Part B – Health Facility Briefing & Design

13 Bone Marrow Transplant Unit

iHFG

International Health Facility Guidelines

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1 Introduction

This Functional Planning Unit (FPU) covers the requirements of Bone Marrow Transplant (BMT) Unit. The purpose of the BMT unit is to accommodate patients who undergo treatment with high doses of chemotherapy or radiation therapy and by replacing or rescuing the bone marrow damaged by these treatments.

The BMT process involves replacing the bone marrow which is not functioning properly with new stem cells. The new stem cells help to kill cancer cells directly. During the BMT process, the given either given back to the donor (the patient) or to another person.

BMT has been used successfully to treat disease such as:

- Leukemia
- Severe aplastic anemia
- Lymphoma
- Multiple myeloma
- Immune deficiency disorders
- some solid- tumor cancers

1 Cancer Treatment in General

The treatment of cancer is complex and often involves a combination of treatment methods in order to be effective. Here are some methods which may be provided, alone or in combination, according to a patient's individual management plan:

- Surgical intervention
- Chemotherapy (Medical Oncology)
- Radiation Therapy (Radiation Oncology)
- Hormone Therapy
- Bone Marrow Transplant (which is the subject of this FPU)

The management and administration of oncology can potentially have an adverse health impact for patients including damage to the Bone Marrow, immunosuppression and infection.

2 Bone Marrow

Bone Marrow is a spongy, fatty tissue inside bones. The transplanted healthy Bone Marrow helps to produce new blood cells and also promote the growth of new Bone Marrow.

The contents of Bone Marrow are;

- Red Blood Cell (RBS) – carry Oxygen and nutrients throughout body,
- White Blood Cell (WBC) – fight against any type of infection,
- Platelets – formation of clots
- Neutrophils – a type of white blood cell that is best at fighting infection

3 Bone Marrow Transplant Unit

The Bone Marrow Transplant Unit combines the procedural facilities with a specialised type of Intensive Care Unit (ICU) with all-positive pressure rooms. The design aspects of this Unit need to accommodate a number of special factors for patients of all ages, levels of acuity and disability.

Chemotherapy is prescribed for the treatment of diseases, using specific cytotoxic agents or drugs that are destructive to malignant cells and tissues.

Chemotherapy can be administered by various routes:

- Intravenously – through a vein or artery e.g. PICC line, Central Venous Catheter, Porta-caths
- Injection - intramuscularly or subcutaneously
- Intrathecal – into the central nervous system via the cerebrospinal fluid

- Intra–pleural – into the chest cavity
- Intraperitoneal – into the abdominal cavity
- Intra-vesical – into the bladder
- Intra-lesional/ Intra-tumoral – directly into the tumour
- Topically – either as a cream or lotion
- Orally – as a capsule.

These are the typical professional team members who will be involved in the care of patients going through the Bone Marrow Transplant procedure:

- Healthcare providers – providers who specialise in oncology, hematology, immunology and bone marrow transplantation
- Bone Marrow Transplant Nurse Coordinator - a nurse who organizes all aspects of care provided before and after the transplant. The Nurse coordinator will provide patient education, and coordinates the diagnostic testing and follow-up care
- ICU nurses – who will provide care to the patients in the period after the transplant procedure
- Social Workers – professionals who will help you/ family deal with many issues that may arise during the hospitalization
- Dietetic – professionals who will help you meet your nutritional needs before and after the transplant
- Physical therapists – professionals who will help you become strong and independent with movement and endurance after the transplantation

There are several other team members who will evaluate the patient condition before the transplantation and will give a follow -up care as needed. These include, but are not limited to the following:

- Pharmacist
- Respiratory therapist
- Lab technician
- Infectious disease specialist
- Dermatologist
- Psychologists

The details of this FPU follow overleaf.

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13 Bone Marrow Transplant Unit

4 Introduction

A Bone Marrow Transplant (BMT) is a process of replacing unhealthy bone marrow with a healthy bone marrow.

A BMT process does not involve major surgery; rather, it's performed similarly to a blood transfusion. A BMT might be necessary for patients who have received high doses of chemotherapy (and sometimes Radiation), which can supress the body's ability to make blood.

After the transplant, patients typically remain in the hospital for three to four weeks as the Bone Marrow recovers.

5 Functional and Planning Considerations

Operational Models

The Bone Marrow Transplant Unit hours of operation is 7 - day week, 24 hour in a day.

Models Of Care

The Bone Marrow extraction is performed in the Operating Unit (refer to the separate Operating Unit FPU). The transplantation (transfusion) is done in the patients room. These are similar to positive pressure isolation ICU rooms.

Certain procedures are performed in a procedure room within the unit. Patients will recover in their individual positive pressure Intensive Care rooms with ante-rooms and ensuite bathrooms.

It is possible for larger BMT Units to have their own operating theatres attached. If so, there can be no shortcuts and all the requirements of an Operating Unit must be met in accordance with these Guidelines.

The extraction of bone marrow can be carried out in the same type of environment as Inpatient Surgery, Day Surgery or DOSA (see the Operating Unit Guidelines).

