



National Consensus Statement

Essential elements for recognising and responding to acute physiological deterioration

THIRD EDITION

November 2021





Published by the Australian Commission on Safety and Quality in Health Care

Level 5, 255 Elizabeth Street, Sydney NSW 2000

Phone: (02) 9126 3600

Email: mail@safetyandquality.gov.au

Website: www.safetyandquality.gov.au

ISBN: 978-1-925665-95-6

© Australian Commission on Safety and Quality in Health Care 2021

All material and work produced by the Australian Commission on Safety and Quality in Health Care (the Commission) is protected by copyright. The Commission reserves the right to set out the terms and conditions for the use of such material.

As far as practicable, material for which the copyright is owned by a third party will be clearly labelled. The Commission has made all reasonable efforts to ensure that this material has been reproduced in this publication with the full consent of the copyright owners.

With the exception of any material protected by a trademark, any content provided by third parties and where otherwise noted, all material presented in this publication is licensed under a [Creative Commons Attribution–NonCommercial–NoDerivatives 4.0 International licence](https://creativecommons.org/licenses/by-nc-nd/4.0/).



Enquiries about the licence and any use of this publication are welcome and can be sent to communications@safetyandquality.gov.au.

The Commission's preference is that you attribute this publication (and any material sourced from it) using the following citation:

Australian Commission on Safety and Quality in Health Care. National Consensus Statement: Essential elements for recognising and responding to acute physiological deterioration (3rd ed.). Sydney: ACSQHC; 2021.

Disclaimer

The content of this document is published in good faith by the Commission for information purposes. The document is not intended to provide guidance on particular healthcare choices. You should contact your health care provider for information or advice on particular healthcare choices.

The Commission does not accept any legal liability for any injury, loss or damage incurred by the use of, or reliance on, this document.

Contents

Introduction	2
Purpose	2
Scope	3
Application	4
Guiding principles	4
Essential elements	5
Section A: Clinical processes	6
Essential element 1: Measurement and documentation of vital signs and other observations	6
Essential element 2: Diagnosis	7
Essential element 3: Escalation of care	8
Essential element 4: Rapid response systems	10
Essential element 5: Communicating for safety	12
Section B: Organisational prerequisites	13
Essential element 6: Leadership and governance	13
Essential element 7: Education and training	14
Essential element 8: Evaluation, audit and feedback	15
Essential element 9: Systems to support high-quality care	17
Glossary	18
References	20

Introduction

Early recognition of acute physiological deterioration, followed by prompt and effective action, may mean that a person can be stabilised with less intervention. Early intervention also can minimise adverse events such as cardiac arrest and death.¹

In April 2010, Health Ministers endorsed the *National consensus statement: Essential elements for recognising and responding to clinical deterioration* (Consensus Statement) as the national approach for recognising and responding to physiological deterioration in Australian hospitals.

The Consensus Statement informed the development of the National Safety and Quality Health Service (NSQHS) Standard for Recognising and Responding to Acute Deterioration, and supports health services to meet the requirements of the NSQHS Standards.

Since 2010, evidence supporting recognition and response systems for acute physiological deterioration has grown. A second edition of the Consensus Statement was published in January 2017 which incorporated the findings of a rapid review of the literature by Deakin University, including articles from 2010–2016.²

This third edition has been developed to include greater reference to the importance of identifying the reason for acute physiological deterioration. This includes a provisional and differential diagnosis, as well as communicating, managing and documenting a management plan for the diagnosis. Accurate diagnosis leads to more effective, efficient and appropriate resuscitation and treatment. Some common diagnoses that lead to acute physiological deterioration include sepsis, anaphylaxis, blood loss, cardiac arrhythmias, myocardial infarction, opioid overdose, pulmonary embolus and stroke.

Sepsis is a diagnosis that commonly triggers the rapid response system. It continues to be under recognised in acute health service organisations. The World Health Organization recognised sepsis as a global health priority in 2017 and passed a resolution to improve prevention, diagnosis and management worldwide.³ Sepsis is a leading cause of morbidity and mortality in Australian hospitals with significant impairment suffered by many survivors⁴ and the recent global burden of disease reports of 8,700 sepsis deaths in Australia in 2017.⁵ Data published in February 2020 indicates that there was a 27% increase in the age standardised sepsis incidence between 2013–14 and 2017–18 correlating with ICD–10–AM coding changes of inpatient data.⁶ Despite the apparent increase in sepsis incidence, sepsis mortality rates remained relatively stable.⁶ The Australian Commission on Safety and Quality in Healthcare is leading the National Sepsis Program to address systems that can reduce this burden.

Purpose

The Consensus Statement sets out agreed practice for prompt and reliable recognition and response to acute physiological deterioration.

The Consensus Statement has been developed for:

- Clinicians involved in the provision of acute health care
- Clinicians, managers and executives responsible for developing, implementing and reviewing recognition and response systems in health service organisations
- Planners, program managers and policy makers
- Providers of clinical education and training, including hospitals, universities, professional colleges and societies
- Health professional registration, regulation and accreditation agencies.

