commonly undertaken at the patient bedside given the increasing provision of single rooms, with patients typically transferred elsewhere for more advanced procedures.

Treatment and procedure rooms should only be provided for specialised services, for example, to undertake gynaecological, eye and ENT examinations.

Allied Health Areas and Storage Space

Space and facilities for unit-based therapy may be shared between units and may include:

- access to interview rooms;
- 10m IPU corridor length for walking assessments (existing corridor space);
- satellite multifunctional allied health area, usually shared between two or more IPUs;

- an appropriate and safe area to assess and educate patients on stairs and/or steps;
- access to ADL areas (these are usually provided in one location across the healthcare facility);
- storage for consumables, equipment and mobility aids; and
- access to write-up area and storage of resource material.

Units with a high turnover of patients will require close access to space for discharge assessment, e.g. walking and stairways. Units with a longer length of stay may require access to space for activities of daily living.

Discussion regarding provision of satellite therapy units on inpatient floors is provided in HPU 140 - Allied Health / Therapy Unit. Allied health / therapy areas associated with rehabilitation units are described in HPU 610 Rehabilitation Inpatient Unit.

2.5 FUNCTIONAL RELATIONSHIPS

2.5.1 External

Inpatient accommodation is one of the core functions of every hospital and is supported by a wide range of clinical and non-clinical services. Good functional relationships enhance the delivery of those services.

Principal relationships with other units include:

- easy access from the Main Entrance particularly for visitors;
- ready access to diagnostic facilities such as Medical Imaging, Nuclear Medicine, etc;
- ready access from Emergency and to and from Critical Care Units;
- ready access to Operating and Day Procedure Suites for surgical units;
- ready but discreet access for delivery of food, linen, supplies and removal of waste; and
- ready access to staff amenities not provided locally.

Units that the patients do not usually access such as clinical information, pharmacy and pathology may be located more remotely with appropriate system support, e.g. pneumatic tube systems.

2.5.2 Internal

The ability to achieve optimum relationships between component spaces depends on many factors including the nominated site, available space, shape of the space available and specific operational requirements.

Optimal internal relationships to be achieved include those between:

- patient occupied areas forming the core of the unit;
- staff station(s) and associated areas that need direct access and observation of patient areas;
- utility and storage areas that need to be readily accessible to both patient and staff work areas;
- public areas located on the perimeter of the unit; and
- shared areas that should be easily accessible from the units served.

03 DESIGN

3.1 ACCESSIBILITY

There should be only one point of public entry, ideally staffed by a ward clerk during extended daytime hours to:

- prevent access by visitors the patient may not wish to see;
- advise visitors if patients have been moved to another bed or are out of the unit for any reason;
- monitor visiting staff and direct them to the appropriate staff member or patient; and
- monitor patient movements in and out of the unit.

For the safety of patients and staff it is recommended that Inpatient Units are able to be locked down after hours with swipe card (or similar) for access by authorised personnel. If necessary, video intercom should be provided.

Ideally, there should be a separate and discreet entry or entries for staff, and goods and supplies, operated by swipe card (or similar) by authorised personnel only. A separate entry for patients on beds or trolleys may also be considered.

3.2 PARKING

For staff parking, refer to Part C, Design for Access, Mobility, Safety and Security.

3.3 DISASTER PLANNING

Each unit should have operational plans and policies detailing the response to a range of emergency situations both internal and external. Consider issues such as the placement of emergency alarms, the need for uninterrupted power supply (UPS) to essential clinical equipment and the ability to effect complete lock-down.

Refer to Part B Section 80 and Part C for further information.

3.4 INFECTION CONTROL

3.4.1 General

The following aspects contribute to effective infection prevention and control and are relevant within the context of the Inpatient Unit:

- hand hygiene facilities;
- provision for the isolation of infectious patients;
- linen handling;
- separation of clean and dirty work flows;
- storage;
- waste management; and
- surface finishes.

Refer to Part D and to individual jurisdictional policies and guidelines for further details.

3.4.2 Hand Hygiene Facilities

All inpatient bedrooms (single and multi-bed) will require a Type B hand basin. Each bed space will have access to alcohol-based hand rub (ABHR). At a minimum, ABHR dispensers will be located as close to the point of care as possible, e.g. within the curtained area of each bed space either on the wall or on a bracket at the base of the bed.

Personal protective equipment (PPE) dispensing stations should not be collocated with the hand basins as this can result in contamination of the PPE.

Refer to the AusHFG Standard Component and AusHFG Part D Infection Prevention and Control for further details regarding requirements for the provision of hand hygiene facilities (handbasins) and ABHR used in hand hygiene.

3.4.3 Isolation Rooms

In order to promote flexibility of use and to reduce the need for patient transfers, all single bedrooms should be able to accommodate patients requiring standard contact isolation - Class S.