It is also possible to create a BMT Unit as part of an Oncology Centre of Excellence with easy access to the Chemotherapy and Radiation Therapy.

Unit Planning Models

Location

A Bone Marrow Transplant Unit may only be provided as part of a RDL 5 or 6 facility. This does not imply that the facility must be a General Hospital. The BMT Unit may be provided as part of:

- A Specialised Oncology Hospital at RDL 5 or 6
- A General Hospital at RDL 5 or 6

The Unit benefits from:

- Access to the Operating Unit;
- Access to Lung Function Test (spirometry);
- Access to Medical Imaging Unit;
- Access to Echocardiogram and ECG
- All the typical supporting departments of the hospital

Functional Zones

The Bone Marrow Transplant Unit should have the following standard rooms/areas:

- Entry/ Reception area including:
  - Reception
  - Waiting areas, sized to accommodate family members, with access to public amenities

- Interview/ Meeting Room.

- Patient Consultation area:

- Consult room(s)
- Interview room

- Procedure room (in addition to the main Operating Room located within the Operating Unit):

- Procedure room
- Support rooms including stores for consumables, sterile stock and equipment
- Dedicated or shared access to support utility rooms

- Patient Rooms
  - Positive pressure ICU rooms
  - Ante-rooms to the ICU rooms
  - Ensuites for the ICU rooms

- Support Areas including:
  - Bays for Handwashing/PPE, Linen, Resuscitation trolley, holding of mobile equipment and wheelchairs
  - Clean and Dirty Utilities with waste holding areas
  - Cleaners Room
  - Staff Station
  - Store rooms for equipment and consumables

- Administration / Office Areas:
  - Offices and workstations for key personnel according to the approved service plan
  - Meeting room.

- Staff Areas:
  - Staff Room
  - Locker area
  - Toilets and Showers, gender separated

The above zones are briefly described below;

Entry/ Reception Area

The unit should have convenient access for patients and visitors via the building's main entrance. The typical arrangement will be similar to the visitor access to an Intensive Care Unit.

The waiting area should be able to accommodate a range of patients and visitors with varying degrees of ability. The main waiting room can include a play area for kids. Toilets and baby change rooms should be provided in reasonable proximity.

Patient Bedrooms

The bed areas should follow the same design directions and requirements as an Intensive Care unit. However, in the BMT Unit, all ICU rooms will be similar to the Positive Pressure Isolation ICU room with ante-room and attached ensuite. See the Intensive Care FPU within these Guidelines for more information.

Direct observation of the bedrooms from the Staff Station or Reporting Bays is optional. However it is recommended that a small number of beds (eg 10%) should have direct observation in the same manner as ICU. The balance of the rooms will have only observation windows within the entrance doors.

Consult Rooms

The Unit may include consultation rooms for patient consultation, follow-up and case review. Throughout the course of their treatment patients will be referred to other specialists and allied health personnel as required including Dieticians, Physiotherapists, Occupational Therapists and Social Workers.

Interview and conference rooms may be required for patient and family education which may include computers for review of treatment programs. The Consult Rooms should be located with easy access for outpatient areas.

The Consult Rooms provided within a BMT Unit may be minimal if the patients are mostly referred from other dedicated Oncology Outpatient Units.

Procedure Room

Procedure room is highly recommended for a catheter (central venous catheter) insertion. This will provide access to major veins for receiving the medications, intravenous nutrition that are needed throughout the transplant process. This catheter may also used for drawing blood most of the time. The central venous catheter requires specialised care and the medical team will teach the patient and/or the carer on how to maintain it after completion the treatment and discharge from the BMT.

Operating Rooms

The Bone Marrow extraction requires access to an operating room. If the facility already has an Operating Unit, the same facility can be used. If the facility does not have an Operating Unit, then an operating unit with a minimum of 1 operating room needs to be created and access to the BMT Unit provided. The Operating Room and all of its supporting rooms must be in accordance with the full requirements of the Operating Unit within these guidelines.

Support Areas

Clean and dirty utility rooms, storage, disposal rooms, linen bays, personal protective equipment (PPE) bays, and handwashing facilities are examples of support sections. Emergency support, including resuscitation equipment, should be located close to centrally located staff stations.

As the facility must be part of an RDL 5/6 facility, it is assumed that all other FPU's required for such a facility will be provided.

Administration / Offices

Adequate office accommodation should be provided for the Clinical Director of the Unit, Therapy Managers, Nursing Managers, Allied Health professionals, Treatment Coordinators and Specialist Nurses.

Staff Areas

Staff Areas may be shared with adjacent Units if convenient and will consist of:

- Meeting rooms
- Staff Room
- Toilets, Shower and Lockers

6 Functional Relationships

A Functional Relationship can be defined as the correlation between various areas of activity whose services work together closely to promote the delivery of services that are efficient in terms of management, cost and human resources. In the Bone Marrow Transplant Unit, due to its makeup of several components and the need for patients to utilise more than one service, efficient functional relationships is imperative.

