Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Summary of international requirements, standards and guidelines for emergency departments, including ancillary services, in selected countries

Work stream 6b of the Review of urgent and emergency healthcare services in the Health Service Executive Mid West health region

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Membership of the EAG was as follows:

Maria Bridgeman*	Integrated Healthcare Area Manager, Limerick City and North Tipperary, HSE
Sandra Broderick	Regional Executive Officer, Mid West health region, HSE
Prof John Browne	Professor of Epidemiology & Public Health, University College Cork
Prof Sara Burke†	Associate Professor and the Director of the Centre for Health Policy and Management, Trinity College Dublin
Ian Carter	Mid West Integrated Healthcare Area Manager, Acute and Older Person Services, HSE
Dr Sheelah Connolly	Senior Research Officer and Joint Research Area Coordinator for Health and Quality of Life Research, Economic and Social Research Institute (ESRI)
Margaret Costello*	Head of Service, Primary Care, HSE Mid West Community Healthcare
Prof Gary Courtney	Clinical Lead, National Clinical Programme for Acute Medicine, HSE
Dr Gino De Angelis†	Manager, Clinical Research, Canada's Drug Agency (L'Agence des medicaments du Canada)
Dr Michael Dockery	Clinical Lead, National Clinical Programme for Anaesthesia, HSE
Sean Egan	Director of Healthcare Regulation, HIQA
Dr Des Fitzgerald	Consultant in Emergency Medicine, University Hospital Waterford *Nominated by:* National Clinical Programme for Emergency Medicine
Patrick Glackin	Area Director, Nursing and Midwifery Planning and Development (Mid West, West and North), HSE

Prof Liam Glynn	Professor of General Practice, University of Limerick *Nominated by:* Irish College of General Practitioners
Janet Grene■	Honorary Secretary, University of Limerick Hospitals Group Patient Council
Dr David Hanlon	National Clinical Advisor and Group Lead Primary Care, HSE
John Hannifin♦	Chairperson, University of Limerick Hospitals Group Patient Council
Dr Patricia Harrington	Deputy Director, Health Technology Assessment, HIQA
Dr Martina Healy	Clinical Lead, National Clinical Programme for Critical Care, HSE
Dr Orla Healy	National Clinical Director of Quality and Patient Safety, HSE
Dr Terence Hennessy❖	Regional Clinical Lead for Strategy and Development for Mid West, HSE
Joe Hoare	Assistant National Director, Capital & Estates Mid West, HSE
Dr Graham Hughes	Clinical Lead, National Clinical Programme for Older People, HSE
Dr Paul Kavanagh	Consultant in Public Health Medicine, National Health Intelligence Unit, HSE
Ruth Kilcawley	Assistant National Lead of Health & Social Care Professions, HSE
Sinead Lardner	National Lead for Safe Nurse Staffing & Skill Mix, HSE
Dr Margie Lynch*	Medical Director, ShannonDoc *Nominated by:* Irish College of General Practitioners
Dr Mai Mannix	Regional Director of Public Health, Public Health Mid West, HSE
Dr Ciara Martin	National Clinical Advisor and Group Lead for Children and Young People, HSE
Prof Peter McCarthy	Consultant Radiologist, Former Dean of the Faculty of Radiologists and Radiation Oncologists
Claire McMahon*	Clinical Quality and Nurse Manager, ShannonDoc

Dr David Menzies	Deputy Clinical Director (Emergency Care), National Ambulance Services and Consultant in Emergency Medicine
Niall Murray	General Manager, National Ambulance Services Operations, Mid West Region
Kate O'Flaherty	Director of the National Patient Safety Office, Department of Health
Michelle O'Neill	Deputy Director, Health Technology Assessment, HIQA
Anne O'Shea Clarke	Patient representative, SAGE Advocacy
Dr Catherine Peters	Mid West Clinical Regional Director, HSE
Dr Máirín Ryan (Chair)	Director of Health Technology Assessment and Deputy Chief Executive Officer, HIQA
Prof Eamonn Rogers	Co-Lead of the National Clinical Programme for Surgery, HSE
Grace Rothwell	National Director for Access and Integration, HSE
Dr Nigel Salter	Consultant in Emergency Medicine, St. Vincent's Hospital *Nominated by:* Irish Association for Emergency Medicine
Mr Keith Synnott	National Clinical Lead for Trauma Services, HSE and Consultant Orthopaedic Surgeon at the Mater Misericordiae Hospital
Dr Conor Teljeur	Chief Scientist, Health Technology Assessment, HIQA
Dr Kieran Walsh	Deputy Director, Health Technology Assessment, HIQA
Patricia Whelehan	Assistant National Director, Older Person Services, National Office Access and Integration, HSE *Nominated by*: Director of Community Services, HSE
Jo Williams	Patient representative, Patients for Patient Safety Ireland

*Alternate nominee for programme; ■EAG member from 23 January 2025; ♦EAG member until 23 January 2025; †EAG member from 18 February 2025; ◦EAG member from 7 April 2025.

Members of the Health Technology Assessment Directorate Evaluation Team:

This report was led by staff in HIQA's HTA Directorate. The following individuals contributed to the management, technical writing or dissemination of this report: Lydia O'Sullivan (work stream lead), Martin Boudou, Marie Carrigan, Joan Devin, Andrew Dullea, Elaine Foley, Patricia Harrington, Orla Jenkins, Louise Larkin, Arielle Maher, Cillian McDowell, Dane Moriarty, Ruairí Murray, Michelle Norris, Michelle O'Shea, Kirsty O'Brien, Michelle O'Neill, Michelle O'Shea, Valerie Power, Máirín Ryan, Debra Spillane, Susan Spillane, Conor Teljeur, Barrie Tyner, Laoise Wallace, Kieran Walsh.

Conflicts of Interest

None reported.

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Background

The HSE Mid West region covers Limerick, Clare and North Tipperary and is called the Mid West in this report. In 2024, the Minister for Health asked HIQA to look at how urgent and emergency healthcare is working in this region. Emergency departments (EDs) provide urgent and emergency healthcare to members of the public, and are typically open 24/7 (24 hours a day, seven days a week).

EDs are being used more and more, both in Ireland and abroad, partly due to growing and ageing populations. Some countries have published requirements, standards or guidelines for how EDs should be set up and run, including what kind of staff they need and how EDs should work with other hospital services. These hospital services include, for example, intensive care units, laboratories and X-ray departments.

This report summarises requirements, standards and guidelines that we found for EDs in nine countries: Australia, Canada, the Netherlands, New Zealand, UK (including England, Northern Ireland, Scotland, Wales) and US. These countries were chosen for one or more of the following reasons:

- they are located close to Ireland
- they provide healthcare in a similar way as Ireland
- we found a relevant report from one of the countries as we prepared to carry out our search for this summary report.

We also searched for reports from international organisations (for example, the World Health Organization). The purpose of this review was to summarise requirements, standards and guidelines from these nine countries. We did not set out to develop national standards for EDs for Ireland.

Key findings

We found 36 reports as part of this summary of requirements, standards and guidelines for EDs, focusing on different aspects of the design and running of EDs. We found a large range of important points that need to be considered from these reports. These include:

- clinical processes (for example how the ED is run within a specific country)
- settings and facilities within the ED (for example, a resuscitation room, a triage room)
- workforce requirements (for example, emergency medicine doctors, nurses)
- recommendations around patient numbers or the population served by the ED

- specific requirements for the care of children
- specific requirements for the care of older people.

Conclusion

While there were many similarities between reports, particularly the focus on patient-centred care, there were also some differences noted. These differences may have come about because of how emergency and urgent care services are organised across the nine countries, or due to the different aims of the included reports. However, there was agreement across the included reports that EDs should be appropriately resourced. For example, this could include having enough staff available to fill rosters on a 24/7 basis. There should also be close co-operation both within the ED and between the ED and the many other hospital facilities and services. Key examples of these services include anaesthesia, cardiology, critical care and intensive care services, which may also be needed on a 24/7 basis. Overall, proper resourcing and a joined-up approach to emergency care were seen as essential for providing safe, sustainable and effective care.

Key Points

Background

- In 2024 the Minister for Health requested HIQA to conduct a review of urgent and emergency care in Ireland's HSE Mid West health region with the primary objective of ensuring safe quality acute care in the region.
- As a part of this overall review, it was agreed that HIQA would review the international evidence to provide an evidence-based rationale to inform the potential future configuration of comparable urgent and emergency healthcare services.
- Considering patients requiring urgent and emergency undifferentiated care, this report outlines a summary of international requirements, standards and guidelines for hospitals providing emergency department (ED) services, while also considering dependencies on other hospital departments.

Methods

- Grey literature and academic publications were identified for nine selected countries: Australia, Canada, the Netherlands, New Zealand, UK (England, Northern Ireland, Scotland, Wales) and US. These countries were selected based on a combination of factors, such as geographical proximity to Ireland, organisation of health services and availability of published information on the topic. Relevant reports from international organisations were also identified.

Findings

- A total of 36 reports met the inclusion criteria for this summary. The reports originated from: Australia and New Zealand (n=8); Canada (n=3); Netherlands (n=2); UK (n=14); US (n=5); international organisations (n=4). These reports included requirements, standards or guidelines which apply to EDs in general (n=30); reports relating to paediatric (n=4) and geriatric-specific (n=2) ED requirements were also identified.
- There was considerable variation in how hospital and emergency services are structured and described in different countries (levels of ED and the types of hospitals), and between the types of report included in this summary (specifications, service requirements, accreditation criteria etc.) and the level of detail they provided. This made it difficult to identify minimum requirements and standards for the delivery of urgent and emergency undifferentiated care.

General findings

- There was variation in the type of included reports (for example, building or design specifications, service requirements, workforce guidelines), indicating

the substantial considerations involved in the design and commissioning of hospitals that provide ED services.

- Key themes identified across the reports to support safe, effective and sustainable care included the need for:
  - care to be patient-centred
  - integrated emergency care, with close co-operation required both within the ED and between the ED and the wider hospital
  - adequate resourcing (facilities, support services, workforce, specialist services) in hospitals that provide ED services. These resourcing requirements were noted to depend on the context and the service. No included report defined resources based on volume outcomes data.

Clinical processes

- There was broad agreement that there are substantial clinical requirements for the safe and effective running of an ED irrespective of the ED's classification level. Requirements for on-site access to or provision of specialist emergency care services varied, with requirements for specific specialist emergency care services frequently limited to higher-acuity or larger centres. When not required to be on site, reports emphasised that there should be a system in place for stabilising patients and transferring them to a higher-acuity centre.
- The need for quality improvement programmes and an effective process for triaging incoming patients was highlighted.

Settings and facilities (within the ED)

- There was broad agreement that facilities are required for triage, resuscitation, consultation and treatment. Some reports highlighted the need for dedicated resuscitation areas that could be made available for the management of high-acuity cases, with higher-level EDs requiring separate areas equipped for invasive monitoring and mechanical ventilation. No report specified minimum numbers of either assessment bays or treatments rooms. While two reports made suggestions based on expected attendance volumes, it was highlighted that the number of bays and or rooms should be informed by a variety of factors including for example, projected capacity, level of activity, and the local model of care.
- Separate rooms were noted to be required for common practices such as applying plaster to limbs, for particular specialities (for example, eye rooms) or for privacy purposes (for example, mental health rooms). In addition, fast-track treatment rooms were identified as a feature for facilitating the prompt discharge of low acuity cases.

- The need for observation rooms or clinical decision units within the ED, or accessible to the ED for short term stays (beds or chairs), were also noted.
- The need for an integrated information system, within and across care settings, was also mentioned. For example, to allow access to medical records from primary care.
- Facilities for staff were recommended in a number of reports, including the need for workstations, administrative areas, break rooms and changing rooms.

Support services

- There was broad agreement on the requirement for timely access to a number of key support services, although requirements varied depending on the level or type of ED and hospital, with higher-level EDs expected to provide more comprehensive, on-site, 24/7 or extended-hour services. These included access to: critical care support including cardiac care units and ICU services; anaesthetic and surgical services, including operating theatres and associated support services and staff; laboratory services; medical imaging; and mental health services.
- Pharmacy and social work services were also noted in some reports as essential support services.

Workforce requirements

- There was broad agreement that a physician should be on site 24/7, most commonly specifying that this should be an emergency medicine physician. In addition, there was agreement that a daily roster comprising a suitably trained medical team should be present, proportionate to the volume of attendances, level of acuity and type of clinical services provided by the ED.
- The importance of clinical leadership and senior decision-makers was also noted. There was broad consensus that staffing should be determined locally, with a focus on ensuring sufficient staffing to provide sustainable rosters and safe patient care.
    - One report recommended the number of whole time equivalent (WTE) ED consultants by ED type and or annual attendance rate. For example, for a medium ED (60,000-100,000 annual attendances), it was recommended that there should 18 to 25 WTE consultants.
    - Recommendations were also made on the minimum number of other senior medical decision-makers including staff grade, associate specialist and speciality doctors. For example, it recommended staffing levels of 30 WTE for a medium ED.
- Anaesthesiologists, cardiologists, intensive care physicians, surgeons and where relevant, paediatricians were mentioned as key specialties. For higher-level

EDs, a requirement for these specialties to be on site, or on call, 24/7 was highlighted. Some reports noted that sufficient staff from these specialties should be available to ensure the relevant roster is filled.

- On-site nursing staff was a consistent requirement, including a dedicated nurse manager and a triage nurse. Some reports identified the need for additional training in emergency care for nursing staff and the importance of the role of advanced nurse practitioners in the ED.
- Other health and social care professionals referred to included occupational therapists, pharmacists, phlebotomists, physiotherapists, radiographers and social workers.
- The role of tele-health in the ED was noted in the reports as part of the provision for staffing. For example, access to a mental health team and support from a larger ED to a smaller ED can be provided via videoconference or phone.

Emergency paediatric care

- There was agreement that whether an ED was based in a children's hospital or as part of a general hospital, the paediatric ED services should be separate from the adult services and should be in a child-specific environment on a 24/7 basis.
- Requirements for sufficient multidisciplinary staff with advanced paediatric resuscitation, airway management and life support competencies available to maintain a resuscitation team at all times, were noted.
- It was recommended that a lead consultant and lead nurse should be designated as responsible for child safeguarding and available at all times.
- In addition to at least one paediatric emergency medicine physician being available at all times, it was recommended that a full range of paediatric medical and surgical subspecialties should be on call 24/7.
- Access to a short stay or observation unit, a paediatric and or neonatal intensive care unit, an operating theatre, cardiac care, pharmacy and radiology were also recommended.