The provision of negative pressure isolation rooms for management of respiratory infections, and positive pressure isolation rooms for patients receiving allogeneic bone marrow transplants may be determined by service planning analysis for the unit concerned.

Refer to Part D Infection Prevention and Control and AusHFG Isolation Rooms – Engineering and Design Requirements (2016) for further details.

3.5 ENVIRONMENTAL CONSIDERATIONS

3.5.1 Acoustics

Noise is a constant source of complaint from patients and may compromise patient comfort and recovery. Noise at night may have a negative impact on the ability of patients to sleep.

Confidentiality of patient information should also be protected.

Noise sources may arise both within and from outside the Unit and include:

- sanitary facilities;
- equipment;
- other patients;
- staff activities, e.g. conversations, talking on phone, rounds, meetings, cleaning;
- areas of public movement, lift lobbies, etc;
- traffic through the unit including visitors, food, linen and other trolleys, or movement of patients into or out of the unit; and
- helicopter landing site.

Solutions to be considered include:

- location of the unit;
- use of sound absorbing materials and finishes;
- sound isolating construction;
- separation of quiet areas from noisy areas, e.g. avoid locating noisy areas immediately opposite a patient bed room; and
- changed operational management.

Refer to Part C for further information.

3.5.2 Natural Light

Natural light contributes to a sense of wellbeing for all building occupants including patients, staff and other users. A limited number of research studies suggest a link between greater levels of natural light and improved clinical outcomes.

Higher levels of natural light may help people better orient themselves in the building thus enhancing wayfinding. However, glare should be minimised.

Greater use of natural light may also reduce energy usage in terms of reducing the need for artificial lighting. For these reasons, the use of natural light should be maximised throughout the unit.

3.5.3 Privacy

A major conflict in the design of inpatient accommodation often arises due to the need to ensure that patients and staff can see each other, while also ensuring patient privacy.

Given the need to optimise clinical care and patient safety, bedrooms and other areas occupied by patients should be designed and configured to give staff the greatest ability to observe patients, particularly unstable or vulnerable patients. Different styles of unit design offer varying degrees of visibility or observation. Operational models will support patient observation, for example intentional rounding whereby nursing staff carry out regular checks on each patient at set intervals.

The expected patient mix may be a prime factor in resolving the conflict between observation and privacy. For instance, the following types of patients have differing requirements:

- vulnerable elderly patients especially in single rooms who may feel more secure if they can observe staff or can be observed by staff or other patients
- clinically unstable or high dependency patients who may need almost constant observation;
- clinically stable but vulnerable patients who may require frequent observation; and
- supported or self-care patients who require passing observation only.

Factors for consideration include:

- use of windows in corridor walls and/or doors whilst assisting with observation, require suitable privacy to be maintained;
- location of beds to maximise sight lines;
- proportion of single bed rooms;
- location of bed screens to ensure privacy of patients undergoing treatment; and
- location of sanitary facilities to provide privacy for patients while not limiting observation by staff.

The provision of appropriate areas for confidential staff discussions is also essential.

3.5.4 Interior Decor

Interior decor includes furnishings, style, colour, textures, ambience, perception and taste. This can help prevent an institutional atmosphere. However, cleaning, infection control, fire safety, patient care and the patients' perceptions of a professional environment should always be considered.

Some colours, particularly the bold primaries and green should be avoided in areas where clinical observation occurs such as bedrooms and treatment areas. Such colours may prevent the accurate assessment of skin tones, e.g. yellow for jaundice, blue for cyanosis and red for flushing.

3.5.5 Signage and Wayfinding

Refer to:

- AusHFG Part C: Design for Access, Mobility, Safety and Security; and

- NSW Health GL2014_018 Wayfinding for Healthcare Facilities

3.6 SPACE STANDARDS AND COMPONENTS

3.6.1 Bed Spacing and Clearances

In two-bed rooms there should be a minimum clearance of 1200mm available at the foot of each bed to allow easy movement of equipment and beds.

In multi-bed rooms, the minimum distance between bed centre lines should be 2400mm.

For further information refer to the AusHFG Standard Components for IPU specific rooms.

3.6.2 Access and Mobility

The facility must comply with the Commonwealth Disability and Discrimination Act (DDA) and the following standards where applicable:

- Disability (Access to Premises – Buildings) Standard 2010;
- National Construction Code;
- AS1428 (SET)-2010 Design for access and mobility; and
- NZS 4121: Design for access and mobility: Buildings and Associated Facilities.

3.6.3 Building Elements

Building elements include walls, floors, ceilings, doors, windows and corridors. Refer to Part C Design for Access, Mobility, Safety and Security for further details.

Window sill heights should be low enough to permit a view to the outside by a patient lying in bed. This is usually 600mm above the finished floor level.