Scope

The Consensus Statement focuses on ensuring that a clinical safety net is in place for patients whose physiological condition is acutely deteriorating, and outlines the organisational supports that are needed to provide this safety net. The general provision of care in a hospital or other facility is outside the scope of this document.

The elements and actions within the Consensus Statement are designed to apply for all clinical conditions, and all patients, including adults, adolescents, children and babies.

Throughout the document, acute deterioration refers to acute physiological deterioration. Deterioration in a person's mental state is covered in **National Consensus Statement: Essential elements for recognising and responding to deterioration in a person's mental state.**⁷

The Consensus Statement applies in acute care settings, such as medical, surgical, maternity and mental health. It applies to all health service organisations from large tertiary referral centres to small district and community hospitals. Some elements of the Consensus Statement may be used by services delivered by acute health service organisations in the community such as hospital in the home programs.

The **National Safety and Quality Health Service (NSQHS) Standards** require that organisations put systems in place that are consistent with this Consensus Statement.⁸



Application

This Consensus Statement aligns with the [National consensus statement: Essential elements for safe and high-quality end-of-life care](#)⁹ and the [National consensus statement: Essential elements for safe and high-quality paediatric end-of-life care](#)¹⁰ and the [National Consensus Statement: Essential elements for recognising and responding to deterioration in a person's mental state](#).⁷ It informs the Recognising and Responding to Acute Deterioration Standard and relates to parts of the Comprehensive Care, Partnering with Consumers, Communicating for Safety and Clinical Governance Standards.

Health service organisations need to develop their own systems to address the principles and elements in the Consensus Statement. These systems need to be tailored to the setting, the risks and needs of the population, and available resources and personnel. It also needs to align with relevant state, territory or other programs.

Guiding principles

1. Recognising patients whose condition is acutely deteriorating, diagnosing the cause and responding to their needs in an appropriate and timely way is essential for safe and high-quality care.
2. Recognition and response systems must apply to all patients, in all patient care areas, at all times.
3. The identified attending medical officer has overall accountability for a patient's care. Accountability for a patient's care also rests with other team members and clinicians including other medical officers, treating nurses, midwives and allied health professionals.
4. Acute physiological deterioration may be the trigger for recognising that a patient is approaching end of life. In these circumstances, management may differ and should align with the [National consensus statement: Essential elements for safe and high-quality end-of-life care](#)⁹ and the [National consensus statement: Essential elements for safe and high-quality paediatric end-of-life care](#).¹⁰
5. Recognition and response systems should promote effective action by clinicians working in the wards, and the attending medical officer or team. This includes calling for emergency assistance when required.
6. Effectively recognising and responding to acute deterioration requires diagnosis of the cause of deterioration, appropriate communication and documentation of the overall plan and goals of care. This involves documentation within the healthcare record, as well as communicating information at clinical handover and during routine clinical rounds.
7. Development and communication of plans for monitoring vital sign observations and ongoing management of the patient are required.
8. Recognition of, and response to, acute deterioration requires access to appropriately qualified, skilled and experienced clinicians.
9. Recognition and response systems should be positive and supportive irrespective of circumstances or outcome. No one should be criticised for escalating the care of a deteriorating patient.
10. Patients, families, carers and other support people should be able to escalate concerns and seek emergency assistance when required.
11. Care should align with the needs and expressed preferences of the patient, including previously documented advance care plans and goals of care.
12. People should be provided with health information targeted to their health literacy and supported to make decisions. If a patient lacks capacity to participate in decision making about their care then the views of a substitute decision maker should be sought, where possible.



Essential elements

The following elements describe the essential features of systems for recognising and responding to acute deterioration. Health service organisations need to have systems in place to address all these elements in a way that is relevant to local circumstances.

The Consensus Statement includes two sections.

Section A: Clinical processes

Clinical processes should be based on the circumstances of the health service organisation in which care is provided.

- 1 Measurement and documentation of vital signs and other observations
- 2 Diagnosis
- 3 Escalation of care
- 4 Rapid response systems
- 5 Communicating for safety.

Section B: Organisational prerequisites

The structural and organisational prerequisites that are essential for recognition and response systems to effectively operate.

- 6 Leadership and governance
- 7 Education and training
- 8 Evaluation, audit and feedback
- 9 Systems to support high-quality care.

Section A:

Clinical processes



Essential element 1: Measurement and documentation of vital signs and other observations

Physiological abnormalities occur prior to adverse events such as cardiac arrest, unplanned admission to intensive care and unexpected death.

Changes in vital signs can occur both early and late in the deterioration process. Regular measurement and documentation of vital signs and other physiological observations is essential for recognising acute deterioration. Aggregated scoring systems have been shown to offer improved sensitivity to recognising deteriorating patients.¹¹

- 1.1 Vital signs should be monitored as part of a systematic physical assessment on all patients in healthcare settings.
- 1.2 Patients' vital signs should be measured at the time of initial assessment, on admission and when a patient moves between areas within a hospital and across the health system.
- 1.3 For every patient, a clear monitoring plan should be developed that specifies the vital signs and other relevant physiological observations to be recorded and the frequency of observation, taking into account the patient's diagnoses, goals of care, clinical history and proposed treatment.