Emergency care for older persons

- Dedicated areas (for example, in triage, resuscitation and observation rooms) and adaptations (for example, non-slip flooring and mats) for older persons were recommended. Visual and acoustic adaptations (for example, soft lighting and the use of sound-absorbent materials) were also advised.

- Timely access to health care professionals related to the care of the elderly including the geriatrician, geriatric nurses and the acute frailty team was also recommended.

Other considerations

- It was beyond the scope of this review to identify the international requirements and standards for the support services (for example, acute surgery, anaesthesiology and critical care) identified as necessary for hospitals providing ED services. However specific criteria and standards exist with respect to clinical processes and the resourcing of these services to support the delivery of safe, effective and sustainable care.
- In Ireland, the HSE National Clinical Programmes design models of care, clinical pathways and guidelines for clinical specialties, with a number of these providing recommendations and specifying criteria for the safe delivery of emergency care. Moreover, there are detailed minimum recommended standards for the resourcing of both adult and paediatric critical care units in Ireland.
- Challenges noted across multiple national reports include appropriate staffing levels, the need for sufficient activity to maintain subspecialty skillsets and issues with recruitment and retention.

Conclusion

- Variations were noted in the specific requirements and or dependencies of ED services, however these may partly relate to differences between countries in how emergency and urgent care services are organised as well as differences in the aim or scope of the included reports.
- The expedited nature of this review and its focus on a limited number of countries mean that the findings should be interpreted as indicative rather than definitive. However, there was agreement across the included reports that it is crucial that care is patient-centred and that there is adequate resourcing and close co-operation both within the ED and between the ED and the wider hospital.
- Key support services identified for hospitals that provide ED services included anaesthetic, critical care support and surgical services, laboratory and medical imaging support, each of which will have designated minimum standards and criteria for the safe delivery of care. Given these interdependencies, a decision to provide urgent and emergency care services at a site will necessitate resourcing of other services at that site. If establishing a new ED within a hospital, careful consideration would therefore be required of the associated resourcing implications for other national clinical programmes. Capacity

planning, informed by likely utilisation, is required at a hospital and a regional level to identify how best to allocate resources to ensure service safety and viability, and the timely delivery of safe and effective care

List of abbreviations used in this report

ACEP	Australasian College of Emergency Medicine
AMU	Acute Medical Unit
AMAU	Acute Medical Assessment Unit
ASAU	Acute Surgical assessment Unit
CADTH	Canadian Agency for Drugs and Technologies in Health
CAEP	Canadian Association of Emergency Physicians
CCU	Coronary Care Unit
CDA-AMC	Canada's Drug Agency (L'Agence des medicaments du Canada)
CDU	Clinical Decision Unit
CT	Computed Tomography
ED	Emergency Department
ENT	Ear, Nose and Throat
GP	General Practitioner
HDU	High Dependency Unit
HIQA	Health Information and Quality Authority
HSE	Health Service Executive (Ireland)
IAEM	Irish Association for Emergency Medicine
ICSI	Intensive Care Society of Ireland

ICT	Information and Communications Technologies
ICU	Intensive Care Unit
IFEM	International Federation of Emergency Medicine
iHFG	International Health Facility Guidelines
INAHTA	International network of agencies for health technology assessment
JFICMI	Joint Faculty of Intensive Care Medicine of Ireland
MAU	Medical Assessment Unit
MRI	magnetic resonance imaging
NCP	National Clinical Programme
NCHD	non-consultant hospital doctor
NDTP	National Doctors Training and Planning (HSE)
NHS	National Health Service (UK)
NI	Northern Ireland
NICE	National Institute for Health and Care Excellence
PCC	Population, Concept, Context
RCEM	Royal College of Emergency Medicine (UK)
RCGP	Royal College of General Practitioners (UK)
UK	United Kingdom

US	United States
WHO	World Health Organization
WTE	whole time equivalent

1 Background

An emergency department (ED) is a dedicated space within a hospital set up to provide continuous access to undifferentiated acute and urgent unscheduled healthcare, usually on a 24/7 basis.[1] EDs also provide a 'safety-net' for people who have difficulties accessing other healthcare services.[2] Staffed by appropriately trained doctors, nurses and allied health professionals, EDs are in increasing demand in Ireland[3] and internationally,[4, 5] partly due to growing and ageing populations.[6] According to a recent 'Health in Ireland: Key Trends' report, there were almost 1.5 million attendances at Irish EDs in 2023, an increase of 21.5% since 2014.[6]

The World Health Organization's (WHO) Emergency Care System Framework[7] highlights that EDs should be part of an integrated approach to emergency care, emphasising that they cannot operate effectively in isolation. Therefore, in addition to having adequate levels of qualified staff and the appropriate equipment internally, EDs are dependent on close collaboration with colleagues and services within the rest of the hospital, and with the wider healthcare system.[8] Dependencies within the hospital typically include both diagnostic and therapeutic equipment, infrastructure and staff. Some examples include, but are not limited to, anaesthetics; inpatient care; clinical laboratory and or pathology; pharmacy; psychiatry; radiology; and surgery.[9, 10]

In recognition of the interdependent elements that contribute to effective EDs, some countries and professional bodies have published requirements, standards and guidelines for the provision of urgent and emergency care.[11, 12] These reports, while varying in scope and content, aim to improve quality of care within EDs and ultimately enhance patient outcomes. The Irish Association for Emergency Medicine (IAEM), the representative expert body for the speciality of emergency medicine in Ireland, published updated standards for the design and specification of EDs in Ireland in June 2024.[13] These standards highlight how clinical requirements, functional needs and practical requirements of EDs should be integrated in order to provide effective care within the ED, while outlining the key relationships both within the ED and with other hospital departments.

In May 2024, the Minister for Health requested that the Health Information and Quality Authority (HIQA) conduct a review of urgent and emergency care in the Health Service Executive (HSE) Mid West health region with the primary objective of ensuring safe quality acute care in the region. The Terms of Reference for the conduct of the HIQA review state that current relevant national and international evidence will be reviewed to ensure an evidence-based rationale to inform the potential future configuration of comparable urgent and emergency healthcare

services. The evidence synthesis approach to deliver on this term of reference is outlined in the *Protocol for the evidence synthesis to inform the review of urgent and emergency healthcare services in the Health Service Executive Mid West region of Ireland*. As outlined in the protocol, within this review the term 'Mid West' specifically refers to the HSE Mid West health region. The Mid West is distinct from the mid-west region of Ireland, which covers the geographical area of counties Limerick, Clare and Tipperary.

The national evidence on urgent and emergency healthcare services in the Mid West is provided in the reports associated with Work Streams 1 to 5 (outlined in the protocol). This report addresses part of Work Stream 6. Specifically, this report outlines a summary of international requirements, standards and guidelines for the provision of ED services in selected countries.

It is recognised that urgent and emergency care may also be provided in other settings; for example, in ambulances, intensive care units (ICUs) or in operating theatres. However, the scope of this report is confined to providing a summary of international requirements, standards and guidelines for the provision of undifferentiated healthcare (that is, patients presenting without a specific diagnosis) within EDs, with consideration of dependencies on other hospital departments and services. This report does not present a set of national standards for EDs for Ireland.

2 Methods

2.1 Research question

In the design or commissioning of hospitals that provide emergency department services for patients requiring urgent and emergency undifferentiated care, the research question addressed by this summary was:

> *What are the international requirements, standards or guidelines for hospitals providing emergency department services, also considering dependencies on other hospital departments and or services?*

The population, concept, context (PCC) and types of evidence sources for this review are summarised in Table 2.1.

Table 2.1 Population, concept, context (PCC)

Population	Emergency care for adults and children
Concept	Requirements, standards or guidelines for hospitals providing emergency department services. For example, support services including diagnostic imaging, laboratory and pathology services, also considering dependencies on other hospital departments and or services.
Context	The following were selected for inclusion: ▪ Australia ▪ Canada ▪ Netherlands ▪ New Zealand ▪ UK (England, Northern Ireland, Scotland & Wales) ▪ US
Type(s) of evidence sources	▪ Requirements, standards or guidelines endorsed by government agencies, or national or international professional bodies ▪ Peer-reviewed publications which report national requirements, guidelines or standards
Language	Only articles for which an adequate English translation could be obtained.
Time frame	Documents, articles or reports published from Jan 2010 to Mar 2025.

Key: ED – emergency department, UK – United Kingdom, US – United States of America

The inclusion and exclusion criteria for this review are included in Table 2.2.

Table 2.2 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
▪ Reports pertaining to hospital-level standards, guidelines, specifications or requirements for the set-up and running of EDs ▪ Reports from international agencies or national or international professional bodies from selected countries ▪ Reports published after 2010	▪ Reports focusing on KPIs (for example, length of stay in ED, time to treatment etc.) ▪ Generic healthcare standards (that is, documents providing only high-level principles) ▪ Reports reporting on the impact of reforms within ED ▪ Policies and interventions addressing overcrowding within ED ▪ Guidelines for the clinical management of specific conditions (for example, delirium) or scenarios (for example, trauma) ▪ Reports relating to injury units or their equivalent ▪ Reports relating to standalone (that is, freestanding) EDs ▪ Reports which are not current (that is, have been superseded)

Key: ED – emergency department; KPI – key performance indicators

2.2 Searching for relevant international sources

Following initial topic exploration, nine countries were selected for inclusion in this summary of international guidance: Australia, Canada, the Netherlands, New Zealand, the US and individually for the four countries within the UK (England, Northern Ireland, Scotland and Wales). These countries were selected based on a combination of factors, such as geographical proximity to Ireland, organisation of health services and availability of published information on the topic. This list of countries was confirmed *a priori* as relevant for this review by clinical and regulatory experts working in this field.

In order to streamline this review, a targeted grey literature search strategy was developed by the evaluation team in conjunction with a librarian, focusing on key topics of interest. Particular emphasis was placed on government resources and publications from relevant professional bodies for the chosen countries. The grey literature sources that were searched are detailed in Appendix 1. In addition, for each country a Google search was carried out to include the country code top-level domain (for example, .ca for Canadian websites) as well as limiting the file type to

pdfs. Combinations of keywords were used for these searches and the first five pages of Google checked for each (Appendix 2). Additional searches were carried out for the United States (US) and Netherlands. A search of the International Network of Agencies for Health Technology Assessment database, the *Annals of Emergency Medicine* and *Academic Emergency Medicine* were also undertaken. Additionally, the first five pages of DuckDuckGo were searched in incognito mode using combinations of keywords without the country code top-level domain to identify international literature (Appendix 2).

2.3 Record selection and data extraction

Two reviewers independently reviewed the full texts of the identified records. Those that met the inclusion criteria for this summary (as per Table 2.2) were included. Inclusion was limited to requirements, standards and or guidelines at a hospital level for the set-up and running of emergency departments with a focus on external functional relationships. Disagreements regarding the eligibility of reports were resolved through discussion, using a third reviewer where necessary. Records were managed in Excel and Endnote.

Data extraction was performed by one reviewer and crosschecked by another. A data-extraction tool was developed and piloted before implementing. Deepl Pro was used to obtain translations of non-English language reports. As this review aims to provide a summary of requirements, standards and guidelines in selected countries, no quality appraisal was undertaken.

2.4 Summarising findings

Information on requirements, standards and or guidelines for the set-up and running of emergency departments and ancillary services was documented and presented. The extracted information was compared across the selected countries, with similar and contrasting elements presented descriptively, according to the following themes: general findings; clinical processes (for example, 24-hour consultant-led care); settings and facilities (for example, resuscitation room, triage room); support services (for example, ICU, radiology services); and workforce requirements (for example, emergency medicine physician, triage nurse).

3 Findings

3.1 Organisation of emergency services in Ireland and selected countries

To provide context for the identified requirements, guidelines or standards for each country, the following sections provide a brief high-level summary of the funding and organisation of emergency care for each of the included countries.

3.1.1 Ireland

Publicly-funded acute medicine services in Ireland are organised into four generic hospital levels, that is, Model 1-4 hospitals, which specify the level of clinical service that the hospital can safely provide (see Table 3.1).[14] A report published in 2010 by the National Acute Medical Programme in Ireland outlines the general purpose and characteristics of each level of hospital and their dependencies.[14] In brief, Model 1 hospitals are described as community hospitals with sub-acute inpatient beds but no ED, ICU, acute medical unit (AMU), acute medical assessment unit (AMAU) or medical assessment unit (MAU). Model 2 hospitals are likely to be local hospitals which have a daytime MAU; inpatient care for differentiated, low-risk medical patients; and sometimes an injury unit, but no ED or ICU. Model 3 hospitals are usually general hospitals which provide inpatient care for undifferentiated, acute medical patients and contain an ED, an AMAU (open 12-24 hours a day, seven days per week), an ICU, and may have a high dependency unit (HDU). Model 4 hospitals are described as tertiary hospitals which provide inpatient care for undifferentiated acute medical patients and contain an ED with a Clinical Decision Unit (CDU), an AMU (open 24/7) and an ICU. The report notes that there should be bi-directional patient flow between the hospital levels, should patients either clinically improve or deteriorate.