Ensure doorways are sufficiently wide and high to permit the manoeuvring of beds, wheelchairs, trolleys and equipment without risk of damage or manual handling injury, particularly in rooms designed for bariatric patients.

3.6.4 Construction Methods

Alternative construction methods may result in the need for minor adjustments to the recommended inpatient unit design and spatial allocations.

Modular construction is becoming increasingly popular for healthcare projects, particularly for rural and remote areas, to minimise construction time and associated costs; promote flexible use over time; minimise disruption to existing sites and safety risks; and reduce the environmental impact compared with traditional on-site construction methods.

Transportation requirements may limit the dimensions of modules and therefore standard design parameters may need to be altered to achieve the modular approach whilst also maintaining alignment with the clinical and operational requirements of the service.

3.7 SAFETY AND SECURITY

In addition to the information below refer to AusHFG Part C: Design for Access, Mobility, Safety and Security.

3.7.1 Safety

The unit should provide a safe and secure environment for patients, staff and visitors while retaining a non-threatening and supportive atmosphere conducive to recovery. Patients are often unaware of their capacities or incapacities. They may be weak or frail, unsteady, affected by medication or confused. Whether involving patients or staff, most accidents occur in or near sanitary facilities or when getting out of bed.

Design and construction of the facility and selection of furniture, fittings and equipment should ensure that users are not exposed to avoidable risks of injury.

Facility planners and designers should enhance safety by means of the design, the methods of construction and the materials chosen, including the selection of fittings, fixtures and equipment.

3.7.2 Security

Facility planners and designers should enhance security by incorporating the principles of territorial reinforcement, surveillance, space management and access control into design decisions.

In relation to inpatient accommodation the following specific security issues should be considered:

- the need for fixed and/or personal duress alarms;
- access control particularly at night;
- control and monitoring of visitors;
- the design must not create entrapment or concealment points, e.g. at staff stations;
- monitoring of patient movements in and out of the unit, especially with regard to elderly patients admitted for other reasons but who may also be living with dementia or other forms of cognitive impairment;
- design spaces such as interview rooms to ensure staff have ready access to duress and egress; and;
- alarmed fire exits.

3.7.3 Risk Management

The physical environment has a significant impact on the health and safety of end users. A risk management approach ensures risks are managed systematically utilising a process that supports the anticipation, identification and avoidance of risks that may have an impact on users and services.

Broad consultation with all stakeholders and other identified processes may be utilised to identify risks according to the availability of expertise to ensure security, health and safety risks are proactively managed.

Work Health & Safety (WHS) legislation requires designers to identify, assess and control risks in order to provide an optimal ergonomic design and to do this in consultation with stakeholders.

Safety considerations need to address the health and safety of end users, including staff, maintenance personnel, patients and visitors.

Refer to:

- AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines.

3.8 FINISHES

3.8.1 General

Finishes in this context refer to walls, floors, windows and ceilings. Refer to Part C Design for Mobility, Access, Safety and Security for further details.

3.8.2 Wall Finishes

Adequate wall protection should be provided to areas regularly subjected to damage. Particular attention should be given to areas where bed or trolley movement occurs, such as corridors, bed head walls, treatment areas, equipment and linen trolley bays.

3.8.3 Floor Finishes

Floor finishes should be appropriate to the function of the space.

Consider acoustic performance, slip resistance, infection control, movement of beds and trolleys, maintenance and cleaning protocols.

Selection of floor finishes should consider manual handling issues, including the impact of the flooring on push/pull forces for wheeled equipment, and be adequate to avoid the potential for slips and trips caused by joints between flooring.

Refer to Part C Section Design for Mobility, Access, Safety and Security and to TS-7 Floor Coverings in Healthcare Buildings (NSW Health and CHAA, UNSW 2009).

3.8.4 Ceiling Finishes

Ceiling finishes should be selected based on appearance, cleaning, infection control, acoustics and access to services.

Refer to Part C Section and the AusHFG Standard Components for further details.

3.9 FIXTURES, FITTINGS AND EQUIPMENT

3.9.1 Definitions

The Room Data and Room Layout Sheets in the AusHFG define Fixtures, Fittings and Equipment. Refer to:

- Part C: Design for Access, Mobility, Safety and Security; and,
- AusHFG Standard Components for IPU specific rooms.

3.9.2 Curtains and Blinds

Each room should have partial blackout facilities (blinds or lined curtains) on the external window to allow patients to sleep more easily during the daytime, reduce glare and may be considered essential in units dealing with patients with sensitivity to light, e.g. neurological units and eye disorders / surgery.

3.10 BUILDING SERVICE REQUIREMENTS

3.10.1 General

Refer to local jurisdictional requirements relating to building and engineering services.

