



An Updated Framework on Quality and Safety in Emergency Medicine

INTERNATIONAL FEDERATION OF EMERGENCY MEDICINE

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The original “Quality Framework”¹ document arose from the sessions and discussions that took place at the International Federation for Emergency Medicine (IFEM) Symposium for Quality and Safety in Emergency Care, hosted by the College of Emergency Medicine (CEM) in the UK in 2011. It was presented and further refined at the 14th International Conference on Emergency Medicine in 2012. After feedback and review, an updated 2nd edition was developed in 2018 by the IFEM Quality and Safety Special Interest Group and associated editors.

We would like to acknowledge the editors of the 2012 Framework for Quality and Safety in the Emergency Department:

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1. Introduction

Emergency Medicine has been in existence for over 50 years; its rise and spread across the globe occurred through an almost simultaneous development in the IFEM founder nations of Australia, Canada, New Zealand, United States, and the United Kingdom.

Emergency Medicine is increasingly established in developed and developing nations, reflected by the increased membership of the International Federation to 64 member Organisations and over 80 countries in 2018. The Emergency Department (ED) is being increasingly utilised by patients, who regard it as providing accessible, timely and high-quality health care, as well as serving an important 'safety-net' function¹. The rise in the use of EDs exceeds population growth and changes in population morbidity² and presents particular system challenges of crowding, assessment and treatment delays. There is the potential for a reduction in both the quality and safety of care, especially if capacity cannot grow to match demand^{3,4}. The ED may be known by various terms in different jurisdictions including Emergency Room (ER), Accident and Emergency (A+E), Emergency Units (EUs), Receiving Room or Casualty.