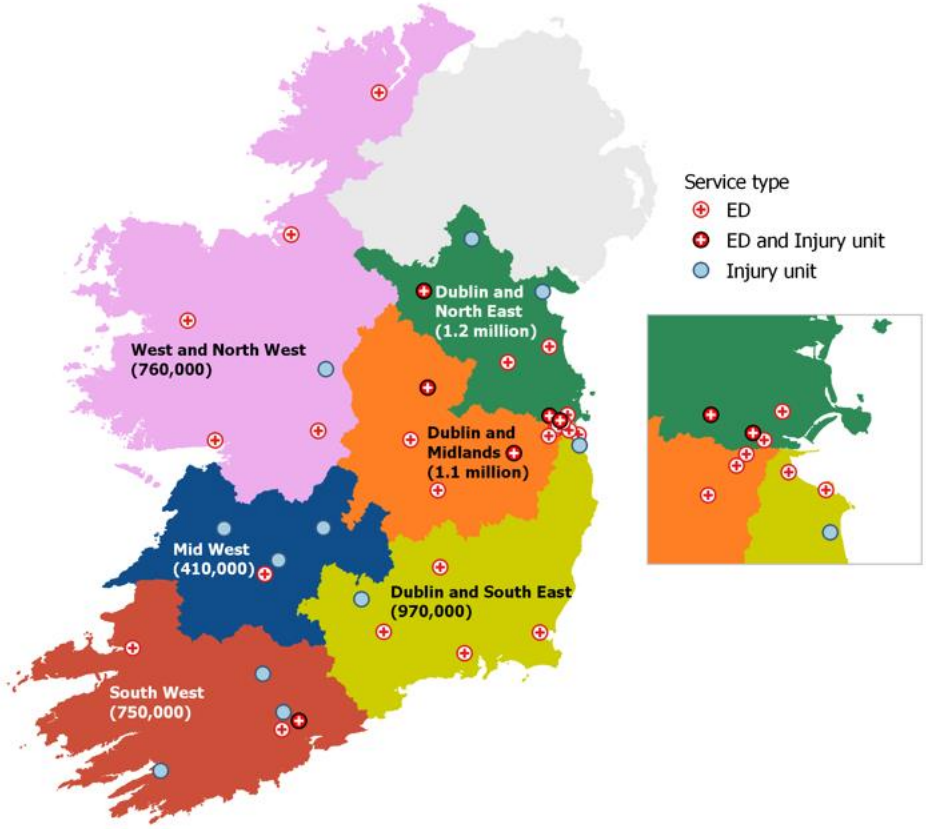
Table 3.1 Location of EDs and related dependencies by hospital model in Ireland

Hospital Model	ED	CDU within ED	ICU	AMU	AMAU	MAU
Model 1						
Model 2						✓*
Model 3	✓		✓		✓**	
Model 4	✓	✓	✓	✓***		

Key: AMAU – acute medical assessment unit; AMU – acute medical unit; CDU – clinical decision unit; ICU – intensive care unit; IU – injury unit; MAU – medical assessment unit
* open daytime hours; ** open 12-24 hours per day, 7 days per week; *** open 24 hours a day, 7 days per week

In Ireland, there are two types of hospital-based urgent and emergency care provided by the HSE; EDs and injury units. Figure 3.1 presents a map illustrating the locations of the 20 EDs, 11 injury units, and six combined EDs and injury units. Patients can access either service of their own accord (in which case they are charged a flat fee unless they are a medical card holder) or via a referral from their general practitioner (GP).

Figure 3.1 Locations of emergency departments, injury units and combined units in Ireland by HSE health region



Key: ED – emergency department

EDs and injury units are supported by acute medical units (AMUs) and acute medical assessment units (AMAUs). According to the National Acute Medical Programme report, an AMU is a rapid assessment facility for some medical patients who are acutely unwell, and who are referred from GPs, the ED, and or the hospital's outpatient department (OPD).[14] The AMU treats patients with a wide range of medical conditions who present to Model 4 hospitals and should be co-located with an ED. It is envisaged that AMUs will operate 24/7 .[15] An AMAU operates in the same way as an AMU, except they are located within a Model 3 hospital and their opening hours vary from 12 to 24 hours per day, seven days per week. They do not contain short stay medical beds.

In addition to the hospital-based urgent and emergency care services provided by the HSE, there are a number of private hospital-based and non-hospital-based urgent care facilities, which provide different levels of care (for example, for minor injuries or illnesses) with varying openings hours (but which are generally open seven days per week).

3.1.2 Australia and New Zealand

Australia's health system is primarily funded by Australian state and territory governments as well as non-government funders such as private health insurers and individuals.[16] State and territory governments fund and manage public hospitals, regulate and license private hospitals and other health premises. They also deliver community-based, preventive and ambulance services. Services accessed through the private system are funded by a combination of government and private entities including private health insurance.[17] EDs in Australia are categorised into six levels based on their capabilities and services, aligning with broader capability frameworks used in acute care across Australia and New Zealand.[18]

- Level 1 EDs (small rural hospitals or clinics) provide basic emergency care, stabilisation, and transfer to higher-level facilities if necessary.
- Level 2 EDs (larger rural hospitals) provide more comprehensive emergency care with the ability to handle a wider range of emergencies.
- Level 3 EDs (regional hospitals) provide comprehensive emergency care with access to a broader range of diagnostic and treatment services.
- Level 4 EDs (large, multifunctional tertiary or major referral hospitals) provide full emergency care with a wide range of on-site or on-call specialist services.
- Level 5 EDs (major hospitals) provide comprehensive trauma care and stabilisation of all trauma patients until transfer.
- Level 6 ED (major tertiary hospitals with advanced facilities and specialist cover) provide initial treatment and advanced care for all emergency presentations and a full spectrum of trauma care for critically ill and injured patients.

New Zealand's health system is primarily funded through general taxation.[19] A government set budget and benefits package is regionally administered through 20 district health boards. EDs in New Zealand are generally categorised into levels based on their capabilities, though the exact categorisation may vary. They typically follow a structure similar to that of Australia, with increasing complexity and service provision from smaller to larger hospitals.[20]

3.1.3 Canada

Canada has a decentralised, universal, publicly-funded health system called Canadian Medicare.[21] Healthcare is primarily funded and administered by the 13 provinces and territories in the country. The healthcare system is primarily funded through taxation. Citizens and permanent residents in Canada can access medical and physician services free of charge at the point of use. About two-thirds of Canadians also have private health insurance. Tiers of service or types of hospitals

are organised differently within each province; for example, there are six tiers of service in British Columbia, ranging from Tier 1 which provides broad comprehensive care, up to Tier 6 which provides highly complex care, including subspecialties.[22] Each province or territory has responsibility for providing urgent and emergency medical services in Canada, which comprises physician-led walk-in clinics and hospital EDs.[21]

3.1.4 Netherlands

While the Netherlands is in the process of reconfiguring its emergency care system and concentrating its emergency services, emergency care is currently provided by three services.[23] Firstly, hospital EDs provide emergency care to patients who are referred by a GP, arriving via ambulance or of their own accord. This type of ED is staffed mainly by emergency physicians and qualified emergency nurses. They are distributed across the Netherlands, with the aim that a Dutch citizen should be able to reach an ED by ambulance within 45 minutes.[12] The second type of provider is primary acute care, which is provided by GPs who staff general practice centres, providing emergency services outside of office hours. Sometimes the GP centres are co-located with the EDs. The third provider is the regional ambulance service, who are responsible for the intake, on-the-spot emergency treatment and transportation of patients with severe or life-threatening conditions. EDs, general practice centres and the regional ambulance service form 11 regional acute care networks which are responsible for ensuring the availability of emergency care across these regions.[23] Access to the ED is through a GP referral, ambulance or self-referral. Patients who attend the GP first are covered by compulsory health insurance, while those who attend the ED via self-referral have to pay an initial deductible to the ED.[24] GPs also have the option of referring patients who need admission, but not specialised care due to medical or social reasons to a 'first-line stay' institution. These institutions are usually run by GPs or elderly care physicians and can provide care for a maximum of three months.

3.1.5 UK (including, England, Scotland, Wales and Northern Ireland)

Urgent and emergency care in the UK is publicly available through the National Health Service (NHS) and is free at the point of care.[25] Emergency care is defined in the UK as involving life-threatening illness or accident and is dealt with by the ambulance service or at an emergency department; while urgent care involves non-life threating illness or injury needing urgent attention, but may be dealt with through other services such as phone consultations, pharmacy advice, urgent treatment centres or out-of-hours GP services.[26] Although the organisation of ED services is similar throughout the UK, the systems in England, Wales, Scotland and Northern Ireland all differ slightly. For each country there is a telephone or online

triage centre for non-emergency triage which allows patients to be directed to the right care for their needs rather than all patients attending EDs. Patients may be advised to go to the ED, or an urgent treatment centre, an out-of-hours GP, have a call back from a nurse, get urgent specialist support (for example, for dental or mental health problems), contact their own GP, see a pharmacist or to look after themselves at home.[27] Within the reports included in this review, the term A&E (accident and emergency) is frequently used. This was considered to be a synonym for ED, with the term 'ED' adopted throughout this report for consistency.

England

Emergency medicine in England has four types of urgent and emergency care provided by the NHS: Type 1 is a consultant-led 24-hour service with full resuscitation facilities; Type 2 has paediatric EDs and specialist emergency care units for example, dental departments and ophthalmology; Type 3 are urgent care centres or minor injury units while Type 4 are walk-in centres.[28] EDs generally have a close working relationship with the emergency services, especially the ambulance service as well as community and social services. In 2021 there were 174 Type 1 EDs in England.[28] Many EDs in England now have co-located urgent treatment centres for the treatment of patients with minor illnesses or injury.

Northern Ireland

Emergency care in Northern Ireland is categorised into three types. Type 1 is a consultant-led service that provides both emergency medical and emergency surgical services 24 hours a day; Type 2 is a consultant-led service for emergency care patients, but does not provide both emergency medicine and emergency surgical services and or has time-limited opening hours; Type 3 is a minor injury unit for the treatment of patients with minor injury and or illness without an appointment, and is led by either a doctor or a nurse.[29]

Scotland

Accident and emergency sites in Scotland are categorised into three tiers. Type 1 are core EDs, offering a 24/7 consultant-led service and including full resuscitation and other facilities to treat serious and life-threatening conditions; Type 2 are single-speciality EDs, for example, ophthalmology, dental, psychiatry or obstetrics; Type 3 are non-core minor injury units, community casualty or accident and emergency departments.[30] Minor injury units tend to be nurse or GP-led and only offer services during limited hours. There are currently 30 large Type 1 departments and around 60 Type 3 units in Scotland.[30]

Wales

With a similar organisational structure as the rest of the UK, Type 1 (Major) EDs in Wales provide consultant-led services with appropriate resuscitation facilities which can be accessed 24/7 with or without an appointment.[31] There are 12 Type 1 EDs across Wales. Major EDs can cover all types of accident and emergency patients and can include single-speciality accident and emergency services, for example, ophthalmology and dental. There are other accident and emergency and minor injury departments, which can be routinely accessed with or without an appointment, but do not meet the criteria for a Major ED.

In addition to the urgent and emergency care services provided by the NHS, there are a number of private urgent care facilities, which provide different levels of care (for example, for minor injuries or illnesses) with varying openings hours (but are generally open seven days per week).

3.1.6 United States (US)

An ED in the US is defined as a hospital facility that is staffed 24 hours a day, seven day a week, and provides unscheduled outpatient services to patients whose condition requires immediate care.[32] EDs are staffed with emergency physicians, nurses and healthcare professionals. Emergency medicine in the US typically addresses broader non-life-threatening injuries and conditions. Some EDs will have trauma centres for the treatment of more severe injuries. Trauma centres are categorised into five levels, with Level 1 trauma centres offering the greatest level of comprehensive care. There are also freestanding EDs (which provide a 24 hours a day, seven day a week service) and ambulatory urgent care centres (usually open seven days a week but with limited hours), which provide unscheduled urgent treatment for conditions that are not life-threatening.[33] Urgent care centres can refer patients to a specialist or to an ED if a higher level of treatment is required.

Under the Emergency Medical Treatment and Labor Act, EDs are mandated to stabilise patients regardless of their ability to pay; this includes patients who arrive in ambulance or self-refer.[34] However, once a patient has been stabilised the patient or their insurance pays for subsequent healthcare. Payment is usually expected at the time of treatment in urgent care centres.

3.2 Requirements, standards and guidelines

3.2.1 Search results

Following the targeted search of the grey literature, 15 unique records were identified, in addition to 20 unique records from the Google searches, and one

additional unique record from the search of the *Academic Emergency Medicine* journal. In total, 36 records fulfilled the inclusion criteria for this summary report.[11, 12, 18, 20, 35-66]

3.2.2 Summary of characteristics of included records

Table 3.2 provides a summary of the characteristics of the included records. In brief, the records originated from: Australia and New Zealand (n=8);[11, 18, 20, 35-38, 67] Canada (n=3);[39-41] Netherlands (n=2);[12, 42] UK (n=14);[43-57] US (n=5);[58-62] international organisations (n=4).[63-66] These records included requirements, standards or guidelines which apply to EDs in general (n=31);[11, 12, 18, 20, 35-37, 39, 41-44, 46, 48-55, 57-61, 64-67] reports relating to paediatric (n=4)[40, 45, 47, 63] and geriatric-specific (n=2) ED requirements were also identified.[56, 62] The records were mainly authored by public-sector organisations or health authorities (n=16)[20, 36, 38-44, 48, 49, 52-54, 60, 61, 67] and professional or academic organisations (n=15)[11, 18, 35-37, 45-47, 50, 51, 55, 57-59, 62] but there were also three reports from international organisations,[63-65] and two academic papers.[12] The publication date of the included records ranged from 2010 to 2024.