3.10.2 Air Handling Systems

Provision of natural ventilation to patient care areas should be approached with caution. The management of airflows and the creation of a stable environment are essential to the control of the spread of infection so, generally, air conditioning should be provided.

Refer to AusHFG Part D: Infection Prevention and Control.

3.10.3 Electrical Services

It is essential that services, such as emergency lighting, telephones, duress alarm systems (including the central computer) and electronic locks, are connected to the emergency power supply.

3.10.4 Information Technology and Communication

Address the following Information Technology and Communication issues and the associated infrastructure requirements to ensure long term flexibility:

- wireless technology – Wi-Fi and Mobile In-Building coverage;
- radiofrequency identification (RFID) for access control, locks, etc;
- duress alarm systems - fixed and personal as required;
- nurse and emergency call systems;
- e-medication management and e-storage systems, e.g. automated dispensing systems;
- biomedical systems;
- voice and data (telephone and computers);
- videoconferencing capacity and telemedicine;
- electronic medical records;
- Patient Administration Systems (PAS);
- Picture Archiving Communication System (PACS);
- Radiology Information Systems (RIS);
- paging and personal telephones replacing some aspects of call systems;
- patient multimedia devices including bedside monitors that function as televisions, computer screens for internet access, etc.;
- patient information screen integrated with menu ordering, nurse call and other modalities;
- tracking systems;
- server and communications rooms; and
- e-learning and simulation.

3.10.5 Nurse Call System

Healthcare facilities should provide a call system that allows patients and staff to alert other staff in a discreet manner at all times. These systems should be compatible throughout the facility.

The nurse call system should:

- allow change of the call notification between end users and the system;
- operate within acceptable noise levels; and
- provide sufficient capacity in terms of the anticipated level of use.

3.10.6 Duress Alarms

Duress alarms, personal or fixed, should be provided in accordance with jurisdiction health policies. Refer to Part C for further information.

3.10.7 Hydraulic Services

Provide warm water systems as required.

3.10.8 Medical Gases

Provide oxygen, suction and medical air to each bed as required.

Consideration may be given to providing a number of beds with less visible medical service panels to minimise the risk of injury to or damage by patients with dementia or behaviours of concern.

Refer to AusHFG Standard Components for patient bedrooms.

04 COMPONENTS OF THE UNIT

4.1 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 however 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;
- 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 generally unit specific and provided in accordance with specific operational policies and service demand.

4.2.1 Multifunctional Allied Health Area

Description and Function

Where ready access to a centralised allied health area is not available, a multifunctional allied health area is recommended to appropriately support the provision of allied health / therapy services.

The area should be fitted out depending on the particular service profile, i.e. it may include plinths for one on one therapy, or it may include group exercise equipment.

Specialised units, where demand for allied health services is high, e.g. neurosciences and orthopaedics, will require consideration of a larger allied health area in alignment with projected utilisation.

Location and Relationships

This area should be shared between two or more IPUs.

It should be located to enable ease of access for patients and staff. Although the area is often provided outside the envelope of the IPU, connection to emergency response systems is essential.

05 APPENDICES

5.1 SCHEDULE OF ACCOMMODATION

Recommended schedules of accommodation are included below for inpatient units with 28 and 32 beds. This assumes an indicative provision of 50% single bedrooms with one bariatric bed room and one negative pressure isolation room. These allocations may need to be adjusted depending on the requirements of the project.

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 these areas will depend on the service scope, local clinical requirements and / or local operational policies. To avoid these rooms being allocated to a project by default they have been included separately at the end of the schedule of accommodation. The requirement for each optional area should be confirmed on a project by project basis and included where it is essential to meet the service need.

