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INTRODUCTION

	Preamble
604401 340 .1.00	This Health Planning Unit (HPU) has been developed for use by project staff - architects, planners, engineers, project managers and other consultants, and for end users, to facilitate the process of planning and design.
604402 340 .1.05	It is a revision of the HPU developed for NSW Health in 2002 and issued for Australasian use in 2006. Its development has been informed by a national workshop and an extensive consultation process.

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Introduction

- 604403 340 .2.00 This HPU outlines the specific requirements for the planning and design of an Inpatient Unit.
- 604404 340 .2.05 It should be read in conjunction with AusHFG generic requirements including Standard Components described in:
- Part A - Introduction and Instructions for Use
 - Part B - Section 80 - General Requirements & 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.

Policy Framework

604405 340 .3.00 GENERAL

Policies for the provision of healthcare services are formulated in accordance with the following principles:

- appropriate service models that ensure a comprehensive service network throughout state and regional health jurisdictions
- safe and effective care that minimises both staff and patient risks
- deployment of resources in a fair and cost effective manner to optimise health outcomes
- development and support for enhanced information systems to monitor, plan and evaluate healthcare services
- provision of a safe and efficient environment which minimises risk to all users of the facility.

604406 340 .3.05 DIVERSITY AND SPECIAL GROUPS

Policy frameworks recognise and commence with the diversity of our community and special groups within communities often require specific consideration to meet their needs and to enhance the effectiveness of any services provided.

These groups include:

- Aboriginal and Torres Strait Islanders in Australia, and Maori and Pacific Islanders in New Zealand
- people with physical and cognitive disabilities
- bariatric (obese and morbidly obese) patients
- people from cultural and linguistically diverse backgrounds
- people from rural and remote areas
- children and adolescents
- older persons and the frail aged
- dementia affected patients.

- 604407 340 .3.10 Overarching policies include the Commonwealth Disability Discrimination Act 1992 (Commonwealth of Australia 1992).

Description of the Unit

604408 340 .4.00 DESCRIPTION OF AN INPATIENT ACCOMMODATION UNIT

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The prime function of the Inpatient Unit is to provide suitable accommodation for the diagnosis, care and treatment of inpatients by multidisciplinary teams.

Whilst facilitating the delivery of services to patients, the Unit should also provide facilities and conditions to meet the needs of families and carers and the working needs of staff.

604409 340 .4.05 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. Bedrooms may need to be modified for cots, and specific requirements such as formula rooms may be necessary.

604410 340 .4.10 Specific HPUs in Part B of these Guidelines address the needs of paediatric, maternity, rehabilitation and mental health units.

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

604411 340 .4.15 **SHORT STAY UNITS**

Inpatient Units may also be managed and operated as Short Stay Units - frequently operating in collaboration with the Emergency Unit - for patients requiring rapid assessment and with an anticipated length of stay of less than 48 hours. Examples include a Medical Assessment and Planning Unit (MAPU) and Surgical Acute Rapid Assessment Unit (SARA).

See below for a discussion of modified space requirements for such units.

604412 340 .4.20 **THERAPEUTIC ENVIRONMENT**

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

Treatments and methods of care frequently change, as do the health needs of the populations served. It is critical that the physical environment is flexible and can adapt over time in response to changes in practice and treatment including models of health service delivery and nursing care.

A pleasant, functionally appropriate, high quality physical environment supports the delivery of patient care. This indicates the facility has been developed in accordance with the following principles:

- the patient is safe, valued and respected
- privacy and dignity for the patient, their carers and family is supported
- the appropriate level of care can be supported
- the physical environment can make a positive contribution to patient recovery, improved patient outcomes and decreasing lengths of stay.
- staff are valued and supported, provided with a safe, and rewarding working environment, within which their needs with regard to recruitment, retention, and work satisfaction are recognised.

604413 340 .4.25 **POPULATION PROFILE**

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The population of the Unit may vary according to the level of services or clinical capability of the facility and the catchment population it serves.

The population may comprise:

- patients
- staff
- visitors
- volunteers
- students.

Patients may range from young adults to the frail aged, with a variety of medical and surgical conditions and co-morbidities. They may come from a range of diverse ethnic and cultural backgrounds. Some patients may require access to interpreter services.

Visitors primarily consist of family, carers and friends.

There are three main groups of staff:

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

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.

The variety of patients, staff and visitors should be identified during the briefing stages, and ideally, the facility should be designed with the flexibility to meet current and future needs.

A consumer consultation process during project briefing may assist in ensuring the services provided meet realistic expectations of the population served.

604414 340 .4.30 UNIT DESIGN

Design of the Unit should:

- reflect the service needs of the patients to be accommodated in the Inpatient Unit
- maximise patient safety and reduce the risk of errors & accident
- optimise work flows for clinical & support staff
- cluster beds to facilitate staff efficiency, meal relief, back-up staff assistance on routine or emergency basis and optimise patient supervision particularly at night when staffing levels are lower.
- facilitate the delivery of care at the bedside or proximal to the bedside whenever possible
- enable flexibility in bed usage and monitoring of beds between adjoining units in times of fluctuating occupancy (refer Swing Beds)
- be aesthetically pleasing for patients and assist staff to perform the required activities in the most efficient and supportive environment
- maximise the use of natural light and views for patients and staff
- balance requirements for clinical need and capital and recurrent budget considerations and acknowledge community expectations in considering the mix and number of one and multi-bedrooms
- enable greater levels of observation in response to increased patient acuity, especially where patients are placed in single rooms distant from the Staff Station
- incorporate standardised unit and room design and layouts modified only

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where necessary on clinical grounds. This assists with 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.
- minimise staff travel distances to obtain supplies and equipment.

604415 340 .4.35 MODIFICATIONS TO STANDARD DESIGN

Certain specialties may require modification to the standard design. The following are examples and are not necessarily exhaustive.

Depending on models of care and operational policies, some surgical services such as cardiac and neurosurgery may incorporate a high dependency cluster of beds into the general unit.

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 - or rooms required for patients with respiratory infections - require negative pressure isolation rooms with anterooms.

Note: dedicated infectious diseases units have specific design requirements outside the scope of this HPU.

Orthopaedic Units require additional large equipment storage 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.

General inpatient rehabilitation may be conducted in the main Therapy Unit, satellite unit or in the Inpatient Unit itself. Space and facilities for unit-based therapy could include but are not confined to:

- 10m corridor length for walking assessments
- storage for equipment and mobility aids
- unit-based treatment space larger than the area around a patient's bed
- access to stairs and/or steps for assessment purposes
- access to write-up area and storage of resource material.

Specialist Haematology / Oncology Units undertaking allogenic bone marrow transplants require positive pressure isolation rooms and family spaces, and may also incorporate a radioactive isotope isolation room. Refer to HPU 500 - Nuclear Medicine Unit. A separate cluster or pod of rooms may be modified for this purpose.

Depending on the operational policies and models of care, some Inpatient Units may be designated short stay units (<48hours) and may be modified with respect to support facilities such as therapy, interview and family spaces due to the less complex nature of the patient journey. Such units may be called Medical Assessment and Planning Units (MAPU) or Surgical Acute Rapid Assessment Units (SARA).

604416 340 .4.40 DESIGNING FOR THE BARIATRIC (OBESE AND MORBIDLY OBESE) PATIENT

There is an increasing incidence of bariatric (obese and morbidly obese) people within the general population. Irrespective of the clinical reason for their admission, the design of the Unit should provide a physical environment for the optimal care of such patients, and include the consideration of staff safety. The number of rooms / spaces to be provided

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for accommodation of this patient group should be assessed in terms of the percentage of obese people in the particular population demographic and the clinical specialty of the Unit. As with the frail aged, design should support restoration or maintenance of independence.