External

The principal relationships with other Units may include ready access to:

- Ease of access to the Unit where the majority people may arrive by their vehicle;
- Unit access to the Operating Unit
- Unit access to clinical support departments such as pharmacy and laboratory
- Unit access for the delivery of food, clean linen, consumables, disposable items and the removal of waste and soiled linen etc.

Internal

The Internal planning of the BMT should be planned by considering the units functional areas/zones.

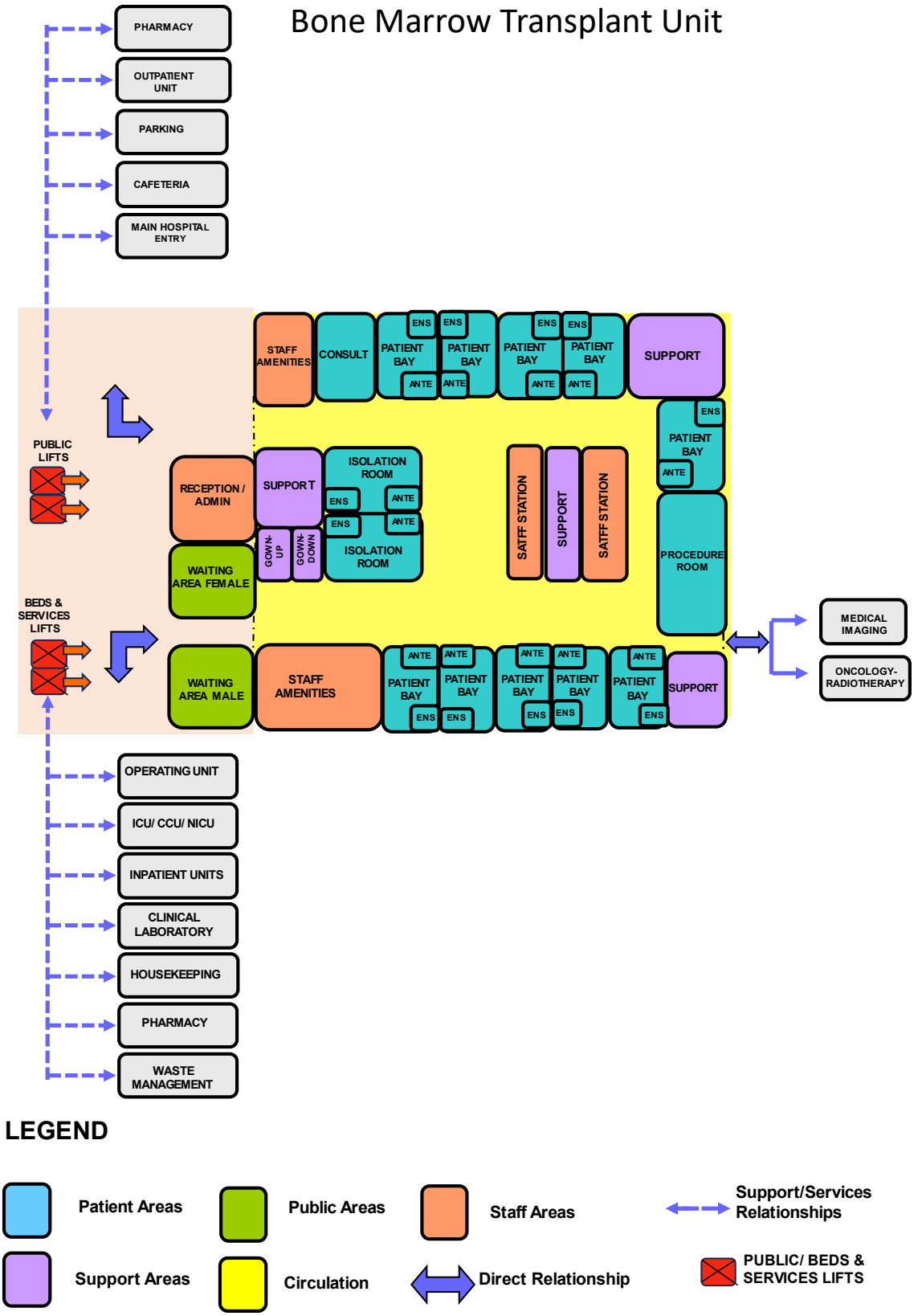
Some of the critical relationships to be considered include:

- Staff Station strategically located for unobtrusive view of all patient room corridors.
- The inclusion of additional decentralised staff stations may be considered in larger units depending on the planning geometry
- Inclusion of working spaces for visiting multidisciplinary team members
- Location of Reception to provide a clear view of entry and exit/ egress points of the Unit
- Easy but controlled access from the visitor Waiting area to the patient area.

It should be noted that although the design of the rooms and the overall unit is very similar to the Intensive Care Unit, the provision of reporting stations (observation bays) between each two rooms is not mandatory.

Functional Relationship Diagram

The Functional Relationship of a typical Bone Marrow Transplant Unit either as a stand-alone unit or integrated with a hospital is best demonstrated in the diagram below.


