# Australasian Health Facility Guidelines

## Part B - Health Facility Briefing and Planning

## 0300 Emergency Unit



**Revision 8.0**
**April 2025**

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**Australasian Health Facility Guidelines**


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The AusHFGs are an initiative of the Australasian Health Infrastructure Alliance (AHIA). AHIA membership is comprised of representatives from government health infrastructure planning and delivery entities in all jurisdictions in Australia and New Zealand.

# CULTURAL ACKNOWLEDGMENT AND TERMINOLOGY

The Australasian Health Facility Guidelines (AusHFG) are developed in collaboration with stakeholders across Australia and Aotearoa, New Zealand.

### Acknowledgement of Country

We acknowledge the Aboriginal people as traditional owners and continuing custodians of the land throughout Australia and the Torres Strait Islander people as the traditional owners and continuing custodians of the land throughout the Torres Strait Islands. We acknowledge their connection to land, sea and community and pay respects to Elders past and present.

### Acknowledgement of Te Tiriti o Waitangi

We acknowledge Māori as tangata whenua in Aotearoa New Zealand; Te Tiriti o Waitangi obligations have been considered in developing these resources.

### Terminology and Language in the AusHFG

Throughout the AusHFG resources, the term ‘Indigenous Peoples’ is used to refer to both the Aboriginal and Torres Strait Islander Peoples of Australia and Māori of Aotearoa, New Zealand. Where references to specific cultural requirements or examples are described, the terms ‘Aboriginal Peoples’, ‘Torres Strait Islander Peoples’ and ‘Māori’ are used specifically. The AusHFG respect the right of Indigenous Peoples to describe their own cultural identities which may include these or other terms, including particular sovereign peoples or traditional place names.

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# 01 INTRODUCTION

## 1.1 PREAMBLE

The Australasian Health Facility Guidelines (AusHFG) (www.healthfacilityguidelines.com.au) are freely available resources for health services and project teams across Australia and New Zealand to support better planning, design, procurement and management of health facilities.

The AusHFG are an initiative of the Australasian Health Infrastructure Alliance (AHIA), a cross-jurisdictional collaboration of all health authorities across Australia and New Zealand. Part A of the AusHFG provides further information relating to the purpose, structure and use of these resources. It is acknowledged that the application of the AusHFG varies between jurisdictions across Australia and New Zealand.

This AusHFG Health Planning Unit (HPU) has been reviewed and updated by AHIA following an extensive consultation process completed in 2024.

## 1.2 INTRODUCTION

This HPU outlines the requirements for the planning and design of Emergency Departments (ED).

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

- Part A: Introduction and Instructions for Use
- Part B: Section 80 - General Requirements and Section 90 - Standard Components
- Part C: Design for Access, Mobility, Safety and Security
- Part D: Infection Prevention and Control
- Part E: Alternative Jurisdictional References to the Retired Part E

The following related AusHFG resources should also be referenced where appropriate:

- HPU 440 Medical Imaging Unit (including information relating to ED satellite medical imaging services)
- HPU 131 Mental Health – Overarching Guideline (if mental health spaces are to be provided in the ED)
- HPU 133 Mental Health Emergency Short Stay Unit (MHESSU)
- Project Resource – Isolation Rooms - Engineering and Design Requirements
- Project Resource - Pandemic Preparedness - Health Infrastructure Planning & Design Guidance.

ED redevelopments may collocate other short stay units such as Mental Health Emergency Short Stay Unit (MHESSU). While an ED Short Stay Unit is described in this document, MHESSUs are described in HPU 133 Mental Health Emergency Short Stay Unit.

## 1.3 POLICY FRAMEWORK

Before undertaking a project, planners and project personnel should familiarise themselves with individual jurisdiction plans, policies, service specific guidelines and reports including Clinical Services Plans (CSP) and Functional Design Briefs (FDB). Information relating to jurisdictional policies and guidelines are listed in the Appendices in the References and Further Reading section.

The Australasian College for Emergency Medicine (ACEM) publishes a range of guidelines and statements on standards for EDs, including the following, that are referenced within this HPU:

- ACEM, 2023, S12 Statement on the Delineation of Emergency Departments (version 5)
- ACEM, 2019, P11 Hospital emergency department services for children and young persons (version 2)
- ACEM, 2023, P20 Emergency department signage, May 2023 (version 5)
- ACEM, 2024, P32 Policy on Violence in Emergency Departments (version 5)
- ACEM, 2021, P39 Family and domestic violence and abuse (version 4)
- ACEM, 2023, G23 Constructing a Sustainable Emergency Department Medical Workforce (version 3)
- ACEM, 2022, S843 Telehealth in Emergency Medicine for ACEM Interim Position Statement
- ACEM, 2024, G554 Emergency Department Short Stay Units (version 2)
- ACEM, 2023, AC549 Accreditation requirements (version 3).

## 1.4 DESCRIPTION

The role of an ED is to receive, assess, stabilise and manage patients who present with a wide variety of conditions of varying urgency and complexity. A comprehensive range of services are provided for adults and children, and while the caseload may be predictable, changing levels of demand, including surge demand and disaster response, must be anticipated.

### 1.4.1 Levels of Service / Role Delineation

Descriptions of role delineation and levels of service for EDs will vary between jurisdictions. The role delineation as defined by ACEM in the Statement on the Delineation of Emergency Departments (2023) is referenced within the HPU given it is applicable across Australia and New Zealand.

The following levels reflect increasing (from 1 to 6) capacity and capability to provide specialist emergency care network support to non-specialist providers, education, research and health system support in disaster preparedness and pre-hospital care. Levels 1 and 2 are designated in Emergency Care Centres (ECCs) and Levels 3 to 6 are emergency departments.

**Level 1 Emergency Care**

A Level 1 ED will provide emergency care for minor illness and injury of scheduled and unplanned presentations within a designated area of a remote or rural hospital. Treatment may be initiated while awaiting retrieval services. Level 1 ED will have simple resuscitation and monitoring equipment. Design should also allow for remote assessment of patients with behavioural emergencies.

**Level 2 Emergency Care**

A Level 2 ED will provide assessment and treatment of common emergency presentations within a designated area of a remote or rural hospital. Treatment can be initiated for patients not requiring immediate imaging or pathology. Level 2 ED will have short-term airway protection and assisted ventilation and continuous cardiac monitoring capabilities. Design should also allow for staff safety in case of patient and visitor aggression.

**Level 3 Emergency Department**

A Level 3 ED will provide emergency care within a designated area of a remote or rural hospital. It is the minimum level of service that can be defined as an ED. The emergency caseload for a Level 3 ED may be intermittent. Basic primary and secondary assessment should be available including advanced paediatric, adult and trauma life support and stabilisation of critically ill patients prior to arrival of the retrieval service. A Level 3 ED will have 24-hour access to specialty advice.

### Level 4 Emergency Department

A Level 4 ED is a service component of a secondary hospital with capabilities for managing some complex cases and sub-specialty services. This level of service should be capable of providing primary critical care. The service will manage the complete range of emergency presentations and be capable of providing a level of service for the community that is commensurate with the provision of primary emergency care. It will be part of an emergency medicine network. The ED must have the capability of transferring critically ill patients and have access to a retrieval service.

### Level 5 Emergency Department

A Level 5 ED will be part of a major regional, metropolitan or urban hospital with capabilities of managing most complex cases and have some sub-specialty services. A Level 5 ED should be able to manage a complete range of emergency presentations and be capable of providing a level of service for the community that is commensurate with the provision of primary emergency care. It should support other regional emergency centres as part of an emergency medicine network. The ED must have the capability of transferring critically ill patients and have access to a retrieval service.

### Level 6 Emergency Department

A Level 6 ED will be part of a large, multifunctional tertiary or major referral hospital with capabilities for managing a wide range of complex conditions, and a significant level of sub-specialty services. The service must:

- be able to manage the complete range of emergency presentations and be capable of providing tertiary level support for other more regional centres as part of a clinical or jurisdictional healthcare network
- have a dedicated retrieval service or access to one
- have a capability for the key participation in a trauma service or trauma network. This includes a role within a formal disaster response plan.
- be accredited for emergency medicine training and actively participate in undergraduate and post graduate training and formal education programs for nursing, medical and allied health staff and students.
- have an active research program.

Urgent Care Centre (UCC) models exist in a number of jurisdictions. UCC may be known by a different name in other jurisdictions such as Minor Injury and Illness Clinic, Nurse-led Clinic or After-Hours Clinic. Although this HPU does not specifically reference this model, the information provided in this document may assist in informing the planning and design of these facilities.

## 1.5 TERMINOLOGY

The terminology below is used throughout this document; however, it is acknowledged that terminology varies between and within jurisdictions.

**Acute Care Model of Care** is a set of principles and processes used to initiate, assess, perform and transfer care of patients who are acute, potentially unstable and complex who require cardiac monitoring, higher level of care, and other specialised interventions.

**Ambulatory Care such as Fast Track** is a dedicated area in the ED to treat ambulant, non-complex (single system problem) patients who can be discharged within two hours.

**Behavioural & Mental Health Zone** is a separate area in an ED designed to assess, plan and review a patient presenting with mental health crisis, drug withdrawal, intoxication from alcohol and other behavioural disturbances.

**Clinical Initiatives Nurse (CIN)** is a nurse who provide care to patients in the waiting room.

**Cold & Hot Zones** may be used during modified ED operation such as during pandemic, where the **hot zone** may refer to the area where patients meeting case definition are placed. It may also be used in a chemical outbreak where patients are cohorted into contaminated and non-contaminated groups.

**Early Assessment and Streaming** is a flexible model of care that is implemented during peak periods of demand. It focuses on determining an early diagnosis, clinical management plan and disposition decision of patients.

**Early Treatment Zone (ETZ)** is a multi-functional and flexible clinical area designed for patients who can be discharged within two hours and subsequently moved to Ambulatory Care. It also serves as a space where patient management plan can be initiated prior to transferring the patient to another area within ED.

**Emergency Care Centres (ECCs)** is a term used to describe services in a small hospital, typically rural or remote, which provides emergency care. It should be part of an Emergency Medicine Network that provides emergency specialist support, advice, training, and education (ACEM, 2023).

**Forensic Medical Zone** is where patients are assessed by forensic services e.g. after sexual assault.

Local **jurisdiction** refers to the relevant authority, including health department service provider such as an area health service or local health district and other governing entities.

**Models of Care** in ED outlines the way emergency services are delivered. It outlines best practice care and services for a person, population group or a system for managing a cohort of patients to provide the ideal patient journey as they travel through the ED.

**Paediatric & Adolescent Care Services** refers to reception, triage, assessment, stabilisation, referral and management of children and adolescents aged 0 – 17 years presenting with acute and urgent illnesses and injuries.

**Pre-triage Model of Care** may be carried out in a purpose-built structure outside the ED or in the waiting area, and used to filter patients to an appropriate workflow pattern within the ED.

**Resuscitation model** outlines a set of guidelines for the most appropriate clinical, preparatory processes and team model, performed in a specific area of the ED for the resuscitation or team-based intervention of patients.

**Registration** by the triage nurse or clerical officer is undertaken after attending triage.

**ED Short Stay Units** also known as **Emergency Medical Units (EMU)** or **Short-Term Treatment Area (STTA)** is for the short-term care of patients who require observation, specialist assessment and diagnostics and whose length of hospital stay is deemed to be limited (for example, less than 24 hours).

**Sub-acute care** is a designated area in the ED for patients with low acuity or highly complexity who are not eligible for Ambulatory Care or Urgent Care Centre (UCC).

**Transfer of Care Zone** is an area where ambulance patients are cared for by an ED nurse or the hospital-based team while they await admission.

**Triage** facilitates preliminary assessment of patients in order to determine the urgency of their need for treatment and referral to the most appropriate area for treatment.

**Urgent Care Centre (UCC)** provides short-term, one-off care for urgent non-life-threatening health care needs. This area is not part of ED. Patients can visit these facilities if they need medical attention that can be managed outside of ED but cannot wait for a General Practitioner (GP) appointment.

**Vertical flow model** refers to the provision of multiple chairs instead of beds to allow for quicker assessment therefore facilitating patient flow and the ability to treat more patients that are capable of remaining upright and seated in the ED. In this model of care, ED patients are grouped in terms

of those that should remain lying down (horizontal) and those that can sit upright (vertical) during assessment and treatment.

**Virtual Models of Care** refers to a model where ED is equipped with well-defined processes and governance, dedicated telehealth/virtual care room/space and trained staff to provide ongoing virtual advice and support to other ED clinicians and facilities.

**Workforce Related Models of Care** includes staff-led ED care services such as Physician in Triage, Nurse Initiated Care and Physiotherapy Practitioners.

# 02 PLANNING

## 2.1 OPERATIONAL MODELS

### 2.1.1 General

The following overarching clinical and operational models require confirmation prior to commencing the facility planning and design process given they will impact the configuration of the ED and overall space requirements.

There is an organisational understanding of the relationship between models of care and functional design. A key consideration is the ability of the ED design to adapt and respond to the changes in models of care and clinical demands, particularly in circumstances which are infrequent such as mass casualty events or pandemics.

### 2.1.2 Patient Casemix

The projected ED activity and role within the local health service/network will underpin the future ED physical capacity requirements. The anticipated volume of presentations associated with the following patient groups will also inform planning and design requirements.

- major trauma
- paediatrics
- elderly patients
- patients presenting with acute mental health conditions
- patients presenting with drug and alcohol misuse
- patients presenting with acute, severe behavioural disturbances
- patients with mobility impairments
- patients with cognitive impairment, learning disability and neurodiversity
- patients presenting from correctional facilities/under escort from police or guards
- patients with infections and/or infectious diseases
- patients who are infectious
- patients who are immunosuppressed
- patients from mass casualty incidents
- patients exposed to Chemical Biological Radiological (CBR) events
- maternity patients
- patient with bariatric needs
- patients requiring palliative and end of life care
- other specific patient groups relating to the location of the ED, for example local cultural groups.

### 2.1.3 Models of Care

Models of care implemented within EDs are aimed at optimising the timeliness, safety and quality of emergency care, as part of a whole-of-hospital approach to support the optimal patient journey.

There are a number of processes that are common to all EDs, along with a range of more specialised models that may be established depending on the role delineation of the service, size, and jurisdictional policies. Common ED processes such as triage, resuscitation and in larger facilities, acute care, paediatric and adolescent care services are generally provided. Other models of care which may be considered for EDs include:

- Ambulatory Models of Care
  - Ambulatory Care such as Fast Track
  - Sub-acute care
- Front of House Models of Care
  - Early Assessment and Streaming
  - Early Treatment Zone
- ED Short Stay Units
- Behavioural & Mental Health Zone
- Virtual Models of Care
- Pre-triage Model of Care
- Transfer of Care Zone
- Cold & Hot Zones
- Forensic Medical Zone
- Workforce related models of care.

Refer to section 1.5 Terminologies and section 5.3 Models of Care for further information on models of care that may be utilised in ED.

It is acknowledged that in smaller or rural and remote EDs, overlapping of functions/models may occur within the same ED space as provision of dedicated zones is not always possible. Flexibility across patient spaces is required to adapt to the changing patient needs and evolving models of care allowing staff to respond and ensure patients' access to timely care.

### 2.1.4 Education, Training and Research

The approach to education, training and research for the ED and the overall hospital will inform the extent of associated facilities required, both within and external to the ED, to support these functions.

This may include:

- some education/staff training space provided locally (so staff do not need to leave the department)
- storage for training equipment e.g. mannequins, models, machines, large equipment and other training materials such as folders of notes and curriculums
- telemedicine facilities
- simulation capability
- videoconferencing capability within/near the clinical areas
- staff work areas (for those engaged in education, research and management)
- support for students.

Refer also to ACEM Accreditation requirements for minimum acceptable levels of training provided at ED sites.

### 2.1.5 Workforce and Staff Areas

EDs are multidisciplinary work environments comprising of emergency physicians and junior medical staff, nurses including nurse managers, nurse unit managers, nurse practitioners, nurse educators and clinical nurse consultants depending on the staff profile; clerical staff, cleaning staff

and wards persons/orderlies. Dedicated or in-reach mental health specialists, allied health, pharmacists, security, volunteers, trainees, research and education staff and students may also be present, along with a range of visiting specialities.

The ED capacity, models of care and management of communicable diseases will have an impact on the nature, size and location of staff stations, as well as staff work areas and staff amenities. For smaller facilities it is important that departments maintain connection and visibility between different ED areas to optimise staff efficiencies and safety.

It is essential that optimal staff work practices are enabled through appropriate consideration of Information and Communications Technology (ICT). Refer to sections 2.3.6 and 3.10.4 for further details.

### 2.1.6 Storage

EDs and ambulance services are high users of health consumables to treat a variety of conditions. Access to these is required over a 24-hour period.

Depending on the project requirements and logistic services for the facility, storage systems may be either static or mobile.

Specialised equipment such as workstations on wheels, mobile Xray machines, portable ultrasound machines and procedural trollies require their own specialised storage areas. Disaster, pandemic and standard infection prevention and control equipment also have specialised use and storage requirements. Consideration to the storage needs is an essential part of planning and designing EDs to ensure easy access of supplies by ED staff and ease of restocking by supply staff.

## 2.2 OPERATIONAL POLICIES

### 2.2.1 General

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

### 2.2.2 Hours of Operation

EDs operate 24 hours a day, seven days a week. In some cases, the ED will provide a controlled access point to the hospital after normal business hours.

### 2.2.3 Management of Vulnerable and Special Patient Groups

**Children**

Unless a specialised paediatric hospital exists in the immediate vicinity, children will usually comprise a significant proportion of attendances in most general EDs and will be accompanied by a parent or carer. In smaller facilities, the paediatric area may be designed for flexible use. When used for paediatric patients, the safety of children principles in healthcare facilities still apply.

Special requirements to cater for paediatric attendances may include:

- provision of a dedicated waiting space including play area, that is separated acoustically and visually from the general waiting area (but still observable by staff)
- protection of the children's clinical area from disturbing sounds or sights from other patients in the ED, including the ED Short Stay Unit (SSU)
- patients presenting with communicable diseases
- protection of patients who are immunocompromised

- consideration of activity flows so that frequent transit routes, e.g. to medical imaging or inpatient units, do not traverse other clinical areas
- provision of dedicated toilet, baby change and breastfeeding facilities for the paediatric zone
- provision of sufficient visitor space and facilities for parents or carers and siblings.

For further information, refer to:

- ACEM, 2019, P11 'Hospital Emergency Department Services for Children and Young Persons' (version 2).
- The Safety and Wellbeing of Children and Adolescents in NSW Acute Health Facilities
- Commission for Children and Young People, Victoria.

**Patients Presenting with Acute Mental Health Conditions**

Patients presenting to the ED with acute mental health conditions often have complex requirements. Services should have adequate facilities to receive, assess, stabilise, provide initial treatments and prepare these patients for transfer or admission into an inpatient unit.

Clinical pathways for mental health patients will be underpinned by local jurisdictional policies and will inform planning and design requirements relating to optimal activity flows and the range of assessment and treatment areas to be provided.

Refer to HPU 131 Mental Health – Overarching Guideline for further information.