The location of the Unit in relation to other departments frequently accessed by these patients may decrease requirements for transportation and the associated manual handling issues. Also consideration of how evacuations may be handled for such patients should be included in the design.

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, and the storage of equipment should be considered. Larger bedrooms and ensuite bathrooms may be required and corridors should also accommodate the manoeuvring of large items of equipment.

Manual handling issues associated with transfer and lifting of these patients should be addressed. Specific operational policies should indicate how the overweight and obese patient may be managed in the Unit e.g. mobile lifters or fixed ceiling hoists may be required.

Where hoists are used consider the type and specifications of the hoist system e.g. single track, room coverage, weight limits etc. The installation of ceiling hoists requires an evaluation of the ceiling weight-bearing capacity, the space required to manoeuvre the patient in the hoist and the distance the patient may travel e.g. from bed to chair.

Throughout the whole Unit, consider standardisation of the fittings and fixtures used for the care of all patients. This would support flexibility of patient movement and address the issues associated with accommodation of bariatric patients.

Individual jurisdictions should refer to their local manual handling policies for the management of bariatric patients.

604417 340 .4.45 DESIGNING FOR THE OLDER PATIENT AND FRAIL AGED IN THE ACUTE SETTING

It is anticipated there may be a higher proportion of patients in the future who may be older, frailer, with multiple co-morbidities. All Inpatient Unit design should cater for this demographic and design should support restoration or maintenance of independence in a safe environment.

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 / confusional states
- cardiovascular deficiency giving rise to symptoms such as angina and postural deficits
- hearing impairment
- vision impairment
- mobility and gait problems e.g. Parkinson's disease
- general physical deterioration
- declining nutritional status
- fragile skin integrity.

604418 340 .4.50 Design factors which can assist include:

- a safe, less clinical, less threatening environment
- easy and visible access to toilets including directional night lighting and contrasting colour for toilet seats

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- maximum exposure to daylight
- glare minimisation
- adequate and appropriate artificial lighting - preferably non-directional or diffuse lighting. This is particularly important for patients requiring dimmable lighting.
- non-slip floor coverings to minimise falls
- minimisation of clutter
- minimisation of noise
- signage colour and contrast for wayfinding and orientation
- a layout such as continuous loop paths that permits patients to wander but provides the ability to control entries and exits, and to minimise the extent of unsupervised spaces.

604419 340 .4.55 DESIGNING FOR PATIENTS WITH PRE-EXISTING DISABILITY

'Disability itself is not an illness but may encompass people who have a disease or illness. A disability is an intellectual, psychiatric, sensory, physical or other impairment that results in a reduced capacity for communication, learning, mobility, decision-making or self-care'. (Commonwealth of Australia 1992).

Examples may include patients:

- who are independent wheelchair users
- with arthritis, particularly as it limits hand usage
- with cognitive impairment
- with vision impairment
- with gait and mobility problems
- with chronic pain.

604420 340 .4.60 Design solutions may include:

- wheelchair access bedrooms and ensuites to AS1428 (Stds Aust 2003a)
- attention to weight of doors used by patients particularly ensuite doors
- slow release doors
- height and design of door handles, light switches and taps
- floor coverings, colours and patterns
- lighting including sensor lighting in ensuites
- signage
- designated rest areas along corridors
- provision of grab and hand rails.

604421 340 .4.65 ALLIED HEALTH SERVICES

Input by allied health staff may vary according to the condition and acuity of the patient. For example, physiotherapy support is required in most medical and surgical units, speech therapy in neurological and general medical units and services such as social work, dietetics and pharmacy in most units. Higher acuity patients generally require a greater input from allied health services earlier in their stay.

Allied health staff are integral members of multidisciplinary teams but depending on the service plan and the clinical speciality, the majority of allied health personnel are likely to be visiting rather than permanently located in the Unit. Their unit-based requirements may vary from unit to unit and by speciality. Generally, the initial consultation and therapy management plan is provided at the patient bedside.

Units with a high turnover of patients may 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.

Allied health staff require access to interview rooms, write up spaces, medical records and computerised systems. Accommodation for students may be required.

Discussion regarding provision of satellite therapy units on inpatient floors may be found in HPU 140 - Rehabilitation / Allied Health Unit.

PLANNING

Operational Models

604422 340 .5.00 HOURS OF OPERATION

The hours of operation of an Inpatient Unit are usually 24 hours per day, seven days per week. This may vary e.g. five day stay units and 23 hour units.

604423 340 .5.05 ORGANISATIONAL AND OPERATIONAL CHANGE

The organisation, delivery and practice of bedside care are continually changing. New treatment regimes and technologies have resulted in overall lengths of stay reduced to two to three days. However, with over 50% of all patients receiving same day care, overnight patients have an average length of stay of approximately five days and are more dependent on clinical services and staff, and undergo an increased number of interventions.

Organisational change has resulted in new structures and practices that promote increased use of multi-disciplinary teams, care groups and multi-skilling. This is changing the space and design requirements of Inpatient Units. The need for more communal space is being identified. This includes 'hot desks', team communication spaces and the design of units to facilitate supervision and easier communication.

The increased use of computerised systems, including point of care clinician systems, is facilitating greater sharing of information in a timelier manner between specialised units and clinical teams. This is also changing the design of Inpatient Units, as smaller work spaces evolve closer to the where patients are accommodated.

604424 340 .5.10 MODELS OF CARE

Models of care reflect the clinical service needs of a catchment population and define how a service may be delivered. Clinical service delivery models may apply to a health region, a healthcare facility or an individual unit and different models continue to be developed.

Models of care and flexibility for service delivery in the future should be defined in the process of Service Planning and the development of Operational Policies, and should be considered throughout the design process. Service plans are approved by the individual jurisdiction on a project-specific basis.

604425 340 .5.15 Service demand and models of care are critical in determining the nature and design of a facility. The demand and the model of care may inform the type of unit/s to be provided and the relationship of these units to each other e.g. features, types or service delivery matters to be determined may include:

- dedicated speciality versus mixed specialty units (this may depend on the

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- size and capability of the facility)
- short stay units (<48 hour)
- speciality clusters within a single unit
- facilities for the management of high dependency patients
- total bed numbers
- the mix of single and multi-bed rooms
- room clusters / pods and the sizes of these pods
- the need to provide decentralised facilities such as staff stations and dirty utility rooms
- management of infection
- provision of satellite facilities for pharmacy, radiology and therapies
- accommodation of both outpatient and inpatient services within the Unit
- nursing models of care - refer below.

The physical environment should support the implementation of a range of models of care.

604426 340 .5.20 NURSING MODELS OF CARE

Nursing models of care comprise:

- task allocation
- patient allocation, total patient care
- partners in care
- team nursing, mixed mode nursing
- primary nursing (rarely implemented).

The model of care may vary from unit to unit and may have an impact on unit design, particularly with regard to decentralised facilities such as staff bases.

More clinically complex patients require more staff on shifts and may benefit from smaller clusters of beds to assist in managing noise levels, supplies and equipment, and to facilitate communication and emergency support.

Staffing levels may vary from shift to shift, for both in and out of hours clinical service delivery and the need for flexibility within a clinical service.

604427 340 .5.25 LEVELS OF CARE

An Inpatient Unit may deliver the following levels of care:

- high dependency nursing care
- intermediate nursing care
- supported / self care.