- 1.4 The frequency of observations should be consistent with the clinical situation of the patient. For the majority of patients in a health service organisation, vital signs should be measured at least every six hours. In some clinical circumstances, and for some groups of patients, some vital signs or other physiological observations will need to be measured more or less frequently than others, and this should be specified in the monitoring plan.
- 1.5 The frequency of observations should be reconsidered when there are changes to the person's clinical circumstances. The clinician who documents any modifications should provide a clinically valid reason and also verbally communicate the changes to the bedside nurse or midwife, and/or the nurse in charge or midwife in charge, and discuss changes to diagnosis and management with the patient, family, carer or other support people. Modifications to the usual frequency of vital sign monitoring should be included in handovers between clinicians at transitions of care.
- 1.6 Vital sign thresholds may also need to be reconsidered for individual patients with specific comorbidities, provisional and differential diagnoses such as oxygen requirements for patients with Chronic Obstructive Pulmonary Disease or in specific patient populations – adults, older persons, children and maternity patients.

- 1.7 At a minimum, monitoring plans should include assessment of:
- Respiratory rate
 - Oxygen saturation
 - Heart rate
 - Blood pressure
 - Temperature
 - Level of consciousness
 - New onset confusion or behaviour change.
- 1.8 Vital signs should be documented in a structured tool such as a paper or electronic observation and response chart.
- 1.9 Vital sign observation charts including electronic tools should be designed and tested with consideration of human factors principles to improve their utility and reduce the risk of human error.
- 1.10 A vital sign observation and response chart or electronic tool should include:
- Graphical information so that vital sign trends can be tracked over time
 - Thresholds for each physiological parameter or combination of parameters that indicate when escalation should occur
 - Potential to document the normal physiological range for the patient
 - Response to be taken when different thresholds are observed.

Charts or electronic tools need to include variations designed to address the needs or circumstances for specific populations such as maternity and paediatric patients or specific diagnoses, such as sepsis or stroke.

- 1.11 Clinicians may choose to document other physiological observations and assessments to support timely recognition of deterioration and should include observations in the monitoring plan that supports development of provisional and differential diagnoses. Lactate measurement and documentation can be undertaken when a patient acutely deteriorates and sepsis is suspected.¹¹ Raised lactate has shown to predict outcomes following sepsis in deteriorating patients.¹²



Essential element 2: Diagnosis

Determining the reason for acute deterioration supports timely intervention with the most appropriate management plan. Rapid response systems have focused on the collection of observable physiological parameters to trigger escalation and review of patients. Consideration also needs to be given to the underlying cause of a patient's deterioration. Response systems may need to be tailored to the specific circumstances of the patient, through the implementation of algorithms, protocols and pathways specific to the patient's diagnosis such as stroke or sepsis.

Decision support for clinicians where care is time-critical is essential to reducing variation, improving patient outcomes, teamwork, communication and collaboration.^{13,14} Common diagnoses such as sepsis, delirium, anaphylaxis, blood loss, cardiac arrhythmias, myocardial infarction, opioid overdose, pulmonary embolus, and stroke should be considered for inclusion in facility algorithms, protocols and pathways.

- 2.1 Rapid response system data should be used to determine common diagnoses and inform quality improvement processes.
- 2.2 Evidence of provisional and differential diagnoses and management of these diagnoses should be communicated as well as documented in the healthcare record.
- 2.3 Education should be provided to support clinicians in recognising and responding to common diagnoses that trigger the rapid response system.
- 2.4 Algorithms, protocols and pathways for common diagnoses should include the involvement of clinicians with skills and expertise in managing the diagnosis.

- 2.5 When developing or adapting and implementing algorithms, protocols and pathways as part of escalation protocols organisations should:
- Access appropriate information
 - the risk profile of the patient population served
 - common diagnoses that trigger escalation within the service
 - profile of the clinical workforce including skill mix
 - available resources including human, equipment and the physical environment
 - Develop an agreed approach for content through appropriate governance processes and inclusion of relevant stakeholders
 - Seek endorsement through appropriate governance structures
 - Scope additional training and education requirements
 - Develop an organisation-wide approach to implement and evaluate algorithms, protocols and pathways.



Essential element 3: Escalation of care

An escalation protocol sets out the organisational response for deterioration of vital signs and other physiological observations and assessments. This response may include nursing or midwifery care, such as providing analgesia, increased monitoring, notification to a nurse or midwife in charge, review by the attending medical officer or team, or calling for emergency assistance from the rapid response team.

The escalation protocol describes the safety net that must exist for all patients. Although this safety net should be tailored to the health service organisation, it should include emergency assistance where advanced life support must be provided. A protocol regarding escalation of care is essential for responding appropriately to acute deterioration.