**Patients Presenting with Acute Severe Behavioural Disturbances**

Behavioural disturbances may be caused by a range of conditions, including general medical conditions (e.g., acute delirium, head trauma, dementia), intoxication or withdrawal, and mental health conditions.

When assessing and managing patients with acute severe behavioural disturbance within the ED, the safety of the patient, staff and others is the priority. Patient care pathways and associated facility requirements will depend on local jurisdictional policies and will include consideration of:

- Clinical areas to support assessment and management of the patient in a safe environment to reduce the risk of deterioration.
- Use of de-escalation techniques that focus on engagement of the person with acute severe behavioural disturbance.
- Protocols for sedation of the patient whose behaviour puts them or others at immediate risk of serious harm and which is unable to be contained by other means.

**Sexual Assault**

Patients may present to the ED following sexual assault. ED staff will be required to implement protocols in line with their local jurisdictional/networked model for forensic services.

If the ED is a designated examination site, a dedicated consult room with an attached ensuite will be provided to ensure that the chain of evidence and DNA decontamination procedures can be managed. In addition to its fit-out as a consult room, this room requires storage capacity for forensic related materials. Strict protocols will be in place to prevent contamination of forensic specimens.

Depending on the defined role of the ED, this service may be provided as part of a comprehensive clinical forensic medical service. This consult room must be in a discrete location with appropriate connection to ED treatment areas, to allow assessment and treatment of physical trauma associated with the assault.

For other facilities where a dedicated room is not available, local protocols will be implemented which may include access to general ED consult rooms, lockable storage for sexual assault services and the use of pre-prepared standardised examination packs. A flexible Consult Room

also used for obstetrics and gynaecology examination/treatment in non-designated sites, may also be used to care for these patients.

Refer to section 2.2.3 Management of Vulnerable and Special Patient Groups – Children for specific requirements of paediatric patients.

**Family and Domestic Violence and Abuse (FDVA)**

Patients may present to the ED following suspected family and domestic violence and abuse. In some instances, the patient may present with the perpetrator which poses a challenge for staff when assessing and treating the patient.

This space should match the clinical needs of the patient. It is important to provide a private and quiet space, an environment where the patient feels safe, and ED staff can communicate and assess the patient on a one-to-one basis (with/without an interpreter). This space should be away from any potential perpetrator so they cannot overhear or interfere in the conversation.

For further information on this topic refer to:

- ACEM, 2020, P39 Family and domestic violence and abuse
- NZ Ministry of Health, 2016, Family Violence Assessment and Intervention Guideline: Child abuse and intimate partner violence.

**Early Pregnancy Patients**

The models of care and pathway for early pregnancy patients should be established when they present in ED. Women presenting with early pregnancy complications, miscarriages or threatened miscarriages require urgent attention. The patient and family/support person are to be provided with privacy, treated with sensitivity and dignity, and provided with timely and appropriate psycho-social support. Appropriate private consult area allowing for gynaecological examinations, including ultrasound procedure, should be provided for the management and care of patients with threatened miscarriage. Refer to section 2.4.5 Assessment and Treatment for additional information.

**Chemical, Biological and Radiological (CBR) Emergencies**

For chemical, biological and radiological incidents, triage, decontamination and initial treatment may occur outside of the ED. A decontamination room/space will be required within all EDs and must be accessible from the ambulance bay without the need for the patient to enter the ED. Privacy during decontamination showers will need to be provided for both patients and staff.

Some services will require mass decontamination capability in addition to a decontamination room/space (e.g., through fixed shower heads or erectable systems) depending on the service requirements and risk assessment. Appropriate containment of wastewater from all decontamination areas is required.

Refer to local jurisdictional decontamination in healthcare facilities requirements and:

- Australian Government Department of Health, 2015, Australian Clinical Guidelines for Acute Exposures to Chemical Agents of Health Concern: A Guide for the Emergency Department Staff
- Little M and Murray L, 2004, Consensus Statement: Risk of Nosocomial Organophosphate Poisoning in Emergency Departments, Emergency Medicine Australasia, 16, pp. 456-458.

**Bariatric Patients**

ED design requires provision for bariatric patients and the need to ensure a safe work environment for staff. This will include consideration of ambulance bays, treatment areas, consultation rooms, circulation space and furniture, fittings and equipment capable of meeting the needs of the bariatric patient.

Projects will need to refer to local jurisdictional policies regarding capability requirements for bariatric patient management. This includes consideration of the larger size of the ambulance

vehicle, wider turning circle requirements and space requirement for the hoist/ramp to assist patient unloading from the bariatric ambulance.

**People with Disability**

The ED must be accessible to all people with disability. This includes access to patient care areas and appropriate adjustments to the workplace for staff with disabilities. Statutory Braille Tactile signage identifying WC facilities, exit locations and the provision of hearing augmentation systems will need to be provided. Information boards will need to be installed in accordance with the view range requirements of AS1428.2:1992. The formatting of the messaging information provided will need to be determined and reviewed by the prevalent community groups accessing the facility.

For New Zealand healthcare facilities, refer to NZS 4121:2001 Design for access and mobility: Buildings and associated facilities and F8 Signs Acceptable Solutions and Verification Methods.

Refer to section 3.6.2 for further information.

**Patients with Neurodiversity and Cognitive Impairment**

Consider specific considerations for people with neurodiversity and their need for low stimulus spaces and sensory modulation.

Refer to section 3.5 for specific design element guidance specific to this patient group.

**Local Cultural Groups**

The local cultural context requires consideration when planning the ED to ensure the provision of a welcoming environment for all people. Information should be provided in languages other than English to address the linguistic needs of the local community. Wayfinding solutions should also be in culturally specific languages and should include the use of universal pictorial symbols. Interpreter services including use of video interpreter carts will assist non-English speaking population to access care immediately.

The Australian Commission on Safety and Quality in Healthcare's guidance (2017) on User Guide for Aboriginal and Torres Strait Islander Health details the need to work with the local Aboriginal and Torres Strait Islander communities to create a welcoming, culturally sensitive and safe environment for these consumers. The use of local Aboriginal art in ED waiting rooms can provide links to culture and community and a culturally appropriate space within the hospital should be identified for access by Aboriginal families and carers.

Access to safe, culturally appropriate outdoor areas should also be considered for local cultural groups, families with children and grieving families. Where site allows, reflection gardens, quiet spaces or yarning circles for timeout are to be considered to allow patients and cultural groups access to the outdoors within the ED grounds.

Refer to New Zealand Health Facility Design Guidance Note for specific requirements for ED facilities in New Zealand including whānau rooms. Refer to other local New Zealand resources for places for blessings and blessings of rooms after a death.

Further information relating to culturally sensitive planning and design solutions is provided in the AusHFG Resource, 'Culturally Sensitive Planning and Design'.

### 2.2.4 Medical Imaging

In larger EDs, a satellite medical imaging service may be required to promote rapid access and patient throughput, especially where it is difficult to collocate the ED with the main medical imaging department. These modalities are in addition to mobile x-ray provided in resuscitation and typically include x-ray, ultrasound and CT.

Key considerations include:

- high volume of activity flows between the various ED areas and medical imaging
- path of travel of ED patients (to maintain privacy)

- the need to separate adult and paediatric flows where appropriate
- provision of a sub-wait area and mobile equipment bays for mobile imaging equipment
- access to high resolution diagnostic (PACS) viewing monitors within the ED.

Refer to HPU 440 Medical Imaging Unit for further information.

### 2.2.5 Pathology

Some point of care testing (PoCT) will occur in EDs. These devices should be managed and maintained by the local pathology service. In most large EDs, pneumatic tube systems will be used to transport samples to the Pathology Unit. The pathology bay and pneumatic tube stations will be in an area supervised by staff.

### 2.2.6 Medication Management

Depending on the size of the ED, a central medication store may be provided, or for larger sized EDs, a number of decentralised stores may be required for ease of access from the various ED zones. Automated dispensing systems may be considered. Pharmacists should be involved in the decisions regarding the number of medication stores to be included in the ED design to ensure efficient medication stock management.

Rapid access to a medication store, including fridge and drug safe, from the resuscitation zone is essential. This may be located centrally in the resuscitation zone and shared between resuscitation bays.

Consider future proofing for the anticipated implementation of an automated medication system, even if it is not currently provided within the hospital.

### 2.2.7 Ambulance Services

Ambulance services deliver and retrieve patients from EDs. Ambulance officers transfer patients into the ED via the ambulance entrance and then wait with patients in the ambulance triage for assessment. These areas will be physically and visually separated from public areas. Loading and offloading areas of the ambulance must be private with physical and visual separation from public areas of the ED. Ambulance officers will be provided with a write-up bay to access patient healthcare records and make phone calls.

### 2.2.8 Major Incident Management / Pre-Hospital Response

Depending on the hospital's role within the local jurisdiction's disaster response plan, the ED will require appropriate support areas to respond to emergencies such as natural disasters and severe weather; man-made emergencies (e.g., major transport accident), infectious diseases, food safety threats or chemical and radiation emergencies.

A disaster-ready ED design will assist in providing surge capacity to meet anticipated patient needs. Flexible planning is required to accommodate large workloads, patients who are critically ill and/or present with infectious disease, occupant densities during pandemic/outbreaks, relatives, friends and hospital staff, as well as equipment involved in managing a major incident and/or pre-hospital response including retrieval services.

## 2.3 PLANNING MODELS

### 2.3.1 Planning Principles

To promote functionality and flexibility, the following principles should be considered when planning an ED:

- Evidenced-based design principles that improve health outcomes, patient care experience, and staff performance and satisfaction.

- Patients and their relatives/carers will often be in pain or anxious. Therefore, the ED should support delivery of a reassuring and comfortable environment that seeks to optimise the patient experience.
- Activity flows through the ED need to be carefully considered including the need for rapid access to clinical care and diagnostics for the critically ill and/or present with an infectious disease, separation between patient groups where required and appropriate provision of flows to and from the ED in the event of a major incident.
- Consider the possibility of patients presenting with a communicable disease and how to best place them, in addition to patients presenting with High Consequence Infectious Disease (HCID).
- Consider patient volumes and movement from the waiting areas, ambulance triage and other entry points as well as patient transfer and discharge areas.
- Where patients are grouped by acuity, consideration should be given to the staffing implications of the layout. It is possible, for example, to arrange different levels/types of treatment spaces around a single staff station, each retaining their own discrete area.
- Where patients are grouped by functional areas in alignment with the models of care, it is important to ensure that efficient internal activity flows are achieved, the need for patients and visitors to traverse other areas is minimised; and the location of staff areas supports efficient use of resources.
- Consider efficient staff movement between the functional areas of the ED.
- A clear circulation strategy is essential to facilitate intuitive wayfinding for visitors and patients and connectivity for staff.
- For smaller facilities, it is important that departments maintain connection and visibility between different ED areas to optimise staff efficiencies and safety.
- Planning should enable the ED to scale-down during less busy periods to promote operational efficiencies and patient and staff safety. With careful planning, this should be managed without the need to change the work patterns of the unit as a whole or impinge on the proposed model of care.
- Standardisation of space is recommended to promote flexible rooms and spaces that can be adapted in the future.
- Where satellite imaging services is to be provided in larger facilities, ED staff should be included in the planning and design consultations to maintain connectivity and maximise workflow efficiency within the ED.
- Futureproofing planning should consider projected expansion requirements to ensure future development has minimal impact on the operation of the ED and consider providing flexible spaces where future technology can be accommodated.
- Consider engineering infrastructure maintenance access and plant replacement strategies to minimise impact on the day-to-day ED operations and maintain patient privacy.
- Where projected expansion will create unopened patient bed spaces, consider locating these beds farther away from the operational Staff Station to maintain patient visibility and decrease travel distances for staff.

### 2.3.2 General Location

Decisions regarding ED location have a major influence on the cost and operational efficiency of the ED. The ED should be located for easy access, usually on the ground floor, close to public transport infrastructure, well-lit and adequately signposted with adequate wayfinding signage.

The location should, as much as possible, maximise the choices of layout with careful consideration of access points, future expansion opportunities and key functional relationship requirements, as noted in section 2.5.

Clear and separate traffic flows should be provided for ambulance traffic and public traffic. The two entries should not meet, if possible, to avoid public traffic potentially slowing down the ambulance vehicles. The ED and ambulance traffic should not interfere with other traffic patterns on the site. In some instances, the ED will be the only access to the rest of the hospital after hours and will require implementation of appropriate security strategies. There should be limited distance between the front of house area and the ED, with an easily navigable pathway connecting the two.

### 2.3.3 Activity Flows

The ED is a busy area, accommodating a wide variety of activities and people, where time delays may be life threatening. It is important that the design allows for rapid access between functional areas with a minimum of cross traffic. Visitor and patient access to all areas should not traverse clinical areas. Patients who need to be transferred to other units, such as medical imaging or inpatient units, should not traverse other clinical areas. It is important that patients' visual, auditory and olfactory privacy is maintained while at the same time recognising that staff need to observe patients.

To ensure a safe, well-designed and efficient flow through the ED, it is essential to establish a single flowthrough entrance for visiting staff that passes by the main staff station. This setup will allow visiting staff to easily interact with and inform the ED in-charge staff that the consultation, assessment, or treatment of the patient is underway.

Activity flows of patients, staff and visitors to/from ED are dependent on the service level of the unit. The activity flows to/from ED which require considerations during planning stage include:

- Waiting areas/triage
- Ambulance
- Helipad
- Medical Imaging
- Operating Unit
- Intensive Care Unit (ICU)/Cardiac Care Unit (CCU)
- Inpatient units (IPUs) and other clinical units
- ED Short Stay Unit (SSU)
- Urgent Care Centre (UCC)
- Outpatient Unit (direct referrals)
- Mental Health Emergency Short Stay Unit (MHESSU)
- Discharge / Transit Lounge
- Mortuary
- Carpark including drop off zones & disabled car parking
- Logistics – supply, linen, food services, waste management, etc.

### 2.3.4 Waiting Areas

Patients should be 'streamed' to the most suitable model of care as early as possible, promoting a logical and forward movement through the episode of care. In some cases, this forward movement may be facilitated through the provision of internal waiting spaces/sub-waiting areas that are supervised by staff and can also provide a role in monitoring and/or initial treatment and

assessment. Patients may also return to a sub-wait area to finalise their treatment or for observation if appropriate.

Waiting areas should be designed to help support the front of house models so that patient care can progress. Consider visibility by staff from triage and front of house to maintain visual control of people waiting to be seen by medical or nursing staff.

Consider presentation volumes and provide adequate space to accommodate spaces to facilitate prevention of infection in waiting areas as well as occupant densities during pandemic/outbreaks.

Waiting areas should also be designed with well-defined operational capacity for unpredictable surges. However, implementing an operational model which promote efficient patient flow is vital to ensure that the maximum capacity of the waiting area is not always reached or exceeded.

### 2.3.5 Configuration of the Unit

EDs should be designed for effective observation of patients and supervision by staff. The configuration of ED can be open plan, linear, centred around inner core, in pods, or a combination of these configurations depending on the models of care. Open plan refers to patient beds' layout wrapped or distributed around a central staff working area with minimal physical separation between patient cohorts. Pods are self-contained clusters of patient beds with integrated staff working area and support rooms to care for specific cohorts of patients. It is also important to acknowledge that ED redevelopments transitioning from one configuration to another e.g., from open to pod configuration (or vice versa), will require updated change management policies.

There are patient cohorts which may be more suitable in a pod configuration in ED such as paediatrics, older persons, and patients presenting with mental health crisis.

There are advantages and disadvantages associated with open and podded ED which are noted below:

| | Open Plan | Pod |
|---|---|---|
| **Advantages** | • Better visibility of patients<br>• Staffing number can be flexible to suit number of patients<br>• Better staff communication. | • Quieter as able to separate patient cohorts<br>• Efficient if pods naturally match the availability and the structure of clinical team<br>• Easier functional separation for infection prevention and control<br>• Shorter travel distances to support rooms. |
| **Disadvantages** | • Can be noisy<br>• Less privacy for patients<br>• Support rooms can be far from clinical areas<br>• Difficult to cohort patients for infection prevention and control<br>• Potential for security issues with different patient cohorts in open area. | • Potential patient visibility issues<br>• Requires more staff<br>• Potential for staff isolation<br>• Reduced staff communication, support and supervision<br>• Duplication of support rooms<br>• Sensory overload and overstimulation. |

There are other common layouts which are used in ED. Some of these ED layouts are:

- **Linear configuration** where there is a shared central staff/work area and the patient areas that cluster around it in a linear arrangement. This configuration allows patient volumes to increase or decrease by opening/closing patient spaces farthest from the central staff area.

- **Central core configuration** where patient care bed/bays are wrapped around a central staff working area. This allows for maximum visibility of patients and easy staff control of the unit. The functional limitations of patient observation to a smaller number of patients may make it suitable for smaller ED.

The ED configurations provided here are not exhaustive. There are other configurations used in ED in response to other variables such as operational processes and availability of resources. The relationship between models of care and the functional layout is an important consideration in determining the configuration of the unit.

The final ED layout should be designed in accordance with the models of care to be implemented, ensuring safety during typical daily operations and maintaining functionality during surges and pandemic responses.

### 2.3.6 Information Communications and Technology

Information, communications and technology are key enablers for the ED to optimise patient care and flow. Key considerations relate to clinical infrastructure and devices, communications systems, security and facilities management, and requirements relating to patients and visitors.

Further detail is provided in section 3.10.4 Information Communications and Technology (ICT).

## 2.4 FUNCTIONAL AREAS

### 2.4.1 Functional Zones

The ED will typically consist of the following functional zones with the scope dependent on the size, role delineation and jurisdictional policies:

- entry/waiting
- triage and registration
- ambulance areas
- assessment and treatment including resuscitation, acute, ambulatory care, and other specialist zones and rooms
- ED short stay unit
- support areas
- education area
- staff areas & amenities.

### 2.4.2 Entry / Waiting / Public Amenities

The main ED entry is the location where ambulant patients present for services and is separate from the ambulance entry.

The size of waiting areas will be dependent on the approach to the provision of internal/sub-wait areas within the ED clinical zones to promote forward movement of patients. Also consider the shape of the waiting area to provide the staff clear line of sight of all patients and visitors. In hospitals with on-site security services, a security base may ideally be located in this area with line of sight over the access to the entry, public waiting area and reception. CCTV will support visual surveillance of these areas.

Waiting areas will be arranged to allow some separation between groups (e.g., adults, children and mental health patients) and will accommodate all patient groups including bariatric, elderly and those with accessibility requirements. In some jurisdictions, physical, visual and auditory separation is required between adults and paediatrics waiting areas. Consider separate waiting areas for patients presenting with mental health crises to minimise noise exacerbation of condition. Also

consider entry and waiting area for people arriving with police or correctional services escort. A separate space for patients with identified acute respiratory infection may also be considered.

There should be sufficient circulation space and consideration for accessibility of amenities (such toileting facilities, vending machine, phone charging and drinking fountain) for wheelchairs and other mobility devices. Automatic doors are recommended for all entry doors with sensors at wheelchair height. A range of visitor amenities will be available including toilets, drinking water, vending machines, parenting room and mobile phone charging stations. Accessible Changing Facility may also be provided in this area. However, Accessible Changing Facility may be located in the main entry of the hospital instead of the ED for a more centralised public access. Where Accessible Changing Facility is provided in ED, planning should allow for this room to be easily accessible from the waiting area and from the clinical zone of the ED.