The Unit should be flexible enough to accommodate differing patient mixes as well as different levels of care based on the predicted population to be accommodated in the Unit.

604428 340 .5.30 MANAGEMENT OF HIGH DEPENDENCY PATIENTS

Consider carefully the management of high dependency patients as part of the service planning process.

In smaller facilities, beds may be located in the Intensive Care Unit (ICU). In tertiary centres options include designated beds in ICU / High Dependency Unit (HDU) or designated beds in speciality units. However, with some possible exceptions such as cardiac and neurosurgery, multiple high dependency units outside the critical care environment should be carefully assessed due to potential inefficiencies in the management of resources

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(e.g. equipment and staff), the additional monitoring and maintenance of quality, and the variable occupancy rates inherent in a smaller number of units. Additional admission / discharge processes would be required for separate units (NSW Health 2001).

To encourage maximum utilisation of high dependency beds, functionality and continuum of care, it is recommended that HDUs should be placed administratively and operationally within the ICU.

Where agreed and provided, HDUs outside the critical care environment usually consist of one or more multi-bed rooms and may include some single bedrooms with their own staff base, resuscitation trolley, sterile supplies and medication storage so staff have everything they need readily accessible. The number of beds should be determined in accordance with the clinical services plan.

The specific aspects of a HDU as a component of an ICU may be found in HPU 360 - Intensive Care - General.

604429 340 .5.35 UNIT SIZE AND BED CONFIGURATION

The total number of beds may vary depending on the service needs of the individual healthcare facility. Total bed numbers in a facility ideally should be sufficient for the facility to operate at a predetermined occupancy level at peak times with strategies to minimise:

- the need to accommodate patients in units other than their 'home' unit as 'outliers'
- minimise bed access block from the Emergency Unit
- in the case of surgical patients, prevent case cancellation and/or bed quarantining.

Decisions regarding the size and composition of individual Inpatient Units may reflect appropriate break up of total bed numbers and should be made during the service planning process for each project.

The model of care, staffing strategies and operational policies may drive decisions in regard to the mix and organisation of beds within a unit.

Issues to be considered include:

- the role and capability of the healthcare facility
- patient casemix with regard to acuity, dependency and clinical complexity
- maximum flexibility for the accommodation of a range of different types of patients with regard to age and gender
- staffing profile (medical, nursing, allied health) and required staffing levels particularly during night shifts.

This Guideline does not recommend a preferred maximum number of beds in a unit or preferred cluster / pod sizes. Operationally efficient units may range from 24 to 36 beds and may be subdivided into modules or clusters for different clinical specialities or levels of acuity. The size of pods may vary depending on the clinical needs of the unit and organisation of multidisciplinary teams, and on whether the development is a refurbishment of an existing unit or a new facility.

604430 340 .5.40 BEDROOM MIX

The mix of bedroom types (single versus multi-bed) should be determined in the planning and briefing stages. Issues such as patient safety, infection control, patient privacy and dignity, plus staff comfort should be considered (Garling 2008). The impact on capital and recurrent costs should be identified and evaluated as per usual cost benefit processes.

There is ongoing debate regarding the proportion of single to multi-bed rooms and many studies have been undertaken. There is a trend towards an increased proportion of single rooms which varies between Australasian jurisdictions and countries. Determination of the ideal mix is, however, outside the scope of this Guideline and may be decided by individual jurisdictions on a project by project basis.

When reference is made to the proportion of single bedrooms, the following definitions may apply. For example, in a 28 bed unit if there are eight single bedrooms, and the remaining 20 beds are configured as 5 x four bed rooms, then the proportion of single beds as a total of beds is 29%. However, the number of single bedrooms as a proportion of the total rooms is 57% (8 x single rooms and 5 x four bed rooms - a total of 13 rooms).

604431 340 .5.45 SWING BEDS

Inpatient Units are generally classified according to the clinical specialties treated. In a home unit, staff have the expert knowledge of the associated diseases and treatment modalities. When no beds are available in the home unit, patients have to be accommodated in another unit where staff may not have the necessary clinical expertise, and oversight by medical staff may be less than optimal.

For this reason, the concept of swing beds was devised so that such patients could be accommodated as close as possible to the home unit. Swing beds may comprise a single bed or a group of beds which may be quickly converted from one category of use to another, from one clinical specialty to another.

However, there may be workload allocation and physical design issues which may result in the use of 'swing beds' being unsafe and excessively demanding on the staff in the unit required to manage the patient. Facility design for swing beds may often require additional corridor doors, and provision for switching supervision and nurse call systems from one staff station to another. The technology to support swing beds requires user friendly functionality.

An eight bed pod configuration may facilitate the use of swing beds.

Operational Policies

604432 340 .6.00 GENERAL

The development of operational policies is integral to defining how the Unit may operate within a healthcare facility or health service. They impact on the capital and recurrent costs of a facility and may vary from unit to unit depending on a wide range of factors such as the clinical characteristics of the patients and the defined role of the Unit. The cost implications of proposed policies should be fully evaluated to ensure the most cost-effective and efficient design solution.

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

The following are particularly relevant to inpatient accommodation (some points are addressed in more detail in the next section):

- admissions and discharge procedures - unit based or remote
- clinical information management - electronic or hard copy medical records
- image viewing (PACS) - location and type of viewing monitors
- medication management, including possible establishment of floor-based satellite pharmacies
- the manner in which food services, linen and supplies are ordered,

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delivered and stored, and level of supplies
- storage for equipment and furniture
- waste management - particularly clinical waste and sharps.

604433 340 .6.05 MEDICATION MANAGEMENT

Pharmacy staff should be consulted in regard to medication and intravenous fluids storage requirements for each unit. Whether storage is within the Clean Utility Room or a separate room may depend on quantities to be stored as some specialties, such as Oncology, have greater storage needs.

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

If additives are introduced to intravenous fluids in the Unit, additional space should be allowed for this activity, including ready access to fluids, drugs and consumables.

Options for dispensing within the Inpatient Unit include:

- lockable medication trolleys
- lockable bedside lockers
- Webster pack or other similar proprietary system
- automated dispensing systems.

If automated dispensing systems are to be installed, consider the dimensions of the units, and the provision of power and network connections.

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

604434 340 .6.10 STORAGE - EQUIPMENT

Equipment, particularly larger equipment that has to be floor parked, needs to be defined so appropriate storage space may be allocated according to the needs of the patients and staff.

Equipment should be organised so it is easily accessible by staff when required.

Items used frequently for an individual patient may be stored in the bedroom or ensuite e.g. a shower chair.

Items used regularly for a group of patients such as lifters, scales, mobile BP units may be stored locally in equipment bays.

Rarely used items may be stored in a central equipment store. This store may be shared between units. A long rectangular room allows optimum use of space.

Power outlets should be provided for recharging as necessary.

604435 340 .6.15 STORAGE - STERILE SUPPLIES AND CONSUMMABLES

Sterile supplies should be handled and stored 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 300mm

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above floor level so as to avoid mechanical damage during cleaning, and the top shelf no higher than 2100mm.

Source: HPU 190 - Sterile Supplies Unit

Refer to AS 4187: Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities (Stds Aust 2003).

604436 340 .6.20 WASTE MANAGEMENT

Management of clinical and related waste is a significant issue for the Inpatient Unit. Project staff should assess waste requirements early in the project. Define waste holding needs and make appropriate spatial allocation.

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

- provision and location of Dirty Utility Rooms and Disposal Rooms so staff do not have to traverse public and administration area whilst transporting items to and from these rooms
- provision and location of recycling bins
- location of sharps containers.