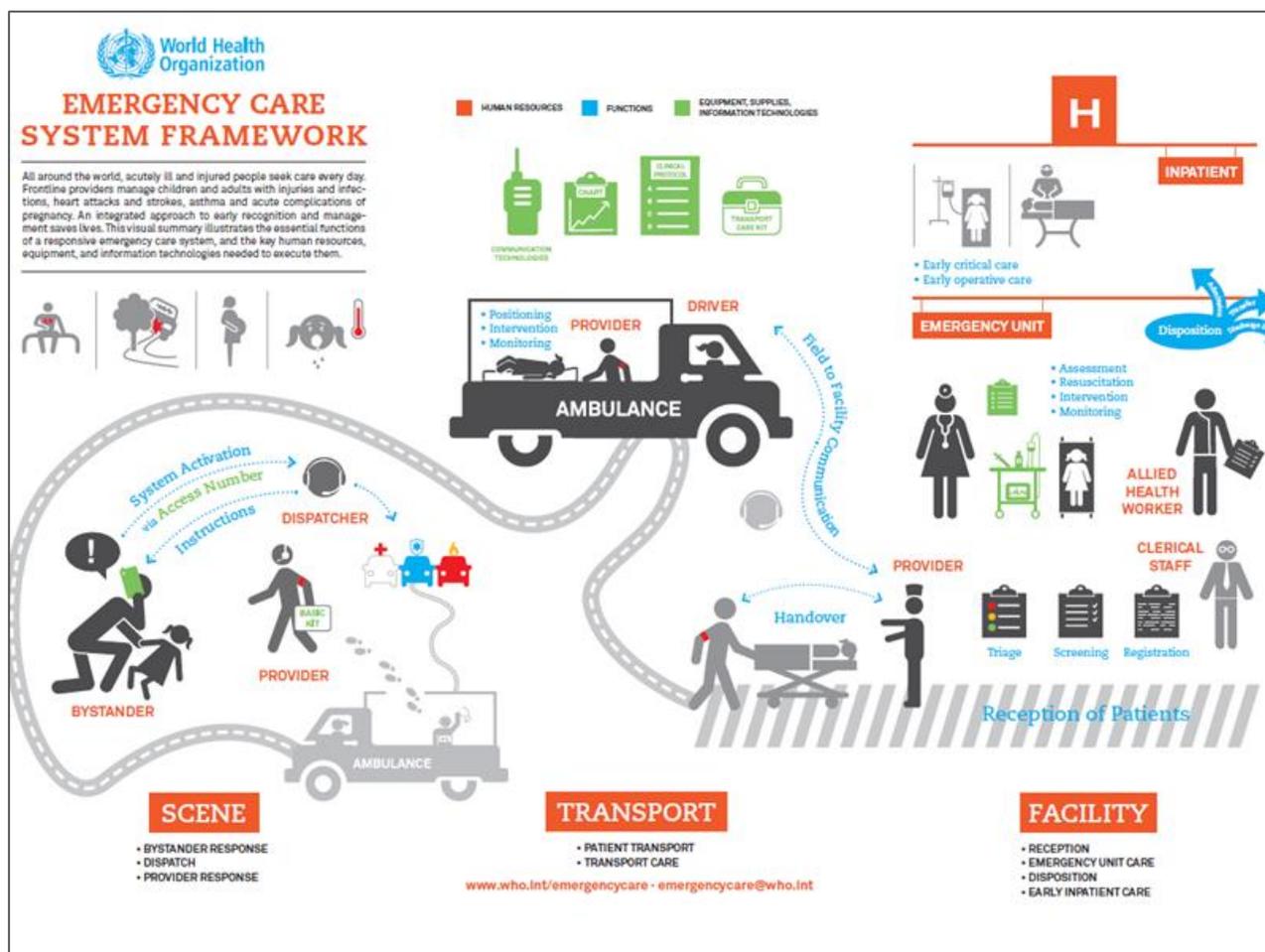


Image 1. Emergency Care Systems Framework (World Health Organisation, http://www.who.int/emergencycare/emergencycare_infographic/en/)⁵

H = hospital; ICU = intensive care unit; OT = operating theatre; PHC = primary health clinic. Permission to reproduce granted by WHO.

Whilst this document focuses on the ED, there is a need to employ a systems approach. The most important consideration is that the ED cannot function in isolation, and commonly exists as the hub of an Emergency Care System (ECS) Framework where the patient journey will start in the community⁵. The ECS Framework captures essential emergency care functions at the scene of injury or illness, during transport and through to emergency unit and early inpatient care. EDs function at the intersection of community and hospital care and interact with most departments and programs within hospitals. This makes the ED a crucial part of the patient care journey and necessitates us to collaborate with all stakeholders.

Striving for improved quality and patient safety is pivotal in the ED. Where this also involves the movement of patients from the ED to improve flow it can be perceived to have negative impacts on other areas of Organisational care, (such as when emergency patients compete for beds with patients scheduled for planned admission). A hospital and community which embraces a culture of quality will respond to the challenge of reflection and review to support the implementation of changes to improve care.

Quality of care and safety are paramount which can be measured by various means. Attention is now being paid to defining and assuring quality in emergency care, driven by metrics, financial drivers, accreditation standards, training status and medico-legal concerns. IFEM members have done extensive work within their own healthcare systems to identify quality in EDs^{6,7,8}, applying various measures and promoting these measurements as important to the public and funding bodies. In some countries, there has been mandatory implementation of quality standards or requirements for quality improvement and patient safety training in speciality colleges^{9,10,11}. At the same time in countries where Emergency Medicine is developing, there may be immense pressures on the emergency care system, combined with limited resources to support that system. Under such conditions, tiers of quality measures appropriate to the particular circumstances can be implemented.

2. What patients should expect from an Emergency Department

The IFEM terminology Delphi project defines an ED as: “The area of a medical facility devoted to provision of an organized system of emergency medical care that is staffed by Emergency Medicine Specialist Physicians and/or Emergency Physicians and has the basic resources to resuscitate, diagnose and treat patients with medical emergencies”¹. In many countries, the ED will also be staffed by trainee doctors, junior doctors, nurses and physician assistants.

The ED is a unique location at which patients are able to access emergency care, ideally 24 hours a day, 7 days a week. The ED can manage different types of medical emergencies (illness, injury and mental health) in all age groups. For the general public, the ED is one of the main interfaces of the health service with the community; in consequence it should be supported to provide the level of care that the public both expect and deserve.