PATIENT AREAS

AusHFG Room	Room / Space	SC / SC-D	28 Bed IPU		32 Bed IPU		Remarks
			Qty	m2	Qty	m2	
1BR-ST-A1 1 BR-ST-A2 1 BR-ST-A3 1BR-ST-B1 1BR-ST-B2 1BR-ST-B3 1BR-ST-D	1 Bed Room - Inboard (A), Outboard (B) or Back to Back Ensuite (D)	Yes	12	16.5	14	16.5	May be used as a Type S isolation room. If using an 8,400mm structural grid refer to 1BR-ST-A2, 1BR-ST-A3 (both with inboard ensuite), 1BR-ST-B2 or 1BR-ST-B3 (both with outboard ensuite) or 1BR-ST-D (back to back ensuite). For 1 Bed Rooms on a 7,800mm structural grid, refer to 1BR-ST-A1 or 1BR-ST-B1.
1BR-BA	1 Bed Room - Bariatric	Yes	1	18	1	18	Number depends on patient profile. Standard bariatric room, not suitable for management of 'super-bariatric' patients.
1BR-IS-N1 1BR-IS-N2	1 Bed Room - Isolation - Negative Pressure	Yes	1	16.5	1	16.5	If using an 8,400mm structural grid refer to 1BR-IS-N2. For a 7,800mm structural grid, refer to 1BR-IS-N1.
ANRM	Anteroom	Yes	1	6	1	6	Provided as part of N Class rooms.
2BR-ST-A1 2BR-ST-A2 2BR-ST-B	2 Bed Room - Inboard (A) or Outboard Ensuite (B)	Yes	5	29	6	29	If using an 8,400mm structural grid refer to 2BR-ST-A2 (inboard ensuite) or 2BR-ST-B (outboard ensuite). For 2 Bed Rooms on a 7,800mm structural grid, refer to 2BR-ST-A1.
4BR-ST	4 Bed Room - Inboard Ensuite	Yes	1	58	1	58	Can in future be divided into 2 x 2 Bed Rooms
ENS-ST-A1 ENS-ST-A2 ENS-ST-A3 ENS-ST-B ENS-ST-C	Ensuite - Standard	Yes	19	5	22	5	One per 1 Bed Room and 2 Bed Room; two per 4 Bed Room
ENS-ACC	Ensuite - Accessible	Yes	1	7	1	7	Designed to AS1428. Caters for independent wheelchair patients and replaces standard ensuite.
ENS-BA	Ensuite - Bariatric	Yes	1	7	1	7	One per 1 Bed Room - Bariatric
LNPF-20	Lounge - Patient / Family	Yes	1	20	1	20	Inclusion of tea/coffee making facilities will be dependent on local operational policies.
	Discounted Circulation		38%		38%		Circulation rates may vary for different IPU service types.

SUPPORT AREAS

The number and size of support rooms and spaces may need to change should the unit size adopted be significantly larger or smaller than is typical. For example, a very large IPU may require additional space to store clinical consumables owing to patient numbers.

AusHFG Room Code	Room / Space	SC / SC-D	28 Bed IPU		32 Bed IPU		Remarks
			Qty	m2	Qty	m2	
BBEV-OP	Bay - Beverage, Open Plan	Yes	1	4	1	4	For staff access to support patient care eg for storage of feeds, reheating food, patient tea/coffee etc. Open bay. If closed, increase to 5m2.
BHWS-B	Bay - Handwashing, Type B	Yes	4	1	4	1	Located in corridors
BLIN	Bay - Linen	Yes	2	2	2	2	At least 1 bay per 15 beds
BMEQ-4	Bay - Mobile Equipment	Yes	2	4	2	4	Number depends on equipment to be stored and frequency of use. Ready access to bed rooms
BRES	Bay - Resuscitation	Yes	1	1.5	1	1.5	
CLRM-5	Cleaners Room	Yes	1	5	1	5	Shape of room is important to ensure optimal functionality. Includes storage for dry goods. Access to central store for shared, bulky cleaning equipment.
CLUR-10	Clean Store	Yes	1	10	1	10	For storage of unpacked sterile consumables. May be provided as a combined Clean Store / Medication Room. Previously referred to as a Clean Utility.
STDR-14	Medication Room	Yes	1	14	1	14	May be provided as a combined Clean Store / Medication Room
DTUR-14	Dirty Utility	Yes	1	14	1	14	A second dirty utility may be required depending on travel distances.
INTF	Interview Room	Yes	1	12	1	12	Dual egress
SSTN-14	Staff Station	Yes	1	14	1	14	
OFF-CLN	Office - Clinical Workroom	Yes	1	15	1	15	Locate near staff station
	Bay - Photocopy/Stationary	Yes	1	3	1	3	Collocate with Staff Station
OFF-S9	Office - Single Person	Yes	1	9	1	9	For Nurse Unit Manager. Provision of other staff work areas within the unit will depend on local jurisdictional policies. Refer to additional staff work areas below.
STEQ-20	Store - Equipment	Yes	1	20	1	20	Size dependent on equipment stored, frequency of use and number of bays
STGN-9	Store - General	Yes	1	9	1	9	For storage of boxes and non-sterile consumables.
	Discounted Circulation		38%		38%		Circulation rates may vary for different IPU service types.

STAFF WORK AREAS AND AMENITIES

AusHFG Room Code	Room / Space	SC / SC-D	28 Bed IPU		32 Bed IPU		Remarks
			Qty	m2	Qty	m2	
	Office - Workstation	Yes		4.4		4.4	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
SRM-15	Staff Room	Yes	1	15	1	15	Includes a beverage bay
PROP-2	Property Bay - Staff	Yes	1	3	1	3	Capacity for all staff and students located on the IPU
WCST	Toilet - Staff	Yes	1	3	1	3	Number depends on staffing
	Discounted Circulation		25%		25%		Circulation rates may vary for different IPU service types.