Bone Marrow Transplant Unit
PHARMACY
OUTPATIENT UNIT
PARKING
CAFETERIA
MAIN HOSPITAL ENTRY
PUBLIC LIFTS
BEDS & SERVICES LIFTS
RECEPTION / ADMIN
WAITING AREA FEMALE
WAITING AREA MALE
SUPPORT
GOWN-UP
GOWN-DOWN
ISOLATION ROOM
ISOLATION ROOM
STAFF AMENITIES
CONSULT
PATIENT BAY
ANTE
ENS
SATFF STATION
SUPPORT
SATFF STATION
PROCEDURE ROOM
STAFF AMENITIES
SUPPORT
MEDICAL IMAGING
ONCOLOGY-RADIOTHERAPY
OPERATING UNIT
ICU/ CCU/ NICU
INPATIENT UNITS
CLINICAL LABORATORY
HOUSEKEEPING
PHARMACY
WASTE MANAGEMENT
LEGEND
Patient Areas
Public Areas
Staff Areas
Support/Services Relationships
Support Areas
Circulation
Direct Relationship
PUBLIC/ BEDS & SERVICES LIFTS

Note

The External and Internal Functional Relationship are demonstrated in the diagram above including the following:

- Separate entry for arriving patients and visitors
- Separate staff access entrance for bed and goods transfers
- Access to key clinical units associated with patient treatment, including the Operating Unit via separate service access door

The optimum Internal Relationships include the following:

- Visitor waiting outside the Unit
- Administration and office areas located close to unit entrance and at the unit perimeter in a staff accessible area as shown in the support zones
- Patient rooms spaces arranged in a racetrack model with Staff Station(s) and Clinical support facilities in the centre to allow clear visual access to all patient corridors

7 Design Considerations

Refer to Part C – Access, Mobility and OH&S of these Guidelines for Ergonomic issues and Part D for Infection Control.

General

Design of the Unit should consider the following:

- Ease of access for patients and their families, who may arrive either walking, using mobility equipment, by ambulance stretcher or patient transport trolley;
- Convenient access to public parking for frail patients, particularly those undergoing a scheduled period of follow-up on a regular basis;
- Service access for delivery of large amounts of intravenous fluids to the unit on a regular basis and suitably sized storage areas to hold supplies;
- Appropriate floor finishes for constant staff movement to/ from and between patients during the treatments such as monolithic coating.

Patient Treatment Areas

Patient should be situated so that healthcare providers have a good visual access to ensure safety and quality care. This approach enhances staff monitoring of patient condition during treatment.

The optimal design is to allow a direct line of vision between the patient and staff.

The type and number of BMT spaces to be provided e.g. cubical, screened areas and isolation room numbers will be determined by the service plan, operational policies and cultural preferences of the population group using the services.

Provision for dedicated BMT areas for children and young people is recommended. Where facilities are shared, patient pathway should be kept as separate as possible. Cancers that develop in children and young people are complex and differ from those that develop in adults. Early diagnosis is challenging because cancers are rare and more diverse.

If Paediatric BMT is provided, it should be zonally separated from the adult section.

The space includes a procedure room, HDU, ward, patient rooms, day clinic, support spaces, and office spaces for clinicians.

Environmental Considerations

Acoustics

Acoustics privacy is required for many functions in the Unit including:

- Family/ case conference/ interview rooms;

- Isolation of noisy areas such as waiting rooms from clinical areas e.g. clean and dirty utilities;
- Staff discussion regarding confidential matters in meeting rooms;
- Noise sources arising both within and from outside the Unit such as:
  - Sanitary Facilities;
  - Equipment;
  - Patients/ Clients;
  - Staff Activities; and
  - Traffic through the unit e.g. visitors, food, linen or other trolleys.

Solutions to be considered include:

- Location of the unit away from noisy such as The Proton Therapy Unit should be designed to minimise the ambient noise level within the unit and transmission of sound between patient areas, staff areas and public areas;
- Use of sound isolating construction and selection of sound absorbing materials and finishes;
- Planning to separate quiet areas from noisy areas;
- Review of operational management and patient/client flows; this may include separate areas for patients with special needs;
- Provision of television systems with headphones to reduce ambient noise levels.

Natural Light/ Lighting

Natural light and views should be available from the Unit for the benefit of staff and patients. This may be provided via direct or borrowed light such as views to courtyards and atrium spaces, skylights or via side corridors. Every effort should be made to provide a view to the procedure area by locating a procedure room adjacent to a window to have an external view.

High quality task lighting is essential to ensure complex medical and pharmacological tasks can be safely achieved.

Colour corrected lightning is also essential to ensure patient assessment can be conducted effectively.

Privacy

The design of the Unit needs to consider the contradictory requirement for staff visibility of patients while maintaining patient privacy.

Refer to the Standard Components for examples.

Confidentiality and privacy when requested for persons receiving treatment and the area design should be considered as a critical element during the design process.