The management of clinical and related wastes should be in accordance with AS/NZS 3816 (Stds Aust 1998b) and is further addressed in Part D.

604437 340 .6.25 STAFFING

Staffing levels may vary for each unit, depending on the size of the unit, the operational policies, availability of staff and differing skill mix, levels of supervision required, clinical case mix, and dependency and unit activity levels.

The Unit should provide sufficient functional area to support the number of staff in the safe and efficient delivery of care.

The environment should be secure and facilitate effective emergency responses to acute situations on each shift. Designing the Unit on this basis supports efficient unit operation without imposing additional costs, whilst enabling compliance with security and OHS requirements.

Planning Models

604438 340 .7.00 LOCATION

Wherever possible, Inpatient Units should be in a quiet location with a pleasant outlook that should maximise the therapeutic benefits of views, rest and sleep.

The Unit should not be located near sources of noise or sights that may disturb its occupants. For example, where possible, avoid placing a unit near noisy traffic routes including emergency vehicles, mechanical plants and views such as mortuaries.

During planning, consider the proximity of 24 hour and 8 hour operating zones and locate units so staff are not working in isolation or need to traverse unoccupied areas at night.

Consider the requirements associated with moving patients between units to minimise transportation distances and to avoid movement through high traffic public areas.

604439 340 .7.05 UNIT CONFIGURATION

The planning of Inpatient Units has evolved significantly since the open plan model developed by Florence Nightingale in the 1860s. Numerous studies have been undertaken comparing space and operational efficiencies of alternative planning layouts. Contemporary planning layouts include single corridors, double corridors (race track), a combination of the two, L, T and Y shaped units, triangular units and cruciform units. However, no one particular layout 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.

A number of Inpatient Units may be grouped together to form a larger management unit as this may permit greater flexibility of use.

At the other end of the scale, Inpatient Units may be subdivided into clusters of bedrooms with clinical care decentralised. See previous section on operational models.

The configuration of units should maximise lines of sight and opportunities for patient observation by staff, enable control of entries and exits and avoid potential entrapment points.

Functional Areas

604440 340 .8.00 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
- administrative areas
- staff areas
- shared staff areas
- teaching areas
- public / visitor areas.

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

604441 340 .8.05 BEDROOMS

Bedrooms may be a mix of single rooms, two bed rooms and four bed rooms. Maximum bedroom capacity should be four patients. Two bed rooms are generally not recommended in acute medical / surgical units because of issues relating to movement of beds and potential onus of care on the patients themselves.

To encourage family engagement with care, bedrooms should provide seating for family members, and seating should not interfere with clinical work, and should provide secure storage for family and patient personal belongings.

604442 340 .8.10 SINGLE ROOMS

Single bedrooms are provided and used for the following conditions/ circumstances:

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- isolation of patients with infectious or potentially infectious conditions or who are immunocompromised
- patients with poor hygiene or incontinence who may contaminate the environment of others
- terminally ill and dying patients
- family-centred care
- noisy / disturbed patients
- social or cultural needs for privacy
- patients who need sleep as a priority to enhance recovery
- maximisation of revenue return to the hospital.

604443 340 .8.15 Decisions regarding the provision of single rooms may be influenced by the following considerations:

- patient mix including the importance of ensuring same gender accommodation wherever possible (NSW Health 2010)
- cultural expectations of the patient population and wider community
- patient preference - for either shared or single room accommodation
- staffing levels and availability
- privacy needs and expectations balanced by the need for observation of patients by staff
- healthcare acquired infection rates and associated need for isolation facilities
- reduction in patient transfer between beds
- greater flexibility of use and ability to run unit at higher occupancy rates
- possibility of improved therapeutic outcomes
- 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.
- possible impact on recurrent costs with regard to cleaning and maintenance.

The higher the proportion of single rooms, the greater may be the impact on staff observation and consequent walking distances. Depending on the configuration of beds and travel distances, it may become necessary to support decentralised staff stations and provide other services such as drug dispensing, delivery of supplies, storage and dirty utility rooms in a similar manner.

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.

604444 340 .8.20 SINGLE BEDROOM ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- greater patient privacy generally and particularly in use of ensuites
- individual control over noise, light levels and temperature all of which facilitate better quality rest and sleep and reduce patient stress
- reduced risk of cross contamination between patients
- facilitates family / carer engagement with care
- improved communication between staff and families
- ability to provide treatment at the bedside reducing the need to transfer patients to other clinical spaces e.g. treatment rooms
- increased flexibility and space to care for higher acuity patients and accommodate the additional equipment required
- greater flexibility in bed management
- reduced patient transfers and room moves
- reduced treatment and medication errors

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- improved staff hand hygiene compliance
- no possibility of gender mix.

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 venetian or roller blinds.
- patients may prefer to share a room with other patients for opportunities to socialise and support one another. This needs to be a mutual desire of all occupants often complicated by individual incompatibilities.
- a greater number of ensuites plus the overall greater floor area may increase cleaning and maintenance costs over time
- increased recurrent operating costs
- increase in cleaning resourcing
- increase in hydraulic maintenance.

Note that the impact of an increased number of single rooms on workforce and recurrent costs in the Australian context has not yet been assessed and further work in this area is required.

604445 340 .8.25 MULTI-BED ROOMS

Multi-bed rooms are generally assumed to contain two or four beds. There are advantages and disadvantages associated with provision of multi-bed rooms as follows:

ADVANTAGES:

- may be modified for higher dependency / high acuity patients and provide greater staff supervision of those patients
- patient socialisation with each other and families, particularly for longer stay patients
- greater feeling of security and interaction with staff
- reduced construction, cleaning and maintenance costs associated with reduced floor space and bathrooms
- possible reduced travel distances in some unit layouts.

DISADVANTAGES:

- noise (although ambient noise may mask confidential discussions)
- lack of privacy, particularly with regard to hygiene activities, use of bedpans, toilets, etc
- access to toilet may create awkwardness unless the entry door is discreet and not visible to the other occupants
- 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 incompatibility, particularly in two bed rooms
- need to move beds from room to room to maintain appropriate patient mix regarding acuity, gender, etc.

604446 340 .8.30 ENSUITES / BATHROOMS

All beds require direct access to an ensuite shower / toilet or separate shower and toilet compartment.

Larger super ensuites are provided for bariatric patients.

The use of space within the single room impacts on the size and location of

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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. There is some evidence that patient falls may be reduced by providing access to the toilet in a continuous path along the same wall on which the bed head is located. This enables constant contact with a wall or handrail on the path to the ensuite.

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 bath per floor to be provided in Class 9a buildings (ABCB 1990). A bathroom may be shared between units but access should be discreet and not via a public corridor.

604447 340 .8.35 PATIENT LOUNGES

The need for dedicated patient lounges should be reviewed for each project and may be omitted where appropriate due to the following considerations:

- increasing acuity of patients who may not be able or wish to use a lounge
- reduced lengths of stay
- increasing proportions of single rooms, usually with some sitting out space, with patient access to TV and other audiovisual systems
- individual meals served at the bedside
- ambulant patients may prefer to leave the Unit altogether and use the hospital coffee shop or grounds.

However, the room may be designated for a specific alternative purpose such as a dining room in longer stay units. A dedicated carer area may also be required.

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

604448 340 .8.40 CLINICAL SUPPORT AREAS

Areas accessed by staff in the management of the patient include:

- reception
- staff station - central and decentralised / resource / handover room
- clinical support officers on each unit, NSW-specific requirement (Garling 2008)
- interview rooms
- clean utility and medication rooms
- dirty utility rooms
- disposal room (ideally located at the periphery of the Unit with direct external access by housekeeping staff)
- bays for linen, equipment, resuscitation and other trolleys
- storage - equipment and consumables - point-of-use and central bulk.