Within all countries patients in an ED should expect:

- **The right personnel:** healthcare staff who are appropriately trained and qualified to deliver emergency care, with the early involvement of senior doctors with specific expertise in EM where life-threatening illness or injury is suspected with referral to appropriate specialities as required.
- **The right decision-making:** at all levels of ED function, from managerial/administrative levels to the frontline, the importance of critical thinking in decision making should be recognised and emphasised.

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- **The right processes:** to ensure early recognition of those patients requiring immediate attention and prompt time critical interventions and the timely assessment, investigation and management of those with emergency conditions. This will involve appropriate access to and utilization of, diagnostic support services by ED doctors (such as pathology services and plain radiography and may include ultrasound, CT and MRI scanning and other laboratory services depending on resources)
 - **The right approach:** patient-centred care with an emphasis on relieving suffering, good communication and the overall experience of patients and those accompanying and/or caring for them. This will lead to optimal outcomes from treatment within the ED for all patients presenting with emergency healthcare needs.
 - **The right environment:** a dedicated ED, which is properly equipped (for example with monitoring equipment, medications and supplies) and provides timely access to necessary investigations so as to manage the patients who attend. There should be adequate space to provide the necessary patient care in an environment that is secure and promotes patient privacy and dignity; acutely ill and injured patients should not be routinely cared for in hallways or non-equipped overflow spaces.
 - **The right place:** Inter-hospital transfer of patients will be necessary in all EDs without every service on site. The right systems and personnel should be available for safe and timely transfer, after resuscitation and stabilization. There should be service level agreements such that the receiving service is supportive; "acting as if" the patient had arrived in their own organisation.
 - **The right system:** that enables the patient to access timely and appropriate emergency care and which continues to support them after they have left the ED. There should be strong links to the community including education and prevention, alongside the promotion of public health.
 - **The right support:** from community and hospital-based healthcare teams and from the commissioners and managers of the ED, who should ensure that the above arrangements are sustainable. There should be established and agreed mechanisms to monitor standards and compliance, with action taken if an ED falls short.

In countries where Emergency Medicine is established, patients can also expect the following, in addition to the fundamental priorities above:

- **Expertise in critical care** in collaboration with colleagues from anaesthesia and intensive care.
- **Early access to specialist inpatient and outpatient services** to ensure appropriate ongoing evaluation and treatment of patients.
- **Appropriate duration of stay in the ED** to maximise patient care and comfort and to optimise clinical outcomes.
- **Development of additional services alongside core ED activity** to enhance the quality and safety of emergency care. Such services may include short-stay/observation facilities, alternative patient pathways, social and mental health services and / or associated outpatient activity.

3. Enablers and barriers to quality care

There are multiple aspects of providing care, which are categorized below. Each enabler describes 'best practice' and barriers describe factors that may lead to suboptimal care being provided. All aspects of ED quality and safety may be undermined by a lack of resources, (particularly inadequate financial support), which can lead to staff, equipment and system shortages. Patients can be adversely affected by their ability to pay for care. Lastly, ignorance, apathy or disengagement by staff, managers, commissioners or others leads to disempowerment and demoralization of ED staff which may affect all aspects of care.

A) **Staff:** trained, qualified and motivated to deliver efficient, effective and timely patient-centred care, compliant with local or national guidelines for ED staffing numbers, including allied health professionals and support staff.

Barriers: inadequate training of ED care providers, lack of availability of qualified emergency care providers, staff burn-out, low morale, poor remuneration, inadequate career development opportunities, high turnover, adverse incidents, lack of co-ordinated teamwork, culture of apathy and weak leadership.

B) **Physical structures:** appropriate size and numbers of rooms for case mix, waiting area, reception, triage and diagnostics, staff and patient washrooms, clean areas with appropriate lighting, heating and privacy, adequate ventilation, clean running water and adequate staff facilities. Fail proof equipment, including well stocked consumables and intellectual technology (IT) systems which are maintained and updated regularly.