Table 3.2 Summary of included requirements, standards or guidelines

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Australia & New Zealand					
The Australasian College for Emergency Medicine Statement on the role delineation of emergency departments and other hospital-based emergency care services[18] 2023 Link	Defines the minimum requirements for 4 levels of EDs & 2 levels of smaller hospital-based emergency care centres. The framework used to determine the level of an ED is based on service design, service description, service requirements, workforce & support services.	Yes	Yes	Yes	Yes
The Australasian College for Emergency Medicine Emergency department design guidelines[35] 2014 Link	Intended to support clinicians in the design process, & inform government, health planners, architects & designers about what constitutes a contemporary ED in Australasia. Describes internal functional relationships & external functional relationships.	No	Yes	No	Yes
Australasian Health Infrastructure Alliance Australasian health facility guidelines - Part B – Health facility briefing and Health Planning Unit 300 Emergency unit[36] 2019 Link	Outlines the requirements for the planning & design of EDs. Includes: General requirements & standard components; design for access, mobility, safety & security; infection prevention and control.	Yes	Yes	Yes	Yes
Australian College of Rural and Remote Medicine Recommended Minimum Standards for small rural hospital emergency departments[37]	Recommendations to assist small rural hospitals working towards being adequately equipped & resourced to initially manage any presentation to their ED.	Yes	Yes	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
2019 Link	These standards are viewed as minimum requirements for such hospitals.				
Queensland Health Clinical Services Capability Framework Emergency[67] 2016 Link	Framework describing suite of support services from both within & external to the ED in order to provide safe and effective service delivery. Focuses on those support services that have a direct impact on the ability of EDs to deliver safe & high-quality care, in a clinically appropriate location and timeframe.	Yes	Yes	Yes	Yes
Queensland Health Clinical Services Capability Framework Emergency services – Children's[38] Not reported (V3.2) Link	Framework describing suite of support services from both within & external to the ED in order to provide safe and effective service delivery. Focuses on those support services that have a direct impact on the ability of EDs to deliver safe & high-quality care, in a clinically appropriate location and timeframe. Specific focus on additional requirements for paediatrics.	Yes	Yes	Yes	Yes
Health New Zealand Specialist medical services Emergency Department Services, Service Specification Tier 2[20] 2024 Link	Covers services provided in dedicated hospital-based facility specifically designed & staffed to provide 24-hour emergency care.	Yes	Yes	Yes	Yes
Australasian college for Emergency Medicine & College of Emergency Nursing Australasia	Provides guidance & sets expectations for the provision of equitable, safe and high-quality	No	No	No	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Quality Standards For Emergency Departments And Other Hospital-Based Emergency Care Services[11] 2015 Link	emergency care in Australian EDs & other hospital-based emergency care services.				
Canada					
Dr John Ross, Provincial Advisor on Emergency Care Nova Scotia Emergency Care Standards[39] 2010 Link	Intended for staff that work in the emergency care system & those who manage them. Focuses on: access, triage, transfer, staffing qualifications, site performance, district health authority performance, clinical personnel practice quality review, patient satisfaction, equipment.	No	Yes	Yes	Yes
Emergency Care British Columbia & Child Health British Columbia Companion Guide to Tiers of Service: Pediatric Emergency Service[40] 2024 Link	Describes clinical services for paediatric emergencies, based on collaboration among clinicians & health-care providers to define the requirements & interdependencies inherent in each clinical service.	Yes	Yes	Yes	Yes
Quality and Planning, Northern Health Northern Health Service Distribution Framework: Discussion Report[41] 2017 Link	Framework for Northern Health's decision-making about where to locate health services in northern communities. The aim of the report is to inform stakeholders about the process through which Northern Health determined the optimum location for basic & specialised health services based on community	No	Yes	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
	demographics, population, location, access, & existing infrastructure.				
Netherlands					
Gaakeer et al[12] Minimum operational standards for 24/7 available emergency departments in the Netherlands: a first step taken by emergency physicians using an e-Delphi approach 2017 Link	2-part Delphi study involving 20 emergency physicians, to reach consensus on the minimum requirements for facility, diagnostic & medical specialist availability. Consensus reached on 52 facilities & diagnostic functionalities & 17 medical specialties that should be available 24/7 to all EDs.	No	Yes	Yes	Yes
Health Council The foundation must be good! Quality at a basic emergency care within a regional network[42] 2012 Link	Opinion document in response to a request from the Minister for Health, Welfare & Sports in Netherlands on what expertise and facilities are required in a basic ED to provide sound emergency care.	No	No	Yes	Yes
UK (Including separate searches for England, Northern Ireland, Scotland, Wales)					
Public Health England Healthy London Partnership: Urgent and Emergency Care Facilities and System Specifications[43] 2017 Link	London Emergency Care System Specifications, developed to address variation in service arrangements & patient outcomes in these services.	Yes	No	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
NHS Coordinated, consistent and clear urgent and emergency care – Implementing the urgent and emergency care vision in London[44] 2015 Link	Specifications for London that outline a level of care that is consistently high quality, safe and equitable, 7 days a week.	Yes	No	Yes	Yes
Royal College of Paediatrics and Child Health Facing the future - standards for children and young people in emergency care settings[45] 2018 Link	Provides healthcare professionals & service planners with clear standards of care that are applicable to children in urgent & emergency care settings.	Yes	Yes	Yes	Yes
Royal College of Emergency Medicine Guidelines for the provision of emergency medical services[46] 2024 Link	Defines the expectations of Emergency Medicine Services, shares best practice, define standards & makes pragmatic, patient-centred recommendations.	Yes	Yes	Yes	Yes
Royal College of Surgeons Standards for non-specialist emergency surgical care of children[47] 2015 Link	Compilation of standards & guidance published by all key stakeholder organisations involved in paediatric & children's surgery in the past ten years.	Yes	Yes	Yes	Yes
London Health Programmes Quality and Safety Programme Acute Emergency and Maternity Services[48] 2013 Link	These standards cover the seven days of the week to address the variation in service arrangements in maternity emergency care across London between normal working hours & those at the weekend.	No	No	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Royal College of General Practitioners Centre for commissioning Guidance for commissioning integrated urgent and emergency care – a whole systems approach[50] 2011 Link	Intended to support the development of oversight of an urgent & emergency care system. Identifies the key principles of a good service when reviewing & re-designing urgent and emergency care services.	Yes	Yes	Yes	Yes
Royal College of Emergency Medicine Workforce recommendations - Consultant staffing in emergency departments in the UK[51] 2019 Link	Standards for consultant staffing in EDs, based on attendances.	No	No	No	Yes
National Institute for Health and Care Excellence Emergency and acute medical care in over 16s: service delivery and organisation[52] 2018 Link	Guideline for the organisation and delivery of acute medical care for patients >16 years in the community & in hospital.	No	No	Yes	No
NHS Health building note 15-02 - Facilities for same day emergency care/ambulatory emergency care[53] 2021 Link	Best practice guidance on the design & planning of new emergency departments & the adaptation/extension of existing facilities. Contains details on departmental functional adjacencies.	Yes	Yes	Yes	No

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Welsh Government Welsh Building note. Accident and Emergency Departments. Planning and design guidance (based on building note 15-01)[54] 2016 Link	Guidance the multidisciplinary team involved in the strategic & operational planning of EDs, from a service & build space perspective.	No	Yes	Yes	Yes
Royal College of Nursing Nursing workforce standards for Type 1 emergency departments[55] 2020 Link	Nursing workforce standards, focusing mainly on nursing, nursing associates & clinical support workers workforce considerations, including how to calculate amount of staff required.	No	Yes	No	Yes
Royal College of Emergency Medicine Care of older people in the emergency department: National Quality Improvement Programme Information Pack[56] 2023-2025 Link	Information pack for EDs related to the care of older adults including the need for timely access to the following services, either within the ED, on site or remotely: real-time language interpreting, geriatrician, acute frailty, therapies, older adults mental health, community admission avoidance, third sector support, palliative care, pharmacist, pastoral/religious support, meal provision.	Yes	Yes	Yes	Yes
The Royal College of Emergency Medicine Patient Care in the ED[57] 2021 Link	Checklist of care initiatives aiming to improve patient experience and quality of care given to patients.	No	Yes	Yes	Yes
United States (US)					
American College of Emergency Physicians	Contains information on resources & planning including necessary elements: administration,	No	Yes	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Emergency Department planning and resource guidelines[58] 2021 Link	staffing, facility, equipment and supplies, pharmacologic, ancillary services, relationships & responsibilities.				
American College of Emergency Physicians Emergency Department Accreditation Criteria[59] 2024 Link	Overview of accreditation criteria for four accreditation tiers, based on policies of the American College of Emergency Physicians. Recognises the importance of a board certified emergency physician, other clinicians & appropriate resources.	No	Yes	No	Yes
US Dept of Veterans Affairs Space Planning Criteria Chapter 256: Emergency Department[60] 2022 Link	Building requirements for an ED in square feet/square meters including: requirements for exam rooms, toilets, consult rooms, point of care testing alcoves, equipment room, airborne infection isolation treatment room, nurses' station, intervention room etc.	No	Yes	Yes	No
US Dept of Veteran Affairs, Office of Construction & Facilities Management Design guide, Emergency Department[61] 2021 Link	Tool to assist contracting officers, medical centre staff, architects & planners with the planning and design of EDs.	Yes	Yes	Yes	No
Society for Academic Emergency Medicine/American College of Emergency Physicians/Emergency Nurses Association/American Geriatrics Society Geriatric Emergency Department Guidelines[62]	Standardised set of guidelines to improve care of geriatric populations for implementation in the ED. Includes: staffing, equipment, education, policies & procedures.	Yes	Yes	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
2019 Link					
International					
World Health Organisation (WHO) Standards for improving the quality of care for small and sick newborns in health facilities[63] 2020 Link	Aim to define & standardise inpatient care of sick newborns, ensuring consistency with the WHO quality of care framework.	Yes	Yes	Yes	Yes
International Federation for Emergency Medicine Framework for Quality and Safety in the Emergency Department[64] 2019 Link	A framework for quality and safety within emergency medicine. Patients in an ED should expect the following in any country: the right personnel, right decision-making, right processes, right approach, right location.	No	Yes	Yes	Yes
International Health Facility Guidelines (iHFG) Part B – Health Facility Briefing & Design (75 Emergency Unit)[65] 2024 Link	Set of international guidelines for the planning, briefing, design & construction of healthcare facilities; contains a section on emergency services. Describes functional & planning considerations as well as components of the unit.	Yes	Yes	Yes	Yes
Kocher et al[66] Categorization, Designation, and Regionalization of Emergency Care: Definitions, a Conceptual Framework, and Future Challenges Categorization, Designation, and Regionalization of Emergency Care:	Describes the findings from a breakout session on matching networks to patients needs at an academic emergency medicine conference.	No	Yes	Yes	Yes

Author/ Organisation Title Year published URL	Report summary	Clinical processes	Settings and facilities	Support services	Workforce requirements
Definitions, a Conceptual Framework, and Future Challenges 2010 Link					

Key: ED – emergency department; NHS – National Health Service (UK); UK – United Kingdom, US – United States of America

3.2.3 General findings

The 36 reports identified as part of this summary of international requirements, standards and guidelines varied in terms of their scope. For example, some were building or design specifications,[35, 60, 61, 65] one was a set of accreditation criteria,[59] two focused specifically on staffing,[51, 55] while a number of others described service requirements.[12, 20, 36] Therefore, while all included reports addressed hospitals providing ED services, differences in their scope likely contributed to differences in the types and levels of information reported. Eleven reports specified what requirements applied for different models of hospital (local, community, general, tertiary) or levels (complexity) of EDs,[18, 20, 38-41, 51, 59, 65-67] while the remainder reported requirements more generally for EDs.

Details of the methodology used by the developers of the reports identified in this review were often unclear or not reported. Nine reports noted that they had engaged with relevant stakeholders at a national level to inform their development.[22, 39, 43-48, 51] A literature review, summarising the relevant evidence, was noted to have contributed to the development of four reports.[41, 47, 52, 56] Two reports stated that they had been drafted following discussions at international academic conferences.[64, 66] One report noted that it had been developed through an iterative process based on the available evidence and regional norms, although no reference list was provided.[41]

A key theme that emerged throughout nearly all of the included reports was the concept of integrated emergency care; that is, the need for close co-operation between a wide range of components based both within the ED and in the wider hospital. This concept is demonstrated by the range of clinical processes, settings and facilities, support services and workforce requirements which are outlined in the reports included in this summary. These are described in separate sections below. Most reports also mentioned the need for patient-centred care, respecting the rights of patients and the challenges associated with providing a consistent level of care in the context of varying levels of demand.

3.2.4 Clinical processes

While the organisation of emergency and urgent care varied across the countries selected for inclusion in this report, there was broad agreement that there are substantial clinical requirements for the safe and effective running of an ED; though it was noted that not all EDs necessarily need to provide a full level of emergency care, such as access to all specialist services. For example, in New Zealand and Australia where there are six levels of EDs, both Health New Zealand and the Australasian College for Emergency Medicine have set out what is required in terms

of ED services for each of these levels.[18, 20] However, twelve reports emphasised the importance of having a system in place for stabilising patients and transferring them to a higher-acuity centre, [20, 37-42, 45, 54, 58, 63, 66, 67] while a number of other reports noted that specialist services could be available at another site. For example, one report noted that cardiac surgery should be accessible, but was not required on site in all hospitals.[63] Similarly, two reports noted that on-site access to ICUs was only required at larger or higher acuity hospitals.[41, 42] The Nova Scotia Emergency Care Standards report noted that an ED providing care 24 hours a day, seven days a week should be geographically accessible to 95% of members of the public within one hour of travel, in average driving conditions[39]; similarly, access to an ED is required by law in Netherlands within a travel period of 45 minutes.[23]

Eleven reports noted that an effective process must be in place for the triage of incoming patients,[18, 20, 35, 37, 38, 40, 42, 45, 57, 63] while five reports noted the importance of a quality-improvement programme.[11, 20, 46, 58, 59]

3.2.5 Settings and facilities (within the emergency department)

Thirty-three of the 36 included reports contained guidance for what should be provided in an ED in terms of settings and facilities.[11, 12, 18, 20, 35-40, 42-48, 50, 53-67] Resuscitation rooms or facilities as well as the equipment required to undertake resuscitation and the management of high acuity cases were recorded in 18 reports.[11, 12, 18, 20, 35-37, 39, 42, 45, 46, 54, 58, 61, 63-65, 67] However, the level of detail varied between the reports, with some only mentioning the need for a resuscitation room or resuscitation facility, while others specified it should be 'a separate resuscitation area' or 'a separate area with capabilities for invasive monitoring and mechanical ventilation'.[18, 20, 67] This was often related to the level of ED, with those EDs dealing with the most serious illnesses or injuries requiring separate facilities with more equipment. Two reports specified that the resuscitation rooms should be as close to the ambulance door as possible.[38, 54]

Other specific rooms mentioned included triage rooms or areas (including bariatric triage rooms);[60] treatment rooms (these can be split into paediatric and adult-only treatment rooms and bariatric treatment rooms);[60] consultation rooms; fast-track rooms (to facilitate the prompt discharge of low acuity cases); ear, nose and throat (ENT) rooms; dental rooms; burns rooms; eye rooms; isolation room; decontamination room or unit; mental health room or psychiatric emergency service; gynaecology room; trauma room; plaster room; orthopaedic treatment room; tele-health room and services;[41, 65] medication room; and observation room or clinical decision unit[18, 36, 40, 42, 43] (can be beds, chairs, 'chair-centric' or a combination of

both).[46, 53, 54] One report mentioned having an angioplasty suite in the ED if it is part of a 'heart attack' centre.[54]

One UK report[54] provided four examples of the number of assessment and treatment rooms required for different volumes of ED attendances:

- 40,000 attendances: six assessment rooms; six treatment rooms
- 50,000 attendances: eight assessment rooms; eight treatment rooms
- 70,000 attendances: 10 assessment rooms; 10 treatment rooms
- 90,000 attendances: 12 assessment rooms; 12 treatment rooms.