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

604449 340 .8.45 OFFICES AND WORKSTATIONS

Provide offices for the Unit Manager and, where indicated, senior nursing

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staff, such as clinical nurse consultants and educators. Provide workstations for medical and allied health staff whose permanent offices are generally not located within the envelope of the Inpatient Unit.

NSW Health provides clinical Support Officers to Nurse Unit Managers (NUMs) on each unit who require an identified work space with close access to the Unit NUM / Nurse Manager and space for storage for both files and reference material (Garling 2008).

604450 340 .8.50 RECEPTION AND STAFF BASES

Reception and staff bases should be organised around three zones:

Provide a Control Centre (Reception area) 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 Unit Ward Clerk or Receptionist is generally located in this area with ready access to photocopier, files etc.

A central resource room with access to patient records and image viewing may be required for use by all staff for shift handovers, review and documentation by the multidisciplinary teams (case conferences) and short informal clinical meetings between teams / staff.

Decentralised spaces to allow closer proximity of staff to the patients may be considered for immediate work associated with patient care - review of patient notes / files / tests (short work). This is facilitated by the use of electronic record systems and point of care management. Decentralised staff stations require close access to dirty and clean utility rooms.

Also required is storage for PPE that can be easily accessed by staff and positioned outside inpatient bed areas.

604451 340 .8.55 STAFF AMENITIES

At least two staff toilets should be immediately accessible within the envelope of the Unit.

Staff handbag-sized lockers should be available within the Unit for casual, part time and agency staff. Consideration may need to be given to the need for lockers for visiting staff and students in a central location.

Ready access is required to a shower and eye wash facility near the Unit for emergency spills such as cytotoxic spills. Access to full change facilities should be available somewhere in the healthcare facility.

A staff lounge should be readily accessible and may be shared between units for use by all staff and students on a ward floor but 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.

604452 340 .8.60 SHARED AREAS

Areas shared with adjacent Inpatient Units may include:

- disposal room
- bathroom
- kitchen
- central equipment storage
- staff amenities
- meeting / education rooms.

604453 340 .8.65 TREATMENT / PROCEDURE ROOMS

Provision of treatment rooms may depend on the number of single bedrooms and if provided may be modified to suit a particular clinical specialty e.g. gynaecological, eye and ENT examinations, and patient training in self-care.

604454 340 .8.70 MEETING AND TEACHING AREAS

Meeting and tutorial rooms provide space for students and staff to undertake education and ongoing skills maintenance and development, 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 the need would be determined in the service planning stage of the project.

604455 340 .8.75 VISITOR / PUBLIC AREAS

Visitors should have ready access to:

- lounge or outside balcony space
- toilets including an accessible to AS 1428 toilet; (Stds Aust 2003a)
- vending machines and or cold water dispenser
- telephones.

These facilities are best centrally located outside the perimeter of the Unit and may be shared by more than one unit. Where a Visitors' Lounge / Whanau Room is provided, 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. If outside the Unit, an intercom or internal phone should be provided.

Functional Relationships

604456 340 .9.00 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/from Critical Care Units
- ready access to Operating / Day Procedures Suites for surgical units
- ready but discreet access for delivery of food, linen, supplies and removal of waste
- ready access to staff amenities not provided locally.

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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. vacuum document conveyor systems.

604457 340 .9.05 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
- the Unit public areas located on the perimeter of the Unit
- the Unit shared areas that should be easily accessible from the units served.

DESIGN

Access

604458 340 .10.00 GENERAL

Refer to Part B Health Facility Briefing and Planning; and Part C Design for Access, Mobility, OHS and Security for general design requirements.

604459 340 .10.05 INTERNAL

There should be one only point of public entry ideally staffed by a ward clerk / receptionist 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
- monitor patient movements in and out of the Unit.

604460 340 .10.10 Infants and children are not the only vulnerable members of a healthcare facility. Adult patients - particularly women - may be vulnerable as, may staff, particularly at night. It is recommended that Inpatient Units should be able to be locked down after hours with swipe card (or similar) for access by authorised personnel. If necessary, intercom or closed circuit television camera (CCTV) should be provided.

604461 340 .10.15 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.

604462 340 .10.20 EXTERNAL

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The number of night entrances should be kept to a minimum.

Ensure that staff and the public can access the Unit at entrances adjacent to car parks to limit transit time to the facility at night.

Consider the use of swipe card (or similar) at access points as this provides more secure and cost effective access control.

Parking

604463 340 .11.00 For staff parking, refer to Part C, Design for Access, Mobility, OHS and Security Section 790 for further information.

Disaster Planning

604464 340 .12.00 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 electronic sensor taps, services such as emergency lighting, telephones, duress alarm systems and computers and the emergency evacuation of patients, many of whom may require assistance.

In the design, consider the ability to effect complete lock-down. Also consider issues such as the placement of emergency alarms, the need for uninterrupted power supply (UPS) to essential clinical equipment and electronic sensor taps and services such as emergency lighting, telephones, duress alarm systems and computers.

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

Infection Control

604465 340 .13.00 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
- surface finishes.

Refer to Part D and to individual jurisdiction Infection Control Guidelines for further details.

604466 340 .13.05 HAND HYGIENE FACILITIES

Refer to Part D for further details regarding requirements for the provision of hand hygiene facilities (handbasins) and other hand gel / hand rub agents used in hand hygiene.

Refer to Part D for location and types of handbasins and to Standard Components for design details.

In order to promote flexibility of use and to reduce the incidence or the need for patient transfers, all single bedrooms should be able to accommodate patients requiring standard contact isolation - Class S / Type 4.

The provision of negative pressure isolation rooms (with or without anterooms) 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 particular unit concerned.

Refer to Part D for further details.

Environmental Considerations

604468 340 .14.00 ENVIRONMENTALLY SUSTAINABLE DESIGN

Sustainability applies to many areas such as:

- air handling and ventilation
- thermal integrity e.g. insulation, etc
- water management
- choice of sustainable products e.g. low VOC floor finishes
- support of operational recycling policies.

Many of these issues may be addressed at overall facility level but may also have greater or lesser implications for this HPU.

604469 340 .14.05 ACOUSTICS

Noise is a constant source of complaint from patients and may compromise patient comfort and recovery. In particular, 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
- helipad / helicopter noise.

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
- changed operational management.

Refer to Part C for further information.

604470 340 .14.10 NATURAL LIGHT

Natural light contributes to a sense of wellbeing for all building occupants

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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.

Provide natural light to all bedrooms in accordance with the BCA (ABCB 1990).

604471 340 .14.15 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.

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 / observation.

604472 340 .14.20 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 needs / desires:

- 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 fairly frequent observation
- supported / self-care patients who require passing observation only.

604473 340 .14.25 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
- location of sanitary facilities to provide privacy for patients while not limiting observation by staff
- dual control of privacy devices such as blinds or curtains - by patient, staff or both.

604474 340 .14.30 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.

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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 / jaundice, blue / cyanosis, red / flushing.

604475 340 .14.35 SIGNAGE AND WAYFINDING

The orientation of people to and within healthcare facilities, and even safety and security issues, are greatly assisted or hampered by the quality and location of signage which may be directional, used as a means of identification and/or statutory.

604476 340 .14.40 Wayfinding, both signage and design features, needs to reflect the service role and profile of the healthcare facility and should be logical and supportive of the needs of the patients, visitors and staff of the facility.