Access to food/water/toilet facilities for support animals and guide dogs also needs to be considered. Provision of consumer feedback station/kiosk in the waiting area should be considered in locations which will not contribute to congestion.

Further information regarding safety considerations for these areas is included in section 3.7 Safety and Security.

### 2.4.3 Triage and Registration

The triage and registration zone will facilitate the rapid assessment and movement of patients from the entry/waiting area through to the assessment and treatment zone. The triage will have oversight of patients arriving via the main entry and ambulance.

Triage may be desks/counters or designated rooms adjacent to the waiting area. Triage desks/counters are usually preferred for ED services with specific streaming models and for triaging high volumes of patients.

In larger facilities, the triage desk/counters may be separated (but co-located) from the reception/registration area. However, in smaller remote/rural facilities, the triage desk/counter may be combined with reception/registration to co-locate the front of house staff for safety.

Triage area design should be low stimulus and must be easily identifiable and accessible. Clear, culturally appropriate, signs and wayfinding should be utilised to indicate where patients report, with the triage and reception areas designed so that the first point of contact for patients is the Triage Nurse. Lower desk heights and windows at triage and registration stations to be provided for patients on wheelchairs.

Consider the location of triage and registration zone away from the main circulation and thoroughfare of the waiting area. This will alleviate congestion and assist with preserving patient confidentiality by allowing visual and auditory privacy from incoming and outgoing patients and visitors.

Access to a triage room may be required where a greater level of privacy is needed to complete the triage assessment and provide basic first aid. In some jurisdictions and larger facilities, paediatric triage may also require physical, visual and auditory separation from adult triage.

Depending on the models of care, an enclosed multifunction assessment room within the triage zone may be provided for patients who present with acute mental health crises and neurodiversity requiring a low stimulus environment for assessment.

The reception, ambulatory triage and ambulance triage may be separated or collocated. Both options are acceptable but both ED and ambulance teams will require dedicated spaces to carry out their tasks.

The reception and triage desk/counter must allow for surveillance of all persons entering the ED and designed with due consideration for the safety of staff. Design solutions to address safety requirements must also support optimal communication between staff and patients.

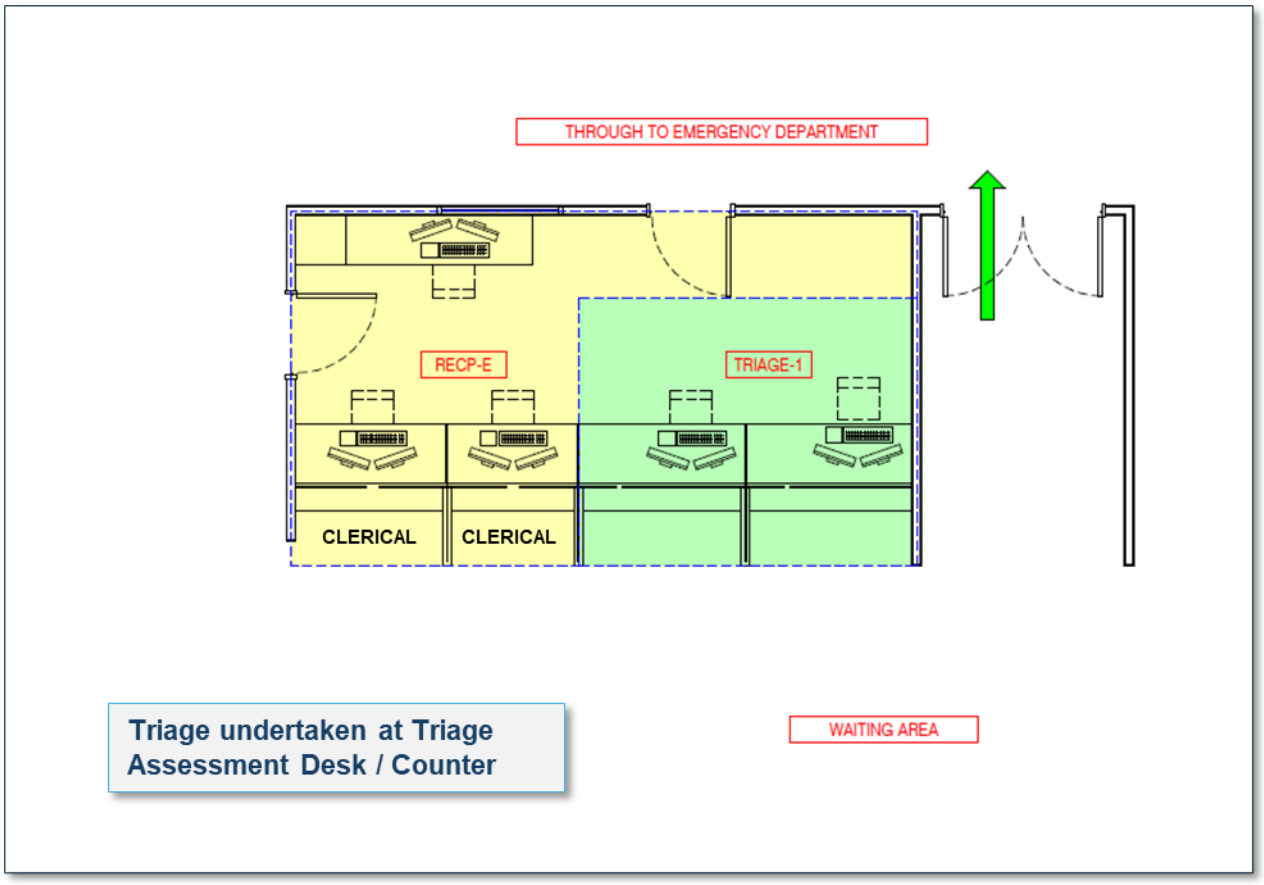
The reception area may accommodate:

- reception of patients and visitors
- registration of patients
- printing of ID labels
- switchboard function (after hours)
- handling general enquiries
- money handling.

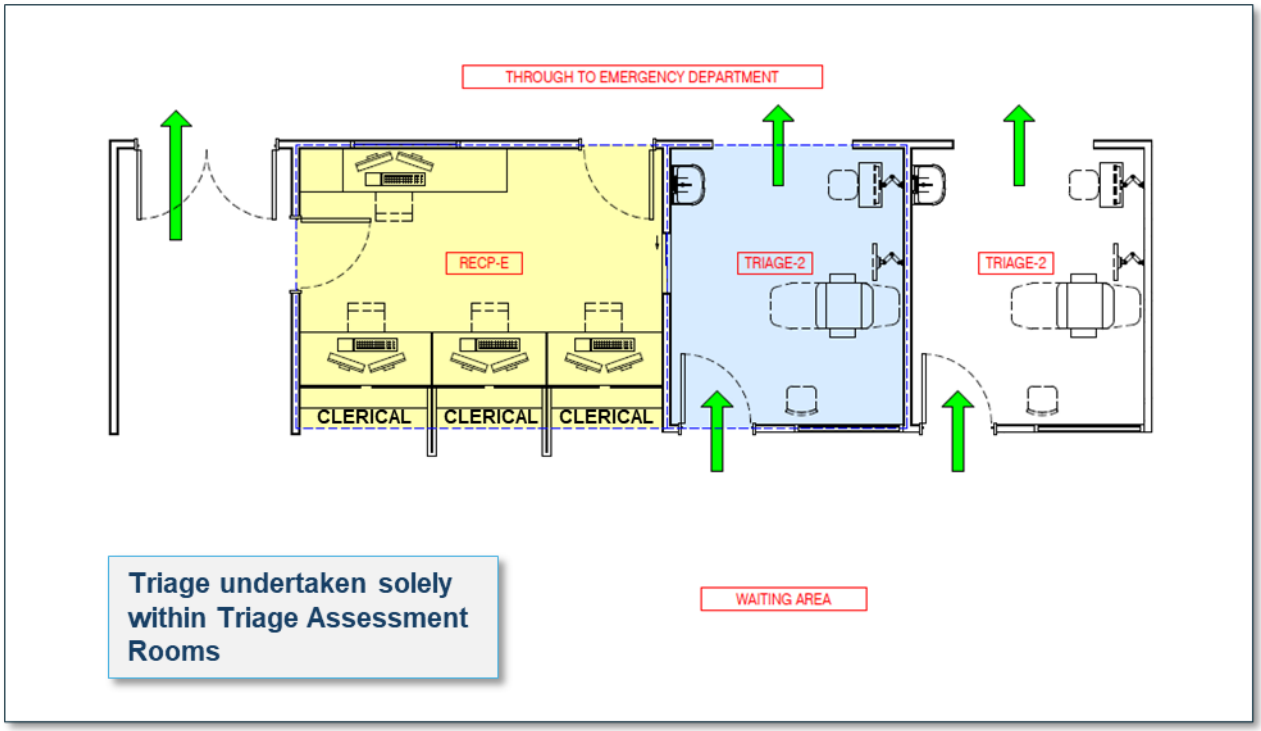
Depending on the models of care, concierge services, brochures/pamphlet holders and interactive screen kiosk location should also be considered. In some jurisdictions, a multifunction office for local cultural representative, local indigenous health worker/practitioner or peer support worker may also be located adjacent to this zone to immediately attend to patient issues in the triage and waiting area.

For visual purposes, the following illustrations show some indicative configuration alternatives when planning and designing the ED Reception, Triage Assessment Rooms and/or Triage Assessment Desk / Counters. Final configuration will be on a project-by-project basis and dependent on the ED models of care and operational models.

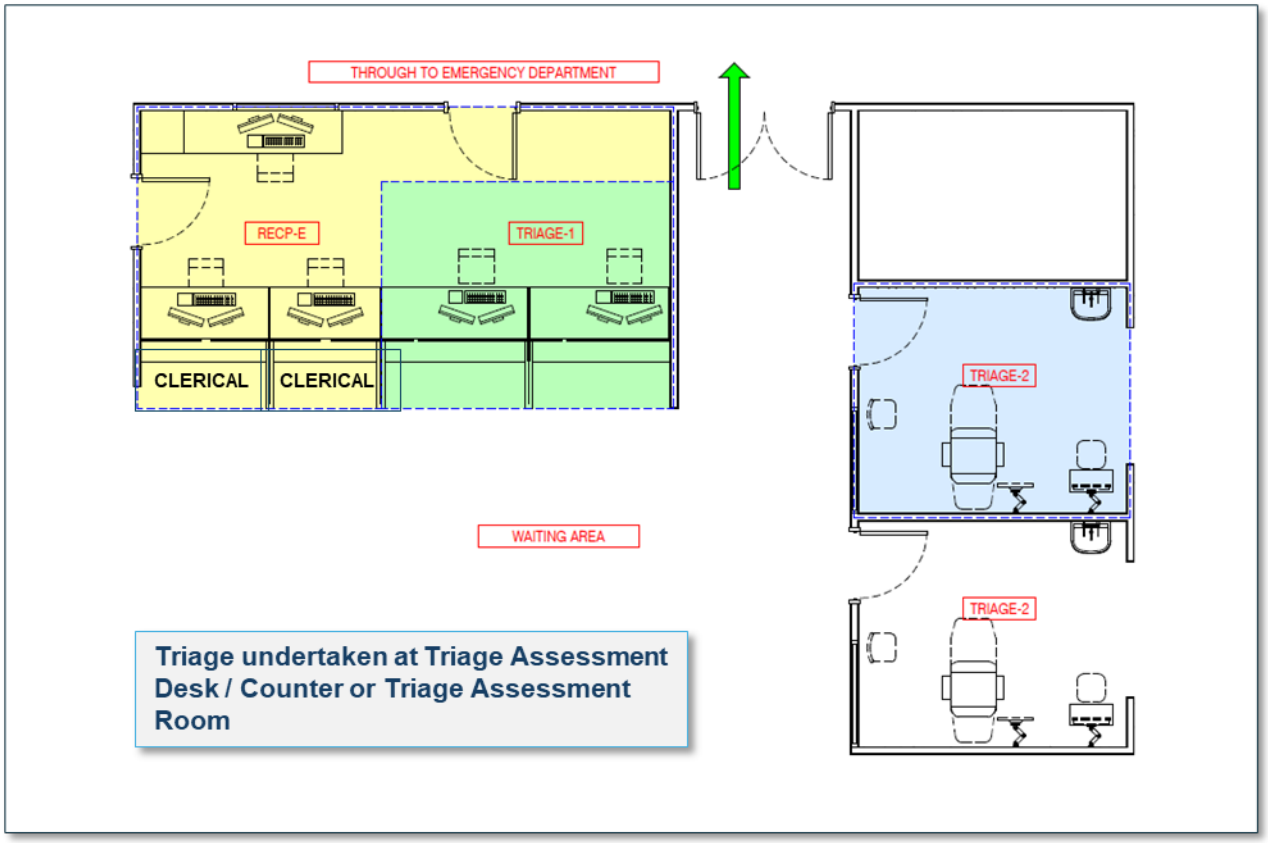
**Configuration 1. ED Reception Configuration with Triage Assessment Desk / Counter**



## Configuration 2. ED Reception Configuration with Triage Assessment Room




## Configuration 3. ED Reception Configuration with Combined Triage Assessment Desk / Counter and Triage Assessment Rooms



### 2.4.4 Ambulance Areas

A dedicated ambulance parking area and entrance to the ED will be provided. Ideally, this entry will provide a one-way flow for ambulance vehicles. The drop-off point will be sheltered, as will access to the decontamination shower. Refer to section 3.2 for design considerations relating to the ambulance vehicle parking area. Also refer to local jurisdictional requirements and industrial arrangements when planning and designing the ambulance areas. Consultation with the state ambulance service early in the process is particularly important.

A range of other services may access the ambulance entry, for example, inter-hospital transfer services, newborn emergency transport services, police and corrective services. The patient flow needs to be established during the planning phase to avoid ambulance access obstruction.

The ambulance triage/holding area accommodates ambulance officers and patients arriving by ambulance prior to triage and transfer to the appropriate area within the ED. Ease of access from the ambulance triage bays to a private assessment space, e.g., triage room, may be required to complete the clinical assessment with a greater level of privacy. Close proximity is also required to patient toilets and a dirty utility room.

Ambulance officers will require access to a range of support areas from the ambulance triage bays including a dedicated write up area for access to patient health records, phone and printer. Ease of access is also required to a beverage bay or ED staff room and toilets; as well as limited storage for wheelchairs, cleaning equipment and other ambulance equipment to be returned. Where ED and ambulance amenities are to be shared, they should be easily accessible for both.

The ambulance area should be capable of being separated from ED with a door to allow access of the space by ambulance officers in extenuating circumstances such as during pandemic or ED lock down.

### 2.4.5 Assessment and Treatment

The assessment and treatment zone will be made up of a range of areas including:

- **Resuscitation bays** will have direct access from triage and the ambulance entry to medical imaging (in particular CT) and rapid access to operating theatres. Some larger EDs may have a dedicated trauma resuscitation bay. Each bay will need to accommodate a range of staff required for resuscitation. The location of these rooms will promote visual and acoustic privacy. Dedicated storage will be required for equipment with ready access to interview/quiet rooms for relatives. An additional family room or whānau room may also be located in this area for shared used by ED.
- **Acute treatment area** will provide standardised acute treatment patient bays. Where possible, bays will be overseen by a staff station. The area will be supported by a range of clinical support spaces such as utility rooms and storage (enclosed and in open bays). Isolation rooms will generally be required in this area and be located so that travel through the area is minimised. The safe assessment room is also often included in this zone; however, provision and location will depend on jurisdictional policies.
- **Sub-acute treatment area**, where provided, may be collocated or in proximity with Ambulatory Care.
- **Ambulatory Care** such as Fast Track is a separate area and should be located close to the main waiting room and other procedure rooms. Specialised consultation rooms may be provided in Level 3 and 4 services to supply the necessary equipment and space to manage ENT, ophthalmology and oral health conditions.

  A flexible use Consult Room in the Ambulatory Care zone will be used for immediate assessment and intervention of acute obstetrics and gynaecological problems and complications such as miscarriages. This room may also be located in the Acute Treatment Zone depending on the models of care. It should be in a discreet and quiet location where possible. There should be an appropriate area within the room for a visually private

gynaecological examination including appropriate lighting, plinth, space at the end of the bed for the treating clinician to do a procedure, and space for an ultrasound machine. An attached or adjacent ensuite will be provided. An area of the room with comfortable furniture will be provided for family and/or support persons who may stay with the patient during the assessment/intervention.

- **Early assessment and streaming**, where provided, is ideally located in close proximity to triage and registration. Access to an examination trolley and treatment chairs will be required. A shared staff station will provide a coordination point.
- **Paediatric zone**, where established as a dedicated area, should provide an age appropriate and welcoming physical environment with separation from adult activity flows and associated distressing sights and sounds. The design should encourage parents/carer to remain with their child and provide a dedicated waiting space including play area that is separate from the general ED waiting area. A paediatric zone will require a greater proportion of standard isolation rooms compared with an acute adult ED zone, as well as close access to a procedure room.

### 2.4.6 ED Coordination Area

The provision of a coordination hub adjacent to or within ED is guided by jurisdictional policies. Few EDs are designated to have coordination functions. The coordination hub acts as a control centre for the clerk, nurse and doctor-in-charge. The hub may provide local coordination only, but some have regional responsibility and provide support to multiple other hospitals.

Although often provided as an area in the clinical zone of ED, locating a separate coordination hub helps alleviate overcrowding at the clinical staff base. When provided, the extent of the ICT provision will be dependent on the function of the hub.

### 2.4.7 ED Short Stay Unit (SSU)

SSU is part of ED, and when provided, should be a designated area physically separated from the acute zone of ED and not be used for general hospital patient overflow. The function and operation of the SSU will be determined by jurisdictional requirements and the models of care.

The SSU will be part of the ED but designed as a self-contained area and will require:

- a staff station located to oversee bed spaces (so patients can be observed)
- shower/toilet facilities (separate to the main ED)
- at least one standard isolation room (for patients requiring contact isolation, palliative patients, and paediatrics)
- visitor access (that avoids the needs to traverse clinical zones within the ED)
- SSU waiting areas may help facilitate patient flow.

If children and adults are managed in the SSU, ideally children will be physically, visually and acoustically separated from adult patients.

For further information refer to:

- Australian Institute of Health and Welfare (AIHW), 2024, Emergency department short stay unit
- ACEM, 2024, G554 Emergency Department Short Stay Units (version 2).

### 2.4.8 Support Areas

A range of support spaces will be provided to support patient care including storage and utility rooms. These rooms and spaces need to be located so that staff can access them easily. Where possible, these rooms will be shared between smaller treatment zones. Increasingly, mobile equipment will be accommodated in mobile equipment bays close to the point of care. These bays

will be suitable for recharging equipment. The location will ultimately be dependent on how frequently staff access the equipment.