Another UK report[53] noted that the number of ED patient bays and rooms should be informed by a number of factors including: level of activity, projected capacity, workforce profile and the local models of care. This report did, however, provide two examples of the number of different bays and rooms required for different volumes of ED attendances:

- 15,000 attendances: two single-sided consult/exam rooms; two dual-sided trolley bays; two single-sided trolley bays; four chair-centric bays with recliners; four chair-centric bays with armchairs; two dual-sided consult/exam rooms; two treatment rooms
- 25,000 attendances: two single-sided consult/exam rooms; four dual-sided trolley bays; six single-sided trolley bays; six chair-centric bays with recliners; six chair-centric bays with armchairs; three dual-sided consult/exam rooms; three treatment rooms.

In addition, many of the included reports outlined the need for a reception area with appropriately trained staff,[35, 61, 64] a waiting room,[12, 20, 35, 36, 38, 40, 45, 46, 57, 64, 65] a relative room[12, 35] and a bereavement room.[12, 54, 57] An area or room for patients, friends or family members who are aggressive, have severe behavioural disturbance or with challenging behaviour was also suggested.[18] A few of the reports recommended specific areas for vulnerable patients such as patients with mental health conditions,[65] older patients who are confused,[64] or for those with cognitive impairment.[56] A security or police area was also mentioned in some reports.[11, 12, 35, 52, 54, 58-61, 65]

Although for most EDs imaging is often an ancillary service, some reports stated the need for an emergency imaging area,[54, 60, 61] or ED computed tomography (CT) bays, radiographic rooms[12, 35], as well as access to ultrasound.[56, 59]

Certain equipment was specifically mentioned for inclusion in an ED, for example, equipment for assisted or mechanical ventilation, simple [18, 58, 62, 64] as well as invasive monitoring,[18, 20, 38, 67] continuous cardiac monitoring and facilities for point

of care testing and other diagnostic tests.[41, 53, 54, 56, 58, 63] The need for an integrated information system, which is interconnected within and across care facilities (for example, primary care) and allows access to patient records was also mentioned.[39, 46, 54]

Many of the reports emphasised the need for access to mental health services for both adults and children, and having facilities in place to ensure mental health issues can be addressed. Other services mentioned included translation services,[59] domestic abuse services,[46] acute frailty service[43, 46, 53, 56], and transport system for pathology specimens.[45, 59]

A number of reports also addressed staff needs, in terms of administrative areas, teaching and research areas,[35] workstations,[60] break room facilities,[12, 46, 65] storage rooms,[60, 61, 63] mobile equipment alcove,[60, 61] staff and patient washrooms,[64] changing rooms,[64] and an area where staff handovers can be conducted without breaching confidentiality.[46] Signage or wayfinding was also a consideration to allow patients and staff to navigate through the ED and hospital.[57, 61, 65]

3.2.6 Support services

The key support or ancillary services, reported per country, are summarised in Table 3.3. None of the records identified aimed to provide an exhaustive list of ancillary services, however many of them outlined services that were central to, or a part of, their standards, recommendations or guidance.

Terminology varied; however 19 reports generally agreed that EDs should be accompanied by a separate on-site observation unit, short-term stay area and or clinical decision-making unit for monitoring and evaluation of low-risk patients.[11, 12, 18, 20, 35, 36, 38-40, 42, 43, 45-48, 53, 54, 65, 67] Three records stated that such resources should be available 24/7.[12, 20, 42] These units broadly encompass similar functions, however their specific roles and activities may differ and they are not necessarily interchangeable with each other. Additionally, seven reports highlighted the role of a separate cardiac care unit which was described as 'accessible', 'on site' or providing 24/7 support depending on the level or tier of the ED.[20, 36, 38, 40, 61, 62, 67]

Fifteen reports referenced requirements for ICUs,[39-41, 43-46, 54, 56, 57, 60, 61, 63-65] which may be on or off site depending on the level or tier of the ED. HDUs were only referred to in two reports,[35, 54] though their functions may be integrated into ICUs in some countries, serving as step-up or step-down units.

Seventeen reports referred to the need for operating theatres,[11, 12, 18, 20, 35, 36, 38, 40-42, 47, 48, 54, 60, 61, 65, 67] four of which suggested that these should provide 24/7 support

to the ED.[12, 20, 40, 42] Anaesthetic support was explicitly referred to in eleven reports,[12, 20, 35, 38-40, 42, 47, 48, 58, 64] four of which stated this support should be 24/7.[20, 40, 42, 47] Seven reports specifically highlighted the role of cardiac surgery in supporting the ED, particularly for higher level or tier EDs.[18, 20, 38, 40, 61, 63, 67] All necessary perioperative services (for example, post-operative care) and supporting services for a functioning operating theatre may also need to be considered, although no records specifically referred to this.

Only four reports referenced inpatient bed requirements,[35, 36, 46, 54] though one noted that hospitals accepting emergency admissions should maintain inpatient bed occupancy at approximately 85%.[46] Two UK reports referred to the need for a same day emergency care service, which aims to ensure patients receive comprehensive emergency care within a single day.[46, 53] It was suggested by one report that these services should operate a minimum of 12 hours a day, seven days a week.[53]

Access to medical imaging was referenced in 19 reports.[39-41, 43-48, 51-54, 56, 57, 60-65] While some imaging (for example, plain film X-rays) may take place within the ED, other modalities such as CT may require a dedicated radiology department, either onsite or offsite. The standards, recommendations and guidelines around what imaging is required and the time from request to reporting varied according to the tiers or levels of the ED. However, 24/7 access to X-ray, CT, and (in places) ultrasound were seen as minimum requirements.[12, 20, 38-40, 42, 43, 45, 47, 48, 52, 58, 65] Depending on the level or tier of ED, suggested time to reporting included five minutes, 30 minutes, 60 minutes and 24 hours depending on the type of image and ED.[12, 43] Interventional radiology (including diagnostic and interventional cardiology, such as angiograms) was referred to in 13 reports, six of which specified 24/7 support.[12, 20, 38-40, 42, 43, 52, 58, 60, 61, 65, 67] A number of reports identified other imaging services such as MRI[12, 20, 41, 52, 58] and nuclear medicine[20, 38, 52, 58, 67] that should also be accessible. Depending on the tier or level of ED, the reports variably noted that these latter radiology services could be accessible through an extended-hours or on-call service and may be located on site or off site. One report from the UK indicated that when immediate reporting of imaging is not available, all abnormal reports should be reviewed within 24 hours by an appropriate clinician and acted upon within 48 hours.[43]

Similar to imaging services, the standards, recommendations and guidance on laboratory or pathology services varied. Nine records suggested that 24/7 access is required,[12, 20, 38, 42, 43, 47, 48, 58, 63] with two records suggesting this could include on-call access.[12, 20] Where 24/7 access was not specified, there was still general

agreement that this service should be on site and accessible for higher-level or higher-tier EDs.[41, 48, 52, 54-57, 61, 64, 65, 67]

Six records suggested that a 24/7 pharmacy service is necessary for EDs;[12, 20, 38, 40, 42, 58] however, four of these reports describe a requirement for the service to be 'accessible' or 'on call'.[12, 20, 40, 42] A further 14 records more generally referred to the need for pharmacy services,[36, 43, 46, 48, 53-57, 60, 62, 63, 65, 67] five of which specified explicitly that the service should be on site.[38, 60, 61, 65, 67]

Most of the reports referenced mental health and psychiatric services,[11, 12, 35, 36, 38-40, 43, 45, 46, 48, 50, 52, 54-57, 60, 62, 64, 67] with one stipulating that on-site liaison must assess patients within one hour of referral.[43] This report also stated that there should be 'single call access' for all mental health referrals available 24/7, with a max response time of 30 minutes, and access to both telephone consultation and an on-site response from a dedicated pool of child and adolescent mental health service professionals, known to the local hospital, during and out-of-hours.[43] Eleven reports referred to social work services,[18, 38-40, 54, 56, 58, 59, 62, 67] one of which referred to 24/7 access[40] and four of which referred to the need of extended access or out-of-hours support.[18, 38, 59, 67] Four reports referred to the need for pastoral, religious or bereavement services.[40, 47, 54, 56]

Table 3.3 Ancillary services identified from requirements, standards or guidelines, per country

	Australia	New Zealand	Australasia^	Canada	Netherlands	UK	US
Anaesthetics	Yes (on site)	24/7	Accessible	24/7	Accessible 24/7	Yes	Accessible (on site)
Cardiac care*	On site	24/7	Accessible	Yes (24/7 surgery)	NR	NR	Accessible (on site)
Critical/intensive care & High Dependency Units	On site	NR	Accessible	Yes	24/7, on site	Yes	Accessible (on site)
Inpatient care	Yes	NR	Yes	NR	NR	Yes	Yes
Laboratory/Pathology	24/7, on site	24/7	Yes	Yes	24/7 on call	24/7	24/7
Mental health services/Psychiatry	24/7, on site	NR	Yes	24/7	Yes	24/7 OR access 24/7 psychiatrists on site between 10:00 & 22:00	Yes
Pharmacy	On site	24/7	Yes	24/7	Accessible 24/7	Yes	24/7
Point-of-care testing	Yes	24/7	Yes	Yes	NR	Yes	Accessible (on site)
Surgery/Operating Theatre	On site	24/7	On site OR accessible	24/7	24/7	Immediately available	Accessible (on site)
Radiology	24/7	24/7	On site	24/7 (can be remote service)	24/7	24/7	Accessible (on site)
Social Work	Access 24/7	NR	On site	Yes	NR	7 days/week	5 days/week at least 8

							hours/day OR 7 days/week at least 12 hours/day. Can be virtual.

Key: NR – not reported; UK – United Kingdom, US – United States of America; 24/7 **–** 24 hours a day 7 days a week
^Predominantly records from institutions that aim to represent Australia and New Zealand with or without other professional societies from other countries.
*cardiac care unit or cardiac surgery
Note: In cases of discrepancies between records, the service provision requirements default to the most extensive criteria.

3.2.7 Workforce requirements

Details of key staffing requirements, as described in the reports identified as part of this summary, are outlined per country in Table 3.4. Only two reports focused specifically on staffing requirements for the ED (for nurses and emergency medicine consultants),[51, 55] but most reports mentioned key staff in some level of detail. In terms of the skills mix and level of staffing, several reports recommended that this should be determined locally.[38, 40, 43, 46, 64] However, others stated that staffing should be in line with guidance from a professional body such as the Royal College of Emergency Medicine or the Royal College of Nursing in the UK,[55] or provided specific metrics (for example, at least one consultant per 4,000 annual attendances).[46, 51] A number of reports noted the role of tele-health as part of the provision of staffing for the ED.[11, 18, 37, 40, 42, 59] For example, access to a mental health team,[40] provision of support from a larger ED to a smaller ED via videoconference or phone[11, 18] or access to translation services.[59]

Physicians

All of the reports included in this summary that described the staffing requirements for an ED noted the necessity of having a physician on site, most commonly specifying that there should be an emergency medicine physician on duty 24/7. In addition, there was agreement that a daily roster comprising suitably trained medical team should be present, proportionate to the volume of attendances, level of acuity and type of clinical services provided. One report included in this summary, published by the Royal College of Emergency Medicine in the UK in 2024 noted that it's not possible to have a 'one size fits all approach' as staffing levels should be cognisant of capacity, capability, sustainable working and resilience. However, they recommended that one whole time equivalent (WTE) consultant was required for every 4,000 annual attendances to an ED. The recommended minimum number of WTE consultants for a small (<60,000 annual attendances), medium (60,000 – 100,000 annual attendances) and large ED (>100,000 annual attendances) were 12, 18-25 and up to 48, respectively.[46, 51] The report also provided recommendations on the minimum number of other senior decision makers including staff grade, associate specialist and speciality doctors. They recommended 30 WTE senior decision makers for medium, 42 for large, and 60 for very large EDs (>150,000 attendances).[51] This report also emphasised the importance of having adequate numbers of consultants and senior decision-makers for the day, evening and night shifts. Details of the additional medical specialities required for the ED and whether they are required 24/7 varied (see Table 3.4), but anaesthesiologists were specifically mentioned within nine reports.[12, 18, 20, 35, 40, 42, 47, 48, 58] Similarly, 16 reports highlighted the need for input from a surgeon.[12, 20, 35, 38, 40-43, 47, 48, 54, 58, 60-62,

[67] One report advised that the following medical specialities should be on call and available within 30 minutes; general medicine, gastroenterologist, general surgeon, cardiologist, neurologist, pulmonologist, ears nose and throat (ENT), paediatrician and gynaecologist.[12] The same report recommended that an intensive care physician should be present in the hospital 24/7 and available to attend the ED within 30 minutes, and that an ophthalmologist should be on call 24/7 and available to attend the ED within 60 minutes. One report recommended that there be toxicology subspecialty cover also.[18] Similarly, another report noted that physicians from most medical and surgical specialities should be promptly available.[66] The importance of having senior decision-makers available, including anaesthesiologists, geriatricians, general medicine physicians, general surgeons, paediatricians, and psychiatrists was noted by three reports.[18, 50, 64] Another report noted that all ED plain radiography should be reported by either a radiologist or reporting radiographer, ideally in real time,[46] while several other reports noted the key involvement of radiologists.[46, 51, 52, 57, 58] Other specialities mentioned included haematology/thrombosis, mental health/psychiatry, orthopaedics, and palliative care.[54, 57]

Seven reports advocated for a medical director or designated medical practitioner to provide clinical leadership for the ED, preferably with specialist qualifications in emergency medicine.[18, 20, 36, 58, 59, 62, 67]

Nurses

All of the reports describing ED staffing requirements called for nurse(s) on duty,[43, 55] with some reports also proposing that nurses have additional training in emergency care or be advanced nurse practitioners.[18, 20, 38, 39, 54, 59] Several reports noted the importance of having a dedicated clinical nurse manager or charge nurse on duty[18, 20, 55, 56] along with a dedicated triage nurse.[20, 37] One report also called for a dedicated nurse researcher.[20] Although specific nursing staff numbers were not reported, one report by the Royal College of Emergency Medicine and the Royal College of Nursing includes recommendations for Type 1 EDs such as having a minimum of: one emergency nurse to undertake triage on a 24/7 basis, one registered nurse to three cubicles with moderate to high dependency patients (or one nurse to three patients for high volume EDs), one registered nurse for each patient in the resuscitation area increasing to two registered nurses per patient during the resuscitative phase of illness or injury.[55] This report also referred to the Baseline Emergency Staffing Tool, which estimates local nurse staffing requirements (whole time equivalents and skills mix) based on the number of patients attendances to the ED and their level of dependency.[68]

Health and social care professionals

Several reports noted the multi-disciplinary nature of emergency care.[18, 36, 54, 63, 67] [56, 62] In particular, six reports[18, 38-40, 59, 67] called for the availability of a social worker or case manager, with one report noting they should be available seven days per week, for at least 12 hours per day, even if provided virtually.[59] Similarly, 21 reports highlighted the role of the pharmacist and or access to pharmacy services [12, 20, 22, 36, 38, 42, 43, 46, 48, 53-58, 60-63, 65, 67]. Other commonly recommended health and social care professionals that should be available included occupational therapists, phlebotomists, physiotherapists and radiographers.