Barriers: lack of dedicated (or shared) space, overflow of patients into corridors / hallways; poor equipment / stocking due to poor processes or lack of availability; inadequate systems for repairs; lack of privacy and dignity; dirty/contaminated facilities, poor flow design.

C) **ED Processes:** processes to support effective high-quality care, such as specific triage systems and tools and standard protocols and guidelines for the management of common and high-risk presentations (for example, chest pain, head injury, sepsis, major trauma)

Barriers: inadequate consideration of human factors, lack of processes, protocols and guidelines (or poor adherence to any guidelines that do exist), ad-hoc or poorly designed systems, weak or absent IT structure, a lack of time to develop and implement processes, or a lack of local data to support the development of country-specific protocols and guidelines. Poor hygiene processes

D) **Co-ordinated emergency care throughout the patient pathway:** a systems approach that begins before the ED and is apparent for the whole patient pathway (healthcare system), with shared ownership and a collaborative approach involving primary care and hospital specialists integrated with all components of the care pathway.

Barriers: lack of whole-systems approach and co-ordination resulting in crowding in the ED, lack of system support for the ED, weak integration with community and hospital services, poor or absent design, duplication of processes and equipment.

E) **Monitoring of outcomes:** there must be monitoring and analytic systems, preferably IT-based, that provide informative data on the impact of the above, plus adverse incident reporting, mortality and morbidity review and complaint monitoring to highlight both individual and system failure. This should be combined with a programme to actively seek out instances of poor quality or compromised safety and ensure continuous improvement in the ED. In many healthcare systems this would fit within an overall structure of clinical governance. Any suite of emergency

system indicators must go beyond the ED, to encompass the patient's entire pathway and experience. Resources for data collection and benchmarking are essential to guide standards.

Barriers: Lack of monitoring systems and information technology support, weak or absent systems of governance and review, failure to engage with other components of the emergency care pathway, lack of management support, with the ED viewed in isolation.