- 3.1 A formal, organisation-wide escalation protocol is required. It should specify how care is escalated for all patients at all times.
- 3.2 The escalation protocol should be developed in consultation with clinicians and consumers. It should authorise and support the clinician at the bedside and the patient, family, carer or other support people to escalate care until they are satisfied that an effective response has been made.

- 3.3 The escalation protocol should be tailored to the characteristics of the health service organisation such as:
- Patient population, demographics and case mix
 - Size and role (such as tertiary referral centre or small community hospital)
 - Location (such as metropolitan or remote)
 - Available resources (such as skill mix, equipment, remote telemedicine systems, and ambulance support)
 - Common diagnoses requiring rapid response such as sepsis or stroke
 - An agreed process for patients to be transferred to another health service organisation.
- 3.4 The escalation protocol should allow for a graded response commensurate with change in vital sign observations, changes in physiological measurements or assessments, or other identified deterioration. The graded response should include:
- Increasing the frequency of vital sign observations
 - Commencing standard care algorithms, protocols, or pathways based on the provisional diagnosis such as sepsis
 - Appropriate interventions from the nurses, midwives and doctors on the ward
 - Notifying the nurse or midwife in charge of the shift about the deterioration
 - Notifying the attending medical officer
 - Review by the attending medical officer or team (or the covering doctor)
 - Obtaining emergency assistance or advice
 - Transferring the patient to a higher level of care locally, or to another health service organisation.

The escalation protocol and the graded response for patients experiencing specific diagnoses may need to include additional specific monitoring, interventions and a process for determining where optimal patient care should take place such as ICU.

- 3.5 The escalation protocol should specify:
- The level of change in vital signs or other observations triggering escalation of care for each tier of escalation
 - The response that is required for a particular change of physiological parameter
 - How the care of the patient is escalated
 - The personnel that the care of the patient is escalated to, including the responsibility of the attending medical officer or team
 - Roles and responsibilities of clinicians involved in escalation
 - Who else is to be contacted when care of the patient is escalated
 - The timeframe in which a requested response should be provided
 - Alternative or back-up options for obtaining a response.
- 3.6 The way in which the escalation protocol is applied should take into account the clinical circumstances of the patient, including the absolute change in vital sign or other observations, as well as the rate of change over time for an individual patient.
- 3.7 The escalation protocol should specify the required circumstances, approval processes and restrictions for modifying calling criteria, including patients with an advance care plan or other limitations of treatment.
- 3.8 The escalation protocol should apply consistently but may specify different actions depending on the time of day or day of the week.
- 3.9 The escalation protocol should allow for clinicians to escalate care based on clinical judgement or provisional diagnosis in the absence of other escalation criteria ('worried' criterion).
- 3.10 The escalation protocol should allow for the concerns of the patient, family, carer or other support people to independently trigger an escalation of care.
- 3.11 The escalation protocol should be promoted widely and included in orientation and education programs.

4

Essential element 4: Rapid response systems

Where severe deterioration occurs it is important to ensure that appropriate emergency assistance can be obtained before the occurrence of an adverse event such as a cardiac arrest. The generic name for this type of emergency assistance is a 'rapid response'. The emergency assistance provided is additional to the care provided by the attending medical officer or team.

For many health service organisations, the rapid response system will include clinicians or teams located within the hospital that provide emergency assistance. Examples of rapid response providers include medical emergency teams (METs) or nurse-led rapid response teams. This may be in conjunction with earlier or pre-emptive interventions such as urgent clinical review by the nurse in charge, the attending medical officer or their team, critical care outreach services and intensive care liaison nurses or implementing standardised care pathways for suspected diagnoses such as sepsis.

In some health service organisations, rapid response providers may include a combination of on-site and off-site clinicians (such as an emergency nurse, the local ambulance service or general practitioner). However comprised, and however named, a rapid response system should form part of an organisation's escalation protocol.

- 4.1 A rapid response system should ensure that specialised and timely care is available to any patient whose condition is deteriorating.
- 4.2 Criteria for triggering the rapid response system should be included in the escalation protocol.
- 4.3 The nature of the rapid response system and the skill set of the responding team needs to be appropriate to the size, role, resources and patient mix of the health service organisation.
- 4.4 Rapid response providers should:
 - Be available to respond reliably within agreed timeframes
 - Be able to assess the patient and provide a provisional diagnosis

- Consider whether a patient is dying and clinical deterioration is likely to be irreversible
- Be able to undertake appropriate initial management
- Be able to stabilise and maintain the patient pending definitive disposition
- Have access to specialist advice for specific populations
- Have authority to make transfer decisions and to access other care providers to deliver definitive care.

