

Part B - Health Facility Briefing and Planning

360 INTENSIVE CARE - GENERAL

INDEX

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INTRODUCTION

Description

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| 360 .2.00 | Intensive Care is a dedicated unit for critically ill patients who require invasive life support, high levels of medical and nursing care and complex treatment. |
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PLANNING

Operational Models

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| 360 .3.00 | The level of Intensive Care available should support the delineated role of the particular hospital. The role of a particular ICU will vary, depending on staffing, facilities and support services as well as the type and number of patients it has to manage. |
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Functional Areas

| | |
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| 360 .4.00 | The Intensive Care Unit will consist of the following Functional Areas: <ul style="list-style-type: none">- Reception/ Waiting Areas- Patient Treatment Areas including patient beds, ensuites and treatment rooms- Support Areas including Utility Rooms, Store Rooms, Linen, Disposal Room, Cleaner's Room, Pantry- Administrative / Office Areas- Staff Amenities Areas. |
| 360 .5.00 | EQUIPMENT MAINTENANCE |

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Dependent upon the size and intended use of the ICU, a dedicated electronic and pneumatic equipment maintenance service may have to be accommodated within the hospital or a 24 hour on-call emergency service made available. This same service would cover the Operating, Emergency and Medical Imaging Units.

- 360 .6.00 If a dedicated workshop is provided, its location should be in an area that is equally accessible to all of the above mentioned departments. The facility should have a degree of sound-proofing and be accessible from a non-sterile area.

360 .7.00 LABORATORY FACILITIES

All ICUs must have available 24-hr Clinical Laboratory services. When this service cannot be provided by the Central Hospital Laboratory, a satellite laboratory within or immediately adjacent to, the ICU must serve this function. Satellite facilities must be able to provide minimum chemistry and haematology testing, including arterial blood gas analysis.

360 .8.00 OVERNIGHT ACCOMMODATION

Depending upon the availability of nearby commercial accommodation, consideration should be given to the provision of overnight accommodation for relatives and staff, preferably near the unit. This will be dependent upon the size and intended function of the ICU. A motel type bed-sitter level of provision is recommended.

360 .9.00 SPECIAL PROCEDURES ROOM

A Special Procedures Room shall be provided if required by the Operational Policy.

- 360 .10.00 If a special Procedures Room is desired, it should be located within, or immediately adjacent to, the ICU. One special Procedures Room may serve several ICUs in close proximity. Consideration should be given to ease of access for patients transported from areas outside the ICU. Room size should be sufficient to accommodate the necessary equipment and personnel. Monitoring capabilities, equipment, support services, and safety considerations must be consistent with those services provided in the ICU proper. Work surfaces and storage areas must be adequate enough to maintain all necessary supplies and permit the performance of all desired procedures without the need for staff to leave the room.

360 .11.00 STAFF FACILITIES

A Staff Lounge shall be provided within the unit for staff to relax and prepare beverages. Inclusion of a window to the outside is desirable. Where only an Intensive Nursing facility is provided, the Hospital Staff Dining Room will suffice.

- 360 .12.00 A Library/ Reference area with an appropriate range of bench manuals, textbooks and journals for rapid access 24 hours a day should be available within the Intensive Care Unit.

360 .13.00 STORAGE AREAS

Mobile equipment such as cardiopulmonary resuscitation trolleys and mobile X-ray, that are used and located within the ICU, shall have storage areas that are out of traffic paths but conveniently located for easy access by staff.

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Consideration should be given to the ever increasing amount of equipment used.

360 .14.00 VISITORS FACILITIES

As determined by the size of the ICU and hospital operating policy, a Reception and Visitor's / Relatives' Waiting Area shall be provided immediately outside the entry to the ICU, but away from patient and staff Traffic areas. It is desirable that this room has provision for a drink dispenser, radio, television and comfortable seating. A separate Interview Room and a separate area for distressed relatives should be available.

Functional Relationships

360 .15.00 The ICU should be a separate unit within the hospital with easy access to the Emergency Unit, Operating Unit and Medical Imaging.

360 .16.00 The location shall be arranged to eliminate the need for through traffic.

DESIGN

Clocks

360 .17.00 An analogue clock/s with a second sweep hand shall be provided and conveniently located for easy reference from all bed positions and the Staff Station.