SHARED AREAS

The areas below are assumed to be shared between two or more inpatient units.

AusHFG Room Code	Room / Space	SC / SC-D	28 Bed IPU		32 Bed IPU		Remarks
			Qty	m2	Qty	m2	
DISP-10	Disposal Room	Yes	1	10	1	10	May be shared between two Units
WCPU-3	Toilet - Public	Yes	1	3	1	3	Number to be determined depending on number of units sharing access to public toilets.
	Discounted Circulation		38%		38%		Circulation rates may vary for different IPU service types.

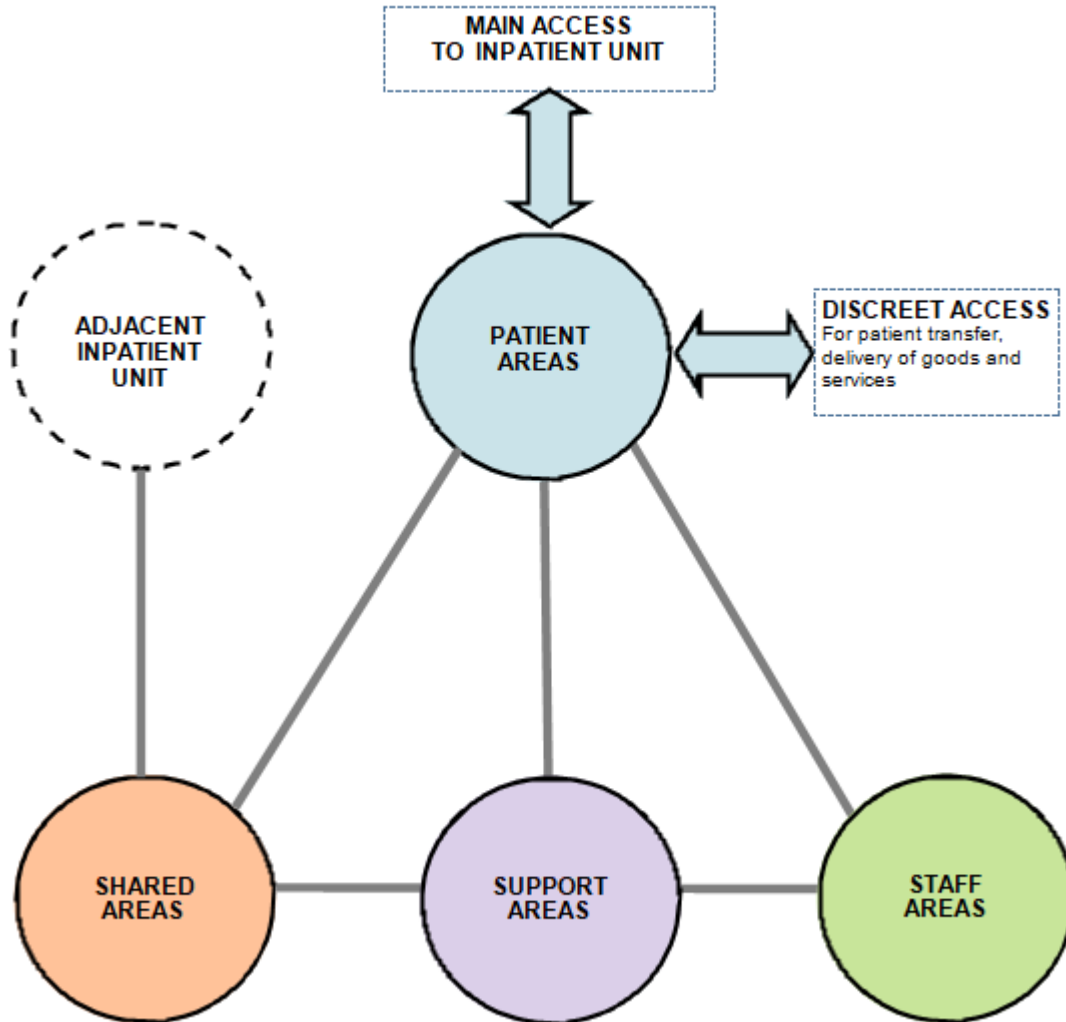
OPTIONAL AREAS

The inclusion of the optional areas below is dependent on the service scope and local clinical and / or operational requirements. The requirement for each area should be confirmed on a project by project basis and included where it is essential to meet the service need.