- 4.5 The phases of a rapid response should include:
 - Activating the system
 - Clinical handover to the rapid response providers
 - Delivering evidence-based rapid response interventions to the patient
 - Determining changes to patient management in line with the goals of care
 - Clinical handover of the rapid response and outcome to the attending medical officer
 - Discussing the rapid response and outcome with the patient, family, carer or other support people
 - Standing down the rapid response providers.
- 4.6 As part of the rapid response system there should be access, at all times, to at least one clinician, either on-site or in close proximity, who can provide advanced life support.
- 4.7 Rapid response providers should have access to a clinician who can make decisions regarding limitations of medical treatment. Where possible these decisions should be made in partnership with the patient, family, carer or other support people and the attending medical officer or team, and align with the patient's expressed preferences for care.
- 4.8 In cases where patients need to be transferred to another site to receive emergency assistance, appropriate care needs to be provided by the attending medical officer and/or the emergency assistance team until transfer.

- 4.9 When a call is made for emergency assistance, the attending medical officer or team should be notified as soon as practicable and where possible should attend to support and inform the clinicians providing assistance and be part of decision making and care provision.
- 4.10 Clinicians providing emergency assistance should use the call as an educational opportunity for other clinicians and students.
- 4.11 Rapid response providers should communicate with the attending medical officer or team about the consequences of the call, in an appropriate, detailed and structured way. The patient's family, carer or substitute decision maker should also be informed about the occurrence and consequences of the call.
- 4.12 Events surrounding the call for emergency assistance and actions resulting from the call should be documented in the healthcare record and considered as part of ongoing quality improvement processes. Documentation in the healthcare record should include:
- The time the call was made and response time of the first responder
 - The reason the call was made
 - The rapid response providers' assessment, including provisional and differential diagnoses
 - Clinical assessment
 - Treatment provided
 - The results and plan for follow-up of any tests and investigations undertaken as part of the rapid response call
 - The immediate plan of care and any changes to the overall plan of care, including updating the monitoring plan
 - Details of any communication with the attending medical officer or team, the patient, family, carer, substitute decision maker, or other support people
 - Identification of who is responsible for further review and follow-up of the patient
 - The conditions under which further review should occur
 - Signature, name and designation of the member of the team recording the events in the healthcare record.





Essential element 5: Communicating for safety

Effective communication and teamwork among clinicians is essential for recognising and responding to acute deterioration. Poor communication has been identified as a contributing factor of incidents where acute deterioration is not identified, the cause of deterioration is not diagnosed or properly managed. Patients who move between different areas of care are at particularly high risk.

A number of structured communication protocols exist that can be used for clinical handover and as part of ongoing patient management. Systems for clinical communication should meet the requirements of the NSQHS Standards including those described in the Clinical Governance, Communicating for Safety and Partnering with Consumers Standards.

- 5.1 Formal structured clinical communication protocols should be used to improve the functioning of teams when caring for a patient whose condition is deteriorating. The ISOBAR framework is an example.¹⁵
- 5.2 The patient's preferences and advance care plans should be discussed with the patient, family and carer at the earliest appropriate opportunity. The patient's substitute decision maker and their contact details should be documented in the medical record. Where advance care plans and limitations of medical treatment are documented these should be taken into account if the patient no longer has capacity to engage in decision making.
- 5.3 Information about possible deterioration should be sought from the patient, family, carer or other support people when possible.
- 5.4 Decision making and care planning should be shared with the patient, family, carer or other support people in a timely and ongoing way.
- 5.5 The clinical handover protocol used should include information about the most recent observations, clinical assessment, provisional and differential diagnoses, goals of care¹⁶ and diagnosis specific information.
- 5.6 Transition of care procedures should include the identification of patients who are deteriorating, and communication and documentation of information that is relevant to their management. This includes the specifics of the plan for management of acute deterioration, any changes to the overall goals of care, and any limitations of medical treatment that have been agreed and the name and contact of their substitute decision maker.

Section B:

Organisational prerequisites



Essential element 6: Leadership and governance

Recognition and response systems require executive and clinical leadership and structured organisational governance. Governance structures and processes should align with the [NSQHS Standards](#) including those described in the Clinical Governance, and Recognising and Responding to Acute Deterioration Standards.

- 6.1 Appoint an executive sponsor in partnership with a clinical leader with overall accountability for the ongoing performance and improvement of the recognition and response system.
- 6.2 A formal governance process (such as a committee) should oversee the recognition and response system including:
 - Appropriate delegated responsibilities and accountability for decisions and actions
 - Consumer, clinician, manager and executive representatives
 - Regular review and advice on performance data including interventions, education and training
 - Regular review and advice about the allocation of resources.
- 6.3 The formal policy framework regarding recognition and response systems should address:
 - Governance arrangements including reporting requirements
 - Roles, responsibilities and accountabilities for the recognition and response system
 - Vital sign and other physiological observation requirements, processes and tools including standard care pathways, protocols and algorithms based on a provisional diagnosis, and processes and tools for escalation of care
 - Roles, responsibilities and accountabilities of rapid response providers
 - Communication processes and tools
 - Education and training requirements for all clinical staff and rapid response providers
 - Evaluation, audit and feedback processes
 - Arrangements with external organisations that may be part of the rapid response system.
- 6.4 The policy framework should apply across the health service organisation and identify the planned variations in the escalation protocol and responses that might exist in different circumstances (such as for different times of day).