Communications

360 .18.00 All ICUs should have an intercommunication system that provides voice linkage between the Staff Station, Patient Modules, Staff-Overnight Stay Rooms, Conference Rooms, and Staff Lounge. Supply Areas and the Visitors' Lounge / Waiting Room may also be included in the system. When appropriate, linkage to key departments such as Blood Bank, Pharmacy, and Clinical Laboratories should be included.

In addition to a standard telephone service for each ICU, which should provide hospital-wide and external communications capabilities, there should be a mechanism for emergency internal and external communications when normal systems fail.

Environmental Considerations

360 .19.00 ACOUSTICS

Signals from patient call systems, alarms from monitoring equipment, and telephones add to the sensory overload in critical care units. Without reducing their importance or sense of urgency, such signals should be modulated to a level that will alert staff members, yet be rendered less intrusive. For these reasons, floor coverings that absorb sound should be used while keeping infection control, maintenance, and equipment movement needs under consideration. Walls and ceilings should be constructed of materials with high sound absorption capabilities. Ceiling soffits and baffles help reduce echoed sounds. Doorways should be offset, rather than being placed in symmetrically opposed positions, to reduce sound transmission. Counters, partitions, and glass doors are also effective in reducing noise levels.

360 .20.00 BED AREAS

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360.12.00

For an adult ICU the following is recommended:

- At least 22 m² floor area for single bed accommodation exclusive of service areas
- At least 20 m² floor area for multiple bed accommodation
- At least one clinical basin for every two beds is recommended; one handbasin per bed is preferred
- At least one single room should be available for every six open bedspaces
- A clinical basin for every single room
- An adequate number of service outlets depending on the purpose of the unit: A Level 3 unit will require at least three oxygen, two air, and three suction outlets and at least 16 power outlets for each bed space
- Electrical wiring and protection of Patient Treatment Areas must be Cardiac Protected to AS 3003
- Adequate and appropriate lighting for clinical observation
- Windows and bed access to an external area are desirable features for the psychological well being of patients and staff
- Design should take into account the need for patient privacy.

360.21.00 BEDSIDE MONITORING

Bedside monitoring equipment should be located to permit easy access and viewing, and should not interfere with the visualisation of, or access to the patient. The bedside nurse and/or monitor technician must be able to observe the monitored status of each patient at a glance. This goal can be achieved either by a central monitoring station, or by bedside monitors that permit the observation of more than one patient simultaneously. Neither of these methods are intended to replace bedside observation.

Weight-bearing surfaces that support the monitoring equipment should be sturdy enough to withstand high levels of strain over time. It should be assumed that monitoring equipment will increase in volume over time. Therefore, space and electrical facilities should be designed accordingly.

360.22.00 LIGHT AND WINDOWS

Every effort should be made to provide an environment that minimises stress to patients and staff. Therefore, ICU design should consider natural light and view. Windows are an important aspect of sensory orientation, and as many rooms as possible should have windows to reinforce day/night orientation. Drapes or shades of fireproof fabric can make attractive window coverings and absorb sound. Window treatments should be durable and easy to clean. If drapes or shades are not a viable option, consider the use of tinted glass, reflective glass, exterior overhangs or louvers to control the level of lighting. If windows cannot be provided in each room, an alternate option is to allow a remote view of an outside window or skylight.

360.23.00 PATIENT VISIBILITY

Patients must be situated so that healthcare providers have direct or indirect visualization, such as by video monitoring, at all times. This approach permits the monitoring of patient status under both routine and emergency circumstances. The preferred design is to allow a direct line of vision between the patient and the central Staff Station. In ICUs with a modular design, patients should be visible from their respective nursing sub-stations. Sliding glass doors and partitions facilitate this arrangement and increase access to the room in emergency situations

Finishes

360.24.00 In all areas where patient observation is critical, colours shall be chosen that

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do not alter the observer's perception of skin colour.

Fixtures & Fittings

- 360 .25.00 **BEDSIDE STORAGE**
Each patient bed space shall include storage and writing provision for staff use.

Infection Control

- 360 .26.00 Clinical Hand-washing Facilities shall be provided convenient to the Staff Station and patient bed areas. The ratio of provision shall be one Clinical Hand-washing Facility for every three patient beds in open-plan areas and one in each Patient Bedroom or cubicle.
- 360 .27.00 At least one Isolation Room per ICU shall be provided in Level 5 and 6 facilities. Entry shall be through an airlock. Clinical hand-washing, gown and mask storage, and waste disposal shall be provided within the airlock. An Ensuite - Special, directly accessible from the Isolation Room, shall also be provided.