AusHFG Room Code	Room / Space	SC / SC-D	28 Bed IPU		32 Bed IPU		Remarks
			Qty	m2	Qty	m2	
SUPPORT AREAS							
BMT-4	Bay - Meal Trolley	Yes	1	4 (o)	1	4 (o)	Optional. Provision will depend on food services model. Space dependent on size and capacity of meal trolleys
BFLW-OP	Bay - Flowers (Open)	Yes	1	2 (o)	1	2 (o)	Optional. Provision will depend on service profile and anticipated volume of flowers.
	Bay - PPE (Personal Protective Equipment)			0.5 (o)		0.5 (o)	Optional. Provision of bay will depend on approach to storing PPE. May be provided as a wall mounted PPE unit.
SSTN-10	Staff Station - Decentralised	Yes	2	5 (o)	2	5 (o)	Optional decentralised staff base. Many units use WOWs so staff are mobile and may not require a decentralised base. Location and no dependent on unit configuration. Locate to optimise line of sight to patient care areas.
SHARED AREAS							
BATH	Bathroom	Yes	1	15 (o)	1	15 (o)	Optional. Rarely included in recent developments. Refer to Section 2.4.2 and BCA requirements. Usually provided at one bath per floor or shared between two units.
	Multifunctional Allied Health Area		1	14 (o)	1	14 (o)	Optional. Provision will depend on service requirements and access to centralised allied health unit. To be shared between IPUs, ie 28m2 shared between 2 IPUs. Multifunctional allied health area to be fitted out depending on service profile, ie may include plinths for one on one therapy or group exercise equipment. A set of stairs for assessment / education of patients should be included (however this may be provided within circulation areas subject to design).
STGN-9	Store - General	Yes	1	12 (o)	1	12 (o)	Optional. May be provided between two IPUs to store essential allied health consumables and equipment including mobility aids.
	Meeting Room	Yes	1	18 (o)	1	18 (o)	Optional. May share with adjacent department. Multifunctional use. Size dependent on room usage requirements
WCAC	Toilet - Accessible	Yes	1	6 (o)	1	6 (o)	Optional. To be provided in one location per floor in line with DDA requirements. Note staff also require access to an accessible toilet.
	Discounted Circulation			38%		38%	Circulation rates may vary for different IPU service types.

5.2 FUNCTIONAL RELATIONSHIP DIAGRAM

The following diagram sets out the functional relationships between zones in an Inpatient Unit.



5.3 PRINCIPLES FOR DESIGNING ENVIRONMENTS FOR PATIENTS WITH DEMENTIA

The following information is an extract from Fleming, R. and Bennett, K. (2013) The Environmental Audit Tool. Dementia Training Study Centre, University of Wollongong.

1. Unobtrusively Reduce Risks - Safety

People with dementia require an internal and external environment that is safe, secure and easy to move around if they are to make the best of their remaining abilities. However, obvious safety features and barriers will lead to frustration, agitation and anger hence potential risks need to be reduced unobtrusively.

2. Provide a Human Scale - Size

The scale of a building will influence the behaviour and feelings of a person with dementia. The experience of scale is determined by three factors; the number of people that the person encounters, the overall size of the building and the size of the individual components, such as doors, rooms and corridors. A person should not be intimidated by the size of the surroundings or confronted with a multitude of interactions and choices. Rather the scale should help the person feel in control.

3. Allow People to See and be Seen – Visual Access Features

The provision of an easily understood environment will help to minimise confusion. It is particularly important for people with dementia to be able to recognise where they are, where they have come from and what they will find if they head in a certain direction. When they can see key places, such as a lounge room, dining room, their bed room, kitchen and an outdoor area they are more able to make choices and find their way to where they want to go. Buildings that provide these opportunities are said to have good visual access. Good visual access opens up opportunities for engagement and gives the person with dementia the confidence to explore their environment. It can also enable staff to see residents from where they spend most of their time. This reduces their anxiety and the anxiety of the residents.

4. Reduce Unhelpful Stimulation - Stimulus Reduction Features

Because dementia reduces the ability to filter stimulation and attend to only those things that are important, a person with dementia can become stressed by prolonged exposure to large amounts of stimulation. The environment should be designed to minimise exposure to stimuli that are not helpful. The full range of senses must be considered. Too much visual stimulation, for example, is as stressful as too much auditory stimulation.

5. Optimise Helpful Stimulation - Highlighting Useful Stimuli

Enabling the person with dementia to see, hear and smell things that give them cues about where they are and what they can do, can help to minimise their confusion and uncertainty. Consideration needs to be given to providing redundant cueing i.e. providing a number of cues to the same thing, recognizing that what is meaningful to one person will not necessarily be meaningful to another. A person may recognize their bed room, for example, because of a view, the presence of furniture, the colour of the walls, the light fitting and/or the bedspread. Cues need to be carefully designed to ensure they do not become unhelpful stimulation.

6. Support Movement and Engagement - Provision for Wandering, Circulation and Access to Outside Area

Aimless wandering can be minimised by providing a well-defined pathway, free of obstacles and complex decision points, that guides people past points of interest and gives them opportunities to engage in activities or social interaction. The pathway should be both internal and external, providing an opportunity and reason to go outside when the weather permits.