Items requiring storage include:

- mobile equipment (for equipment that needs to be close at hand, such as trolleys used for clinical procedures and mobile medical imaging equipment)
- mobile workstations on wheels (which will require storage bays with recharging capability)
- linen
- clinical consumables (including local provision and a bulk storage area)
- pharmacy supplies
- pathology (point of care testing)
- disaster equipment
- patient meals
- stationery
- PPE consumables and equipment
- other equipment.

### 2.4.9 Education Areas

In some larger facilities, an ED learning hub may be provided for medical, nursing, staff and student education, training, and supervision. These areas may be provided as part of, or combined with, the staff areas in smaller facilities and may be shared with other hospital staff.

Inclusion of these dedicated rooms in the ED are considered in large teaching hospitals and are to be decided on a project-by-project basis. Some of the rooms which may be considered in this area are simulation room and tutorial/seminar rooms.

### 2.4.10 Staff Areas

Staff work areas and meeting rooms will generally be collocated in a zone that is accessible only by staff. The number of offices and desk spaces will depend on the staff profile and jurisdictional requirements relating to work areas. For further information on ED workforce, refer to jurisdictional policies and ACEM, 2023, G23 Constructing a Sustainable Emergency Department Medical Workforce.

Staff amenities including change rooms will also be collocated and accessible only by staff. Depending on the size of the ED, some staff toilets may be located near treatment areas so that travel is reduced. In larger facilities, a lactation/breastfeeding space for staff may be provided as centralised lactation/breastfeeding room is oftentimes difficult to access by ED staff.

Staff work areas associated with coordination of the overall department should be located close to the reception/triage area.

## 2.5 FUNCTIONAL RELATIONSHIPS

### 2.5.1 External

The ED will require direct access to a Medical Imaging Unit, although consideration may be given to a satellite imaging service within larger EDs.

A rapid, non-public connection is also needed to:

- Operating Unit
- cardiac catheter laboratories
- interventional radiology

- Intensive Care Unit/Cardiac Care Unit
- Birthing Unit
- helipad (where provided).

Ready access is also required to:

- security personnel (unless the security service is collocated with the ED)
- Pathology Unit including blood bank (specimens may be sent to pathology via a pneumatic tube system).

Easy access is needed to:

- Inpatient Unit
- Medical/Surgical Assessment Unit
- Pharmacy
- Ambulatory Care Unit
- mortuary
- retail areas.

Some jurisdictions may promote the collocation of ED with other short stay units such as medical assessment units and MHESSUs.

Some facilities also include a sexual assault unit. Where this is provided, a discreet access will be required from the waiting area to other ED clinical areas.

### 2.5.2 Internal

Internal relationships are shown in the functional relationship diagrams with detailed information relating to treatment areas. The arrangement of areas within the ED should promote forward movement of the patient episode to minimise staffing costs and ensure support areas are easily accessed.

Internal access to be considered in ED includes functional relationships of clinical zones:

- CT scanner which may have direct access to trauma bays/resuscitation in larger facilities and/or shared with adjacent Satellite Medical Imaging Unit.
- Access of patients presenting with mental health crisis who need direct access from the front entrance to the safe assessment room.
- Direct access of patients to the safe assessment room transported by ambulance with/without police escorts from the ambulance offloading area.
- Travel access and pathway of patients transported by stroke ambulance who need to be transferred directly to interventional suite or Imaging Unit.
- Paediatric access and zone need to align with child safety requirements.
- During the planning process, development of a mapped journey for patient groups presenting in the facility may assist with visualising the arrangement of the ED areas for the above presentations as well as others including:
    - patients who present with a suspected or confirmed infectious disease to determine provision of a single/isolation room including negative pressure or ‘hot/red areas or zones’ for initial management
    - patients who are neutropenic/immunosuppressed to determine the need for positive pressure room or consideration for an equivalent environment that provides clean air, filtration, unilateral flow thus providing air quality that prevents risk of further contamination
    - patients who present following sexual assault

- patients who present following FDVA
- gynaecology and obstetrics patients
- flow of trauma patients to/from clinical areas including resuscitation, imaging etc.

# 03 DESIGN

Consider universal design principles to assist in delivering innovative designs and equitable solutions for healthcare facilities. For further information, refer to Victorian Health Building Authority, 2021, Universal Design Policy available online at Universal Design Policy.

## 3.1 ACCESS

Traffic flows relating to emergency vehicles, public vehicles and pedestrian routes will be separated to avoid accidents and delays. ED access should be well lit, front facing, visible, and easily accessible to the public. Application of the universal design principles is important to ensure that ED access is intuitive and functional.

Patients transferred to the ED by ambulance services will utilise the ambulance entry. Other patients will arrive via various means and provision will need to be made for an ambulant ED entry point, a drop-off area and short-term parking spaces.

In many cases, entrances to EDs are separate to the main entry. As patients and visitors may present to the main entry, a clear, direct path of travel connecting these two areas will need to be provided. This point of connection will also support hospital operations should the ED provide the out-of-hours entry point to the hospital.

Avoiding multiple entries for streaming to lessen confusion, e.g. streaming for paediatrics to happen after the entry point. Some operational provisions such as concierge service will be considered on a project-by-project basis.

Evaluate staff pathways to ensure the resuscitation team can efficiently attend to patients in their vehicles or navigate through the waiting room and patient drop-off area when necessary.

Other access considerations in ED include access for people travelling by public transport and other emergency vehicles e.g. fire trucks as part of fire safety design.

Refer to AusHFG Part C: Design for Access, Mobility, Safety and Security for further information.

## 3.2 PARKING

Some vehicle parking spaces should be located close to the entrance of the ED. These spaces will provide short-term parking for patients and their carers including those patients on large wheelchairs. The operational policy relating to short-term parking or valet parking in EDs with parking area located some distance away, will be determined on a project-by-project basis. Undercover vehicle parking should be available for:

- a defined number of ambulances
- private vehicles (that drop off and pick up patients adjacent to the ambulance entrance)
- taxis
- other emergency service vehicles e.g., police and corrective services.

The number of ambulance vehicle parking bays will be informed by the peak number of ambulance offloads per hour to the facility. Other key considerations relating to the ambulance vehicle parking area include:

- Vehicle and stretcher specifications – refer to jurisdictional specific requirements, ensuring that the parking bay dimensions are sufficient to accommodate the vehicle and the patient trolley that is removed from the rear of the vehicle.
- Future power considerations for recharging electric ambulance fleet in the parking area and during prolonged waiting times.

- Height of canopy to suit ambulance vehicles used in the jurisdiction and to allow for flexibility with changes to ambulance vehicle specifications over time.
- Provision of one larger parking bay for bariatric capacity vehicles that are often multifunctional in use, e.g., they may be designed for use in CBR incidents and counter terrorism.
- The average duration of unloading patients into ED to assist with ambulance parking calculation.
- Larger parking space if Newborn & Paediatric Emergency Transport Service (NETS) ambulances are also expected to use the facility.
- Emergency call systems from the ambulance to attract attention if ED staff are not in the ambulance areas.
- Minimum turning circles and angles required by ambulance vehicles.
- Gradient of the parking bays to ensure they support safe transfer of the patient out of the ambulance (level of incline to be determined early in the planning stage).
- Provision of a level, undercover and smooth surface to push stretchers from ambulance vehicles into the ED (there should be no inclines on this path of travel).
- Visual privacy of the ambulance parking area and ambulance entry from the public.
- Provision of externally accessible cleaning space and storage of decontamination equipment and supplies.
- Access to water and equipment for cleaning and full decontamination of vehicles including appropriate drainage.
- Consideration for bench and sink for ambulance services to clean their equipment.
- Access to clean and dirty linen facilities.

Refer to AusHFG Part C, Section 6 Security for other considerations relating to parking.

## 3.3 MAJOR INCIDENT MANAGEMENT

Depending on the hospital's disaster response role, the ED will require associated support areas. Major disaster response facilities are generally not required in Level 1 and 2 ED facilities. Flexible planning is required to accommodate the large workloads, critically ill and/or patients with communicable or infectious diseases, relatives, friends and hospital staff involved in managing a disaster situation. The flexibility to expand into adjoining areas should be considered.

Although some emergency services will decontaminate patients prior to transfer to the ED, a decontamination room/shower area may be required near the ED which is accessible from the ambulance bay without the need for the patient to enter the ED. The pathway of patient travel from decontamination area into the clinical zone of the ED should be established. This may involve transfer from decontamination shower into a walk-through room such as a disaster store area turned into a disaster triage room, to bridge the decontamination room to the clinical area.

Some services will require mass decontamination capability in addition to a room (e.g., through fixed shower heads or erectable systems). Mass decontamination area should be located on the hospital site in the vicinity of the ED but external so that patients requiring decontamination do not enter the ED and the ongoing operation of the ED is not impeded. These facilities are often provided next to the ambulance vehicle area and must include a floor drain and contaminated water trap. Contaminated wastewater will need to be captured in line with local requirements and as such other components as prescribed by the local authority will need to be included.

The ED should also accommodate a disaster equipment store that is easily accessible and contains sufficient supplies to fully equip the disaster team for either on-site or off-site function. Retrieval equipment may also be stored here for regional or rural facilities.

Depending on the designated role of the ED, the service may become a communication hub during formal disaster function, although this is more commonly provided from the Executive Unit.

Disaster planning is discussed in more detail in AusHFG Part B: Section 80 General Requirements.

## 3.4 INFECTION PREVENTION AND CONTROL

As the diagnosis or infectious status of patients may not be known on admission, standard precautions must be used at all times.

The entire ED must be capable of being 'locked down' in the event of a chemical biological or radiological event or security issue, with a clear separate 'clean corridor' access point to the ED. Additionally, consider that certain areas within the ED, such as children's play areas, may pose potential infection prevention and control challenges.

Consideration of type and extent of fixed wall separation between treatment bays will be based on a project-by-project basis, models of care and local infection prevention and control team advice.

### 3.4.1 Isolation Rooms

The design and layout of the ED should allow for the movement of patients to an isolation room due to suspected or known infectious disease. Refer to AusHFG Isolation Rooms - Engineering and Design Requirements, for further detailed resource on Isolation Rooms.

Class S rooms will be required in ED Acute Care and the Short Stay Unit. Class N room and Class P rooms are provided in EDs on a project-by-project basis. The location of isolation rooms requires careful consideration to ensure they are located to minimise passing traffic whilst supporting efficient staffing models and monitoring of patients accommodated within these rooms. In some large ED facilities, whole zones in ED may be designed to be able to control the air flow. When entire ED zones can change air flow, that area needs to be self-sufficient when it is closed off due to infection or contamination.

The provision of Class N Resuscitation room will be based on jurisdictional requirements on a project-by-project basis.

Requirements for isolation rooms will need to be confirmed through a risk assessment process that will include consideration of the role delineation of the health service and patient profile. Each Class N isolation room will contain a dedicated patient toilet and anteroom. The position of the anteroom should not block visibility into the room. Refer to jurisdictional infection prevention and control policies and AusHFG Part D: Infection Prevention and Control.

Patients presenting with or suspected High Consequence Infectious Diseases (HCID) such as haemorrhagic fevers will be managed ideally in a designated biocontainment facility within the jurisdiction. While awaiting specific infection prevention and control advice and transfer to a designated facility, the patient will be managed in a negative pressure room with enhanced controls such as provision of appropriate PPE. Refer to local jurisdictional requirements for response to HCID.

For further information regarding pandemic preparedness, refer to AusHFG Pandemic Preparedness - Health Infrastructure Planning & Design Guidance.

Also refer to AusHFG Alternative Jurisdictional References to the Retired Part E for other jurisdictional specific guidance for delivery of engineering services.

### 3.4.2 Hand Hygiene

Each treatment area should be equipped with hand hygiene facilities. In addition, staff and visitors will have access to alcohol-based hand rub at each treatment space, outside the treatment spaces

and in other locations throughout the ED. More details on hand hygiene facilities are provided in the Room Data Sheets (RDS), Room Layout Sheets (RLS) relating to ED, AusHFG Part D: Infection Prevention and Control, and Hand Hygiene Australia.

## 3.5 ENVIRONMENTAL CONSIDERATIONS

### 3.5.1 Acoustics

Many functions undertaken within an ED require consideration of acoustic privacy and noise attenuation. Requirements will differ in various rooms and functional zones within the ED and consideration needs to be given to minimising noise transfer between zones where necessary. Solutions to be considered include:

- selection of sound absorbing materials and finishes (such as high-performance acoustic tiles in some areas after IPC risk assessment)
- additional treatment of staff station areas by using acoustic tiles and a bulkhead around the perimeter (in addition, a sound absorbing material can be used on walls above the desk height)
- some means of physical separation between patient bays e.g., a fixed wall
- separation of quiet areas from noisy areas including consideration of the impact of noise from medical equipment
- access to appropriate areas that can be used for private staff only discussions (within the clinical zone)
- physical separation of patient cohorts such as adults, paediatrics and mental health
- separating staff offices and amenities from patient areas.

Some areas of the ED which require consideration of acoustic treatments include waiting areas, triage, and paediatric treatment rooms. In addition, interview and quiet rooms used for distressed relative should have a high level of sound control to ensure privacy.

Acoustic elements need to allow for some noises to overcome background noise, such as alarms and alerts. During the planning stage, the project team needs to determine which rooms need to hear the announcements and alarms, and the mechanisms to contact staff in areas where announcements and alarms are not audible.

Sound absorbent materials such as above ceiling acoustic matts/insulated blankets are not recommended due to the risk of particulate matter or friable particles being deposited into the space below or disturbed when ceiling is accessed during maintenance.

### 3.5.2 Natural Light

Exposure to natural light affects the circadian rhythm of patients and staff. Natural lighting contributes to a sense of wellbeing, assists orientation of building users and improves service outcomes. The use of natural light is highly desirable especially in the SSU, paediatric zone, safe/behavioural assessment room, in designated areas for older patients or those with delirium or neurodiversity, the main waiting area and staff room.

Incorporating natural light into a large-footprint ED is challenging if addressed later in the design process therefore design elements such as outdoor areas and lightwells may need to be considered early in the design process.

### 3.5.3 Privacy

There is inherent conflict between visual and acoustic privacy, and remote observation (lines of sight) by staff in ED. A balance between patient privacy/confidentiality and observation are important considerations to be addressed during the planning and design phase to ensure a positive patient journey through ED. The facility should be designed to:

- Ensure confidentiality of client discussions and records.

- Provide appropriate areas for staff to undertake discussions/briefings in private.
- Consider discrete sub-waiting areas for patients wishing or needing to be separated.
- Enable the reason for attendance to be kept confidential e.g., through use of generic consultation rooms. This is particularly important for services such as mental health, sexual health, drug and alcohol etc.
- Provide privacy for vulnerable patients such as those requiring gynaecological assessment and early pregnancy management, or those presenting after sexual assault and FDVA.
- Appropriately located windows and doors to ensure privacy of patients.
- Consider strategies such as ensuring proper ventilation to contain unpleasant odours and uphold patient privacy within open patient areas.

EDs are aiming to become paperless however mental health paperwork, paper scripts and notes still present an issue as they cannot be kept at the patient's bedside. This paperwork needs to be stored within the staff zone.

### 3.5.4 Interior Décor

Décor includes furnishings, style, colour, textures, ambience, perception and identity. Décor can assist in relaxing clients, providing age-appropriate environments and preventing an institutional atmosphere. However, cleaning, fire safety, client service and the patients' perception of a professional environment must always be considered.

All furnishing and furniture, including those in the waiting areas, should be comfortable, durable and meet infection prevention and control standards including ability to withstand levels of cleaning and disinfection which may include bleach or similar hospital grade cleaning products.

The ED should be light, clean and uncluttered. Specialised areas, such as the paediatric zone and safe/behavioural assessment rooms, will require specific attention to décor. There needs to be a balance of providing age-appropriate décor, freedom of movement and interactive components to keep children entertained and positively distracted while preventing spread of infection.

Consider the colour palette, accompanying artwork design and cultural considerations including displaying local Indigenous artwork which are appropriate to the setting. Some colours and patterns can be disturbing to some clients. Bold primary and green colours should be avoided in areas where clinical observation is required such as consultation/treatment areas. Colour contrasts to be considered for interior elements e.g., contrast between colours of wall and door to assist patients and visitors with diminished sight, avoiding blue and black shapes on the floor and coloured flooring which may be perceived as hole or water by patients with dementia and learning disabilities.

To accommodate the needs of neurodiverse individuals, the design should incorporate low-stimulus spaces. This includes minimizing visual noise by avoiding high contrast stripes, geometric patterns, strong bold colours, and bright lighting. Instead, consider using neutral colours and natural forms. Movable furniture, adjustable lighting, and adjustable blinds (if windows are provided) should be included to enhance sensory accessibility and create a more comfortable environment for all patients.

Rooms for distressed families or palliative care room for family should be designed to be welcoming, in a quiet location and has comfortable furniture and provide simple comforts such as beverage facilities nearby.

### 3.5.5 Signage and Wayfinding

The ED must be clearly identified from all approaches. Signposting will be illuminated to allow visibility at night. Refer to ACEM, 2023, P20 'Emergency department signage' which outlines signage that should be used to denote emergency departments.

As visitors enter the ED, they should easily be able to identify key service points including triage and reception. Simple language should be used to direct patients to their first stop in the ED such

as the triage location. Ease of wayfinding within the ED, including clear directions to exit points and consistent provision of signage, is essential.

Interior design can also support wayfinding and identification of different zones of the ED. For example, standardised pictograms may support wayfinding for non-English speakers.

Also consider placement locations of infection prevention and control precautions and isolation signage.

Refer to AusHFG Part C: Design for Access, Mobility, Safety and Security, Section 5 Wayfinding and relevant jurisdictional signage guidance.

## 3.6 SPACE STANDARDS AND COMPONENTS

In addition to the information below, project teams should refer to:

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

### 3.6.1 Human Engineering

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

The requirements of occupational health and safety and antidiscrimination legislation will apply.

### 3.6.2 Access and Mobility

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

- Disability (Access to Premises – Buildings) Standard 2010
- National Construction Code
- AS1428 (SET) - Design for access and mobility
- NZS 4121: Design for access and mobility: Buildings and Associated Facilities
- NZ F8 Signs Acceptable Solutions and Verification Methods.

It is also important to acknowledge that minimum requirements in Australian DDA and NZ Access standards may not be enough in healthcare facilities. Consider other access and mobility elements which may affect ED design including but not limited to:

- Providing wider corridors for larger width of motorised wheelchairs and other mobility equipment.
- Assisting patients with co-morbidity issues associated with dementia such as visual and hearing impairment.
- Providing patients with cognitive impairments or neurodiversity who require use of simple language, unambiguous instructions, contrasting colour palette for visual aids and providing a sensory area.
- Providing signage and information to be in plain language.
- Aiding patients with hearing impairment with Auslan and NZSL posters for important information and simple medical signs, providing voice amplification, hearing loops and Bluetooth technology.
- Assisting vision impaired people with large print signage, electronic and/or Braille signage navigation and location directions mapped to appropriate visual navigation apps/aids.
- Providing appropriate adjustments and reasonable accommodations for staff with disability.

### 3.6.3 Building Elements

Building elements include walls, floors, ceilings, doors, windows and corridors.