The Unit should be designed to:

- Ensure confidentiality of personal discussion and medical records;
- Provide an adequate number of rooms for discreet discussions and treatments to occur when required;
- Provide suitable sized treatment spaces that permit screen curtains to be easily closed whenever required;
- Appropriately locate windows and doors to enhance visual and acoustic privacy.

Interior Décor

Interior décor includes furnishings, style, colour, textures and ambiance, and is influenced by perception and culture. The décor of the Unit should provide an inviting and comfortable space with a non-institutional atmosphere. Cleaning, infection control, fire safety, patient care requirements and the patient's perception of a professional environment should always be considered.

Suggestions to achieve this balance include the following:

- Use of design features such as colors and artworks to distract the sight from clinical areas;
- Inclusion of soft corridors at the required widths for patient access and services deliveries;
- Provision of a beverage bay for people to use while waiting;
- Provision of background music through a piped system or a centralised unit that can contribute to Unit ambiance;
- Maintaining a sterile environment within the patient rooms is crucial for BMT patients, and thus, design features were implemented to reduce infection risks.

Accessibility – External

There should be a weatherproof vehicle drop-off zone with easy access for less-mobile and wheelchair bound patients. Design should provide ease of access for wheelchair bound patients in all patient areas including Consult Rooms and Waiting Areas in accordance with NFPA standards. Waiting areas should include spaces for wheelchairs (with power outlets for charging electric mobility equipment) and suitable seating for patients with disabilities or mobility aids. The Unit requires provision for bariatric patients.

Doors

Door openings to Procedure Areas shall have a minimum of 1400mm clear opening to allow for easy movement of beds and equipment.

Ergonomics/ OH&S

Ergonomics must be considered in the internal design of the Unit for patient and staff health and safety. Heights and depths of benches and Staff Stations in the procedure area need to allow staff to efficiently work from standing and seated positions. Consideration must be given to storage of supplies at suitable working heights including cartons of intravenous fluids in constant use.

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

Size of the Unit

The size of the Unit is determined by the Clinical Service Plan establishing the intended services scope and complexity.

Safety and Security

A high standard of safety and security can be achieved by careful configuration of spaces and zones to include:

- Controlled access/ egress to and from the unit;
- Optimal visual observation for staff to access points and patient/ visitor areas;
- Use of CCTV to entry and communication systems to enable contact after normal work hours;
- Collocation of similar functions for ease of staff management.

Access to public areas shall be considered with care so that the safety and security of staff areas within the Unit are not compromised.

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

Finishes

Internal finishes including floor, walls, joinery and ceilings should be suitable for the function of the Unit while promoting a pleasant environment for patients, family, carers, visitors and staff.

Finishes were meticulously chosen to create a calm and soothing atmosphere, with interior glass used to augment natural light and facilitate visual connections between healthcare staff and patients, without sacrificing privacy.

The following factors shall be considered:

- Aesthetic appearance;

- Acoustic properties;
- Durability;
- Ease of cleaning and compliance with infection control standard;
- Suitable floor finishes with respect to slip resistance and movement of equipment.

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

Fixtures, Fittings and Equipment

Equipment, furniture, fittings should be selected to ensure that users are not exposed to avoidable risks or injury.

A safety shower and eyewash should be provided close to procedure areas for cytotoxic spills.

Refer to Part C – Access, Mobility and OH&S of these Guidelines and Standard Components of individual rooms for specific information related to fixtures, fittings and equipment.

Curtains / Blinds

Window treatments should be durable and easy to clean. Consideration may be given to use of blinds, shutters, tinted glass, reflective glass, exterior overhangs or louvers to control the level of lighting.

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

- Vertical blinds and Holland blinds are preferred over horizontal blinds as they do not provide numerous surfaces for collecting dust.
- Horizontal blinds may be used within a double-glazed window assembly with a knob control on the bedroom side.

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

Building Services Requirements

Information and Communication Technology

It is vital to provide reliable and effective Information Technology/ Communications service.The following items should be considered during planning and will contribute to the operation of the unit:

- Electronic health records, prescriptions, and investigation requests;
- Patient Administration System (PAS), including patient booking systems;
- Computers and including mobile and handled units, email and paging systems/ DECT;
- Picture archiving communications systems (PACS);
- Electronic supplies management systems;
- Optional availability of Wi-Fi for staff, patients and waiting visitors;
- Videoconferencing, teleconferencing and telemedicine requirements.

Staff Call/ Duress Alarm

Nurse Call and Emergency Call facilities shall be provided in all patient areas such as bed/ chair spaces, toilets, bathrooms, consult rooms and procedure rooms for patients and staff to request urgent attention. The individual call buttons shall activate the annunciators and central module situated at or adjacent to the Staff Stations in a discreet manner.

Provision of a Durees Alarm system is required for the safety of staff members who may occasionally face threats imposed by clients/ visitors. Call buttons will be required at all Reception/ Staff Stations and Procedure rooms where a staff may spend time with a client in isolation or alone. The combination of fixed and mobile durees units should be considered as part of the safety review during planning for the Unit.