Space Standards and Components

- 360 .28.00 Where an open plan arrangement is provided, bed spaces shall be arranged so that there is a clearance of at least 1200 mm from the side of the bed to the nearest fixed obstruction (including bed screens) or wall. At the head of the bed, at least 900 mm clearance shall be allowed between the bed and any fixed obstruction or wall.
- 360 .29.00 When an open plan arrangement is provided, a circulation space of 2200 mm minimum clear width shall be provided beyond dedicated cubicle space.
- 360 .30.00 Separate cubicles and Single Patient Bedrooms including Isolation Rooms, shall have minimum dimensions of 3900 mm X 3900 mm.
- 360 .31.00 All entry points, doors or openings, shall be a minimum of 1200 mm wide, unobstructed. Larger openings may be required for special equipment, as determined by the Operational Policy.

Building Service Requirements

- 360 .32.00 The unit shall have appropriate air conditioning that allows control of temperature, humidity and air change.
- 360 .33.00 Refer to Services Sections for the specific requirements for Mechanical and Electrical provision.

COMPONENTS OF THE UNIT

Introduction

- 360 .34.00 The Intensive Care Unit will consist of a combination of Standard Components and Non-Standard Components.

Standard Components must comply with details in Standard Components described in these Guidelines. Refer also to Standard Components Room Data Sheets.

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Standard Components

- 360 .35.00 Provide the Standard Components as identified in the Schedule of Accommodation.

Non-Standard Components

- 360 .36.00 Provide the Non-Standard Components as identified in the Schedule of Accommodation, according to the Operational Policy and Functional Brief.

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APPENDICES

ICU-General Generic Schedule of Accommodation

360 .37.00 Schedule of Accommodation for a 6 bed Intensive Care Unit at Level 4, a 12 bed Unit at level 5 and a 20 bed Unit at Level 6:

| ROOM / SPACE | Standard Component | | | Level 4 Qty x m2 | Level 5 Qty x m2 | Level 6 Qty x m2 | Remarks |
|-----------------------------|--------------------|--|--|---------------------|---------------------|---------------------|--|
| | | | | 6 Bed | 12 Bed | 20 Bed | |
| | | | | | | | |
| 1 BED BAY - CRITICAL CARE | yes | | | 4 x 20 | 6 x 20 | 12 x 20 | |
| 1 BED ROOM - CRITICAL CARE | yes | | | 1 x 22 | 4 x 22 | 6 x 22 | |
| 1 BED ROOM - ISOLATION | yes | | | 1 x 22 | 2 x 22 | 2 x 22 | refer to Standard Component - 1 Bed Room - Critical Care |
| ANTEROOM | yes | | | 1 x 8 | 2 x 8 | 2 x 8 | If Class N Isolation Room is required |
| BAY - HANDWASHING | yes | | | 2 x 1 | 4 x 1 | 4 x 1 | In addition to handbasins for bedspaces |
| BAY - LINEN | yes | | | 1 x 3 | 1 x 3 | 1 x 3 | Includes allowance for Blanket Warming cabinet |
| BAY - MOBILE EQUIPMENT | yes | | | 1 x 4 | 1 x 4 | 2 x 4 | |
| BAY - RESUS TROLLEY | yes | | | 1 x 2 | 1 x 2 | 2 x 2 | |
| CLEANER'S ROOM | yes | | | 1 x 4 | 1 x 4 | 1 x 4 | |
| CLEAN-UP ROOM | yes | | | 1 x 10 | 1 x 10 | 1 x 10 | May also be used as a Sub-Pathology Room |
| CLEAN UTILITY | yes | | | 1 x 12 | 1 x 12 | 1 x 12 | |
| DIRTY UTILITY | yes | | | 1 x 10 | 1 x 10 | 1 x 10 | |
| DISPOSAL ROOM | yes | | | 1 x 8 | 1 x 8 | 1 x 8 | |
| ENSUITE - SPECIAL | yes | | | 3 x 7 | 6 x 7 | 8 x 7 | |
| MEDICATION ROOM | | | | 1 x 10 | 2 x 12 | 2 x 16 | |
| MEETING ROOM | yes | | | 1 x 12 | 1 x 12 | 1 x 12 | For Distressed Relatives |
| OFFICE - CLINICAL/ HANDOVER | yes | | | | 2 x 12 | 2 x 12 | |
| PANTRY | yes | | | 1 x 8 optional | 1 x 8 | 1 x 8 | |
| RESPIRATORY WORKROOM | | | | | 1 x 20 optional | 1 x 20 optional | |
| STAFF STATION | yes | | | 1 x 14 | 1 x 14 | 1 x 20 | |
| STORE - EQUIPMENT | yes | | | 1 x 20 | 1 x 30 | 1 x 35 | |
| STORE - GENERAL | yes | | | 1 x 9 | 1 x 15 | 1 x 20 | |
| STORE - RESPIRATORY | | | | | 1 x 40 optional | 1 x 40 optional | |