Additional staff

The need for receptionists or clerical staff, security staff, information and communication technologies (ICT) staff, housekeepers, porters and also the role of the translator was also noted.[36, 53, 54, 56-58, 60, 61, 67]

Table 3.4 General staffing requirements, standards or guidelines, per country

	Australia	New Zealand	Australasia	Canada	Netherlands	UK	US
Anaesthetics	Yes (inferred from the need for services)	24/7 (inferred from the need for services)	Yes	On call 24/7	Accessible	24/7 (out-of-hours access)	NR
Emergency medicine consultants	Yes & one medical director/chair who is a fellow in emergency medicine.	NR	Yes & medical director who is a fellow in emergency medicine.	At least one 24/7	24/7 presence, staff grade not specified.	16 hours/day, 7 days/week (matched to peak activity & 24/7 on-call cover, available to attend within 30 minutes). **Day & Evening Shifts†** EPIC x 1, Resus x 1, DCC and supervision 1-2, CDU/AEC x 1 **Night shift:†**	NR

						On call x 1 EPIC: x 1	
Emergency medicine registrars	Sufficient registered medical specialists with credentials in emergency medicine. At least one advanced training registrar on site 24/7.	On site 24/7	Post graduate Year 4 24/7 on site	NR	24/7 presence, staff grade not specified.	24/7 on site **Day & Evening Shifts†** 2-4 **Night shift:†** 2-4	NR
Cardiologists	Yes (inferred from the need for services)	24/7 (inferred from the need for services)	NR	24/7 (inferred from the need for services)	24/7 on call & available within 30 min	Yes (inferred from the need for services)	Yes (inferred from the need for services)
Intensivists	Yes (inferred from the need for services)	24/7 (inferred from the need for services)	Yes (inferred from the need for services)	Yes (inferred from the need for services)	24/7 in the hospital and able to be in ED within 30 min	24/7 OR access	Yes (inferred from the need for services)
Emergency nursing specialists	A designated ED Nursing Team Leader with similar nursing and liaison roles as	24/7 dedicated associate clinical nurse manager &	Nurse practitioners, nurse educators & clinical nurse consultants,	Yes including access to a nurse educator/paediatric nurse educator & nurses with	NR	Lead Nurse Manager, a Matron/Senior Lead Nurse at least 1 Emergency	Yes

	Medical Team Leader At least one trained nurse on site at all times with responsibility for initial triage & assessment of patients presenting.	24/7 dedicated team of nurses experienced in emergency nursing.	Advanced Skills Clinical Nurses, Nurse Unit Manager.	paediatric-specific education		Nurse Consultant, a WTE dedicated Practice Development Lead AND 24/7 emergency nurse practitioner	
Microbiologists, pathologists & laboratory staff	Yes (inferred from the need for services)	24/7 availability (inferred from the need for service)	Yes (inferred from the need for services)	Yes (inferred from the need for services) on site but call back at night.	24/7 microbiologist available for consultation by phone.	Yes (inferred from the need for services)	Yes (inferred from the need for services)
Pharmacists	Yes (inferred from the need for services)	Yes (inferred from the need for services)	Yes	Yes (hospital pharmacist and one with practice focused on paediatrics)	24/7 available for consultation by phone.	Yes	Yes
Radiologists	24/7 (inferred from the need for services)	24/7 availability (inferred from the need for services)	Yes (inferred from the need for services)	Yes (inferred from the need for services)	24/7 on call & available within 5, 30, or 60 mins depending on request.	24/7	Yes (inferred from the need for services)

Radiographers	Yes (inferred from the need for services)	24/7 availability (inferred from the need for services)	Yes (inferred from the need for services)	Yes (inferred from the need for services)	Yes 24/7 accessible (inferred from the need for services)	24/7 AND reporting radiographers not necessarily 24/7	Yes (inferred from the need for services)
Dedicated mental health professionals	24/7	NR	Yes	Yes (inferred from the need for services)	NR	Yes	NR
Psychiatrists	24/7	NR	NR	24/7	24/7 available for consultation by phone.	24/7	NR
Surgeons	Yes (inferred from the need for services)	24/7 (inferred from the need for services)	Yes (inferred from the need for services)	On-call 24/7	24/7 on call & available within 30 min.	Yes	NR
Security	Yes	NR	Yes	NR	NR	Yes	Yes
Receptionists/clerical staff	24/7	NR	Yes	NR	NR	Yes	NR
Catering & food services	NR	NR	NR	NR	NR	Yes 24/7 (inferred from the need for services)	NR
Social work	Accessible 24/7	NR	Yes	24/7	NR	7 days/week	7 days/week at least 12 hour/day OR 5 days/week at least 8

							hours/day. Can be virtual.
Other health & social care professions*	Access to health & social care professionals as required.	NR	Yes (extended hours access)	Access on site or available upon request (depending on ED tier)	NR	Yes	Yes (inferred from the need for services)

Key: AEC – Ambulatory Emergency Care; CDU – clinical decision unit; DCC – direct clinical care; ED – emergency department; EPIC **–** emergency physician in charge; NR – not reported**;** UK – United Kingdom, US – United States of America; 24/7 **–** 24 hours a day 7 days a week

*occupational therapy, physiotherapy, speech and language therapy, dietetics

†Minimum requirements for EDs with 60,000-100,000 attendees. Additional resources required for trauma centres or centres with >100,000 attendees.

Note: In cases of discrepancies between records, the staffing requirements default to the most extensive criteria.

3.2.8 Recommendations or information regarding population served per ED

In Australia, 'small rural hospital emergency departments' are broadly defined as those which serve remote communities, small rural towns and rural towns with a population up to 15,000.[37]

In Nova Scotia, Canada, a 'provincial emergency department' services a population of approximately 940,400 people, while a 'regional emergency department' serves a population between 20,000 and 100,000.[39] In British Columbia, Canada, the following local population and catchment populations are defined by hospital level:

- level 1, 'community hospital' services: local population of 500 to 1,500 (more isolated) or 1,000 to 3,000 (less isolated)
- level 2 'small hospital': local population of 1,000 to 4,000, with a catchment population of 2,000 to 8,000
- level 3 'small community hospital': serves a local population of 4,000 to 10,000 and has a catchment population of 6,000, to 20,000
- level 4 'hospital with limited speciality services': local population of 10,000 to 50,000 and has a catchment population of 20,000 to 100,000
- level 5 'regional hospital': local population of 50,000+ and has a catchment population of over 100,000.[41]

No other relevant information on the population served per ED was identified in the included reports.

Five reports, originating from Australia[18], Canada,[41] New Zealand,[20] UK,[51] and US,[59] provided a breakdown of tiers or levels of hospital (including rural or remote hospitals) and the corresponding recommended workforce and support services for EDs within each tier or level. In addition, one report from Australia specifically describes the recommended standards for small rural hospital EDs.[37] One key theme across all of the reports is the need for a process for the prompt transfer of patients from a rural or remote ED, to a higher-acuity ED, where required. Similarly, a graduated approach in relation to workforce and settings and facilities was noted, reflecting the tier or level of hospital — for example, specifying more limited requirements with respect to the range or extent of medical specialities and services on site for rural hospitals.

3.2.9 Volume outcome recommendations

Considering specifically patients requiring urgent and emergency undifferentiated care, no information was identified in the included reports relating to the minimum annual number of cases that an ED must provide care for, in order to maintain an

acceptable level of competence. A number of reports identified the potential need to centralise services for specialised areas of emergency care; for example, trauma. These reports identified that centralisation would enable the consolidation of knowledge, skills, equipment and other resources to ensure the sustainable delivery of safe and effective care.[41, 66]

3.2.10 Specific requirements for paediatric emergency care

Specific requirements for paediatric emergency care was discussed in four reports included in this summary; one from Canada,[40] two from the UK[45, 47] and one from an international organisation.[63] There was agreement across all four reports[40, 45, 47, 63] that while paediatric EDs may be situated in a dedicated children's hospital, or be separate and distinct to adult ED services in a general hospital; they should provide a full spectrum of all-ages paediatric emergency care in a child-specific environment on a 24/7 basis. The need for a regional paediatric critical care transport team and specialist transport vehicles, fully equipped for transporting sick children and neonates to and from larger tertiary children's hospitals, was noted by two reports.[40, 63] Similarly, the availability of clinical advice and guidance for critically ill or injured children from regional centres to provincial centres at all times was noted by two reports.[40, 45]

In terms of staffing, one report called for sufficient multi-disciplinary staff with advanced paediatric resuscitation, airway management, and life support competencies to maintain a resuscitation team at all times.[47] In addition, a lead consultant and lead nurse should be designated as responsible for child safeguarding and available at all times.[40, 45] In terms of physicians, three reports required that at least one paediatric emergency medicine consultant should be available to the ED 24/7, while other doctors may be completing their training in paediatric emergency care.[40, 45, 47] Three reports concluded that a full range of paediatric medical and surgical subspecialists should be on-call 24/7 and available to the ED for consultation, including paediatric anaesthetists and paediatric radiologists.[40, 45, 47] One report noted that where paediatric subspecialty doctors are unavailable, there should be 24/7 access to a general surgeon and anaesthetist with paediatric resuscitation competencies.[47] One report noted that nurses working in the ED should be registered paediatric nurses.[45] Two reports advised that other staff which may be urgently required on site included radiographers and operating department practitioners; while health visitors, liaison youth workers, paediatric liaison mental health practitioners, and the paediatric palliative care team may be accessed as needed via phone or tele-health services.[40, 45] The role of allied health professionals (physiotherapists, speech and language therapists, occupational therapists and dietitians) was also noted across the four reports; while play therapists were noted

across three reports.[40, 45, 47] Finally, three reports mentioned that interpreter or phone translation services; support services for children with disabilities or special needs; and bereavement and pastoral services should be available as needed.[40, 45, 47]

There was agreement across all four reports that triage, assessment, treatment, and resuscitation areas in the ED must be safe, appropriately decorated and furnished, and equipped for children and neonates.[40, 45, 47, 63] One report noted that facilities should provide for the full resuscitation and monitoring of high-dependency children, as well as treating those with more minor illnesses or injuries. The report noted that facilities should also provide for additional space compared with adult areas; to accommodate medical equipment, floor space for children, toys, and space for family members. [45]

Appropriate, secure, private spaces (for example without furniture or equipment) for children with mental health issues was noted by two reports;[40, 45] similarly, private spaces for bereaved or in-crisis families were also noted by two reports.[45, 47]

In terms of equipment; two reports called for a functioning, well-equipped resuscitation trolley for paediatric and neonatal emergency resuscitation and care, with readily accessible, identifiable, age-appropriate medicines, and resuscitation equipment and supplies to be available at all times.[45, 63] The same two reports called for point-of-care testing for blood and urine to minimise full blood testing, including, but not limited to blood glucose, blood gases, lactate, and electrolytes.[45, 63]

Three reports each recommended access to a short stay or observation unit[40, 45, 47] and a paediatric and or neonatal ICU.[40, 47, 63] In terms of surgical services, access to an operating theatre (on site or transfer to specialist sites), was noted in two reports.[40, 47] Finally, access to cardiac care[40] and pharmacy[40, 63] was noted in one and two reports respectively, while urgent access to radiology services was mentioned in all four reports.[40, 45, 47, 63]

Three reports highlighted the different requirements for an ED waiting area which accommodates paediatric patients, compared with an adult one, including additional space for playing and pushchairs, and the physical separation of adult and child spaces, if they are co-located.[40, 45, 47] Two reports noted that paediatric waiting and treatment areas should be monitored securely and zoned off with controlled access.[45, 47] One report advocated for a quiet area for autistic children.[45] Finally, the need for adequate baby-changing facilities, space and amenities for expression and storage of breastmilk, and privacy for mothers to breastfeed was noted by three reports.[45, 47, 63]

3.2.11 Specific requirements for the emergency care of older adults

Specific requirements for the emergency care for older adults were discussed in two reports included in this summary; one from the UK[56] and one from the US.[62] While an entirely separate ED for older patients may not be practical, both reports state that dedicated areas and adaptations may be introduced to an adult ED to make spaces more age-friendly. Suggestions included using non-slip flooring and mats and having dedicated spaces for older adults in the triage, resuscitation and observation areas, with provisions for those with cognitive impairment. One of the reports advised visual and acoustic adaptations, including the use of patient-controlled soft lighting, natural light and sound-absorbing materials such as carpet and ceiling tiles.[62] Similarly, one report suggested providing screens and curtains to reduce noise and exposure to crowds.[56] One report advocated for adaptations to equipment and furniture, including the use of reclining chairs instead of trolleys, for comfort and ease of transfer.[62] Where a bed or trolley is used, both reports advised the use of a pressure-relieving mattress and cot or bed sides to reduce the risk of falls. Other falls-prevention equipment that was advised to be accessible in the ED included bedside commodes, walking aids, non-slip socks, and coloured identification (ID) bands that identify the patient as a falls risk. One report recommended that the use of equipment such as oxygen tubing or cardiac monitoring should be assessed for each patient and kept to a minimum, if not required to reduce agitation, and that large, clear signage should be utilised for toilet facilities and exits.[56] For patients with sensory or cognitive impairment needs, consideration of hearing equipment and batteries, soft toys, mittens, and fiddle mats were advised by both reports.