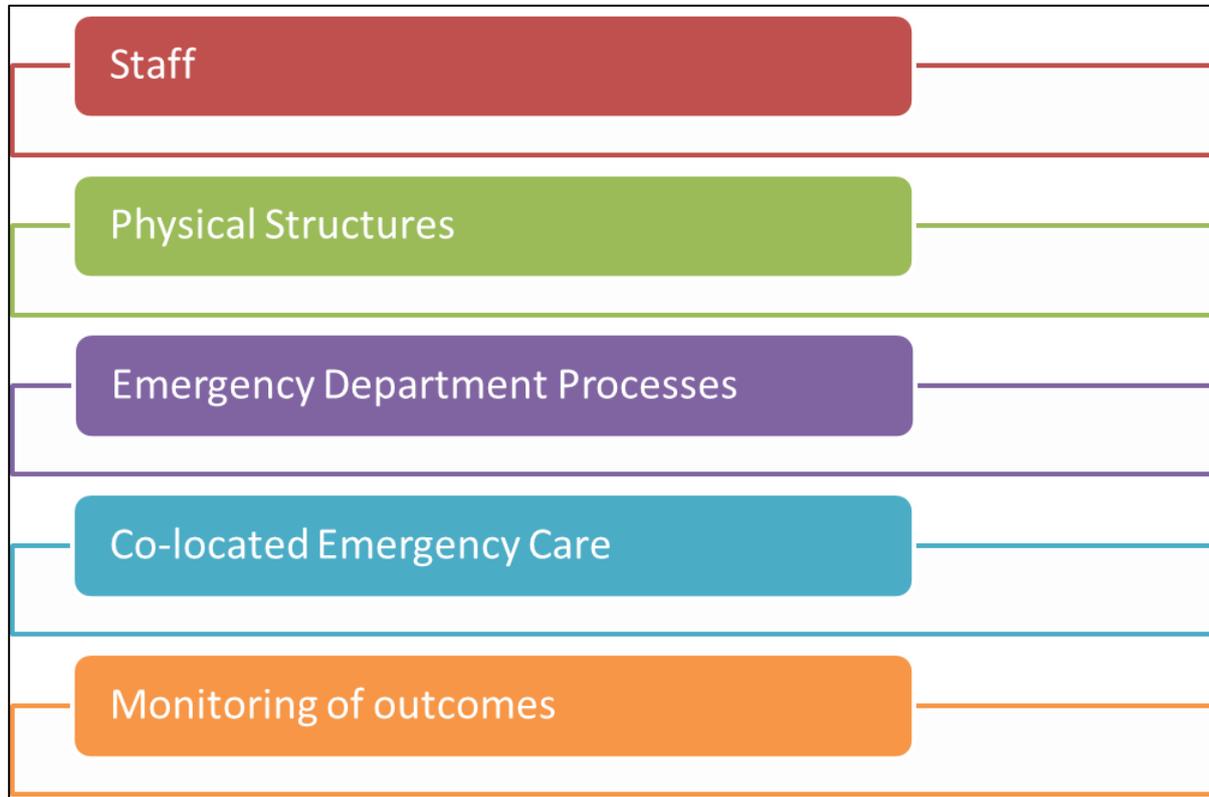


Image 2. Enablers of quality care in Emergency Departments

4. Crowding

Crowding (or overcrowding) is inconsistently defined and measured, but ideally should comprise a combination of non-flow items (such as ED occupancy) and flow items (such as length of stay)¹²⁻²¹. Crowding has a direct effect on quality of care, morbidity and mortality. Crowding presents a substantial threat to quality within an ED and is a symptom of system failure in terms of supply and demand. It tends to occur when the ED is required to compensate for failings in other areas of the system¹². EDs can become crowded, because they are unable to control inflow or outflow. Crowding matters because it impairs every aspect of clinical care and is associated with avoidable mortality, delays to time critical interventions, poor patient and staff experience and avoidable errors. Multiple studies have demonstrated its harmful effects¹²⁻²¹. Tackling crowding effectively requires recognition that ED crowding reflects a system-wide issue and an understanding of the underlying causes. These may vary in different emergency care settings, though experience shows that system-wide interventions are the most effective to reduce crowding.