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| | | | | | | | |
|---------------------------|-----|--|--|----|--------------------|--------------------|--|
| X-RAY VIEWING & REPORTING | yes | | | | 1 x 12 optional | 1 x 12 optional | |
| | | | | | | | |
| CIRCULATION % | | | | 40 | 40 | 40 | |

360.38.00 STAFF AND SUPPORT AREAS

Note: Provision of Office and Support Areas is dependent on the Operational Policy and management structure:

| ROOM / SPACE | Standard Component | | | Level 4 Qty x m2 | Level 5 Qty x m2 | Level 6 Qty x m2 | Remarks |
|------------------------------|--------------------|--|--|---------------------|---------------------|---------------------|---|
| | | | | | | | |
| BAY - BEVERAGE | yes | | | 1 x 3 | 2 x 3 | 2 x 3 | Located adjacent to Meeting / Staff Rooms |
| LIBRARY & RESOURCE ROOM | | | | | 1 x 15 optional | 1 x 15 optional | |
| OFFICE - SINGLE PERSON 12 M2 | yes | | | | 1 x 12 optional | 1 x 12 optional | Medical Director |
| OFFICE - SINGLE PERSON 12 M2 | yes | | | | 2 x 12 optional | 3 x 12 optional | Staff Specialists, according to staffing establishment |
| OFFICE - SINGLE PERSON 9 M2 | yes | | | 1 x 9 | 1 x 9 | 1 x 9 | Unit Manager |
| OFFICE - SINGLE PERSON 9 M2 | yes | | | | 1 x 9 optional | 1 x 9 optional | Medical Administration |
| OFFICE - 2 PERSON SHARED | yes | | | | 1 x 12 optional | 1 x 12 optional | CNC / Educators, Research functions |
| OFFICE - 4 PERSON SHARED | yes | | | | 1 x 20 optional | 1 x 20 optional | Clerical functions, according to staffing establishment |
| OFFICE - 4 PERSON SHARED | yes | | | | 1 x 20 optional | 1 x 20 optional | Registrars |
| OFFICE - WORKSTATION | yes | | | | 2 x 6 optional | 3 x 6 optional | According to staffing establishment |
| RECEPTION | yes | | | 1 x 10 | 1 x 10 | 1 x 10 | |
| TOILET - PUBLIC | yes | | | 1 x 3 | 2 x 3 | 2 x 3 | |
| TOILET - STAFF | yes | | | 1 x 2 | 2 x 2 | 2 x 2 | |
| WAITING | yes | | | 1 x 12 | 1 x 14 | 1 x 14 | |

360.39.00 SHARED AREAS

| ROOM / SPACE | Standard Component | | | Level 4 Qty x m2 | Level 5 Qty x m2 | Level 6 Qty x m2 | Remarks |
|----------------------|--------------------|--|--|---------------------|---------------------|---------------------|-------------------------|
| | | | | | | | |
| BATHROOM | yes | | | 1 x 10 | 2 x 10 | 2 x 10 | |
| INTERVIEW ROOM | yes | | | | 1 x 12 | 1 x 12 | Large for family groups |
| MEETING ROOM | yes | | | 1 x 15 | 1 x 30 | 1 x 30 | |
| PROPERTY BAY - STAFF | yes | | | 1 x 6 | 1 x 10 | 1 x 10 | |
| SHOWER - STAFF | yes | | | 1 x 3 | 2 x 3 | 2 x 3 | |
| STAFF ROOM | yes | | | 1 x 15 | 1 x 15 | 1 x 20 | |