In terms of facilitating clinical procedures, one report each recommended the use of bladder and cannula point of care ultrasound[56] and condom catheters to reduce risk of catheter-associated urinary tract infection.[62] One report also advised the use of a fibre optic intubation device as part of the resuscitation equipment in the ED.[62]

In terms of staffing, in addition to the core ED staff of emergency physicians and nursing staff available 24/7, both reports advised timely access to the following services, either within the ED or on-site/remotely; geriatricians, geriatric nurses, an acute frailty team and case manager, pharmacist, occupational therapist, physiotherapist, social work, geriatric mental health, radiology, and laboratory services. ED access to cardiology, gastroenterology, neurology, and orthopaedics was advised in one standard,[62] while timely access to pastoral care, palliative care, and dietetics were specified by the other report.[56]

The reports noted that ideally, the ED ICT systems would provide timely access to previously completed advance care directives and a system to provide both paper and electronic discharge summaries with information about older adult screening

assessments. Both reports highlighted key external services that should be accessible to the ED to assist with care and safe discharge of an older patient, such as resources for transfer to nursing homes; rehabilitation facilities; home help and nursing; third sector support such as charities; and meal programme facilities; although frequency and level of availability of these services was not specified. One report recommended that walkers and other gait assistance devices be available for patients on discharge.[62]

4 Discussion

In this summary of the international requirements, standards or guidelines for hospitals providing emergency department services in selected countries, there was broad agreement between reports and countries that integration and co-operation is required across the range of facilities and services both within the ED and between the hospital and the emergency department.

However, there was considerable variation in how hospital and emergency services are structured and described in different countries (levels of ED and the types of hospitals), and between the types of report included in this summary (specifications, service requirements, accreditation criteria etc.). This made it difficult to identify minimum requirements and standards for the delivery of urgent and emergency undifferentiated care.

4.1.1 Summary of findings

In terms of clinical processes, there was broad agreement that there are substantial clinical requirements for the safe and effective running of an ED, though it was noted that not all EDs necessarily need to provide a full range of emergency care or access to all specialist services on site. For example, it was stated that cardiac surgery should be accessible, but was not required on site for all levels of hospital. The importance of an effective process for triaging incoming patients in the ED was also noted, as well as the need for a quality-improvement programme for clinical processes.

For setting and facilities, there was broad agreement that resuscitation facilities are essential, as are rooms for triage, consultation and treatment. A number of reports included the need for separate rooms for common practices such as applying plaster to limbs, for particular specialties (for example, ENT rooms) or where privacy was needed (for example, mental health room, bereavement room). Observation rooms that contain beds or chairs for short-term stays were considered either as part of the ED or as a support service depending on the organisation of the hospital and ED services. Certain equipment was recommended for EDs; for example, for assisted or mechanical ventilation, simple and invasive monitoring as well as point-of-care testing and an interconnected hospital information system. Staff needs were addressed in a number of reports including the need for administrative areas, workstations, changing rooms and break rooms.

Consideration of key support or ancillary services included the need to be able to access ICU services (either on site or off site), operating theatres and associated support services and staff (some reports suggested 24/7 access is required), 24/7

access to medical imaging (either within the ED or as an integrated service, depending on the level or type of ED and hospital), and access to laboratory and pathology services on site (24/7 access according to some reports). Mental health and psychiatric services came up frequently throughout the reports, with considerations including telephone or on-site consultations and the availability of services 24/7. Social work and pharmacy were also noted as essential support services.

In terms of workforce requirements, there was broad agreement that a physician should be on site 24/7, most commonly specifying that this should be an emergency medicine physician. Anaesthesiologists and surgeons were mentioned as key specialties, as well as a number of others including cardiologists, paediatricians and intensive care physicians, along with a requirement for them to be on site or on call 24/7. Availability of senior decision-makers and clinical leadership in the ED was also noted as an important consideration for any ED. The requirement to have on-site nursing staff was noted, including a dedicated nurse manager and triage nurse, along with considerations such as the need for additional training in emergency care and the importance of the role of the advanced nurse practitioner. Other health professionals referred to included social workers, occupational therapists, pharmacists, phlebotomists, physiotherapists and radiographers. The role of telehealth in the ED was noted in the international literature as part of the provision for staffing.

There also were specific requirements for the care of children and older adults in the ED, including adaptations to the physical environment, additional services and timely access to specialist staff.

4.1.2 Safety and sustainability

The overarching aim of all of the reports included in this review was to improve the quality of care within EDs and ultimately enhance patient outcomes. One of the key challenges noted in the literature to the implementation of any set of requirements, standards or guidelines for EDs is the availability of appropriately trained staff, with the right mix of skills and levels of seniority. A joint report was published in 2013 by Health Education England, NHS England, NHS Improvement and the Royal College of Emergency Medicine which focused on securing a future workforce for emergency care departments in England.[69] The report emphasised in particular the need for more clinical staff, both at senior decision-making level and more broadly, noting that a combination of an increasing number of ED attendances and higher complexity of clinical needs has resulted in an overstretched workforce, which may be a barrier to the provision of a safe and sustainable level of patient care. In particular, the report pointed to attrition and burnout of emergency medicine

physicians, which not only increases the pressure on remaining staff, but also makes the specialty a less attractive option for the next generation of doctors. Publications from other countries including Canada[70] and the Netherlands[23] have reported similar challenges with obtaining doctors to staff emergency departments. One UK report included in this review illustrates the high level of staffing recommended, with the recommendation of a minimum ratio of one emergency medicine consultant for every 4,000 ED attendances for most departments.[46] The exact recommended level of consultants depended on the complexity of the service provided and associated clinical services provided by the ED, with higher numbers needed for larger EDs. Another report published by the Royal College of Emergency Medicine noted that in practice, a minimum of ten emergency medicine consultants are required for each ED, in order to ensure safe and sustainable rosters.[71] Similarly, a report published in 2023 by the HSE National Doctors Training and Planning (NDTP) taskforce in association with the Royal College of Surgeons in Ireland, outlined considerable challenges associated with the recruitment and retention of consultants across all specialties within Model 3 hospitals in Ireland.[72] These challenges included onerous rosters, a requirement for a higher proportion of on-site, out-of-hours attendance, along with the requirements to provide unscheduled care. The model of care for anaesthesiology published by the National Clinical Programme for Anaesthesia also notes the increasing difficulties with recruitment and retention of both hospital doctors and GPs to locations outside of the major cities in Ireland, where generally the hospitals treat patients with a lower level of complexity.[73]

A number of strategies have been proposed to promote safe and sustainable levels of care in EDs. A strategic overview published in 2020 by the Royal College of Emergency Medicine in the UK emphasised the need for ongoing quality improvement in EDs, noting the importance of conducting clinical audits and having a quality improvement lead with protected time.[74] A set of system benchmarks and recommendations, also published by the Royal College of Emergency Medicine, advocates for 'consistent, safe and sustainable working patterns' for emergency medicine consultants, in line with the standards published by the College.[75] Other recommendations from this report include adherence to the nursing staffing guidelines published by the Royal College of Nursing,[55] application of clinical quality indicators as part of a quality-improvement programme, and ensuring active clinical governance systems are in place to support safety and continuous quality improvement. A report published by Nuffield Trust in the UK presented findings from a literature review of the challenges in acute medicine and proposed solutions for addressing these.[76] Among others, solutions included investment in diagnostics and other support services (such as pathology and radiology) and creation of effective networks with strong governance structures. Strategies proposed by the HSE NDTP

report included addressing work-life balance issues for consultants, investing in education and training, improving on-site infrastructure, and re-enforcing links with Model 4 hospitals.[72]

4.1.3 Other considerations

As noted, the goal of this report was to provide a summary of international requirements, standards and guidelines for hospitals providing ED services, considering also dependencies on other hospital departments. A range of dependencies was identified including access to intensive care, acute surgery and anaesthesiology as outlined above. It was beyond the scope of this review to identify the international requirements, standards and guidelines for hospitals providing these services (that is, intensive care, acute surgery and anaesthesiology). However, similar criteria exist with respect to clinical processes and the resourcing of these services to support the delivery of safe, effective and sustainable care. In Ireland, in line with the Sláintecare Implementation Plan, the HSE National Clinical Programmes (NCPs) design models of care, clinical pathways and guidelines for 31 different clinical specialties.[77] A number of NCPs provide recommendations within their models of care which pertain to the safe delivery of emergency care, including for example, Anaesthesiology, Critical Care, Emergency Medicine, Heart, Paediatrics and Neonatology, Stroke, Surgery, and Trauma and Orthopaedic Surgery. These models of care include requirements from a resourcing perspective. For illustrative purposes, four NCPs (Anaesthesiology, Paediatrics and Neonatology, Stroke and Surgery) that are relevant for the provision of urgent and emergency care services are described below.

The model of care for anaesthesiology published in 2019 by the National Clinical Programme for Anaesthesia sets out the minimum requirements for the safe provision of unscheduled care in hospitals that provide anaesthesia, critical care, trauma and co-located obstetrics.[73] This model of care incorporates a 'hub-and-spoke' model, with eight designated hubs located in Ireland. The model of care recommends that at a minimum, a '2 plus 2 model of anaesthesia/critical care cover' is available on a 24/7, 365 days a year basis within all Model 3 hospitals. This means that an on-call anaesthesia/critical care team of two consultants and two non-consultant hospital doctors should be available at all times, with this team responsible for the whole service, including obstetrics and the ICU. While the model of care acknowledges the significant resource implications associated with the '2 plus 2 model', it highlights that this approach would enable the anaesthesia/critical care team to provide an immediate and sustained response to more than one emergency simultaneously. This model is also important for the transport of critically ill children and adults where 24/7 transport is unavailable, and for maintaining safe services for

maternity and critical care services in Model 3 hospitals. Where a Model 3 or 4 hospital has a co-located maternity unit, a dedicated, separate anaesthesia service for obstetrics is recommended, partly to ensure that the minimum response time of 30 minutes for category-I emergency caesarean sections is fulfilled. In addition, the model of care recommends that trained assistants for the anaesthesiologist are present at all times when anaesthesia is being administered, including in emergency settings. Given the onerous nature of the on-call work, the model of care advises that a frequency of no more than one in eight days should be required of consultant and trainee anaesthesiologists. It is noted that the emergent and highly complex nature of anaesthesiology as a clinical specialty requires significant input at a consultant level. The model of care also notes the importance of providing an appropriate out-of-hours cover for critical care units in Model 3 hospitals, given that in Ireland most critical care consultants have an anaesthesiology background. The emergence of subspecialty anaesthesiology services was also highlighted; for example, cardiothoracic, difficult airway, and vascular subspecialties, though this generally applies to Model 4 hospitals only. The model of care notes that when considering an appropriately staffed roster at an individual hospital level, the volume of work for some anaesthesiology sub-specialties may be insufficient to allow those sub-specialists to maintain their skill set.

The model of care for stroke which was updated in April 2025 sets out how access to acute stroke treatment will be improved via preventative, treatment and rehabilitation services.(78) This model of care emphasises the need for regional Stroke Networks, with an associated team of stroke specialists providing thrombolysis. It is also noted that general hospitals may not be able to provide an on-call service on a 24/7 basis; however, emergency thrombolysis should be provided via emergency patient transfer or via a telemedicine link with an appropriate specialist. The National Stroke Strategy 2022-2027 outlines recommendations for hospitals receiving stroke patients (that is hospitals with an emergency departments).(79) These include recommendations for adequate staffing at consultant, registrar, health and social care professional and clinical nurse specialist level as wells as requirements for access to diagnostic services (for example, CT, CT angiography or Doppler ultrasound, 24-hour blood pressure monitoring). The National Cardiovascular Health Policy 2010-2019 further recommends that a stroke unit, with protected beds for stroke care, should be available in any acute hospital admitting stroke patients.(80)

The model of care for acute surgery published in 2013 by the National Clinical Programme for Surgery sets out a framework for the delivery of timely, safe and accessible care for acute surgery patients.(81) Among other requirements, the role of the acute surgical assessment unit (ASAU), as part of a wider emergency

assessment unit within Model 3 hospitals is proposed, with the aim of improving patient flow and to facilitate clinical assessment and access to competent decision-makers. It was noted that within smaller Model 3 hospitals, they may be co-located with the AMAU. The model of care further notes that within Model 3 hospitals, the surgeon on call should be available for immediate consultation on a 24/7 basis. Similarly, it was noted that most Model 3 hospitals should have emergency theatres for general, trauma and orthopaedic surgery on a 24/7 basis.

The National Clinical Programme for Paediatrics and Neonatology published a model of care for paediatric healthcare in 2016.[82] This model of care advocates for a hub-and-spoke model of care, with a clear interface between local, regional and tertiary paediatric units. While the aim is to deliver the majority of care locally, it was noted that the highest acuity of paediatric cases have better clinical outcomes if treated in a tertiary hospital that has, among other facilities, high caseload volumes across at least 35 subspecialties of paediatrics. For medical staffing, the model of care recommends that local and regional paediatric units should be staffed by a minimum of six and 12 WTE consultant paediatricians respectively. The model of care for paediatric critical care, which was published in 2019 by the National Clinical Programme for Critical Care, complements the model of care for paediatric healthcare.[83] This model of care sets out what is required for safe, effective care for all critically ill children requiring paediatric critical care medicine in Ireland. While care of the critically ill child can start at numerous points, for example, in an ED, or at ward level, the model of care states that any hospital receiving or admitting children should adhere to the minimum standards set out by the Joint Faculty of Intensive Care Medicine of Ireland (JFICMI) (see below).

These documents highlight the importance of a whole-of-hospital approach to care. Decisions taken with respect to the provision of urgent and emergency care services at a site may have implications for other services at that site. In Ireland, when establishing a new ED within a hospital, this would mean careful consideration of the associated resourcing implications for other NCPs, including for example, requirements for 24/7 and or on site access to diagnostics, emergency surgery and ICU. The provision of such services has resource implications within a health region and requires consideration of likely utilisation to ensure service safety and viability. Capacity planning is therefore required at a hospital and a regional level to identify how best to allocate resources to ensure the safe, timely and sustainable delivery of care.

4.1.4 Comparisons with Irish standards

As noted in the background section of the report, the Irish Association for Emergency Medicine (IAEM) has published standards for the design and specification

of EDs in Ireland.[13] These standards provide a detailed description of settings and facilities as well as consideration for support services for the design of EDs in Ireland. The setting, facilities and support services mentioned are similar to what was found in reports included in this summary, including the need for a resuscitation room, plaster room, consultation rooms, triage area, medication room, observation room or clinical decision unit, rapid assessment area, treatment rooms, mental health consulting rooms, eye room, ENT room, isolation rooms, decontamination room, reception area and waiting rooms. The importance of signage and wayfinding is highlighted in the IAEM standards as it is in the reports included in this summary, as well as the importance of an integrated information technology system. The IAEM standards also provide detailed information in terms of the equipment that should be included in each room. Although generally not as detailed, similar equipment was mentioned in the reports included in this summary, including monitoring equipment, ventilators and resuscitation equipment.