Ceiling mounted hoists may be provided in some of the treatment bays within the ED for the management of immobile and/or bariatric patients. These are a key consideration during design owing to structural requirements. Hoist ratios and type will be guided by service planning and local requirements.

### 3.6.4 Door and Doorways

Doorways must be 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.

An airlock/lobby should be provided for external doors. Consider wind issues when designing the airlock to protect the inside of the ED from inclement weather. Doorways from the ambulance entry will be wide enough to accommodate bariatric stretchers. Automatic doors may be used in high traffic routes to facilitate patient flow.

Where card readers are used to gain access to corridors and staff are transferring patients on beds, the location of the card reader should be considered so that staff can access quickly and easily.

Vision panels with integral venetians may be provided for selected rooms, e.g., safe/behavioural assessment rooms and negative pressure isolation rooms, with controls located to facilitate the required access.

Doors should be able to be locked/closed automatically in the event of an incident necessitating partial or full lockdown.

Also consider suitable door and/or door frame protections due to the large number of staff, patient and trolley movements in the ED.

## 3.7 SAFETY AND SECURITY

### 3.7.1 General

The design of the ED, starting with the entry, should be welcoming, inclusive, culturally safe and trauma informed. The extent of security barrier at reception and triage areas should not compromise ease of communication or visibility between staff and patient/visitor.

The ED receives a high volume of patients and visitors, some of whom may be distressed, intoxicated, or involved in violent incidents The hospital has a duty of care to provide a safe and secure environment for staff, patients and visitors. Consideration should be given to the route through and exit point from the department for patients or persons required to be removed against their will. This should avoid exposure to or interaction with patients, staff and ambulance officers both within and outside of the building.

The precise details of security features should be developed in conjunction with a security risk assessment for the specific site. The design of the ED must seek to mitigate the risks identified. This will include ensuring the layout does not create entrapment or concealment risks and establishing a design that supports optimal patient pathways.

General safety and security considerations relating to healthcare facilities is covered in detail in AusHFG Part C and a list of specific safety and security considerations for EDs is attached to this document in section 6 Attachments.

### 3.7.2 Safety within the ED Waiting and Triage Area

As the first point of address for visitors to the ED, the reception/triage area may be a risk area for violence. Careful thought should be given to the design of this area to minimise this occupational violence and aggression (OVA) risk.

The waiting room should be a pleasant, safe environment where patients, families and carers can be comfortable. The following design solutions will support the provision of safe ED waiting areas for patients, visitors and staff:

- Entrances should be well lit and designed to prevent hiding spaces.
- CCTV should be installed both outside and inside the waiting room.
- Ensure that adequate signage is provided and is culturally appropriate.
- Consideration should be given for positive and helpful messages on print or digital media.
- The waiting room should provide security and protection for ED staff while still enabling clear communication with patients and visitors.
- Staff should have appropriate visibility of patients and accompanying persons within the waiting room.
- Adequate seating should be provided that allows some separation between groups.
- Amenities such as toilets, drinking water and vending machines must be easy to locate.
- The design should prevent unauthorised entry into the clinical areas of the ED.
- Consideration should be given to appropriate lighting, noise levels and, distractions e.g., art and multimedia activities that may assist with positive experience in ED.
- Provide appropriate acoustically treated quiet areas in waiting zones to reduce agitation and aggression of patients who may be affected by a lot of noise and activity.
- Consideration for provision of sub-waiting areas where appropriate within the ED, giving patients a sense of progression in their care journey.

Further advice regarding ED waiting room design is provided within the ACEM (2021) 'Policy on Violence in Emergency Departments' and the NSW Health policy document (PD 2018_010) 'Emergency Departments Patients Awaiting Care'.

The safety of staff working within the reception and triage areas is a high priority and needs to be balanced with the need to ensure optimal communication between staff and patients. Design solutions may include consideration of a high and wide reception desk that provides a level of protection for staff; glazing with sufficient openings for communication at each triage or reception workstation; other protective barriers and provision of duress and lockdown alarms/buttons.

Access to fixed duress alarms is required in the reception/triage area.

### 3.7.3 Security Personnel

Security personnel may be required at very short notice to assist with a safety or security issue. Their base should be positioned either within (recommended) or in close proximity to the ED. The unit should have rapid communication links to enable staff to respond to disturbances in other areas of the ED.

Consider a discreet location for the security station if located near ED to minimize any elements that might feel threatening to patients and visitors, ensuring a welcoming and supportive environment.

### 3.7.4 Crime Prevention through Environmental Design

Crime prevention through environmental design (CEPTED) provides the opportunity through the planning and design phase to maximise natural surveillance and incorporate features that minimise the reliance on overt security measures. Some key strategies that can be applied in ED design include:

- Easily identifiable public entrances.

- Well-lit area and well signposted entrances, rather than subdued lighting fixtures or encroaching gardens.
- Natural surveillance of the public and patients in all accessible areas of the ED. For example, triage staff and security will actively supervise and view the entry and waiting areas. Assessment and treatment zones will have staff stations that oversight these areas.
- Other surveillance such as CCTV may be needed in high-risk locations.
- Clearly defined pathways to the ED with strategic positioning of 'borders' e.g., bollards to prevent accidental or deliberate vehicle access to entry or waiting room area.
- Provision of emergency distress and cancellation button in discreet but staff accessible location for security, after risk assessment.

## 3.8 FINISHES

### 3.8.1 General

Finishes in this context refers to walls, floors, windows and ceilings. Refer to section 3.5.1 Acoustics and the following references for further information:

- AusHFG Part C: Design for Access, Mobility, Safety and Security
- AusHFG Part D: Infection Prevention and Control
- AusHFG Standard Components for specific ED rooms.

### 3.8.2 Floor Finishes

The floor finishes in all patient care areas and corridors within the ED should:

- have a slip resistant surface
- be impermeable to water and body fluids
- be durable and easy to clean
- matte and non-reflective
- minimise sound transmission
- provide shock absorption to optimise staff comfort but facilitate movement of beds.

More details are provided in AusHFG Part C: Design for Access, Mobility, Safety and Security.

### 3.8.3 Ceiling Finishes

Ceiling finishes should be selected based on their aesthetic appeal, ease of cleaning, effectiveness in infection prevention and control, acoustic properties, and accessibility for ongoing maintenance.

### 3.8.4 Wall and Corner Protections

Due to the large number of staff, patients and trolley movements, suitable wall and corner protections must be provided. Walls should be of robust construction and resistant to damage. This applies particularly in high-risk areas, e.g., in areas where patients with behavioural challenges are managed.

## 3.9 FIXTURES, FITTINGS & EQUIPMENT

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

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

- AusHFG Standard Components for ED specific rooms
- AusHFG HPU 131 Mental Health – Overarching Guideline. For patients presenting with mental health crisis in ED, there are specific safety requirements to be considered, such as anti-ligature fittings and fixtures and design concepts that when required provides for high levels of observation.

## 3.10 BUILDING SERVICE REQUIREMENTS

### 3.10.1 General

In addition to topics addressed below, project teams should also refer to the following references:

- AusHFG Part C: Design for Access, Mobility, Safety and Security
- AusHFG Part E: Alternative Jurisdictional References to the Retired Part E
- AusHFG Standard Components for specific ED rooms.

### 3.10.2 Air Handling Systems

The management of airflows and the creation of a stable environment are essential to the control of the spread of infection. Air-conditioning should be provided.

Air handling system fan energy is typically the single largest energy end use in EDs, as these systems deliver high volumes of conditioned air 24hours a day, 7 days a week. Consideration should be given to minimising air handling system fan energy by designing low face velocity air handling systems and low-pressure distribution ductwork.

Air handling and ventilation requirements should be appropriate for the number of people using the space (ASHRAE 241: 2023). Emergency waiting rooms and triages spaces are to be exhausted out as a means of protecting patients and staff from infectious patients.

Consider air handling zoning design and purge mode ability for HVAC systems to manage airflows when the ED must be 'locked down' in the event of a chemical, biological or radiological event.

Decontamination spaces are often provided for patients who have been exposed to chemical spills or radiation. These spaces are best located external to the building. If located internally, all air in the decontamination space should be exhausted outside.

Refer to AusHFG Part D, AusHFG Pandemic Preparedness – Health Infrastructure Planning & Design Guidance, project engineering advice, Australia/NZ Standards, jurisdictional requirements and other accepted international standards for further air handling system guidance.

### 3.10.3 Clocks

The accurate tracking of time within the ED is critical. A wall clock should be visible from all clinical areas and waiting areas. Times displayed in all clinical areas must be synchronised and clocks in resuscitation areas are required to track elapsed time.

### 3.10.4 Information Communications and Technology (ICT)

As a rapid patient turnover and multidisciplinary clinical care environment, EDs are high-volume users of a wide range of telecommunications and information technology tools. Communications requirements and the associated technology are rapidly growing and developing. Planning should anticipate new and developing technologies and future functions and make allowances for growth and development in this area. Future-proofed digital infrastructure that is compatible with latest emerging technology should be provided whenever possible to allow for upgrades without compromising patient safety and with minimal disruption to the everyday normal operation of the facility.

Key ICT considerations include:

### Clinical technology and communications systems

- Electronic ED information systems

  These systems are provided to support clinical management, patient tracking and departmental administration. Access to information systems should be enabled both at the patient bedside to support point of care clinical systems and at staff station/write up areas. Access at the patient bedside may be provided through wall mounted computers, workstations on wheels and/or other mobile devices. Workspace design should include sufficient bench-widths or suitable suspension devices for terminals, keyboards, drives and printers. Sufficient terminals should be available to ensure that queuing does not occur, even at peak times.

- Telemedicine

  In smaller units, especially in more remote areas, telemedicine is becoming increasingly common and important for day-to-day operation. Allowance should be made for connection of critical care telemedicine equipment in all treatment areas. A telemedicine strategy will need to be considered in the early stages of planning that is consistent with jurisdictional approaches and service networking arrangements. Tertiary centres that support these smaller units will need a quiet location for telemedicine related activities to discuss cases, review patients and their results. A camera in the paediatric resuscitation zone is required to communicate with neonatal emergency transport services.

- Communication systems to support interactions within the ED

  This should include facility mobile messaging equipment and the use of a dedicated PA system that provides control over zoning to minimise noise disruption across the ED.

- Communication systems to support interactions outside the ED

  Access to ambulance notification phone/radio is required in close proximity to the consultant and nurse in charge and a dedicated direct phone line should also be provided for referring medical practitioners.

  Effective systems for outside communications should also be provided to allow ambulance officers to communicate with the ED and identify areas within the hospital where mobile phone signal boosting may be required. Consideration for ICT infrastructure installation or upgrade to meet future needs of the ED must align with the whole of hospital and statewide connectivity initiatives.

- Clinical Support

  Considerations include the use of pneumatic tubes and automated trolley systems for efficient physical transfer of items, electronic medication management systems and nurse call systems (refer to section 3.10.6 below) and electronic journey boards.

- Education and Training

  ICT systems to support simulation training require consideration including access to live video and audio outputs by external viewers.

- Wi-Fi density needs to be sufficient to support real time location systems (RTLS) and mobile duress functions.

- If provided in the facility, consider the requirements of the coordination hub for connectivity with the hospital, ambulance, and pathology systems and other connectivity with other hospitals.

### Security and facilities management systems

- CCTV surveillance systems
- Location-finding duress alarms

- Consideration of asset tracking systems
- Disaster communication including systems to enable rapid lockdown.

**Patients and visitors**

- Access to Wi-Fi and mobile phone charging capability
- Use of technology in the waiting room for health promotion, communication and positive distractions (e.g., television, digital art).

### 3.10.5 Duress Alarms

Duress alarms should be provided in accordance with local policies. For example, NSW requires that all workers in the ED must be provided with a personal duress alarm as per NSW Health Protecting People and Property, 2022. For additional information refer to AusHFG Part C.

### 3.10.6 Nurse / Staff Call System

All treatment spaces, including toilets and bathrooms, should have access to an emergency call system so staff can summon urgent assistance. The emergency call system should alert to a central module situated adjacent to the staff station and may also be connected to the staff and tutorial rooms. The 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
- be compatible with Wi-Fi
- be compatible with alternate call button models for disabled people e.g. chin depressor.

An alarm/call system may also be considered for people who require emergency assistance outside of the ED such as carpark and other adjacent areas, to alert ED staff that they require help to get to the ED.

### 3.10.7 Lighting

The lighting design needs to provide for comfort (for patients and staff), function and should have inherent flexibility. There are different considerations for different types of patient care areas and staff areas. It should be possible to vary lighting conditions between individual beds and rooms. Functional requirements for lighting of clinical treatment spaces include the ability to dim for comfort, the ability to focus strong light for bedside procedures, and there should be no colour distortion to ensure accurate assessment of skin tone.

Overhead pendant examination lights, where provided, should be located to ensure that all parts of the body are illuminated.

### 3.10.8 Medical Services

Medical gases should be provided in accordance with the RDSs and RLSs. A consistent layout for medical service panels across the department enhances staff workflows and helps minimise errors. It is recommended that projects adopt a medical services panel design approach that maintains continuity throughout the department.

The use of nitrous oxide in operating theatres, procedural suites and emergency departments is declining due to a range of clinical and environmental concerns. Reticulated systems have been found to increase leakage of nitrous oxide (a potent greenhouse gas) to atmosphere, can increase facility operating costs and potentially expose staff to nitrous oxide.

Reticulated nitrous oxide and associated scavenge outlets are not mandatory for any healthcare service and point of care cylinders can meet clinical requirements for the majority of healthcare facilities.

Where found to be clinically necessary, the provision of nitrous oxide via piped outlets or via cylinder is to be determined at a project level, based on an assessment of expected clinical need and associated risk assessment, particularly for services with high utilisation such as birthing suites. Birthing suites may have a dedicated reticulated nitrous oxide system, whilst the rest of a facility is supplied by point of care cylinders. The associated cost impacts should be considered including the storage and management of cylinders.

Due consideration must be given to a range of operational considerations including:

- monitoring and measurement of usage
- management of leakage
- Work Health and Safety (WHS) requirements relating to the use of cylinders
- approach to the provision of scavenge where cylinders are used
- appropriate storage for cylinders, and
- security of gas sources given it is used as a recreational drug.

### 3.10.9 Monitoring

Bedside electronic monitoring needs to provide for both local visual display and electronic data or information transfer. Where possible, the bedside monitoring system should be integrated with (or interface with) the electronic patient information system (or future capacity for this should be provided). Central monitoring should be available within each ED.

The design and complexity of bedside clinical monitoring will depend on the function of each clinical area. The local functional requirement will determine the proportion of acute beds that have bedside monitoring at any one time. However, the design should facilitate future flexibility in location of bedside monitoring.

### 3.10.10 Hydraulic Services

A decontamination shower is subject to receiving substances that have no mechanism for approval to enter the network utility operator's sewer system and therefore a decontamination pit will be required. Furthermore, these showers are subject to high flow rates and will require additional consideration for the hydraulic services design.

The decontamination shower needs to be provided with warm water services via thermostatic mixing valves (TMVs) that are installed in equal flow, parallel arrangements to ensure the required flow rates are delivered. The TMV requires consideration of the 'age of water' and maintenance including flushing of the decontamination shower to ensure opportunistic pathogens are flushed.

The decontamination pit shall not be connected to any sanitary drainage systems downstream and will be cleaned independently. These pits are usually located in ambulance drop off zones, or other external areas where they can be accessed for waste treatment and removal. The general minimum adoption in most cases by users is for two run times per operation.

Refer to relevant hydraulic services standards, jurisdictional engineering guidance and decontamination guidance for hospitals for detailed design requirements.

## 3.11 SUSTAINABILITY

Waste flows and streams may be mapped for the ED and ensure coordination with existing waste management for the site. Provide sufficient locations and areas to install recycling bins at logical points of significant generation and handling points throughout the ED. Size, location, and access

to general, clinical and recycling bins should promote ease of use, ease of collection, appropriate collection frequency, and respond to likely generation rates.

Refer to Design sections for other sustainability approaches that apply to ED. Also refer to specific jurisdictional environment sustainability design guidance, AusHFG Part B: Health Facility Briefing and Planning, and AusHFG Resource - Key Sustainability Guidance for further information.

# 04 COMPONENTS OF THE UNIT

## 4.1 STANDARD COMPONENTS

Rooms/spaces are defined as:

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

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

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

## 4.2 NON-STANDARD COMPONENTS

Provide the Non-Standard Components as described in this section, according to operational policy and service demand.

### 4.2.1 Shower / Decontamination

**Description and Function**

A decontamination room is provided to shower patients who arrive in the ED contaminated with toxic and/or infectious substances. It must include a flexible water hose; floor drain and contaminated water trap. Consideration should be given to inclusion of a PPE bay with the decontamination shower.

**Location and Relationships**
Accessible from and/or next to the ambulance bay, so that patients do not enter the ED directly.

**Considerations**

A minimum water temperature may be specified so that the patient's body temperature is maintained. Also refer to 3.10.2 Air Handling Systems and 3.10.10 Hydraulic Services for ventilation and drainage requirements.

Design considerations relating to **mass decontamination capability** (e.g. through fixed shower heads or erectable systems) is described in section 3.3 Major Incident Management.

### 4.2.2 Ambulance Write Up

**Description and Function**

The Ambulance Write Up area is used to access patient healthcare records, printer, charging stations for tablets/mobile devices and make phone calls. The area may also include a flexible space where ambulance officers can undertake their write ups at the bench space and a space which can be used for debriefing or for relaxation.

**Location and Relationships**

The Ambulance Write Up area will be located in the ambulance area, adjacent to the ambulance triage bays and in proximity to amenities such as beverage bay and toilet.

The room should allow privacy when required. Ambulance activities and users of this room should not prevent hospital activities such as efficient movement of trolleys. As such, it may be provided as a room rather than an open area.

**Considerations**

The final design of this room will depend on the jurisdictional and ambulance services requirements.

### 4.2.3 Patient Bay – Treatment / Resuscitation

**Description and Function**
This space is used in smaller facilities and fulfils the role of both treatment and resuscitation bays to manage critically unwell patients.

**Location and Relationships**

Collocated with acute bays for efficient staffing models and observation of patients.

**Considerations**

The Standard Components for Patient Bay, Emergency – Resuscitation may be used as a starting point for the size, design and layout of this room. However, inclusion of services pendants and other major medical equipment will be on a project-by-project basis.

### 4.2.4 Safe Assessment / Behavioural Assessment Room

**Description and Function**

A room designated for patients presenting with acute, severe behavioural disturbance where clinically indicated.

The provision and design of this room will depend on jurisdictional policies.

**Location and Relationships**

The location of this room will depend on jurisdictional policies.

Consideration of security and safety of patients, staff and visitors are of utmost importance when choosing the location of this room. The pathway of patient transfer from the ambulance area must avoid walking vulnerable patients through crowded corridors.

Entry to this room may be from outside of ED depending on jurisdictional requirements.

**Considerations**

The safe assessment room should be reserved for the initial management of acute behavioural disturbances only. Consider the need for additional low-stimulus spaces within the ED to effectively treat individuals with neurodiversity or cognitive impairments, as the safe assessment room is not designed for this purpose.