7. Create a Familiar Space - Familiarity

The person with dementia is more able to use and enjoy spaces and objects that were familiar to them in their early life. The environment should afford them the opportunity to maintain their competence through the use of familiar building design (internal and external), furniture, fittings and colours. This will involve an understanding of the personal background of the people living in the environment. The involvement of the person with dementia in personalising the environment with their own familiar objects should be encouraged.

8. Provide Opportunities to be Alone or with Others - Privacy and Community

People with dementia need to be able to choose to be on their own or spend time with others. This requires the provision of a variety of spaces, some for quiet conversation with one or two others and some for larger groups, as well as spaces where people can be by themselves. These internal and external spaces should have a variety of characters, e.g. a place for reading, looking out of the window or talking, to cue the person to what is available and stimulate different emotional responses.

9. Provide Links to the Community - Community Links

Without constant reminders of who they were, a person with dementia will lose their sense of identity. Frequent interaction with friends and relatives can help to maintain that identity. This is made easier when the person is admitted from the local community as friends and relatives can drop in easily.

The environment must include spaces for the resident and their visitors to use within the unit and in its immediate surrounds. These need to be attractive and comfortable to encourage visitors to come and spend time there. Stigma remains a problem for people with dementia. The unit therefore, should be designed to blend with the existing buildings and not stand out as a 'special' unit. Where possible, a 'bridge' should be built between the unit and the community by providing a space that is used by both the community and people with dementia. Where the unit is a part of a larger site, there should be easy access around the site. This will enable people with dementia, their families and friends to interact with other people who live there.

10. Providing Opportunities for Engagement with Ordinary Life - Domestic Activity

The environment should be as homelike as possible, recognising that older people are there to live, and require access to opportunities for engagement with life. An environment that focuses on engagement with life allows residents to make decisions and exercise choice and independence, both in the way they spend time and what they do. The environment should allow older people to continue to do the things that they have done throughout their lives.

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, AusHFG Part B: Section 80 General Requirements, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2018, AusHFG Part C: Design for Access, Mobility, Safety and Security, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, AusHFG Part D: Infection Prevention and Control, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, AusHFG Part B: 132 Child and Adolescent Mental Health Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2019, AusHFG Part B: 134 Adult Acute Mental Health Inpatient Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2019, AusHFG Part B: 135 Older Peoples Acute Mental Health Inpatient Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2019, AusHFG Part B: 136 Non Acute Mental Health Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, AusHFG Part B: 140 Allied Health / Therapy Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2018, AusHFG Part B: 260 Cardiac Care Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2017, AusHFG Part B: 510 Maternity Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2016, AusHFG Part B: 540 Paediatric / Adolescent Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2018, AusHFG Part B: 610 Rehabilitation Inpatient Unit, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- AHIA, 2017, AusHFG – Isolation Room – Engineering and Design Requirements, Australasian Health Facility Guidelines, Australasian Health Infrastructure Alliance (AHIA), Sydney, NSW
- Fleming, R. and Bennett, K. 2013, The Environmental Audit Tool. Dementia Training Study Centre, University of Wollongong
- National Construction Code Australia
- National Health and Medical Research Council (NHMRC), 2019 'Australian Guidelines for the Prevention and Control of Infection in Healthcare', Australian Government, Canberra
- New Zealand Standards, 2001, NZS 4121: 2001 Design for access and mobility: Buildings and Associated Facilities
- NSW Agency for Clinical Innovation, 2014, Aged Health Network – 'Key Principles for Improving Healthcare Environments for People with Dementia'
- NSW Health, 2009, TS7 - Floor Coverings in Healthcare Buildings, Issue V1.1 NSW Government, North Sydney, NSW
- NSW Health, 2014, GL2014_018 Wayfinding for Healthcare Facilities

- Standards Australia, 1998a, AS 3811: Hard-wired patient alarm systems, SAI Global
- Standards Australia, 2010, AS 1428 (Set) Design for access and mobility Set (SAI Global), Standards Australia, Sydney, NSW.
- Standards Australia, 2014, AS/NZS 4187 Reprocessing of reusable medical devices in health services organisations, Standards Australia, Sydney NSW
- AS/NZS 3816:2018 Management of clinical and related wastes Standards Australia, Sydney, NSW

5.5 FURTHER READING

- NSW Health 2013, Protecting People & Property: NSW Health Policy and Standards for Security Risk Management in Health Agencies, NSW Health.
- NSW Agency for Clinical Innovation, 2014, ACI Acute Care Taskforce, 'NSW Medical Assessment Unit Model of Care'.
- NSW Agency for Clinical Innovation, 2018, 'Key Principles - Establishment, Governance and Operation of a Close Observation Unit'.