- 6.5 Recognition and response systems or procedures should be integrated into existing organisational and safety and quality systems to support their sustainability and opportunities for organisational learning.
- 6.6 Clinical and non-clinical members of the workforce as well as patients and their families should be encouraged to use escalation protocols and responders should react positively to escalation of care, irrespective of circumstances or outcome.
- 6.7 Appropriate policies and processes regarding advance care plans, limitations of medical treatment and end-of-life decision making are critical for ensuring that care delivered in response to deterioration is consistent with the patient's expressed preferences. Relevant policies, protocols and tools should correspond with the requirements of the NSQHS Standards and with the ***National consensus statement: Essential elements for safe and high-quality end-of-life care***⁹ and the ***National consensus statement: Essential elements for safe and high-quality paediatric end-of-life care***.¹⁰
- 6.8 Health service organisations should ensure skilled clinicians have resources that are always operational and available for optimal performance of the rapid response system.



Essential element 7: Education and training

An educated, skilled and qualified workforce is essential to providing care to patients whose condition is deteriorating.¹⁷ Education should cover measuring and interpreting vital signs and other observations as part of a systematic physical assessment to identify deterioration, making diagnoses as well as clinical management. Skills in communication and effective teamwork are needed to provide care and should be part of professional development. The education programs provided by an individual health service organisation should be consistent with the needs and resources of the organisation, and can be standardised within areas, regions or jurisdictions.

- 7.1 All clinical and non-clinical members of the workforce should receive education about the local escalation protocol relevant to their position. They should know how to call for emergency assistance if they have any concerns about a patient, and know that they should call under these circumstances. This information should be provided at the commencement of employment and as part of regular refresher training.
- 7.2 All doctors, nurses and midwives should be able to:
 - Systematically assess a patient
 - Understand and interpret altered vital signs, observations and other changes in physiological parameters
 - Integrate the information to support provisional and differential diagnoses and initial management plans
 - Access relevant standard care pathways, protocols and algorithms based on the provisional diagnosis such as sepsis or delirium
 - Initiate appropriate early interventions for patients who are deteriorating

- Respond with life-sustaining measures in the event of severe or rapid deterioration, pending the arrival of emergency assistance
 - Communicate information about acute deterioration in a structured format to the attending medical officer or team, to clinicians providing emergency assistance, and to patients, families and carers
 - Understand the importance of, and discuss, the role of substitute decision-makers when providing care to patients who are unable to make decisions for themselves and use shared and supported decision making strategies
 - Discuss or access a senior clinician to support end-of-life care planning with the patient, family, carer or other support people
 - Undertake tasks required to care for patients who are deteriorating, such as developing and communicating a goal-directed comprehensive care plan, documenting interventions and other care, and organising appropriate follow-up.
- 7.3 Rapid response clinicians require additional training to respond to deteriorating patients.
- 7.4 In accordance with the local rapid response system, a sufficient number of clinicians should be competent in advanced life support to provide emergency assistance and an accessible register of currency should be maintained within the health service organisation.
- 7.5 A range of methods should be used to provide knowledge and skills to clinicians. These may include information at orientation, face-to-face and online techniques, as well as simulation and scenario-based training. Training should be multidisciplinary and include common life-threatening presentations to the rapid response team.



Essential element 8: Evaluation, audit and feedback

Evaluation, audit and feedback are important to implement and maintain ongoing performance of recognition and response systems. Quality metrics can optimise performance^{18,19} and check that systems are operating as planned.²⁰

- 8.1 Data from recognition and response systems should be collected, reviewed and regularly fed back through the health service organisation governance structure to clinicians and managers.
- 8.2 Evaluation may include reviewing policies and protocols (such as the escalation protocol) and compliance with policy (such as documentation of vital signs and provisional diagnosis, or the proportion of clinicians who have received training).
- 8.3 Improvement should be monitored by reviewing data and themes about calls for emergency assistance, unplanned transfers to higher acuity care environments, and adverse events such as cardiac arrests and unexpected deaths.
- 8.4 Each emergency assistance call made to the rapid response system requires the following minimum data set for audit:
 - Patient demographics
 - Date and time of each call, response time and 'stand-down' time
 - The reason for each call
 - Provisional diagnosis
 - The treatment or intervention provided
 - Any changes to calling criteria or new limitations of medical treatment documented as a result of each call
 - Communication with the patient's attending medical officer and substitute decision maker
 - Outcomes of each call, including disposition of the patient.