Models of care will determine the use of this room from arrival, triage, admission and transfer of patients to appropriate treatment areas. Refer to jurisdictional requirements for specific design considerations.

Consider the locking mechanism of the door(s) and provision/location of nurse call, emergency call and duress alarms to suit model of care.

### 4.2.5 Store – Orthotics and Mobility Aids

**Description and Function**

An area for the storage of crutches, splints and other aids to mobility. Crutches should be hung on hooks so that the space remains well organised, and the right size can be easily located.

**Location and Relationships**
Close to, and easily accessible from the plaster room (if provided).

**Considerations**

If provided as open bay, it should be deep enough to ensure mobility equipment stored does not impede corridor circulation.

### 4.2.6 Simulation Room

#### Description and Function

A Simulation Room is a flexible space which provides clinical scenario simulation, training and/or clinical assessment of healthcare professionals using low and high-fidelity manikins, real-life clinical space set-ups and scenarios. The space should replicate the ED treatment spaces and be equipped with service panels and other necessary features to facilitate realistic training scenarios.

#### Location and Relationships

The room may be located adjacent to other educational spaces in ED. Where a Simulation Room is provided, a separate adjacent Simulation Control Room and seminar/debriefing room may also be provided.

#### Considerations

Although may be collocated with ED, the room may be part of a shared education and training area within the healthcare facility and may be used by staff other than those in the Emergency Unit. As such, access to the room may be required from outside of ED.

### 4.2.7 Simulation Control Room

#### Description and Function

A Simulation Control Room is used to store audiovisual equipment to control clinical scenarios in the Simulation Room.

#### Location and Relationships

The control room will be located adjacent to the Simulation Room. The room may have glazed observation window to directly observe the simulation space and/or have audiovisual systems to observe and/or record the scenarios remotely.

#### Considerations

Consider the services requirements to supply power and voice/data to the ICT equipment.

# 05 APPENDICES

## 5.1 SCHEDULE OF ACCOMMODATION

The application of the schedule of accommodation below will require confirmation of the ED models of care and associated capacity requirements through detailed clinical services planning.

The schedule of accommodation provided is based on the following indicatively sized EDs. The spatial allocations will need to be adjusted accordingly to meet project specific capacity requirements.

**Summary of Indicative ED Capacities Included in the Schedule of Accommodation**

| ED Zone | Indicative number of ED treatment spaces | | | |
|---|---|---|---|---|
| Acute | 6 | 12 | 18 | 30 |
| Paediatric | Included above | Included above | 6 | 12 |
| Fast Track | Included above | 6 | 12 | 18 |
| Total ED Capacity* | 6 | 18 | 36 | 60 |
| Resuscitation Zone | 1 treatment/ resuscitation bay | 2 | 3 | 5 |
| ED Short Stay Unit | No allocation | 8 | 12 | 20 |

*The Total ED Capacity is used as the reference to guide indicative support area allocations.

For the purposes of defining indicative support area requirements, including entry/waiting, triage, ambulance, clinical support and staff amenities, the schedule of accommodation is based on assumed total ED capacities of 6, 18, 36 and 60 bays. These total capacity figures include acute (adults and paediatrics) and ambulatory care zones, and exclude resuscitation bays, short stay bays and specialty treatment and consult rooms, however it is acknowledged that the types of ED bays included in a defined total ED capacity will vary between jurisdictions,

Space for satellite medical imaging services has not been included in this schedule of accommodation. If this model is adopted, ED staff should be included in the planning and design consultation. Refer to AusHFG Part B: HPU 440 Medical Imaging Unit for further details.

The ‘Room / Space’ column describes each room or space within the unit. Some rooms are identified as ‘Standard Components’ (SC) or as having a corresponding room which can be derived from a SC. These rooms are described as ‘Standard Components - Derived’ (SC-D). The ‘SC/SC-D’ column identifies these rooms and relevant room codes and names are provided. All other rooms are non-standard and will need to be briefed using relevant functional and operational information provided in this HPU.

In some cases, Room / Spaces are described as ‘Optional' or ‘o’. Inclusion of this Room / Space will be dependent on a range of factors such as operational policies, clinical services planning and opportunities to share with an adjoining service or zone within the ED.

## ENTRY / PUBLIC AMENITIES

| Room Code | Room Name | SC/ SC-D | 6 bays (Acute + Ambulatory Care) | | 18 bays (Acute + Ambulatory Care) | | 36 bays (Acute + Ambulatory Care) | | 60 bays (Acute + Ambulatory Care) | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | $m^2$ | Qty | $m^2$ | Qty | $m^2$ | Qty | $m^2$ | |
| AIRLE-12 | Airlock - Entry | Yes | Shared | | 1 | 12 | 1 | 12 | 1 | 12 | Offset doors. Consider trolley & large wheelchair access. |
| WAIT-30 | Waiting | Yes | Shared | | 1 | 25 | 1 | 35 | 1 | 50 | Open, dedicated waiting area observed from Triage & Reception. Area recommendations are indicative and will depend on the approach to sub-wait areas and consideration of local demographics. 1.2m2 recommended per seat, 1.5m2 per wheelchair space. A separated paediatric waiting area is required and may be collocated with the paediatric zone where provided. |
| PAR | Parenting Room | Yes | Shared | | 1 | 9 (o) | 1 | 9 | 1 | 9 | Accessible from waiting areas. |
| | Bay - Taxi Telephone | | Shared | | 1 | 2 (o) | 1 | 2(o) | 1 | 2 (o) | Optional. |
| | Phone Charging Locker / Kiosk | | Shared | | 1 | 1 (o) | 1 | 1 (o) | 1 | 1 (o) | Optional. |
| BVM | Bay - Vending Machines | Yes | Shared | | 1 | 2 (o) | 1 | 2 | 2 | 2 | |
| BWTR | Bay - Water | Yes | Shared | | 1 | 1 | 1 | 1 | 1 | 1 | |
| WCPU | Toilet - Public | Yes | Shared | | 2 | 3 | 3 | 3 | 3 | 3 | Allocation dependent on nearby amenities. Toilet numbers provided are indicative only and must comply with the recommendations of building surveyors in accordance with the National Construction Code (NCC). |
| WCAC | Toilet - Accessible | Yes | Shared | | 1 | 6 (o) | 1 | 6 | 1 | 6 | |
| | Accessible Changing Facility | | Shared | | 1 | 12 (o) | 1 | 12 (o) | 1 | 12 (o) | Optional. Toilet facilities for people with high support needs may be provided if not provided elsewhere (refer to 'Changing Places' information for Australian facilities). Larger area will be required if shower is to be provided. Location to allow shared use between waiting area and clinical zone if provided in ED. |
| **Discounted Circulation** | | | **30%** | | **30%** | | **30%** | | **30%** | | |

Some facilities may include a security ‘base’ within the ED waiting area.

## TRIAGE / REGISTRATION

| Room Code | Room Name | SC / SC-D | 6 bays (Acute + Ambulatory Care) | | 18 bays (Acute + Ambulatory Care) | | 36 bays (Acute + Ambulatory Care) | | 60 bays (Acute + Ambulatory Care) | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| REC-E | Reception, Emergency | Yes | Shared | | 1 | 15 | 1 | 20 | 1 | 30 | Staff to be able to observe & control access to treatment areas. Area allocation will be dependent on number of nursing and clerical staff to be accommodated. 15m2 for min 2 staff, 20m2 for min 3 staff & 30m2 for min 5 staff. May be separate for adult & paediatrics. |
| TRIAGE-1 TRIAGE-2 | Triage Assessment Room, Emergency | | Shared | | 2 | 13 | 3 | 13 | 5 | 13 | No. dependent on operational arrangements. May be provided instead of/or in combination with Triage Desks depending on triage model. |
| | Triage Assessment Desk / Counter | | Shared | | | 6.5 (o) | | 6.5 (o) | | 6.5 (o) | Optional. May be provided instead of/or in combination with Triage Rooms depending on triage model. |
| | Bay - Fridge | | Shared | | Shared | | 1 | 1 (o) | 1 | 1 (o) | Optional. Separate fridge (with optional freezer) for medications and drinks e.g. hydration fluids shared by all Triage spaces to support waiting room medicine. Provide if local jurisdictional policies for medication storage allows its provision. |
| BHW | Bay - Height / Weight | Yes | Shared | | 1 | 2 | 1 | 2 | 1 | 2 | |
| BMEQ | Bay - Mobile Equipment | Yes | Shared | | 1 | 4 | 1 | 7 | 1 | 10 | Wheelchair/trolley hold. |
| BLIN | Bay - Linen | Yes | Shared | | 1 | 2 | 1 | 2 | 1 | 2 | |
| OFF-1P-9 | Office - Single Person | Yes | | | | 9 | | 9 | | 9 | NUM/Front of House coordinator/ local indigenous or cultural representative. Requirements will depend on staff profile and local jurisdictional policies. |
| | Gun Safe | | 1 | 1(o) | 1 | 1(o) | 1 | 1(o) | 1 | 1(o) | Optional. To be located in a non-public area. |
| **Discounted Circulation** | | | **30%** | | **30%** | | **30%** | | **30%** | | |

In smaller hospitals, it is likely that the ED will be located alongside the main hospital entry point, and it has been assumed that these areas may share space and staffing with adjacent areas.

## AMBULANCE AREAS

Recommended area allocations for the Ambulance Areas are noted below. Consideration of jurisdictional requirements, industrial arrangements and consultation with the local ambulance services are recommended before final planning is undertaken.

| Room Code | Room Name | SC / SC-D | 6 bays (Acute + Ambulatory Care) | | 18 bays (Acute + Ambulatory Care) | | 36 bays (Acute + Ambulatory Care) | | 60 bays (Acute + Ambulatory Care) | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| | Shower - Decontamination | Yes | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 | Check local authority requirements for wastewater detention requirements. |
| AIRLE-12 | Airlock | Yes | Shared | | 1 | 12 | 1 | 12 | 1 | 12 | Ambulance entry. |
| PBAT | Patient Bay, Emergency - Ambulance Triage | Yes | | | 2 | 6.5 | 3 | 6.5 | 6 | 6.5 | No. dependent on operational arrangements and peak ambulance offloads per hour. Access to patient toilets, dirty utility room and clean/dirty linen required. |
| | Ambulance Write Up | | | | 1 | 3 | 1 | 5 | 1 | 10 | Ambulance service write up. Final spaces dependent on write-up spaces required and peak number of ambulance officers. |
| BHWS-B | Bay - Handwashing, Type B | Yes | | | 1 | 1 | 1 | 1 | 2 | 1 | 1 basin per 4 holding bays. |
| BBEV | Bay - Beverage | Yes | | | Shared | | Shared | | 1 | 4 | |
| BMEQ | Bay - Mobile Equipment | Yes | | | Shared | | Shared | | 1 | 2 | |
| | **Discounted Circulation** | | **30%** | | **30%** | | **30%** | | **30%** | | |

A blood alcohol sample storage box is required in the ED and may be wall mounted.

## TREATMENT AREAS

Recommended area allocations for resuscitation, acute/sub-acute and ambulatory care zones are provided below. For smaller facilities, these zones may be contiguous, and it is important that connection and visibility between zones is achieved to optimise staff efficiencies and safety. A number of rooms and support areas may also be shared between smaller treatment zones.

## RESUSCITATION

Resuscitation Rooms in Level 1-3 ED may have fixed or mobile audio-visual unit to allow for communication to larger centres for consultations with other clinicians.

Negative pressure resuscitation room to be considered on a project-by-project basis.

| Room Code | Room Name | SC / SC-D | 1 Treatment bay | | 2 Resus Bay | | 3 Resus Bays | | 5 Resus Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| PBTR-R | Patient Bay, Emergency - Resuscitation | Yes | | | 2 | 25 | 3 | 25 | 5 | 25 | Number of resuscitation bays is indicative and dependent on clinical services planning. Consider visual and acoustic privacy for children if paediatric resuscitation bay is collocated. May be enclosed if there is a requirement for humidity control and containment. |
| PBTR-R | Patient Bay, Emergency - Resuscitation Trauma | Yes | | | | | | | | 30 (o) | Optional. Larger sized resuscitation bay for designated trauma services. |
| | Patient Bay, Emergency - Treatment / Resuscitation | | 1 | 25 | | | | | | | Pendant and other major medical equipment inclusions will be on a project-by-project basis. |
| BMEQ | Bay - Mobile Equipment | Yes | Shared | | 1 | 4 | 2 | 4 | 3 | 4 | Ultrasound, General X-Ray, other mobile equipment. |
| OFF-WI-5 | Office - Write Up | | | | | | 1 | 3 | 1 | 5 | |
| MED-14 | Medication Room | Yes | Shared | | Shared | | 1 | 8 | 1 | 8 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| CLN-10 | Clean Store | Yes | Shared | | Shared | | 1 | 6 | 1 | 8 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| DTUR-10 | Dirty Utility | Yes | Shared | | Shared | | Shared | | 1 | 10 (o) | Optional. Consider opportunities to share with adjacent zone. |
| BPATH | Bay - Pathology | Yes | Shared | | Shared | | Shared | | 1 | 2 | For POCT |
| INTV | Interview Room | Yes | 1 | 12 (o) | 1 | 12 | 1 | 12 | 2 | 12 | Optional for 1 Resuscitation scenario. For staff to meet with family and friends of patients. Also used as a quiet/grieving space. Number will depend on size of service. Also refer to allocation in acute zone below. A larger family or whānau room may also be provided in this zone. |
| **Discounted Circulation** | | | **40%** | | **40%** | | **40%** | | **45%** | | |

## ACUTE ZONE

In larger services, separate areas may be provided for acute and sub-acute beds. It is likely that services with significant attendances will develop a dedicated paediatric zone.

For the purposes of this indicative schedule of accommodation, it has been assumed that a standard Patient Bay will be provided for acute, sub-acute and paediatric zones, as well as for senior assessment and streaming and early treatment zones where provided. This increases standardisation and flexibility over time. The Service Plan will nominate the numbers of spaces to be provided within each zone.

| Room Code | Room Name | SC / SC-D | 6 bays (Adults + Paeds) | | 12 Acute Bays (Adults + Paeds) | | 18 Adult Acute Bays | | 30 Adult Acute Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| PBTR-A | Patient Bay, Emergency - Acute Treatment | Yes | 6 | 12 | 10 | 12 | 14 | 12 | 24 | 12 | May be a mix of adult and paediatric bays where a dedicated paediatric zone is not provided. |
| PBTR-AS | Patient Room, Emergency - Acute Treatment Special | Yes | | | 2 | 15 | 2 | 15 | 3 | 15 | May be a mix of adult and paediatric bays where a dedicated paediatric zone is not provided. |
| PBTR-AS | Patient Room, Emergency - Acute Treatment Special, Class N Isolation | Yes | | | | | 1 | 15 | 2 | 15 | Negative pressure isolation. Final qty dependent on models of care and provision of an ED pod that can be switched from neutral to negative airflow during pandemic. |
| | Patient Bay, Emergency - Acute Treatment, Bariatric | | | | | | 1 | 15 | 1 | 15 | Number dependent on local requirements. |
| ANRM | Anteroom | Yes | | | | | 1 | 6 | 2 | 6 | Dedicated to each Class N Room. |
| ENS-ST-C | Ensuite | Yes | | | 1 | 5 | 2 | 5 | 3 | 5 | For all Class N rooms. Provide for Class S room depending on service profile. |
| ENS-BA | Ensuite - Bariatric | Yes | | | | | 1 | 7 | 1 | 7 | Adjacent to allocated bariatric bay. |
| | Safe Assessment / Behavioural Assessment Room | | | | 1 | 16 | 1 | 16 | 1 | 16 | For patients presenting with acute, severe behavioural disturbance where clinically indicated. Provision and location will depend on jurisdictional policies. |
| CONS | Consult Room - Sexual Assault | Yes | | | | | | | 1 | 12 (o) | Optional. Dedicated room required where ED is a designated sexual assault examination site. |
| ENS-ST-C | Ensuite | Yes | | | | | | | 1 | 5 (o) | Optional. Attached to the Consult Room - Sexual Assault |
| PROC | Procedure Room | Yes | | | | | | | 1 | 20 (o) | Optional. Included under paediatric zone below for smaller services. |
| INTV | Interview Room | Yes | | | Shared | | 1 | 12 | 1 | 12 | Number will depend on size of service. Also refer to allocation under resuscitation zone above. |

| Room Code | Room Name | SC / SC-D | 6 bays (Adults + Paeds) | | 12 Acute Bays (Adults + Paeds) | | 18 Adult Acute Bays | | 30 Adult Acute Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| WCPT | Toilet - Patient | Yes | 1 | 4 (o) | 2 | 4 | 2 | 4 | 3 | 4 | Optional for 6-bay scenario depending on location of nearby patient amenities. Final number in accordance with the National Construction Code (NCC). |
| WCAC | Toilet - Accessible | Yes | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | |
| SHPT | Shower - Patient | Yes | | | | | | | 1 | 4 | Consider provision of procedural shower in specialised facilities e.g. for burns trauma. |
| SHAC | Shower - Accessible | Yes | 1 | 4 | 1 | 4 | 1 | 4 | 1 | 4 | |
| SSTN-10<br>SSTN-14<br>SSTN-20 | Staff Station | Yes | 1 | 10 | 1 | 14 | 1 | 20 | 1 | 30 | 60-bed scenario may provide 2 x 15m2 Staff Stations instead. |
| | Staff Station, Emergency Control | | | | | | | 14 (o) | 1 | 14 (o) | Optional. Provide where Doctor in Charge, Nurse in Charge and Clerk are to be collocated and centralised within the unit to oversee patient flow, ambulance arrival, BAT phone, security feed observation, and central monitoring overview. These functions may be distributed/duplicated across the unit depending on models of operation, staffing profile, size and complexity of service, etc. |
| OFF-CLN | Office - Clinical Workroom | Yes | | | | | 1 | 15 | 1 | 20 | To support access to clinical information systems, staff debriefing etc. |
| MED-14 | Medication Room | Yes | Shared | | 1 | 8 | 1 | 12 | 2 | 14 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| CLN-10 | Clean Store | Yes | Shared | | 1 | 6 | 1 | 8 | 2 | 8 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. May be a combined room in 60-bed scenario. |
| BHWS-B | Bay - Handwashing, Type B | Yes | 2 | 1 | 2 | 1 | 3 | 1 | 7 | 1 | Assigned at a rate of 1:4 to 1:6. Assume 1:4 during early planning and assess opportunities for more efficient allocation during schematic design. |
| | Bay - PPE | | | 1 | | 1 | | 1 | | 1 | Recessed wall mounted PPE holders may be provided instead, depending on IPC policy of the facility. PPE Bay/wall mounted holders must be located to minimise impact on corridor flow. |
| BPTS | Bay - Pneumatic Tube Station | Yes | | | 1 | 1 | 1 | 1 | 1 | 1 | Consider additional BPTS in Resuscitation Area if location cannot be centralised. |

| Room Code | Room Name | SC / SC-D | 6 bays (Adults + Paeds) | | 12 Acute Bays (Adults + Paeds) | | 18 Adult Acute Bays | | 30 Adult Acute Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| BPATH | Bay - Pathology | Yes | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | For POCT. Size dependent on no. of devices used. |
| BRES | Bay - Resuscitation Trolley | Yes | 1 | 1.5 | 1 | 1.5 | 1 | 1.5 | 2 | 1.5 | |
| BMEQ | Bay - Mobile Equipment | Yes | 1 | 4 | 1 | 4 | 2 | 4 | 3 | 4 | Note also allocated under resus and Ambulatory Care zones. May be provided as underbench storage with staff station. |
| BLIN | Bay - Linen | Yes | Shared | | 1 | 2 | 1 | 2 | 2 | 2 | Also included under paediatric and Ambulatory Care zones. |
| BBEV | Bay - Beverage, Open Plan | Yes | Shared | | 1 | 4 | 1 | 4 | 1 | 4 | |
| DTUR-10 | Dirty Utility | Yes | Shared | | 1 | 10 | 1 | 10 | 2 | 10 | No. dependent on size and configuration of ED. |
| **Discounted Circulation** | | | **40%** | | **40%** | | **40%** | | **40-45%** | | |