Heating Ventilation and Air-conditioning (HVAC)

The Unit should be air conditioned with adjustable temperature and humidity for patient comfort. Air conditioning systems should be designed with consideration to provision of appropriate air exchanges and exhaust for cytotoxic chemicals. The temperature of the unit should be maintained within a comfortable range not exceeding 25°C for optimal operating efficiency and patient comfort. General air conditioning outlets should not be placed directly over patients on chairs, beds or trolleys.

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

Medical Gases

Outlets should be provided to the following for use in patient in case of emergencies:

- Bed spaces
- Chair spaces
- Procedure rooms.

Pneumatic Tube System

The Unit may include a pneumatic tube station, as determined by the facility Operational Policy. If provided the station it should be located in close proximity to the Staff Station or under direct staff supervision.

Hydraulics

Warm water shall be supplied to all areas accessed by patients within the Unit. This requirement includes all staff handwash basins and sinks located within patient accessible areas. Sinks in staff areas shall be provided with hot and cold water services.

For cold, warm & hot water technical details, refer to Part E – Engineering Services in these Guidelines.

Infection Control

Oncology patients are at increased infection risk due to immunosuppression and frequent exposure to healthcare settings. Flooring, walls, furniture and fittings should be carefully selected to ensure effective infection control measures.

The design of all aspects for the Unit should take into consideration the need to ensure a high level of infection control in all aspects of clinical and non-clinical practice.

Hand Basins

Handwashing facilities shall be required in the corridors and Procedure room areas throughout the Unit as specified by the Standard Components. Where a handwash basin is provided, there shall also be liquid soap, disposable towel and waste bin provided and PPE equipment due to the nature of treatment and risk or exposure to bodily fluids.

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

Antiseptic Hand Rubs

Antiseptic hand rubs should be located so they are readily available for use at points of care, at the end of patient beds and in high traffic areas.

Antiseptic Hand Rubs, although very useful and welcome, cannot fully replace Hand Wash Bays.

Isolation Rooms/s

Standard Single (1 bed) patient rooms area regarded as one Class P- Positive Pressure Room shall be provided for each room as determined by the Clinical Service Plan. It is a special room that provides a positive pressure environment in which only highly purified (HEPA-filtered) air is allowed to enter. The room is cleaned every day and everyone who enters the room must follow specific procedures to minimize complications associated with the transplant process.

For further information on Isolation Rooms refer to Part D – Infection Control in these Guidelines.

Antineoplastic Waste Disposal

They are highly toxic and designated as dangerous waste. Waste containing chemotherapeutic agents should be managed as either hazardous chemical or must be disposed of at a dedicated waste facility.

Waste disposal include:

- Expired drugs and aborted dosages;
- All equipment used in preparing and delivering chemotherapy drugs to patients;
- Contaminated Personal Protective Equipment (PPE) and other materials.

Cytotoxic Preparation

In full self-sufficient facilities, provision should be made for the preparation of Cytotoxic compound used for Chemotherapy. The following should be considered:

- Delivery of bulk products;
- Preparation areas;
- Clean room requirements;
- Biohazard Cabinets;
- Waste disposal;
- Storage;
- MEP provisions.

8 Components of the Unit

Standard Components

Standard Components are typical rooms within a health facility, each represented by a Room Data Sheet (RDS) and a Room Layout Sheet (RLS). Sometimes, there are more than one configuration possible and therefore, more than one room layout sheet can be found in the Standard Components for a room with same function. They may differ in room size and/or the requirement of FF & FE items.

The Room Data Sheets are presented in a written format, describing the minimum briefing requirements of each room type divided into the following categories:

- Room Primary Information; includes Briefed Area, Occupancy, Room Description and relationships, and special room requirements
- Building Fabric and Finishes; identifies the fabric and finish required for the room ceiling, floor, walls, doors, and glazing requirements
- Furniture and Fittings; lists all the fittings and furniture typically located in the room; Furniture and Fittings are identified with a group number indicating who is responsible for providing the item according to a widely accepted description as follows:

Group	Description
1	Provided and installed by the builder
2	Provided by the Client and installed by the builder
3	Provided and installed by the Client

- Fixtures and Equipment; includes all the serviced equipment typically located in the room along with the services required such as power, data and hydraulics; Fixtures and Equipment are also identified with a group number as above indicating who is responsible for provision
- Building Services; indicates the requirement for communications, power, Heating, Ventilation and Air conditioning (HVAC), medical gases, nurse/ emergency call and lighting along with quantities and types where appropriate. Provision of all services items listed is mandatory.

The Room Layout Sheets (RLS's) are indicative plan layouts and elevations illustrating an example of good design. The RLS indicated are deemed to satisfy these Guidelines. Alternative layouts and innovative planning shall be deemed to comply with these Guidelines provided that the following criteria are met:

- Compliance with the text of these Guidelines;
- Minimum floor areas as shown in the schedule of accommodation;
- Clearances and accessibility around various objects shown or implied;
- Inclusion of all mandatory items identified in the RDS.