All signage and wayfinding should be easily understood by staff and the general public, whether patients or visitors. Where necessary and appropriate, languages other than English and /or consistent use of pictograms / symbols should also be used.

604477 340 .14.45 Consideration needs to be given to the system used in the numbering of patient rooms. These rooms should be given non-permanent functional names for future flexibility. Signage should comply with guidelines to promote access for people with disabilities.

604478 340 .14.50 Any signposting, or other initiatives put in place, should be considered from the perspective of out-of-hours use. Certain access points may be locked out of office hours or after visiting hours. Directions indicated through signposting should, therefore, be evaluated in this context.

604479 340 .14.55 Refer to Part C Section 750 - Signage and TS- 2 - Wayfinding for Health Facilities (NSW Health 2009).

Space Standards and Components

604480 340 .15.00 HUMAN ENGINEERING

Human engineering covers those aspects of design that permit effective, appropriate, safe and dignified use by all people, including those with disabilities.

Refer to Part C Section 790 - Safety and Security.

604481 340 .15.05 ERGONOMICS

Design and build the Unit to ensure that patients, staff, visitors and maintenance personnel are not exposed to avoidable risks of injury.

Refer to Part C Section 730 for further details.

604482 340 .15.10 ROOM DIMENSIONS

Refer to Room Layout Sheets for room dimensions including critical dimensions and agreed methods of measurement. Overall standard bed dimensions (buffer to buffer) of 2250mm long x 1050mm wide are assumed. Beds for bariatric patients are larger.

Minor encroachments, including columns and hand basins (as required), which do not interfere with functions may be ignored when determining space requirements.

604483 340 .15.15 BED SPACING / CLEARANCES

Bed dimensions become a critical consideration in determining final room sizes. The dimensions noted in these Guidelines are a recommended bed space.

In two-bed rooms there should be a 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.

In smaller units that may accommodate infants and toddlers, bedrooms that contain cots may have reduced bed centres, but consideration should be given to the spatial needs of visiting relatives. To allow for more flexible use of the room the 2400mm centre line is still recommended.

604484 340 .15.20 SINGLE ROOM SIZE

The size of the single room should cater for the defined patient mix and levels of acuity. Rooms may range from 15 to 18m² and should accommodate the bed size, and any requirements for activities around it. This includes increasing technology, larger mobility devices and where defined an ability to accommodate family / carers (Family Centred Care).

604485 340 .15.25 ACCESS AND MOBILITY

Where necessary, comply with AS 1428 - Design for Access and Mobility (Stds Aust 2003a). This may apply to bathrooms, public access toilets and ensuites designed for independent wheelchair users.

Accommodate wheelchair-bound staff including nursing, clerical, support and management in accordance with AS 1428.

Refer to Part C Section 730 for further details.

604486 340 .15.30 BUILDING ELEMENTS

Building elements include walls, floors, ceilings, doors, windows and corridors. Refer to Part C Section 710 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.

Safety and Security

604487 340 .16.00 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, 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.

604488 340 .16.05 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
- entrapment points for staff
- monitoring of patient movements into 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
- the ability of the design to facilitate emergency responses to threat, such as bomb or personal threats.

604489 340 .16.10 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. Individual jurisdictions should refer to their local legislation for further requirements for plant and buildings.

604490 340 .16.15 Occupational Health & Safety (OHS) 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.

By adopting a risk management approach, many safety and security related hazards can be eliminated or minimised at the planning stage before work even begins, reducing the likelihood of adverse incidents occurring.

Refer to:

- AS/NZS 4360:2004 Risk Management (Stds Aust 2004)
- Part C Section 790 - Safety and Security Precautions
- Individual jurisdiction policies and OHS legislation
- NSW Health TS-11 Engineering Services & Sustainable Development Guidelines (NSW Health 2007)
- NSW Health TS-7 Floor Coverings in Healthcare Buildings (NSW Health & CHAA UNSW 2009).

Finishes

604491 340 .17.00 GENERAL

Finishes in this context refer to walls, floors, windows and ceilings.

Refer to Part C Section 710 for further details.

604492 340 .17.05 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.

604493 340 .17.10 FLOOR FINISHES

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

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

Selection of floor finishes should take into account 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 710 Space Standards and Dimension and to TS-7 Floor Coverings in Healthcare Buildings (NSW Health and CHAA, UNSW 2009).

604494 340 .17.15 CEILING FINISHES

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

Refer to Part C Section 710 for further details.

Fixtures, Fittings & Equipment

604496 340 .18.05 CURTAINS / BLINDS

Each room should have partial blackout facilities (blinds or lined curtains) 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.

604495 340 .18.05 DEFINITIONS

The Room Data and Room Layout Sheets in the Australasian Health Facility Guidelines define Fixtures and Fittings as follows:

Fixtures: Items that require service connection (e.g. electrical, hydraulic, mechanical) and include but are not limited to handbasins, light fittings, medical service panels, etc, and excluding fixed items of serviced equipment.

Fittings: 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.

Refer to Part C Section 710 and to the Room Data Sheets (RDS) and Room Layout Sheets (RLS) for further detailed information

Also refer to Part F, Section 680 - FF&E.

Building Service Requirements

604497 340 .19.00 GENERAL

In addition to topics addressed below refer to:

- Part E - Building Services and Environmental Design
- TS-11 - Engineering Services & Sustainable Development Guidelines, (NSW Health 2007).

604498 340 .19.05 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 Part D and HB260 - Engineering down the risk (Stds Aust 2003c).

604499 340 .19.10 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.

604500 340 .19.15 INFORMATION TECHNOLOGY / COMMUNICATIONS

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

- wireless technology
- radiofrequency identification (RFID) for access control, locks, etc
- duress alarm systems - fixed and personal as required
- nurse / emergency call systems
- voice / data (telephone and computers)
- videoconferencing capacity / telemedicine
- electronic medical records
- Clinical Point of Care
- Picture Archiving Communication System (PACS)
- Patient Administration Systems (PAS)

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- 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
- bar coding for supplies and x-rays / records
- patient information screen integrated with menu ordering, nurse call and other modalities
- server and communications rooms
- E-learning & simulation
- E-medication management and e-storage systems (e.g. automated dispensing systems).

604501 340 .19.20 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.

Nurse call systems should be designed and installed to comply with AS 3811 - Hard wired Patient Alarm Systems (Stds Aust 1998a).

The nurse call system should:

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

604502 340 .19.25 DURESS ALARMS

Duress alarms - personal or fixed - should be provided in accordance with jurisdiction health policies.

Refer to Part C for further information.

604503 340 .19.30 HYDRAULIC SERVICES

Provide warm water systems as required.

604504 340 .19.35 MEDICAL GASES

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

Consideration may be given to recessed or covered service panels enclosing oxygen, suction, and air outlets to minimise the risk of injury to or damage by patients with dementia.

Refer to Standard Components for patient bedrooms.

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COMPONENTS OF THE UNIT

Standard Components

- 604505 340 .20.00 Standard Components (SC) refer to rooms / spaces for which room data sheets, room layout sheets (drawings) and textual descriptions have been developed and are available in a separate section of these Guidelines. Their availability is indicated by Y in the SC column of the Schedule of Accommodation.

Standard components are provided to assist with the development of a project. Their use is not mandatory and if used they can be edited to be project specific.

Refer to Part B Section 90 and the Room Data and Room Layout Sheets.

Non-Standard Components

- 604506 340 .20.05 Non-Standard Components are generally unit-specific, and provided in accordance with specific operational policies and service demand.

- 604507 340 .20.05 There are no Non-Standard Components in this Unit.