## PAEDIATRIC ZONE

The areas below reflect the requirements of a dedicated paediatric zone where provided.

| Room Code | Room Name | SC / SC-D | Paeds bays included above | | Paeds bays included above | | 6 Paediatric Acute Bays | | 12 Paediatric Acute Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| WAIT-S | Waiting - Sub | Yes | | | | | 1 | 10 (o) | 1 | 15 (o) | Optional, where separate paediatric zone is provided. |
| PLAY | Play Area - Paediatric | Yes | | | | | 1 | 5 (o) | 1 | 10 (o) | Optional. Collocated with paediatric zone where provided. |
| WCAC | Toilet - Accessible | Yes | | | | | 1 | 6 (o) | 1 | 6 (o) | Optional, where separate paediatric zone is provided. Provide baby change table. |
| PBTR-A | Patient Bay, Emergency - Acute Treatment | Yes | | | | | 4 | 12 | 8 | 12 | |
| PBTR-AS | Patient Room, Emergency - Acute Treatment, Special | Yes | | | | | 2 | 15 | 3 | 15 | |
| PBTR-AS | Patient Bay, Emergency - Acute Treatment, Special, Class N Isolation | Yes | | | | | | | 1 | 15 | Negative pressure isolation. |
| ANRM | Anteroom | Yes | | | | | | | 1 | 6 | Dedicated to each Class N Room. |
| ENS-ST-C | Ensuite | Yes | | | | | 2 | 5 | 4 | 5 | For all Class N rooms. Provide for Class S room depending on service profile. |
| PROC | Procedure Room | Yes | | | | | 1 | 20 | 1 | 20 | |
| INTV | Interview Room | | | | | | Share | | 1 | 12 | |
| WCPT | Toilet - Patient | Yes | | | | | | | 1 | 4 | |
| WCAC | Toilet - Accessible | Yes | | | | | 1 | 4 | 1 | 6 | |
| SHAC | Shower - Accessible | Yes | | | | | 1 | 4 | 1 | 4 | |

| Room Code | Room Name | SC / SC-D | Paeds bays included above | | Paeds bays included above | | 6 Paediatric Acute Bays | | 12 Paediatric Acute Bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| SSTN-10 | Staff Station | Yes | | | | | 1 | 10 | 1 | 12 | |
| MED-14 | Medication Room | Yes | | | | | 1 | 6 | 1 | 8 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| CLN-10 | Clean Store | Yes | | | | | 1 | 6 | 1 | 6 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| BHWS-B | Bay - Handwashing, Type B | Yes | | | | | 1 | 1 | 3 | 1 | Assigned at a rate of 1:4 to 1:6. Assume 1:4 during early planning and assess opportunities for more efficient allocation during schematic design. |
| | Bay - PPE | | | | | | | 1 | | 1 | Recessed wall mounted PPE holders may be provided instead, depending on IPC policy of the facility. PPE Bay/wall mounted holders must be located to minimise impact on corridor flow. |
| BLIN | Bay - Linen | Yes | | | | | Share | | 2 | 2 | |
| BMEQ | Bay - Mobile Equipment | Yes | | | | | 1 | 2 | 1 | 4 | |
| BBEV | Bay - Beverage, Open Plan | Yes | | | | | 1 | 4 | 1 | 4 | |
| DTUR-S DTUR-10 | Dirty Utility | Yes | | | | | 1 | 8 | 1 | 10 | No. dependent on size and configuration of ED. |
| **Discounted Circulation** | | | **40%** | | **40%** | | **40%** | | **40-45%** | | |

## AMBULATORY CARE

In smaller units, the ambulatory care functions may be combined with the triage assessment rooms for flexible use and efficient staffing arrangements. Dental assessments are generally undertaken in the Consult - ENT/ Ophthalmology or in patient treatment spaces. A separate Consultation Room – Dental may be provided in ED with specialist services or as determined by need/activity.

| Room Code | Room Name | SC / SC-D | | | 6 Ambulatory Care Spaces | | 12 Ambulatory Care Spaces | | 18 Ambulatory Care Spaces | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| WAIT-S | Waiting - Sub | Yes | | | | | 1 | 10 | 1 | 15 | May require a public toilet if not provided nearby. |
| PBTR-FT | Patient Bay, Emergency - Ambulatory Care | Yes | | | 4 | 6.5 | 9 | 6.5 | 14 | 6.5 | The mix of bays and consult rooms will be dependent on project requirements. |
| CONS | Consult Room | Yes | | | 2 | 12 | 3 | 12 | 4 | 12 | The mix of bays and consult rooms will be dependent on project requirements. One room to be attached or adjacent to a WC for Obstetrics/ Gynaecology patients. |
| CONS-ENT-OP | Consult - ENT / Ophthalmology | Yes | | | | | 1 | 16 (o) | 1 | 16 | Optional for 12-space scenario. |
| SSTN-10 | Staff Station | Yes | | | Shared | | 1 | 10 | 1 | 12 | May be shared with an adjacent treatment area. |

| Room Code | Room Name | SC / SC-D | | | 6 Ambulatory Care Spaces | | 12 Ambulatory Care Spaces | | 18 Ambulatory Care Spaces | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| PLST | Plaster Room | Yes | | | | | 1 | 14 (o) | 1 | 14 (o) | Optional. Consider locating plaster sink in Procedure Room instead if appropriate. |
| | Store - Orthotics and Mobility Aids | | | | | | 1 | 2 | 1 | 2 | |
| BHWS-B | Bay - Handwashing, Type B | Yes | | | 1 | 1 | 3 | 1 | 4 | 1 | Assigned at a rate of 1:4 to 1:6. Assume 1:4 during early planning and assess opportunities for more efficient allocation during schematic design. |
| | Bay - PPE | | | | | 1 | | 1 | | 1 | Recessed wall mounted PPE holders may be provided instead, depending on IPC policy of the facility. PPE Bay/wall mounted holders must be located to minimise impact on corridor flow. |
| BRES | Bay - Resuscitation Trolley | Yes | | | Shared | | Shared | | 1 | 1.5 | |
| BMEQ | Bay - Mobile Equipment | Yes | | | 1 | 4 | 1 | 4 | 1 | 4 | |
| BLIN | Bay - Linen | Yes | | | Shared | | 1 | 2 | 1 | 2 | |
| WCPT | Toilet - Patient | Yes | | | | | 1 | 4 | 2 | 4 | Access to shower may also be required for areas where water immersion treatment is commonly used e.g. for jellyfish stings. |
| WCAC | Toilet - Patient, Accessible | Yes | | | 1 | 6 | 1 | 6 | 1 | 6 | |
| **Discounted Circulation** | | | | | **40%** | | **40%** | | **40-45%** | | |

## OUTDOOR AREAS

| Room Code | Room Name | SC / SC-D | 6 bays (Acute + Ambulatory Care) | | 18 bays (Acute + Ambulatory Care) | | 36 bays (Acute + Ambulatory Care) | | 60 bays (Acute + Ambulatory Care) | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| | Outdoor Space | | | | | | 1 | 20 (o) | 1 | 40 (o) | Optional. Highly desirable in ED with large footprint. Weather protected to part of the area. |

## SUPPORT AREAS

| Room Code | Room Name | SC / SC-D | 6 bays (Acute + Ambulatory Care) | | 18 bays (Acute + Ambulatory Care) | | 36 bays (Acute + Ambulatory Care) | | 60 bays (Acute + Ambulatory Care) | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| | Office - Telemedicine | | | | | | 1 | 12 (o) | 1 | 12 (o) | Optional. Requirement depends on role of facility. May be located in main ED or in the Staff Zone. |
| STGN | Store - General | Yes | Shared | | 1 | 20 | 1 | 30 | 1 | 40 | May be decentralised for larger EDs. Determine amount of storage required per ED zone and allocate appropriately to that area. |
| STEQ-14 STEQ-20 | Store - Equipment | Yes | Shared | | 1 | 14 | 1 | 20 | 1 | 30 | May be decentralised for larger EDs. Determine amount of storage required per ED zone and allocate appropriately to that area. |
| | Store - Disaster Equipment | | | | | | | | 1 | 8 | Requirements will depend on disaster management role. Consider convenient location for ambulance area. |
| DISP-10 | Disposal Room | Yes | Shared | | 1 | 8 | 1 | 10 | 1 | 12 | Area requirement and qty will depend on size of service. Size requirements for a Disposal Room will be dependent on a department's estimated waste output, the frequency of waste collection and local operational policies for waste management that may dictate the number of waste streams and minimum bin sizes. |
| CLRM | Cleaner's Room | Yes | Shared | | 1 | 5 | 1 | 5 | 2 | 5 | Number will depend on size of unit. Consider convenient location for ambulance area if dedicated ambulance Cleaner's Room is not provided. |
| WCST | Toilet - Staff | Yes | Shared | | Shared | | 2 | 3 | 4 | 3 | Distributed in close proximity from clinical areas. |
| | **Discounted Circulation** | | **40%** | | **40%** | | **40%** | | **40-45%** | | |

## ED SHORT STAY UNIT

| Room Code | Room Name | SC / SC-D | TBC | | 8 bays | | 12 bays | | 20 bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| PBTR-NA | Patient Bay, Emergency - Non Acute Treatment | Yes | | | 8 | 10 | 11 | 10 | 18 | 10 | Refer to local jurisdictional requirements. |
| PBTR-AS | Patient Room, Emergency - Non Acute Treatment Special | Yes | | | | | 1 | 15 | 2 | 15 | Standard isolation. May also be used for patients requiring palliative care. |
| ENS-ST-C | Ensuite | Yes | | | 1 | 5 | 3 | 5 | 4 | 5 | Provide for Class S room depending on service profile. Remainder shared between other bays/rooms. |
| ENS-ACC | Ensuite - Accessible | | | | 1 | 7 | 1 | 7 | 1 | 7 | |
| SSTN-10 SSTN-20 | Staff Station | Yes | | | 1 | 10 | 1 | 12 | 1 | 20 | |
| BLIN | Bay - Linen | Yes | | | 1 | 2 | 1 | 2 | 2 | 2 | |
| BHWS-B | Bay - Handwashing, Type B | Yes | | | 2 | 1 | 3 | 1 | 5 | 1 | Assigned at a rate of 1:4 to 1:6. Assume 1:4 during early planning and assess opportunities for more efficient allocation during schematic design. |
| | Bay - PPE | | | | | 1 | | 1 | | 1 | Recessed wall mounted PPE holders may be provided instead, depending on IPC policy of the facility. PPE Bay/wall mounted holders must be located to minimise impact on corridor flow. |
| MED-14 | Medication Room | Yes | | | 1 | 6 | 1 | 8 | 1 | 10 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| CLN-10 | Clean Store | Yes | | | 1 | 6 | 1 | 6 | 1 | 6 | May be provided as a combined Clean Store / Medication Room depending on local jurisdictional policies. |
| DTUR-S DTUR-10 | Dirty Utility - Sub | Yes | | | 1 | 8 (o) | 1 | 8 | 1 | 10 | Optional for 8-bay scenario. |
| BRES | Bay - Resuscitation Trolley | Yes | | | 1 | 1.5 | 1 | 1.5 | 1 | 1.5 | |
| CLRM | Cleaner's Room | Yes | | | Shared | | Shared | | 1 | 5 | May be shared with acute care zone depending on size of unit. |
| BBEV | Bay - Beverage | Yes | | | Shared | | 1 | 4 | 1 | 4 | Consider adjacency to palliative care bedroom if provided in this zone. |
| BMT | Bay - Meal Trolley | Yes | | | Shared | | 1 | 4 | 1 | 4 | Inclusion dependent on operational policy. |
| STEQ-14 | Store - Equipment | Yes | | | Shared | | 1 | 10 | 1 | 12 | May be shared with acute care zone depending on size of unit. |
| **Discounted Circulation** | | | **40%** | | **40%** | | **40%** | | **40%** | | |

## EDUCATION AREAS (OPTIONAL)

The provision of a dedicated Education Area in larger EDs is determined on a project-by-project basis. This area may be combined with Staff Areas or may be part of a shared education and training space within the healthcare facility and may be used by staff other than those in the ED.

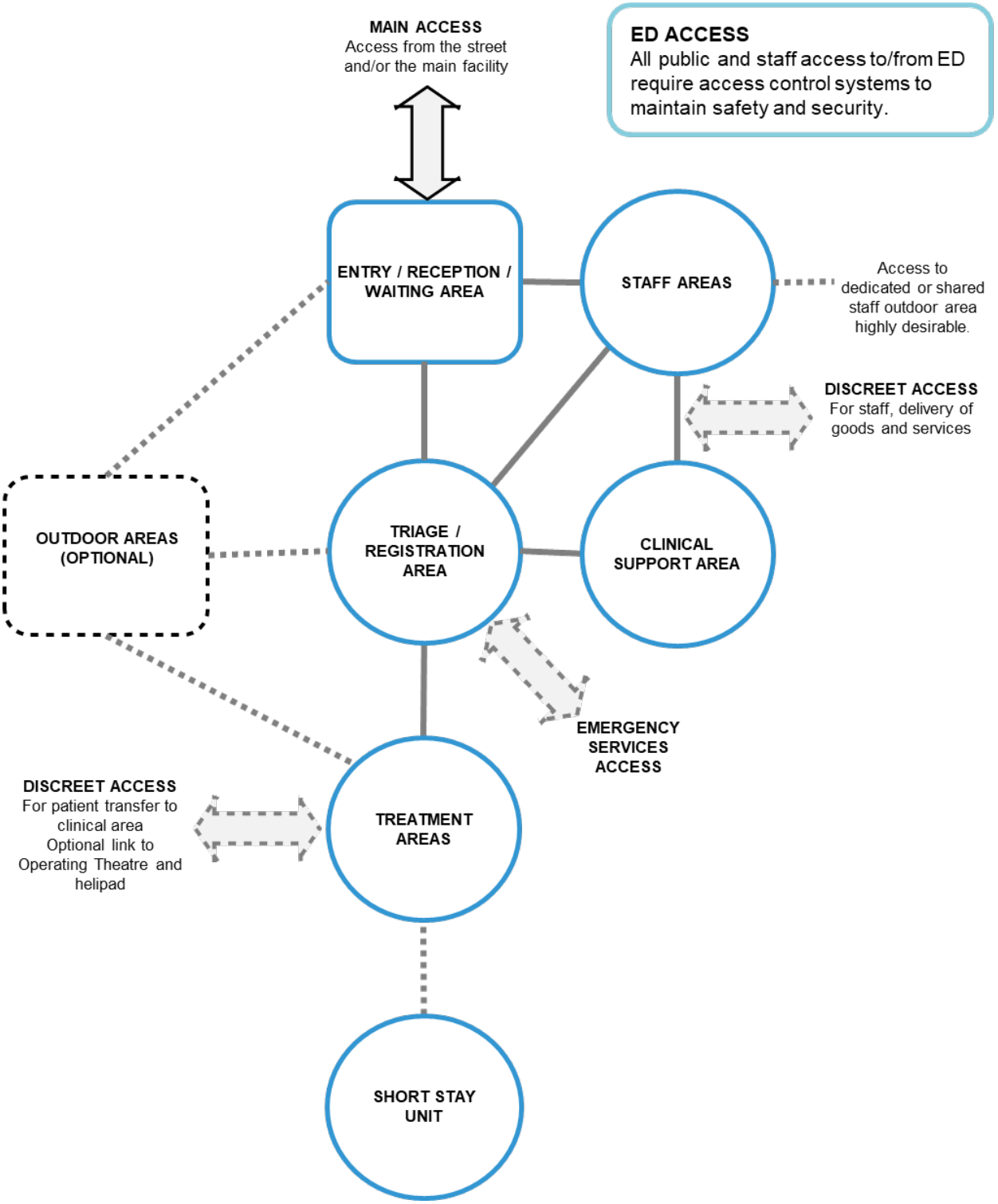
| Room Code | Room Name | SC / SC-D | 6 bays | | 18 bays | | 36 bays | | 60 bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| | Simulation Room | | | | | | | | 1 | 25 (o) | Optional. |
| | Simulation Control Room | | | | | | | | 1 | 10 (o) | Optional. |
| | Discounted Circulation | | 25% | | 25% | | 25% | | 25% | | |