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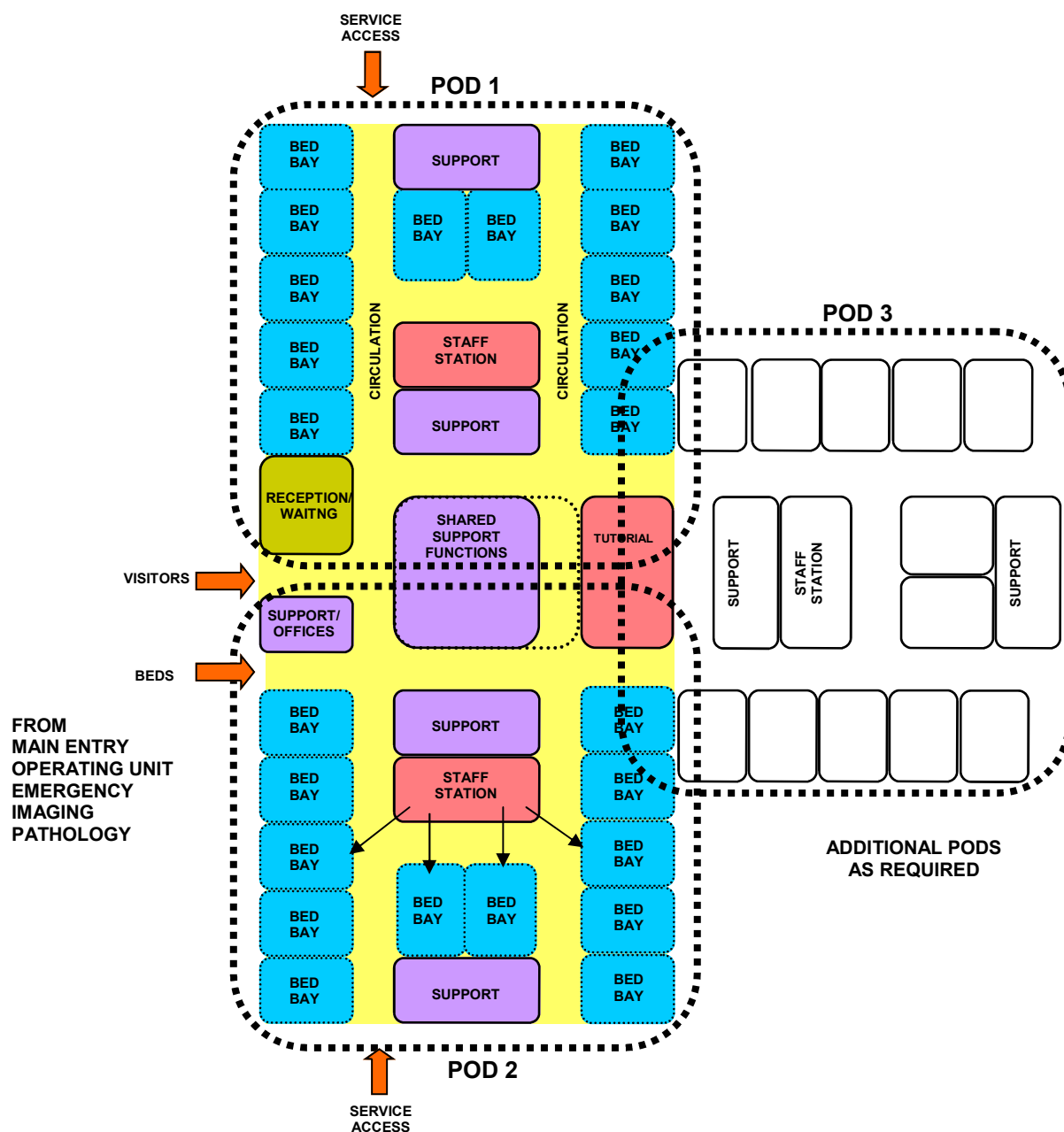
| | | | | | | | |
|--------------------------------|-----|--|--|-------|-------|-------|--|
| STORE - PHOTOCOPY / STATIONERY | yes | | | 1 x 8 | 1 x 8 | 1 x 8 | |
| TOILET - DISABLED | yes | | | 1 x 5 | 1 x 5 | 1 x 5 | |

References and Further Reading

- 360.40.00 - American Institute of Architects, Guidelines for Design & Construction of Hospital & Healthcare Facilities, 1997.
- American College of Critical Care Medicine, Guidelines for Intensive Care Unit Design, 1998.
 - Australian and New Zealand Faculty of Intensive Care, Minimum Standards for Intensive Care Units, 1997.
 - Health Department Western Australia, Private Hospital Guidelines, 1998.

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FUNCTIONAL RELATIONSHIPS DIAGRAM - INTENSIVE CARE (GENERAL)



NOTE: MAX 12 BEDS PER POD