Standard Components have considered the required design parameters described in these Guidelines. Each FPU should be designed with compliance to Standard Components – Room Data Sheets and Room Layout Sheets, nominated in the Schedules of Accommodation in Appendices of this FPU.

Non-Standard Components

Non-standard rooms are those rooms which have not yet been standardised within these guidelines. As such there are a very few Non-Standard rooms. These are identified in the schedules of accommodation as NS.

Waste Compactor/ Recyclables Room

Room for a compactor waste unit, waste bins and waste recycling bins. The room will have a secure roller shutter door for removal of the compactor unit. Recommended room size in line with international standard is minimum 45 m².

Gas Bottle Store

The Gas Bottle Store is a secure room for the storage of full and empty gas bottles following delivery by and external supplier. Gas bottles may be attached to a manifold and a reticulated supply; Empty gas bottle alarms may be required. The Gas Bottle Store should be located with ready access to the Loading Dock area. Full and empty bottles to be stored separately. May be located externally at a secure location.

9 Schedule of Equipment (SOE)

The Schedule of Equipment (SOE) below lists the major equipment required for the key rooms in this FPU.

Room Name		
Patient Bay - Critical, Class P Isolation, Room Code (pbce-25-i)		
Air flowmeter	Infusion pump: single channel	Monitor: physiologic, critical care
Bed: ICU, electric	Infusion pump: syringe	Oxygen flowmeter
Chair: recliner, electric	Light: procedure, single, ceiling mounted	Sequential compression device
Infusion pump: enteral feeding	Linen carrier: dirty, single	Suction adapter
Supply unit: ceiling	Mattress: powered, low air loss, pressure redistribution with turn assist	Ventilator: adult/ paediatric
Table: overbed	IV pole: mobile	
Procedure Room, Room Code (proc-25-i)		
Air flowmeter	Light: procedure, single, ceiling mounted	Refrigerator: drugs
Infusion pump: single channel	Monitor: physiologic, critical care	Stretcher: procedure/ recovery
IV pole: mobile	Oxygen flowmeter	Suction adapter
Table: mayo	Infusion pump: syringe	Linen carrier: dirty, single

10 Schedule of Accommodation (SOA)

ROOM/ SPACE	Standard Component Room Codes	RDL 2/3 Qty x m² 4 Beds			RDL 4 Qty x m² 8 Beds			RDL 5 Qty x m² 12 Beds			RDL 6 Qty x m² 24 Beds			Remarks
Entry / Reception														
Reception/ Clerical	recl-10-i recl-12-i	1	x	10	1	x	10	1	x	12	1	x	12	
Waiting	wait-15-i wait-20-i wait-30-i	1	x	15	1	x	20	1	x	20	1	x	30	1.2 m² per person; 1.5 m² per wheelchair
Waiting - Family	wait-20-i wait-25-i wait-50-i	1	x	20	1	x	20	1	x	25	1	x	50	
Meeting Room	meet-12-i meet-l-15-i				1	x	12	1	x	15	1	x	15	
Toilet - Public	wcpu-3-i	2	x	3	2	x	3	2	x	3	2	x	3	May share public amenities if located close
Gowning Up	gwup-i	1	x	12	1	x	12	1	x	12	1	x	12	
Gowning down	gwdw-i	1	x	12	1	x	12	1	x	12	1	x	12	
Patient Areas														
1 BR Isolation Positive Pressure (Enclosed); Class P Isolation	pbce-28-i	4	x	28	8	x	28	12	x	28	24	x	28	Group of not more than 12, within observation of Staff Station. Similar to pbce-28-i but with frosted glass for privacy.
Procedure Room	proc-25-i	1	x	25	2	x	25	3	x	25	6	x	25	
Anteroom	anrm-i	4	x	6	8	x	6	12	x	6	24	x	6	For Class P Isolation Rooms
Ensuite - Super	ens-sp-i	4	x	6	8	x	6	12	x	6	24	x	6	Size for 'full assistance', i.e. 2 staff plus equipment
Support Areas														
Bay - Beverage	bbev-op-i bbev-enc-i	1	x	4	1	x	4	1	x	5	1	x	5	
Bay - Blanket Warmer	bbw-i	1	x	1	1	x	1	1	x	1	1	x	1	Optional
Bay - Handwashing, Type A	bhws-a-i	1	x	1	2	x	1	3	x	1	4	x	1	At entry to the Unit and in Corridors
Bay - Linen	blin-i	1	x	2	1	x	2	2	x	2	2	x	2	
Bay - Mobile Equipment	bmeq-4-i	1	x	4	1	x	4	2	x	4	2	x	4	
Bay - Pathology	bpath-i similar	1	x	1	1	x	2	1	x	4	1	x	4	
Bay - PPE	bppe-i	1	x	1.5	1	x	1.5	1	x	1.5	4	x	1.5	As required, may be combined with Bay-Handwashing
Bay- PTS (Pneumatic Tube System)	bpts-i	1	x	1	1	x	1	1	x	1	1	x	1	
Bay - Resuscitation Trolley	bres-i	1	x	1.5	1	x	1.5	1	x	1.5	1	x	1.5	
Cleaners Room	clrm-6-i	1	x	6	1	x	6	1	x	6	1	x	6	Smaller units may share with a collocated unit
Clean Utility/ Medication	clur-12-i clum-14-i	1	x	12	1	x	12	1	x	14	2	x	14	Medication room may be separate
Dirty Utility	dtur-10-i dtur-12-i dtur-14-i	1	x	10	1	x	12	1	x	14	2	x	14	
Disposal Room	disp-8-i disp-10-i	1	x	8	1	x	8	1	x	10	1	x	10	Inclusion depends on unit size & waste operational policies
Equipment Clean-up	ecl-8-i	1	x	8	1	x	8	1	x	8	1	x	8	Room size according to service requirements
Office - Clinical Workroom	off-clw-i similar	1	x	10	1	x	15	1	x	15	1	x	20	Locate near staff station
Office - Write-up Bay	off-wi-1-u	4	x	1	8	x	1	12	x	1	24	x	1	1 per each enclosed bed room