Diagnostic imaging is considered in the IAEM standards and is frequently mentioned in the international reports as an essential service that should be available 24/7, and which may be provided either within, or in close proximity to, the ED. The standards identify that the size, complexity and range of services offered (minimum of X-ray, CT scanning, ultrasound and potentially MRI and interventional radiology in larger centres) should be determined by the level of the ED and volume and type of presentations usually seen.

In both the IAEM and the reports included in this summary, the importance of designing facilities with paediatrics in mind is noted, with the IAEM stating that in mixed EDs the children's ED should be audio-visually separated from the adult ED with specific equipment, facilities and waiting rooms for paediatric patients and their caregivers. The increasing population of older adults is also recognised in the IAEM standards and in the reports included in this summary, with the IAEM standards identifying the need for a geriatric emergency medicine unit to support a specialised response to the challenges experienced by older adults, including falls and delirium while in the ED. Other countries including the UK[56] and the US[62] have produced similar guidance for the care of older patients. Bariatric medicine and specialised equipment and facilities to accommodate bariatric patients are noted in the IAEM standards as well as in reports from the US.[60]

Both the IAEM standards and the reports included in this summary recognised the need for staff facilities including areas for administration, breaks and teaching areas as well as a quiet room for distressed or bereaved relatives.

Of note, the scope of the IAEM report was limited to recommendations regarding the design and specifications for EDs in Ireland. As such, it does not provide specific

recommendations regarding support services and workforce requirements. The IAEM report does however highlight some additional information (which was based on some of the reports identified in this review) for consideration in addition to their recommendations.

As noted in section 4.1.3 above, while this review identified dependencies in hospitals providing ED services, it was beyond its scope to identify the minimum standards and criteria for these supporting services. For context however it was considered useful to outline Irish standards for one of these key supporting services, critical care, to illustrate how decisions taken with respect to the provision of urgent and emergency care services at one site may necessitate resourcing of other services at that site. The national standards for adult critical care services, most recently updated in 2024 by the JFICMI and endorsed by the Intensive Care Society of Ireland (ICSI), set out the minimum recommended standards required for critical care units providing care to adult patients in Ireland.[84] In order to maintain skills and professional competencies, the JFICMI/ICSI standards recommend that a critical care service should provide inpatient care for a minimum of 200 patients requiring level 3 care (patients with two or more organ failures) per annum, in addition to having at least six or more inpatient beds.

These standards also provide details of the recommended staffing levels required for providing critical care to adults, noting that this is dependent on a number of factors, including the throughput of patients, casemix and level of specialist care provided. In terms of medical staffing, the standards recommend that a minimum of one dedicated consultant in intensive care medicine should be rostered to the critical unit on a 24/7 basis, with a minimum ratio of one consultant to 12 and 30 critical care patients during daytime and out-of-hours periods, respectively. In addition, depending on local requirements, such as complexity of illness, it is recommended that one non-consultant hospital doctor (NCHD) should be rostered for every six to eight inpatients during daytime hours, and a maximum of every 12 inpatients during out-of-hours periods. Ideally, consultant and NCHD rosters should not exceed 1:7 and 1:6 on-call ratios respectively and on-call should be staffed by a minimum of eight doctors.

In terms of nursing staff, the standards recommend that a minimum of 70% of staff should have a specialist qualification in intensive care nursing, for example a postgraduate diploma in critical care nursing, along with the skills and competencies pertaining to the clinical speciality of the unit. Minimum staffing levels include one nurse for every two patients requiring Level 2 care (patients with single organ failure), or one-to-one nursing care for patients needing Level 3 care. In addition, a designated clinical nurse manager with appropriate qualifications, relevant skills, and

competencies is recommended, along with a designated shift team leader for every eight to ten beds. Recommendations for staffing levels for other groups are also detailed in these standards; including health care assistants, chaplains or pastoral care, support staff and health care social care professionals (physiotherapists, dieticians, speech and language therapists, occupational therapists, medical social workers, clinical engineers, clinical measurement physiologists, clinical psychologists, radiographers, clinical scientists).

JFICMI, in association with ICSI, have also published national standards for paediatric critical care services in Ireland, which were most recently updated in 2025.[85] These standards recommend that, in the context of paediatric critical care, Model 3 hospitals should have a paediatric inpatient ward, a paediatric inpatient observation unit and a paediatric HDU with the ability to provide Level 1 critical care (that is, active management up to and including continuation of non-invasive ventilation where established). In terms of medical staffing for Level 1 Regional HDUs (for example, located in a Model 3 hospital), the standards recommend the presence of a nominated medical director and 24/7 access to a consultant paediatrician on call who can attend the unit within 20 minutes. The important role of anaesthesiologists, and either general or adult critical care doctors is also noted, should a child's condition deteriorate. A minimum of one consultant for every 10-12 and 23 beds was recommended during daytime hours and out-of-hours respectively. A maximum ratio of 1:8 is recommended for consultant on-call rosters. In addition, it is recommended that Level 1 Regional HDUs should have 24/7 paediatric registrar cover in-house – this registrar must have successfully completed the membership training exams or have adequate clinical experience, and have up-to-date advanced resuscitation training. Availability of a minimum of one trainee for every five to six patients is generally recommended during daytime hours, depending on the size of the unit, case mix and ward round patterns. Availability of at least one senior trainee with no responsibilities outside of the paediatric critical care unit for every eight beds is also recommended out of hours.

In terms of nursing staff directly involved with the care of critically ill children, the standards call for a minimum of one nurse who has successfully completed a validated or accredited critical care education and training programme to be present on every shift. While all nurses are required per these standards to have up-to-date paediatric basic life support training, in addition, at least one nurse per shift directly involved with the care of critically ill children must have completed a recognised paediatric resuscitation course or have completed an equivalent in-house course.

Specifically in relation to neonatal ICU, the neonatal model of care published by the National Clinical Programme for Paediatrics and Neonatology[82] (described above)

recommends the following staffing ratios for nursing care: 1:1 in intensive care, 1:2 in high dependency care and 1:4 in special care. The JFICMI standards note that for Regional HDUs, a number of factors should be considered including acuity of illness and nursing skill-mix and seniority. As for the adult and paediatric settings mentioned above, the JFICMI standards also set out requirements for other staff, including health care assistants, support staff and health and social care professionals in neonatal ICUs.

4.1.5 Limitations

This report has a number of limitations. Due to time constraints, a limited grey literature search of selected countries was performed; ideally a more comprehensive list of countries would have been included with the extracted information validated with key representatives from these countries. Therefore, it is possible that relevant reports may have been missed. The focus of this review was on urgent, emergency undifferentiated care; therefore specific volume-outcome metrics for highly specialised services (for example, a trauma centre) were not considered. In addition, it was often difficult to directly compare the healthcare systems to the Irish model of emergency care, as each country (and at times regions within a country) had its own model for emergency care.

In accordance with the inclusion criteria outlined in Section 2.1, there was a focus on recent literature, with all included records published between 2010 and 2024. This recognised that the approach to the delivery of healthcare may change over time; for example, whether a centralised or decentralised approach is adopted, or arising from the availability of new technologies, new evidence, or in recognition of financial, recruitment or staff retention challenges that impact the sustainable delivery of care. While limited to the more recent literature, it was not possible to systematically assess if the international requirements, standards and guidelines for hospitals providing ED services have evolved over this timeframe.

5 Conclusion

This review provides a summary of the requirements, standards and guidelines for hospitals providing ED services in selected countries. It also considered dependencies on other hospital departments and or services. Reports identified a range of clinical processes, settings and facilities, support services and workforce requirements that should be available in hospitals providing ED services. However, variations were noted in the specific requirements and or dependencies of ED services; these may partly relate to differences between countries in how emergency and urgent care services are organised as well as differences in the aim or scope of the included reports.

While the expedited nature of this review and its focus on a limited number of countries mean the findings should be interpreted as indicative rather than definitive, there was agreement across the included reports in this review that care should be patient-centred and that it is crucial for there to be adequate resourcing and close co-operation both within the ED and between the ED and the wider hospital.

Key support services identified for hospitals that provide ED services include critical care support, surgical and anaesthetic services, medical imaging and laboratory support, each of which will have designated minimum standards and criteria for the safe delivery of care. Given these interdependencies, decisions taken with respect to the provision of urgent and emergency care services at a site will necessitate resourcing of other services at that site. In Ireland, when establishing a new ED within a hospital, this would mean careful consideration of the associated resourcing implications for other NCPs, including for example, requirements for 24/7 access to diagnostics and emergency surgery, at a hospital and regional level. The provision of such services has resource implications within a health region and requires consideration of likely utilisation, to ensure service safety and viability. Capacity planning, informed by likely utilisation, is therefore required at a hospital and a regional level to identify how best to allocate resources to ensure the timely and sustainable delivery of effective and safe care.

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Appendix 1 – Grey Literature sources

Table A1: Details of grey literature sources

Organisation, country	Description	URL link
General grey literature sources		
Google	The first 5 pages of each were checked. See Appendix 2 for details.	https://www.google.ie
Country-specific organisations		
Australia & New Zealand		
Australasian Health Facility Guidelines	Australasian health facility guidelines resources	https://www.healthfacilityguidelines.com.au/
Australasian College for Emergency Medicine (ACEM)		https://acem.org.au/
Canada		
Alberta Health Services		https://www.albertahealthservices.ca
Canadian Association of Emergency Physicians (CAEP)		https://caep.ca/
Canada's Drug Agency		https://www.cda-amc.ca/
Canadian Institute for Health Information		https://www.cihi.ca/en/

Canadian Triage & Acuity Scale (CTAS) National Advisory Committee		https://ctas-phctas.ca/
Healthcare Excellence Canada		https://www.healthcareexcellence.ca/
Institut national d'excellence en sante et en services sociaux (INESSS)		https://www.inesss.qc.ca/
Nova Scotia Medical Affairs Department		https://doctorsns.com/news-events/calendar/introducing-nova-scotia-healths-medical-affairs-department-available-services
Ontario Health (formerly Health Quality Ontario)		https://hqontario.ca
Provincial Health Services Authority (British Columbia)		https://www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/partners/health-authorities/provincial-health-services-authority
Royal College of Physicians and Surgeons of Canada	Accredits the emergency medicine programme	https://www.royalcollege.ca/
The Institute for Clinical Evaluative Sciences (ICES)		https://www.ices.on.ca/
Trauma Association of Canada		https://www.traumacanada.org/
Netherlands		
Dutch Society of Emergency Physicians		http://www.nvsha.nl/
National Health Care Institute		https://english.zorginstituutnederland.nl/
National Institute for Public Health and the Environment		https://www.rivm.nl/en

Health Council of the Netherlands		https://www.healthcouncil.nl/
UK		
Department of Health and Social Care		https://www.gov.uk/government/organisations/department-of-health-and-social-care
Department of Health Northern Ireland		https://www.health-ni.gov.uk/
Health and Social Care Northern Ireland		https://online.hscni.net/
Health Technology Assessment Wales		https://healthtechnology.wales/
National Institute for Health and Care Excellence		https://www.nice.org.uk/
NHS Wales		https://www.nhs.wales/
NHS England		https://www.england.nhs.uk/
NHS Scotland		https://www.scot.nhs.uk
Scottish Government		https://www.gov.scot/
Welsh Government		https://www.gov.wales/
US		
American Academy of Emergency Medicine		https://www.aaem.org/
American College of Emergency Physicians		https://www.acep.org/

Society for Academic Emergency Medicine		https://www.saem.org/
Trauma Center Association of America		https://www.traumacenters.org/
Agency for Healthcare Research and Quality		https://www.ahrq.gov/
International organisations		
Acute Care Action Network		https://www.who.int/groups/acute-care-action-network
European Society for Emergency Medicine		https://eusem.org/
Guidelines International Network (G-I-N)	International guidelines library	https://g-i-n.net/international-guidelines-library
International Federation for Emergency Medicine		https://www.ifem.cc/
International HTA database (INAHTA)		https://database.inahta.org/
World Health Organization (WHO)		www.who.int/en
International Health Facility Guidelines		https://www.healthfacilityguidelines.com/

Key: NHS – National Health Service; UK – United Kingdom, US – United States of America

Appendix 2 – Search strategies

Country-specific Google searches (incognito mode):

Multiple keyword Google searches carried out for each country, searches limited by country code top-level domain. For example for Australia:

Search 1: standards "emergency department" site:.au filetype:pdf

Search 2: guidelines "emergency department" site:.au filetype:pdf

Search 3: specification "emergency department" site:.au filetype:pdf

Search 4: framework "emergency department" site:.au filetype:pdf

Search 5: requirements "emergency department" site:.au filetype:pdf

Search 6: standards "emergency care" site:.au filetype:pdf

Search 7: guidelines "emergency care" site:.au filetype:pdf

Search 8: specification "emergency care" site:.au filetype:pdf

Search 9: framework "emergency care" site:.au filetype:pdf

Search 10: requirements "emergency care" site:.au filetype:pdf

Search 11: standards "emergency medicine" site:.au filetype:pdf

Search 12: guidelines "emergency medicine" site:.au filetype:pdf

Search 13: specification "emergency medicine" site:.au filetype:pdf

Search 14: framework "emergency medicine" site:.au filetype:pdf

Search 15 requirements "emergency medicine" site:.au filetype:pdf

The first 5 pages were screened for each search.

Google search for international literature (incognito mode):

Search 1: standards "emergency department" filetype:pdf

Search 2: guidelines "emergency department" filetype:pdf

Search 3: specification "emergency department" filetype:pdf

Search 4: framework "emergency department" filetype:pdf

Search 5: requirements “emergency department” filetype:pdf

Search 6: standards "emergency care" filetype:pdf

Search 8: guidelines “emergency care” filetype:pdf

Search 9: specification “emergency care” filetype:pdf

Search 10: framework “emergency care” filetype:pdf

Search 11: requirements “emergency care” filetype:pdf

Search 12: standards "emergency medicine" filetype:pdf

Search 13: guidelines “emergency medicine” filetype:pdf

Search 14: specification “emergency medicine” filetype:pdf

Search 15: framework “emergency medicine” filetype:pdf

Search 16: requirements “emergency medicine” filetype:pdf

The first five pages were screened for each search.

Published by the Health Information and Quality Authority (HIQA).

For further information please contact:

Health Information and Quality Authority

George's Court

George's Lane

Smithfield

Dublin 7

D07 E98Y

+353 (0)1 8147400

info@hiqa.ie

www.hiqa.ie