- 8.5 Regular audits of triggers, diagnoses and outcomes for patients who require emergency assistance are required. This could include outcomes such as 30- and 60-day mortality.
- 8.6 Information about the effectiveness of the recognition and response systems may come from other sources such as incident reports, complaints, root cause analyses, and mortality and morbidity reviews. Every death review should consider whether deterioration was recognised, escalation criteria for the rapid response system met, care escalated in line with the local protocol, and whether an adverse event occurred due to a failure to recognise or respond.
- 8.7 Feedback should be obtained from frontline clinicians about the barriers and enablers of the recognition and response system and used for system improvement
- 8.8 Information collected as part of ongoing evaluation, audit and feedback processes should be included in the quality improvement process and be:
 - Fed back to clinical areas and teams regarding local calls for emergency assistance
 - Fed back to the clinicians providing emergency assistance
 - Reviewed to identify lessons that can improve clinical and organisational systems
 - Used in education and training programs
 - Used to track patient outcomes and changes in performance of the system over time
 - Reported with actions at local safety and quality meetings.
- 8.9 Indicators of the effectiveness of recognition and response systems should be monitored by senior clinical and organisational leaders responsible for governance within the organisation (such as senior executives and relevant quality committees).



Essential element 9: Systems to support high-quality care

Health service organisations should seek opportunities to align their systems to support best practice and maximise patient safety.²¹ Aligning systems for comprehensive care, end-of-life care and recognising and responding to deterioration in a person's mental state with systems for recognising and responding to acute deterioration will help to ensure coordinated and effective care for patients.

Technological systems can also provide benefit to patients by improving detection of deterioration and automating escalation of care. Technology needs to be introduced in such a way that it supports the work of clinicians providing care to patients. The potential risks of technological systems also need to be understood and managed including backup when the systems are not functioning.

Systems to support high-quality care for patients who physiologically deteriorate should align with the requirements of the NSQHS Standards.⁸

- 9.1 Recognition and response systems should align with the requirements of the NSQHS Standards⁵, the National consensus statement: **National consensus statement: Essential elements for safe and high-quality end-of-life care⁹**, **National consensus statement: Essential elements for safe and high-quality paediatric end-of-life care¹⁰** and the **National Consensus Statement: Essential elements for recognising and responding to deterioration in a person's mental state.⁷**
- 9.2 Technological systems to support recognition and response to acute deterioration should be considered based on evidence of efficacy, cost, and possible additional safety and quality risks. Unintended adverse consequences, including human factors considerations such as workflow and alarm fatigue, should be explicitly evaluated during and after implementation.
- 9.3 Technological systems should not place a barrier between the clinician and the patient. They should enhance the care process and interaction rather than diminish use of the bedside clinician's clinical skills and judgement.
- 9.4 Where technological solutions are introduced, recognition and response systems should conform to this Consensus Statement.

Glossary

Term	Definition
acute health service	A hospital or other health service providing health care to patients for short periods of acute illness, injury or recovery.
advance care plan	A plan that states preferences about health and personal care, and preferred health outcomes. An advance care planning discussion will often result in an advance care plan. Plans should be made on the person's behalf and prepared from the person's perspective to guide decisions about care.
advanced life support	The preservation or restoration of life by the establishment and/or maintenance of airway, breathing and circulation using invasive techniques such as defibrillation, advanced airway management, intravenous access and drug therapy.
assessment	A clinician's evaluation of a disease or condition based on the patient's subjective report of the symptoms and course of the illness or condition, and the clinician's objective findings. These findings include data obtained through laboratory tests, physical examination and medical history; and information reported by carers, family members and other members of the healthcare team. The assessment is an essential element of a comprehensive care plan.
attending medical officer or team	The treating doctor or team with primary responsibility for caring for the patient.
care pathways	A plan for the organisation of care for a defined group of patients for a defined time period.
clinician	A healthcare provider, trained as a health professional, including registered and nonregistered practitioners. Clinicians may provide care within a health service organisation as an employee, a contractor or a credentialed healthcare provider, or under other working arrangements. They include nurses, midwives, medical practitioners, allied health practitioners, technicians, scientists and other clinicians who provide health care, and students who provide health care under supervision.
comprehensive care	Health care that is based on identified goals for the episode of care. These goals are aligned with the patient's expressed preferences and healthcare needs, consider the impact of the patient's health issues on their life and wellbeing, and are clinically appropriate.
definitive disposition	The location, such as a ward or hospital, to which the patient will be transferred after initial stabilisation.
definitive care	The clinical care required to maintain the stabilisation achieved and, where possible, to restore the patient to health.
diagnosis	The identification of a condition, disease or injury made by evaluating the symptoms and signs presented by a patient. ²²
differential diagnosis	A process of weighing the probability of one disease or condition versus that of others accounting for a patient's clinical features. It includes a prioritised list of potential alternate diagnoses.
emergency assistance	Clinical advice or assistance provided when the patient's condition has deteriorated severely. This assistance is provided as part of the rapid response system, and is additional to the care provided by the attending medical officer or team.