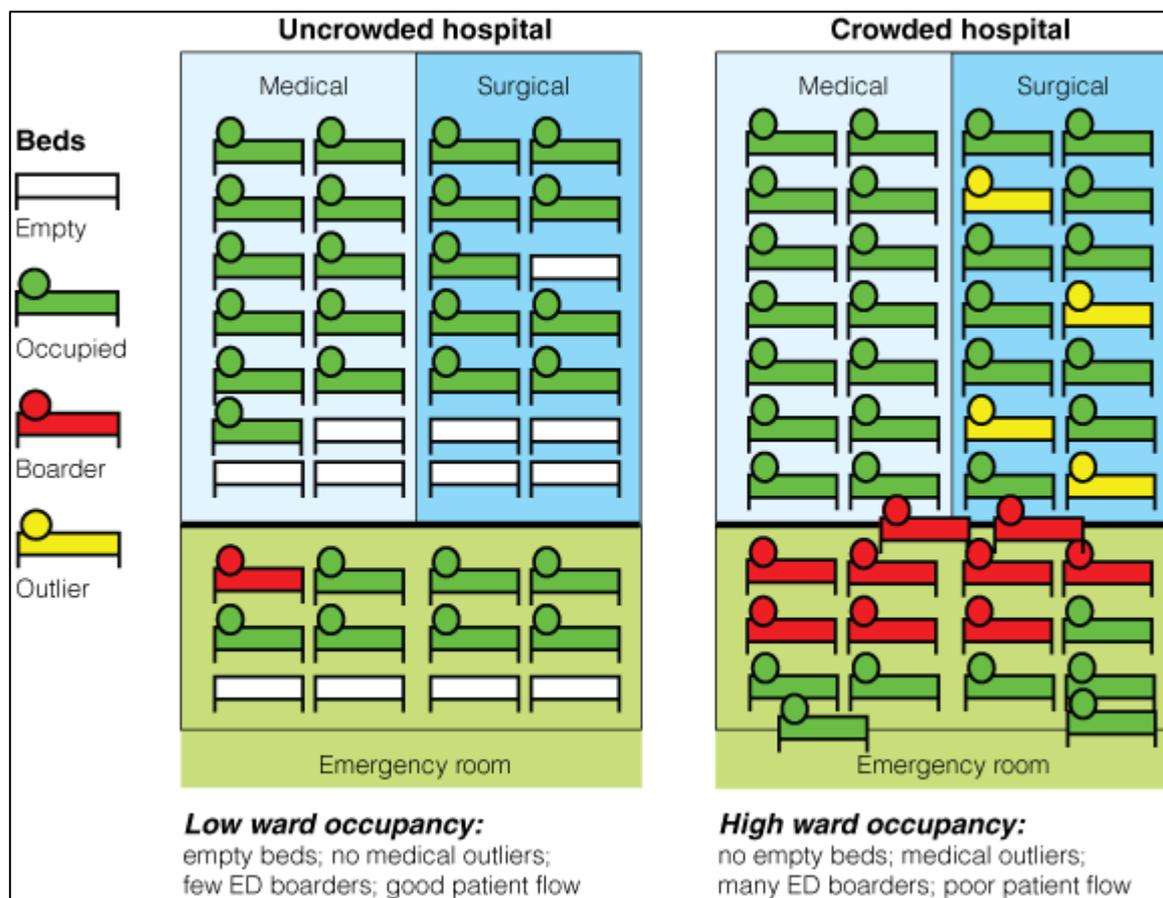


Image 3. Hospital crowding states. ED = emergency department. Boarders = patients waiting for an inpatient bed. Outliers = patients unable to be admitted to the “correct” ward (example, medical patients on surgical wards).¹² Permission to reproduce granted by authors.

5. Quality Indicators

Quality indicators should be pragmatic, measurable and centred on current health priorities. There are tools²² and consensus documents²³ that can help aid the selection of appropriate Quality Indicators. Standardisation of emergency medicine datasets enables comparison across different environments. A widely adopted approach to standardize reporting and to determine the applicability and clinical relevance of scholarly findings has been the development and implementation of Utstein-style guidelines. There is a template for uniform reporting of standardized measures of the care provided in the ED. This will allow comparison between systems (and is particularly pertinent with respect to quality indicators), to enable better translation and interpretation of systems between settings²⁴.

The Institute of Medicine framework encompasses IFEM's aspiration of “right patient to the right clinician at the right time in the right setting”¹. The six domains²⁵ cover a range of issues that are fundamental to the delivery of high quality care in any ED, but the exact measures used will depend on local factors, the availability of data, and over-arching elements of the healthcare system (Image 4). A series of quality domains and their associated quality measures under a structure, process and outcome framework²⁶ is shown in Table 1.



Image 4. Institute of Medicine Domains of High Quality Care

Key aspects in maintaining quality and safety in EDs include:

- **Audits** – a structured process to compare, benchmark and prioritise by reviewing what is happening in EDs compared with what should be occurring
- **Quality Improvement** resources and processes, which should be closely linked and integrated with audits ²⁷
- **Incident Monitoring** – a system in which staff and patients can report concerns in an efficient manner without concerns of reprisal, in which the results are analysed and acted upon. Speciality-specific systems, such as the Emergency Medicine Events Register is a good example of this ²⁸⁻²⁹.
- **Guidelines** which are complete (covers all ED scenarios and conditions), accessible (easy to use interface, guided by intuition, logically arranged), practical and relevant to local patients
- **Morbidity and mortality** review with multi-disciplinary attendance in a blame-free setting so learning can be maximised³⁰
- **Integration and communication** with ambulance, hospital specialities and primary care