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APPENDICES

Schedule of Accommodation

604508 340 .22.00 Patient Areas

Note 1: Designed to AS 1428; Caters for independent wheelchair patients and replaces standard ensuite.

ROOM/SPACE	Standard Component					Qty x m2	REMARKS
1 BED ROOM - STANDARD	Y					15	Number depends on service demand. May be used as Class S/Type 4 Isolation Rooms.
1 BED ROOM - ISOLATION	Y					15	Class N or P as required by service demand. Class N may require anterooms.
ANTE ROOM	Y					6	As indicated for Class N Isolation Rooms if provided.
1 BED ROOM - 16.5M2	Modified					16.5	Optional: May not apply to all jurisdictions. Number depends on service demand.
ENSUITE - STANDARD	Y					5	1 per standard single bedroom
ENSUITE - ACCESS	Y					5	Note 1.
1 BED ROOM - SPECIAL	Y					18	Number depends on service demand
ENSUITE - SUPER	Y					6	Locate with 1 Bedroom - Special. This larger ensuite size is required for the bariatric patient.
2 BED ROOM	Y					25	Provide only if required by service demand
4 BED ROOM	Y					42	Number depends on service demand
SHOWER - PATIENT	Y					4	1 per 4 Bed Room
TOILET - PATIENT	Y					4	1 per 4 Bed Rooms - 'full assist'

604509 340 .22.05 Staff Areas

Note 1: Access to patient areas may depend on equipment stored, frequency of use and number of bays. May be shared with another unit and size reassessed.

Note 2: May be required in specialist units, or shared by 2 units. Depends on operational policy and number of single rooms.

Note 3: Use by allied health / medical staff. Space may be allocated as write up bays dependent on unit configuration and unit.

Note 4: Use by CNC, Clinical Nurse Educator, depending on service demand & operational policy.

ROOM/SPACE	Standard Component					Qty x m2	REMARKS
BAY / ROOM - BEVERAGE	Y					1 x 4	Open bay. Increase area to 5m2 if enclosed room.
BAY - MEAL TROLLEY	Y					4	Depends on catering policies. Size may vary depending on size of meal trolley.
BAY - FLOWERS - OPEN	Y					1 x 2	Optional
BAY - HANDWASH (TYPE B)	Y					1	Unit entrance and corridor recesses, as required.
BAY - HANDWASHING / PPE	Y					1.5	Shared between 1-Bed-Rooms. Refer Part D - Infection Prevention and Control.

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BAY - LINEN	Y					2	Qty & location to be determined for each facility. At least 1 bay per 15 beds.
BAY - MOBILE EQUIPMENT	Y					4	Number depends on equipment to be stored and frequency of use. Ready access to bedrooms.
BAY - RESUSCITATION TROLLEY	Y					1 x 2	
CLEANER'S ROOM	Y					1 x 5	Include separate cupboard for dry goods
CLEAN UTILITY ROOM	Y					1 x 14	For 2 door access, includes medication
STORE - DRUGS	Y					1 x 5	Medication Room (if not included in Clean Utility Room)
DIRTY UTILITY ROOM	Y					12	More than one may be required to minimise travel distances dep on bed configuration (pods)
DISPOSAL ROOM	Y					1 x 8	May be shared between units
MEETING ROOM - 9M2	Y					9	Interview function, small meetings
OFFICE - SINGLE PERSON 9M2	Y					1 x 9	NUM office
OFFICE - CLINICAL / HANDOVER	Y					1 x 15	Locate near staff station
STAFF STATION (MAIN)	Y					1 x 14	Size, location determine for each facility
STAFF STATION - 5M2	Y					5	Optional decentralised bays. Location and number dependent on unit configuration.
OFFICE WORKSTATION	Y					5.5	For ward clerk unless accommodated at Staff Station
STORE - PHOTOCOPY / STATIONARY	Y					1 x 8	Collocate with Ward Clerk
PROPERTY BAY - STAFF	Y					1 x 2	Number of lockers depends on staff complement per shift
STORE - EQUIPMENT	Y					1 x 20	See Note 1
STORE - GENERAL	Y					1 x 9	Size in accordance with service demand & operational policies
TREATMENT ROOM	Y					1 x 14	See Note 2
OFFICE - SHARED 3 PERSON	Y					15	See Note 3
OFFICE - SHARED 2 PERSON	Y					12	See Note 4
STAFF ROOM	Y					12	Unit-specific space. Staff resources, beverage bay.
TOILET - STAFF	Y					2 x 3	

604510 340 .22.10 Shared Areas

Note 1: Optional. Dependent on service demand, proportion of single rooms and unit requirements. Could be a Whanau room (New Zealand).

ROOM/SPACE	Standard Component					Qty x m2	REMARKS
BATHROOM	Y					1 x 15	Provide one per floor, or as required by service demand.
MEETING - MEDIUM	Y					15	Tutorial. Size depends on room usage requirements.
PATIENT LOUNGE / FAMILY ROOM	Y					1 x 20	Note 1
LAUNDRY - PATIENT	Y					0	Only provided in units such as Mental Health & Maternity.

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TOILET - PUBLIC	Y					2 x 3	May be shared by 2 units
TOILET - ACCESS (PUBLIC)	Y					1 x 5	May be shared by 2 units
SHOWER STAFF	Y					1 x 2	Centrally located and shared
SUB TOTAL						n/a	Includes all optional spaces and shared spaces
CIRCULATION - 32%							Circulation depends on number of single rooms and unit configuration.
TOTAL						n/a	

Functional Relationships

- 604511 340 .23.00 See diagrams attached for the functional relationships between zones in an Inpatient Unit.

Checklists

- 604512 340 .24.00 Refer to the Planning Checklists at the ends of Parts A, B, C, and D.

Further Reading

- 604513 340 .25.00 SERVICE PLANNING AND OTHER POLICIES

NSW Health 2005, Policy Directive 2005_602: Area Healthcare Service Plans - NSW Health Guide for Development, NSW Health.

NSW Health 2001, Intensive Care Service Plan - Adult Services, New South Wales Department of Health, Sydney, NSW.

NSW Health 2010, PD2010_005: Same Gender Accommodation, NSW Health.

Queensland Health 2005a, Clinical Services Capability Framework - Version 2.0 Queensland Health.

WA Health 2005, WA Health Clinical Services Framework 2005 - 2015, WA Health.

SA Health 2007, Hospital Model of Care Planning Principles: Working Document, SA Health.

- 604515 340 .25.05 DESIGN GUIDELINES

DHS Victoria 2004, Design Guidelines for Hospitals and Day Procedure Centres, DHS Victoria.

NSW Health 2007, TS-11 - Engineering Services & Sustainable Development Guidelines, NSW Health.

NSW Health & CHAA UNSW 2009, TS-7 Floor Coverings in Healthcare Buildings, V1.1, NSW Health.

WA Health 1998, Private Hospital Guidelines: Guidelines for the Construction, Establishment and Maintenance of Private Hospital and Day Procedure Facilities, 3rd edn, WA Health.

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604516 340 .25.10 BARIATRIC PATIENTS

NSW Health 2005a, Guideline 2005_070: Occupational Health & Safety Issues Associated with Management Bariatric (Severely Obese) Patients, NSW Health.

Queensland Health Large Patient Management Plan and Equipment Database, July.

604517 340 .25.15 ELDERLY PATIENTS

NSW Health 2005b, PD2005_353: Fall Injury Among Older People - Management Policy to Reduce in NSW Health, NSW Health.