## STAFF AREAS

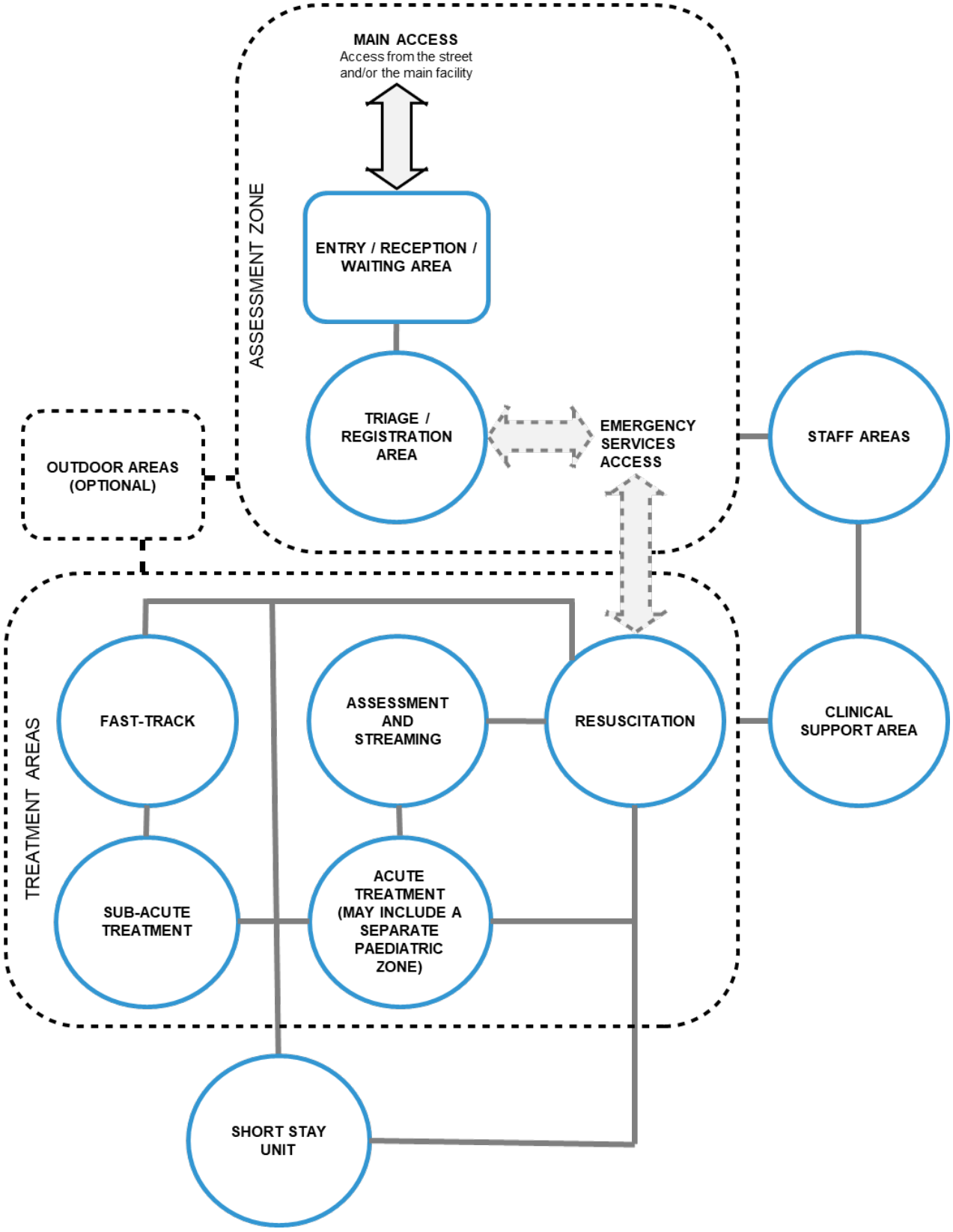
| Room Code | Room Name | SC / SC-D | 6 bays | | 18 bays | | 36 bays | | 60 bays | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qty | m2 | Qty | m2 | Qty | m2 | Qty | m2 | |
| SRM-15 SRM-35 | Staff Room | Yes | Shared | | 1 | 15 | 1 | 20 | 1 | 30 | Area dependent on staff profile. |
| CHST-10 CHST-35 | Change - Staff | Yes | Shared | | 1 | 10 | 1 | 20 | 1 | 35 | Includes staff toilets and showers. Requirements will depend on operational policy relating to staff arriving at work in uniform or changing at work. Distribution of male, female and non-gendered amenities on project level. |
| WCAC | Toilet - Accessible | Yes | | | | | 1 | 6 | 1 | 6 | Unless readily available elsewhere. |
| PAR | Parenting Room | Yes | Shared | | Shared | | 1 | 9 (o) | 1 | 9 (o) | Optional. Dependent on staff profile and location of ED in relation to hospital staff facilities for breastfeeding and lactation. |
| BPROP | Property Bay - Staff | Yes | Shared | | 1 | 3 | 1 | 5 | 1 | 8 | |
| OFF-1P-12 | Office - Single Person | Yes | | | | | 1 | 12 | 1 | 12 | Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas. |
| OFF-1P-9 | Office - Single Person | Yes | | 9 | | 9 | | 9 | | 9 | Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas. |
| OFF-WS | Office - Workstation | Yes | | 5.5 | | 5.5 | | 5.5 | | 5.5 | Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas. |
| OFF-WS | Office - Workstation | Yes | | 4.4 | | 4.4 | | 4.4 | | 4.4 | Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas. |
| BMFD-3 | Bay - Multifunction Device | Yes | Shared | | 1 | 3 | 1 | 3 | 1 | 3 | |
| MEET-20 MEET-30 | Meeting Room | Yes | Shared | | 1 | 20 | 1 | 30 | 1 | 40 | Consider operable wall to provide as two smaller rooms for higher utilisation. |
| MEET-15 | Meeting Room | Yes | Shared | | | | 1 | 12 | 1 | 15 | |
| | Discounted Circulation | | 25% | | 25% | | 25% | | 25% | | |

## 5.2 FUNCTIONAL RELATIONSHIPS - DIAGRAMS

The following diagram details the relationships between zones in an Emergency Unit. Refer to the following diagram for further detail regarding the various assessment and treatment zones.



The following diagram details the arrangement for assessment and treatment zones in an Emergency Unit.



## 5.3 MODELS OF CARE

Majority of the information has been sourced from the Emergency Department Models of Care, 2012 (NSW Health) and many of the models are in use across all jurisdictions.

**COMMON ED MODELS OF CARE**

Although noted as common models of care, the following are ED processes which are generally provided in most ED:

**a.** **Triage and registration** are streamlined to facilitate an efficient process that does not create a barrier to further assessment and clinical care. Only essential triage functions should occur at the point of triage including the determination of patient acuity and level of urgency, basic first aid if needed, and referral to the most appropriate area for treatment. This is followed by a quick registration by the triage nurse or clerical officer collocated with the triage nurse (pre-registration). The process generally takes between three and five minutes. Full registration of patients can then be completed by clerical staff at the bedside or within another ED location.

**b.** In larger facilities, a **Clinical Initiatives Nurse (CIN)** model may also be used to manage patients queuing in the ED waiting room by ensuring the clinical safety of the patients, maintaining communication with patients, and initiate treatment.

**c.** The **resuscitation** model of care outlines a set of guidelines for the most appropriate clinical, preparatory processes and team model that should be used in the resuscitation of patients in the ED (including trauma management). The resuscitation area of the ED will manage patients with immediately life-threatening conditions. Key elements of the model of care include:

- a coordinated team approach to managing patients requiring resuscitation
- standardised communication processes including between pre-hospital personnel and ED staff
- timely access and turnaround times for diagnostic services (medical imaging, pathology and blood bank)
- direct access to appropriate equipment and resources to ensure timely, safe and quality resuscitation care.

**d.** The **acute care** model uses a set of principles and processes that aim to promote efficiency in initiating, assessing, performing and transferring the care of patients who are acute, potentially unstable and complex. These patients may require:

- cardiac monitoring
- frequent observation (and will include mental health patients who may require 1:1 observations)
- specialised interventions
- a higher level of care
- a more comprehensive management plan.

**e.** **Paediatric & Adolescent Care Services** refers to model of care developed for the reception, triage, assessment, stabilisation, referral and management of children and adolescents aged 0 – 17 years presenting with acute and urgent illnesses and injuries. These units may be physically separate from adult areas in larger emergency units but may also be allocated beds or flexible use bed area within the emergency unit in smaller facilities.

## SPECIALISED ED MODELS OF CARE

The following models of care may be established within EDs. The inclusion of these models of care are not mandatory in all ED. Their inclusion will depend on the ED role delineation, size of the unit, clinical service plan and jurisdictional policies.

### a. Ambulatory Models of Care

**Ambulatory care** such as Fast Track is a dedicated area in the ED to treat ambulant, non-complex (single system problem) patients who can be discharged within two hours. In some jurisdictions, this model of care is also called 'see and treat' or 'vertical care'. Triage streams patients into the ambulatory care using a predetermined inclusion/exclusion criterion. Ambulatory care zones aim to increase ED throughput by:

- expediting the care of ambulatory patients with less urgent symptoms and conditions
- diverting the care of patients who meet particular clinical criteria (through a separate stream in the ED)
- using a geographically dedicated area staffed by dedicated senior medical and nursing staff (and may include nurse practitioners and physiotherapists)
- providing care that is standardised and targeted to specific conditions and injuries.

**Sub-acute care** is a designated area in the ED for patients who are:

- low acuity (and do not require an acute bed or cardiac monitoring)
- high-complexity (with multiple co-morbidities), resource-intensive and require multiple investigations, consults and/or procedures, and are therefore not eligible for Ambulatory Care or Urgent Care Centre (UCC).

### b. Front of House Models of Care

**Early Assessment and Streaming** (EAS) is a flexible model of care that operates during peak periods of demand. This approach involves categorisation of patients with similar characteristics, focuses on determining an early diagnosis, clinical management plan and disposition decision for patients. An important component of the model is the streaming zone, although the model functions most effectively with two key core components. These components are:

- Triage and registration: Triage assessment that is limited to less than five minutes to establish the patient's level of urgency only. Interventions are limited to first aid only and may involve members of the multidisciplinary team.
- Streaming zone (physical space and appropriate staff): Early clinical decision-making and critical interventions by a senior ED physician and early streaming of patients to appropriate care areas within or outside of the ED in less than 10 minutes.

The **Early Treatment Zone** (ETZ) is a multi-functional and flexible clinical area that may be utilised as:

- A zone where patients are rapidly assessed vertically (i.e. sitting up rather than a bed) by both the nurse and physician (or advanced practice clinician) simultaneously.
- A zone where clinicians initiate investigation, and initial treatment of patients upon arrival.
- A clinical area where the patient management plan from the streaming zone can be implemented and completed with the patient then discharged within two hours.
- A clinical area where the patient management plan can be commenced prior to the patient moving to another area in ED (e.g., into the acute area)
- An internal waiting area for patients still requiring observation prior to discharge or who are waiting for results of tests such as pathology.

### c. Admission Areas Within or Nearby the Emergency Unit

**ED Short Stay Units** may also be known as Emergency Medical Units (EMU). Emergency Department Short Stay Units (EDSSU) refer to designated units, co-located with the ED, which have been developed for the short-term care of patients who require observation, specialist assessment and diagnostics and whose length of hospital stay is deemed to be limited (for example less than 24 hours). When provided, these units should be physically separate from acute assessment areas. Refer to ACEM Emergency Department Short Stay Units Guideline, March 2024 for further information.

### d. Behavioural & Mental Health Zone

A separate area in an emergency unit designed to assess, plan and review a patient presenting with mental health, drug withdrawal & intoxication from alcohol and other behavioural disturbances. Immediate treatment may be required in conjunction with de-escalation and other approaches to managing safety risks are important prior to transfer of care to Mental Health Emergency Short Stay Unit (MHESSU), an inpatient or community setting.

Mental health, alcohol and other drugs hubs have been introduced in some jurisdictions to fast-track specialist and dedicated care to patients presenting at emergency departments with mental health crisis. These hubs are governed by ED and staffed by emergency clinicians in collaboration with multidisciplinary mental health care team and/or drug & alcohol services.

Drug and alcohol units are oftentimes attached to safe assessment areas but have different parameters which can be in the short stay or be a dedicated unit.

Not all EDs include a separate Mental Health zone as they are usually only provided in larger facilities or as per jurisdictional requirements. It is also important to note that the Behaviour & Mental Health zone is not a short stay unit for patients presenting with behaviours of concern or mental health crisis, but an area for cohorting patients within the ED. The patients will either be discharged from this zone after assessment, observation and treatment, admitted to MHESSU if requiring up to 72-hour care or transferred to a Mental Health Inpatient Unit for extended admission.

Refer to AusHFG HPU 131 Mental Health – Overarching Guideline and AusHFG HPU 133 Mental Health Emergency Short Stay Unit for further guidance.

### e. Virtual Models of Care

EDs are now increasingly adopting virtual models of care to provide advice and support to other facilities. It is predicted to be increasingly utilised in remote or rural areas. Larger EDs provide telehealth services and need to be equipped to do so. This also includes the provision of coordination hubs where clinician coordinates with ambulance and flow manager of hospital, pathology system, patient flow, and in some facilities, has regional responsibility. As a result, there is increased demand from clinicians to be equipped with well-defined processes and governance, dedicated telehealth/virtual care room, better IT access and connection, telehealth devices/equipment, technology adaptations, appropriate staffing and staff training to provide ongoing virtual support to other clinicians.

A larger ED facility may provide telehealth service to a smaller rural facility either through a camera in the resuscitation room, a camera and workstation on wheels in the acute treatment zone, or a dedicated ICT installation in a dedicated telehealth room. Smaller hospitals such as those with Level 1 ED are recommended to have audiovisual technology in the resuscitation room as well as a mobile unit to allow for communication with larger facilities. It is important to future-proof emergency units to allow for rapidly changing technology and continue to provide long-term, sustainable, efficient, accessible, and patient-centric care.

Another type of ED telehealth is medical services provided by emergency trained staff to patients who require immediate medical attention but are not life-threatening, using video or phone technology. This will require a dedicated virtual care room near the ED clinical area if collocated with ED. This service may be located separate from the ED.

Refer to ACEM S843, Telehealth in Emergency Medicine for ACEM Interim Position Statement.

## OTHER ED MODELS OF CARE

The following models of care are not mandatory core emergency services or standard practices in all EDs. They may be employed to address high patient volumes; specific community cohort needs and be adopted to increase workflow efficiencies or mitigate risk factors. Although these models of care are jurisdictional and sometimes temporary to address urgent needs such as in response to pandemic or unpredictable surges, they require consideration during the planning and design stage on a project-by-project basis.

### Pre-triage Model

A model of care usually carried out in a purpose-built structure which is used to filter patients to an appropriate workflow pattern within the ED. This model was widely used during Covid-19 pandemic as patients can be streamed to dedicated lower acuity cohorted treatment areas or resuscitation zones with appropriate ventilation setup. This model of care is usually a temporary measure to address pandemic preparedness.

There are other ED models of care which are part of, or being trialled in, some jurisdictions. Some examples of these models of care are:

- **Transfer of Care Zone** is an area where ambulance patients are cared for by an ED nurse or the hospital-based team while they await admission.
- **Cold and Hot Zones** refer to designated physical areas in the ED for cohorting patients during modified operations. These zones may take on different meanings depending on the situation, such as during a pandemic, chemical outbreak, or mass casualty event. For example, during a pandemic, the hot zone may refer to the area where patients who meet the case definition, such as those with infectious conditions, are placed. In the case of a chemical outbreak, the hot zone would be used for contaminated patients, ensuring they are separated from non-contaminated individuals.
- **Forensic Medical Zone** where patients including those presenting after sexual assault are assessed by forensic services.
- **Workforce related models of care** such as Physician in Triage, Nurse Initiated Care, Physiotherapy Practitioners.

For further information, refer to NSW Ministry of Health, Emergency Department Models of Care.

## 5.4 REFERENCES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## 5.5 FURTHER READING


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# 06 ATTACHMENTS

## 6.1 SECURITY CONSIDERATIONS

| GENERIC SAFETY AND/ OR SECURITY RISKS | POTENTIAL SOLUTIONS |
|---|---|
| 1. 24 hours per day, 7 days per week access to this Department. | • A secure environment separating waiting from clinical areas.<br>• Appropriately sized and maintained waiting area with arrangement of seating to enable separation of various groups where required (e.g., children).<br>• Adequate vending machines, public telephones, toilet facilities including baby change facility, comfortable seating, etc.<br>• Minimise entry and exit doors with close observation of these doors from triage and security base.<br>• Triage station and the security base should have good natural surveillance of all approaches to the ED and the capacity to remotely lock entrance doors to prevent entry by persons who pose an immediate safety risk. |
| 2. Conflict with patients and relatives | • Install CCTV with video playback in security office where necessary and provide additional monitor in staff station.<br>• Install CCTV on 'after hours' access points to allow clinical and security staff to monitor this area.<br>• Provide video and/or intercom points to 'after hours' access points.<br>• Provide staff with appropriate security barrier/screens including appropriate provisions for patient contact and document transfer.<br>• Provide staff with access to both 'fixed' and 'mobile' duress systems.<br>• Provide good visibility from staff areas into waiting areas.<br>• ED patients should be prevented from gaining access to other areas of the facility 'after-hours' unless escorted by a staff member.<br>• Ambulance Bays screened and physically separated from public areas to ensure ambulance staff can undertake their duties without duress. |
| 3. Access to Emergency Department | • Control of patient/visitor access as above.<br>• Provide separate, discrete access/egress to the ED for staff so they do not have to enter or leave the ED through the public waiting area.<br>• Manage ambulance entrance to prevent unauthorised access.<br>• Access to treatment and staff areas possible only through controlled access system.<br>• Functional zones should be controlled so that patients may only move between them when authorised by a staff member. |
| 4. Furniture fittings and equipment | • Implementation of an asset tracking system for all equipment above a predetermined value.<br>• Keep equipment in a lockable area. |
| 5. Mental Health patients | • Concealed medical services panel including electrical points behind the locked cabinet.<br>• Alternate exit door to the consult/treatment room for staff in case of emergency.<br>• Consider how patients will access toilet/shower facilities.<br>• Direct line of sight from an occupied staff base. |
| 6. Presence of Police guns. | • Provision of a gun safe in an appropriate location (if applicable for the jurisdiction). |
| 7. Drugs storage | • Dangerous drug safe within the medication room area accessible only by staff. |
| 8. Furniture in Waiting Area | • Ensure seating, etc., is either permanently fixed or is of sufficient 'bulk' to prevent its use as a weapon, i.e., cannot be picked up and thrown.<br>• Do not include furniture or fittings that may be utilised as weapons.<br>• Provide appropriate bench seating, selected so that the personal space of waiting people is not invaded. |
| 9. Staff personal effects | • Provision for lockers in staff areas to store small personal effects. |

## SECURITY CHECKLIST - EMERGENCY UNIT

| FACILITY: | DEPARTMENT: EMERGENCY UNIT |
|---|---|
| **RISK ISSUE** | **DESIGN RESPONSE** |
| 1. Has a CCTV system been considered to monitor the waiting area and/or access to the public access points in the waiting area? | |
| 2. How is 'after hours' access provided for patients and how is this access point monitored? | |
| 3. Has a secure 'barrier' been installed between staff and the waiting area to:<br>a) monitor the waiting area<br>b) provide staff contact with patients<br>c) provide adequate visual and audible communication; and<br>d) allow for document and item transfer. | |
| 4. Do staff have access to both fixed and mobile duress systems? | |
| 5. Is access to patient records restricted to staff entitled to that access? | |
| 6. Is a system implemented to prevent theft of equipment, files, personal possessions, etc? | |
| 7. How does the ED address assessment/treatment of patients with acute, severe behavioural disturbances in the ED? | |
| 8. Is a gun safe required and is it incorporated in the design? | |
| 9. Are drug safes installed in accordance with current regulations? | |
| 10. Is the waiting area furniture incapable of being utilised as a 'weapon'? | |
| 11. How is unauthorised access prevented from Ambulance entrance? | |
| 12. Is there a means of access/egress for staff other than through the waiting area? | |
| 13. How is after-hours access provided for staff? | |
| 14. How is this area secured during and after hours, and is access prevented to other areas of the facility after hours? | |
| 15. Are there lockable storage areas available for specialised equipment? | |
| 16. Is lockable furniture provided for storage of staff personal effects? | |
| 17. Is appropriate bench seating provided for patients/visitors/ relatives? | |
| 18. If a TV is provided in waiting area, is it securely fixed and out of reach of visitors, etc? | |
| 19. Has the location of bollards been considered to prevent accidental or deliberate vehicle access into the ED? | |

| DESIGN COMMENTARY / NOTES | DESIGN SIGN-OFF |
|---|---|
| | Name:<br>……..……..<br>Position:<br>……..…….. |
| | Name:<br>……..……..<br>Position:<br>……..…….. |