| Domain | Structure | Process | Outcome |
|------------------------|--|---|---|
| Safe | <p>Staff with the right skill mix</p> <p>Adequate assessment spaces</p> <p>Adequate security</p> | <p>Reporting system for safety concerns (without fear of reprisal)</p> <p>Ability to share and learn from adverse incidents</p> <p>Administration acts on staff concerns</p> | <p>Analysis of incident reports (there should be many non-serious incidents and a few serious incidents)</p> <p>Incidence of hospital-acquired infection, medication errors, violent incidents</p> |
| Effective | <p>Adequate assessment spaces</p> <p>Sufficient equipment</p> <p>Adequate monitoring</p> <p>Disaster/major incident plan</p> | <p>Care standards or evidence-based guidelines for common and important presentations available</p> <p>Quality improvement activity being conducted</p> | <p>Audit performance against international, national or local standards for common presentations, such as sepsis or multiple injuries</p> <p>Hospitalised Standard Mortality Ratio³¹</p> <p>Morbidity / Mortality (general or specified conditions)³⁰</p> <p>Diagnostic and procedural errors</p> |
| Patient Centred | <p>Structural environment allows for privacy and dignity</p> <p>Dedicated areas for vulnerable groups (e.g. children, mentally ill, elderly)</p> | <p>Patient complaint system (with follow-up actions)</p> <p>Left without being seen rate</p> | <p>Patient experience</p> <p>Patients' ability to participate in own care</p> <p>Collection and use of patient-reported outcomes</p> <p>Time to analgesia audit</p> |
| Timely | <p>Ambulance notification system</p> <p>Adequate clinicians to initially assess a patient promptly</p> | <p>Patients seen initially by a clinician trained in triage</p> <p>Time to consultation by doctor</p> <p>Time to be seen by decision maker</p> <p>Patients needing admission are moved swiftly out of the ED</p> | <p>Total length of stay in the ED (from arrival to departure)</p> <p>Percentage of patients who leave the ED without being seen</p> |

| | | | |
|------------------|---|--|--|
| Efficient | Emergency doctors available who can assess and provide initial treatment for all emergency presentations, regardless of age or pathology | Patients investigated and treated according to evidence-based guidelines Appropriate use of investigations Appropriate and timely support from other specialities | Number of admissions from the ED Avoidable patient re-presentations to the ED Good communication with other healthcare providers |
| Equitable | ED available to all patients who need it, 24/7 , regardless of age, disease or finances | Patients seen in order of clinical priority | Comparable access and clinical outcomes despite: <ul style="list-style-type: none"> • gender • race • religion • other minorities • ability to pay |

Table 1. Suggested indicators for EDs, grouped by the domains of structure, process and outcome to address the six Institute of Medicine domains of high quality care

6. Conclusions

All EDs have an obligation to deliver care that is demonstrably safe and of the highest possible quality.

The International Federation of Emergency Medicine has defined a framework for quality and safety in the ED. It sets out expectations for patients attending any ED globally, and also the additional expectations for EDs functioning in a developed healthcare system. Particular attention is drawn to the problems of crowding, if present.

The enablers and barriers to quality care in the ED can be considered under a series of headings. A number of quality indicators have been proposed. There is an urgent need to improve the evidence base to determine which quality indicators have the potential to successfully improve clinical outcomes, staff and patient experience in a cost-efficient manner.

Leadership and a culture of quality are critical to sustaining all of the activities required for safe, effective care. Leaders must be truly invested in quality and be able to offer opportunities and resources for staff to be innovative in making improvements. A study by the University Health Consortium⁷ in the US showed that the hospitals with the best quality were led by individuals who were never satisfied with the level of quality at their hospitals and were continuously striving to make improvements. A thriving culture of quality is essential to make sure that care that is not being scrutinized does not suffer.

The International Federation hopes that this framework will provide a common consensus to underpin the pursuit of quality and safety in all EDs, thereby improving the outcome and experience of emergency patients and our staff worldwide. To achieve these goals, emergency care must be an absolute priority for healthcare systems at local, regional and national level. The next focus needs to be on transition from consensus-based quality measures to evidence-based quality measures with global implications through the completion of international research projects.

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