InformeDesign, 'Elder-Friendly Design Interventions: Acute Care Hospitals Can Learn from Long-Term Care Residences', InformeDesign Newsletter, vol. 2, no. 7.

ACSQHC 2005, Preventing falls and harm from falls in older people: Best practice guidelines for Australian hospitals and residential aged care facilities, Australian Council for Safety and Quality in Health Care.

604518 340 .25.20 DISABILITY

NSW Health 2008, PD2008_010: Disability - People with a Disability: Responding to Needs During Hospitalisation, NSW Health.

Commonwealth of Australia 1992, Disability Discrimination Act 1992, Office of Legislative Drafting and Publishing, Canberra.

604519 340 .25.25 INFECTION CONTROL

The full list of jurisdictional Infection Control Policies and Guidelines may be found in Part D - Infection Prevention and Control.

604520 340 .25.30 OFFICE POLICIES

Department for Administrative and Information Services 2008, Office Accommodation Guidelines, Government of South Australia.

Department of Treasury and Finance 2007, Victorian Government Office Accommodation Guidelines, State Government of Victoria.

NSW Health 2005b, PD 2005_576: Office Accommodation Policy - Public Health Organisations and Ambulance Service, NSW Health.

Queensland Health 2008, Queensland Health Work Place and Office Accommodation Policy and Guidelines, Queensland Health.

604521 340 .25.35 SAFETY AND SECURITY

Australasian Health Facility Guidelines: Part C - Access, Mobility OHS and Security, Section 790 Safety and Security Precautions.

NSW Health 2005d, Policy Directive 2005_339: Protecting People & Property: NSW Health Policy/Guidelines for Security Risk Management in Health Facilities, NSW Health.

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Queensland Police 2007, Crime Prevention Through Environmental Design (CPTED) Guidelines for Queensland, Queensland Police Service.

604522 340 .25.40 WASTE MANAGEMENT

NSW Health 2005c, Policy Directive 2005_132: Waste Management Guidelines for Health Care Facilities, NSW Health.

Queensland Health 2005b, Waste Management Strategic Plan 2005-2010, Queensland Health.

604523 340 .25.45 WORKPLACE HEALTH AND SAFETY

Australasian Health Facility Guidelines: Part C - Access, Mobility OHS and Security, Section 790 Safety and Security Precautions.

NSW Health 2005e, Policy Directive 2005_409: Workplace Health and Safety: Policy and Better Practice Guide, NSW Health.

State Government of Queensland 2008, Workplace Health and Safety Regulation 2008, Office of the Queensland Parliamentary Counsel.

State Government of Queensland 2009, Workplace Health and Safety Act 1995, Office of the Queensland Parliamentary Counsel.

WorkSafe Victoria 2007, Designing Workplaces for Safer Handling of People, WorkSafe Victoria.

604524 340 .25.50 SIGNAGE AND WAYFINDING

Australasian Health Facility Guidelines: Part C - Access, Mobility OHS and Security, Section 750 - Signage.

NSW Health 2009, TS-2 - Wayfinding for Health Facilities, NSW Health.

604525 340 .25.55 STANDARDS

ABCB 1990, Building Code of Australia., Australian Building Codes Board, Australian Institute of Building.

Stds Aust 1998a, AS 3811: Hard-wired patient alarm systems, SAI Global.

Stds Aust 1998b, AS 3816: Management of Clinical and Related Wastes, SAI Global.

Stds Aust 2003, AS 4187: Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities, SAI Global.

Stds Aust 2003a, AS 1428.1-4: Design for Access and Mobility, SAI Global.

Stds Aust 2003b, AS 4187: Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities, SAI Global.

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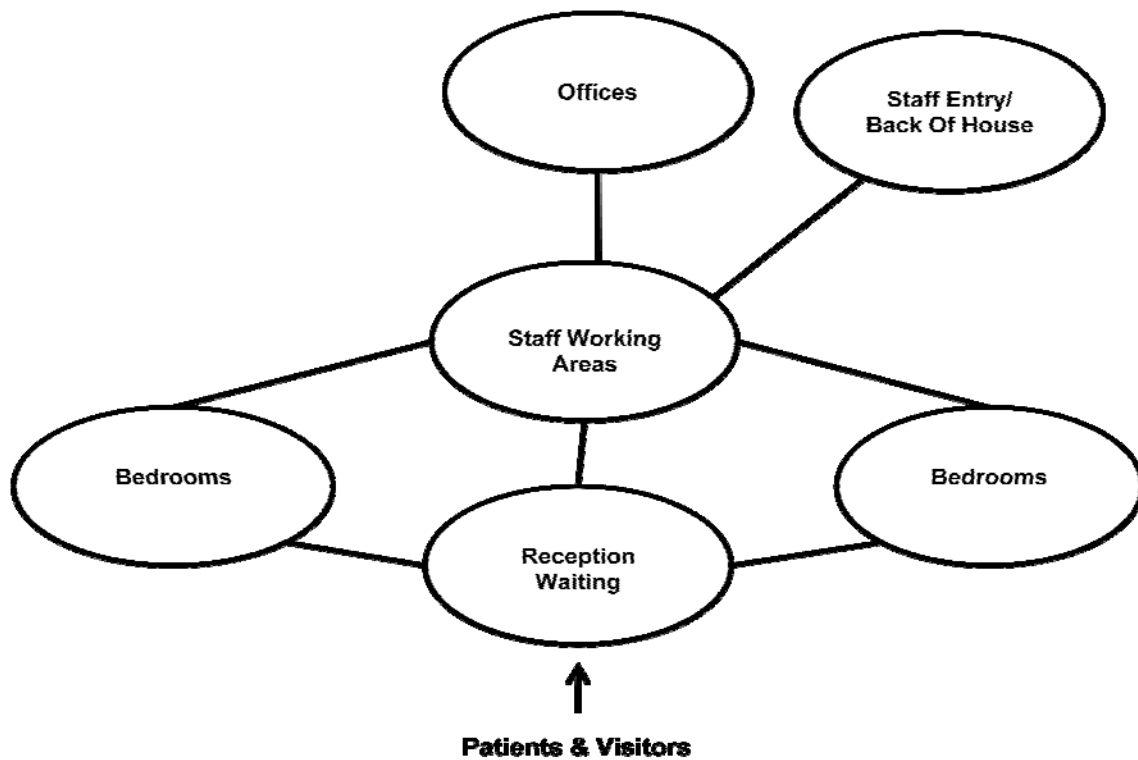
- 604526 340 .26.00 ABCB 1990, Building Code of Australia., Australian Building Codes Board, Australian Institute of Building.
- Commonwealth of Australia 1992, Disability Discrimination Act 1992, Office of Legislative Drafting and Publishing, Canberra.
- Garling, P, SC, 2008, Final Report of the Special Commission of Enquiry: Acute Care in NSW Public Hospitals, 2008, State of NSW.
- NSW Health 2009, TS-2 - Wayfinding for Health Facilities, NSW Health.
- NSW Health 2007, TS-11 - Engineering Services & Sustainable Development Guidelines, NSW Health.
- NSW Health & CHAA UNSW 2009, TS-7 Floor Coverings in Healthcare Buildings, V1.1, NSW Health.
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- Stds Aust 2003c, Handbook 260: Hospital acquired infections - Engineering down the risk, SAI Global.
- Stds Aust 2004, AS 4360, Risk Management, SAI Global.

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FUNCTIONAL RELATIONSHIPS

The following diagrams set out the functional relationships between zones in an Inpatient Unit.

CENTRALISED CLINICAL SUPPORT



DECENTRALISED CLINICAL SUPPORT