ROOM/ SPACE	Standard Component Room Codes	RDL 2/3 Qty x m² 4 Beds			RDL 4 Qty x m² 8 Beds			RDL 5 Qty x m² 12 Beds			RDL 6 Qty x m² 24 Beds			Remarks
Communications Room	comm-i	1	x	12	1	x	12	1	x	35	1	x	35	
Respiratory/ Biomedical Workroom	rewm-i similar							1	x	20	1	x	20	Inclusion depends on operational policy of unit
Staff Station	sstn-12-i sstn-18-i sstn-20-i	1	x	12	1	x	18	1	x	20	2	x	20	
Store - Drugs	stdr-5-i stdr-10-i	1	x	5	1	x	10	1	x	10	1	x	10	Optional
Store - Equipment	steq-10-i steq-15-i steq-30-i	1	x	10	1	x	15	1	x	15	1	x	30	May be subdivided
Store - General	stgn-12-i stgn-16-i stgn-30-i	1	x	12	1	x	16	1	x	16	1	x	30	
Store - Respiratory	steq-20-i										1	x	20	Inclusion depends on operational policy of unit
Store - Sterile Stock	stss-12-i similar stss-24-i	1	x	6	1	x	12	1	x	24	2	x	24	
Staff Areas														
Bay - Beverage	bbev-op-i bbev-enc-i				1	x	4	1	x	5	1	x	5	Optional, near Meeting Room/s
Change - Staff (Male/Female)	chst-10-i chst-20-i chst-25-i	2	x	10	2	x	14	2	x	20	2	x	25	Toilets, Shower and Lockers; size dependent on staffing numbers
Meeting Room	meet-l-15-i meet-l-25-i	shared			1	x	15	1	x	25	2	x	25	Quantity and size dependent on Service Plan
Office - Single Person, 12 m²	off-s12-i							1	x	12	1	x	12	Note 1; Director/ Service Manager
Office - Single Person, 9 m²	off-s9-i	1	x	9	1	x	9	1	x	9	2	x	9	Note 1; Unit Manager
Office - Single Person, 9 m²	off-s9-i	1	x	9	1	x	9							Note 1; Staff Specialists
Office - 2 Person, Shared	off-2p-i							1	x	12	1	x	12	Note 1; Nurse Educators, Staff Specialists, Clinicians
Office - Workstation/s	off-ws-i	1	x	5.5	2	x	5.5	4	x	5.5	8	x	5.5	Note 1; Registrars, Nursing, Secretarial
Overnight Stay - Bedroom	ovbr-i							1	x	10	1	x	10	Optional
Overnight Stay - Ensuite	oves-i							1	x	4	1	x	4	Optional
Staff Room	srm-15-i srm-20-i srm-35-i	1	x	15	1	x	15	1	x	20	1	x	35	May be shared
Store - Files	stfs-10-i										1	x	10	Optional, depends on record storage operational policy
Store - Photocopy/ Stationery	stps-8-i stps-10-i	1	x	8	1	x	8	1	x	10	1	x	10	
Sub Total				**341.5**			**541**			**764**			**1337.5**	
Circulation %				**40**			**40**			**40**			**40**	
Area Total				**603**			**970**			**1422**			**2501**	

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11 Further Reading

Planning and design should consider the following developments in Cancer Care:

- Survival of Cancer continues to improve due to improved screening, diagnostic methods and treatment options leads to increased long-term care demands.
- Leukemia, Lymphoma, Germs Cell Tumours and early-stage solid tumour once incurable have become curable malignancies and there is an increasing trend towards combination therapies involving surgery, chemotherapy and radiotherapy.
- Targeted therapies, aimed at specific pathways blocking tumour cells leading to fewer side effects and complications.
- Research and Development into active chemotherapy combinations leading to new treatment options.
- Developing International trends for Cancer services to be concentrated in centres that treat high volumes of patients and offer a full range of Cancer services including surgery, oncology, radiotherapy, and specialised nursing and allied health services.

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