Term	Definition
end of life	The period when a patient is living with, and impaired by, a fatal condition, even if the trajectory is ambiguous or unknown. This period may be years in the case of patients with chronic or malignant disease, or very brief in the case of patients who suffer acute and unexpected illnesses or events, such as sepsis, stroke or trauma.
escalation protocol	The protocol that sets out the organisational response required for different levels of abnormal physiological measurements or other observed deterioration. The protocol applies to the care of all patients at all times.
goals of care	Clinical and personal goals for a patient's episode of care that are determined in the context of a shared decision-making process.
lactate	A non-specific marker of illness severity in acutely ill patients ^{12,23}
monitoring plan	A written plan that documents the type and frequency of observations to be recorded.
provisional diagnosis	A temporary diagnosis which requires further information to confirm or rule out a particular disease or condition. The highest prioritised differential diagnosis.
rapid response system	The system for providing emergency assistance to patients whose condition is deteriorating. The system will include the clinical team or individual providing emergency assistance, and may include on-site and off-site personnel.
recognition and response systems	Formal systems to support staff to promptly and reliably recognise patients who are clinically deteriorating, and to respond appropriately to stabilise the patient.
sepsis	A dysregulated response to infection with accompanying life-threatening organ dysfunction. ²⁴
substitute decision maker	A person appointed or identified by law to make health, medical, residential and other personal (but not financial or legal) decisions on behalf of a patient whose decision-making capacity is impaired. A substitute decision maker may be appointed by the patient, appointed for (on behalf of) the person, or identified as the default decision maker by legislation, which varies by jurisdiction.
treatment-limiting decisions	Decisions that involve the reduction, withdrawal or withholding of life-sustaining treatment. These may include no 'cardiopulmonary resuscitation' (CPR), 'not for resuscitation' and 'do not resuscitate' orders.
vital signs	Any objective parameter used to assess basic life functions. ²⁵

References

1. Devita MA, Bellomo R, Hillman K, Kellum J, Rotondi A, Teres D. Findings of the first consensus conference on medical emergency teams. *Crit Care Med*. 2006;34.
2. Bucknall T, McKinley S, Fossum M, Austin N. Rapid review of the literature and draft revision of the National consensus statement: essential elements for recognising and responding to clinical deterioration. 2016.
3. Secretariat, editor. Improving the prevention, diagnosis and clinical management of sepsis. Seventieth World Health Assembly; 2017: World Health Organization.
4. Australian Sepsis Network. Stopping Sepsis: A National Action Plan. Sydney: The George Institute for Global Health, 2017.
5. Rudd K, Johnson S, Agesa K, et al. Global, regional, and national sepsis incidence and mortality, 1990–2017: analysis for the Global Burden of Disease Study. *The Lancet*. 2020;395(10219):200–211.
6. Li L, Sunderland N, Rathnayake K, Westbrook JI. Epidemiology of Sepsis in Australian Public Hospitals. Sydney: ACSQHC; 2020
7. Australian Commission on Safety and Quality in Health Care. National Consensus Statement: Essential elements for recognising and responding to deterioration in a person's mental state. Sydney: ACSQHC; 2017.
8. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards 2nd ed. Sydney: ACSQHC; 2017.
9. Australian Commission on Safety and Quality in Health Care. National consensus statement: essential elements for safe and high-quality end-of-life care. Sydney: ACSQHC; 2015.
10. Australian Commission on Safety and Quality in Health Care. National consensus statement: essential elements for safe and high-quality paediatric end-of-life care. ACSQHC; 2016.
11. Abbenbroek B, Kumar A, Delaney A, Hammond N, Grattan S and Finfer S. Sepsis tools and triggers to support early identification in health care settings: a systematic integrative review. Sydney: ACSQHC; 2020.
12. Karon B, Tolan N, Wockenfus A, et al. Evaluation of lactate, white blood cell count, neutrophil count, procalcitonin and immature granulocyte count as biomarkers for sepsis in emergency department patients. *Clinical Biochemistry*. 2017;50(16-17):956–958.
13. Buchman TG, Azoulay E. Practice guidelines as implementation science: the journal editors' perspective. *Intensive care medicine*. 2017 Mar 1;43(3):378–9.
14. Wood C, Chaboyer W, Carr P. How do nurses use early warning scoring systems to detect and act on patient deterioration to ensure patient safety? A scoping review. *International Journal of Nursing Studies*. 2019 Jun 1;94:166–78.
15. Australian Commission on Safety and Quality in Health Care (2011). Implementation Toolkit for Clinical Handover Improvement. Sydney, ACSQHC.
16. Australian Commission on Safety and Quality in Health Care. Implementing the Comprehensive Care Standard: Identifying goals of care. Sydney: ACSQHC; 2019.
17. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards: Training and competencies for recognising and responding to clinical deterioration in acute care consultation paper. Sydney: ACSQHC; 2014.
18. Clinical Excellence Commission. Between the Flags Project: Interim Evaluation Report 2013. Sydney: CEC; 2013.
19. Subbe CP, Bannard-Smith J, Bunch J, Champunot R, DeVita MA, Durham L, et al. Quality metrics for the evaluation of Rapid Response Systems: Proceedings from the third international consensus conference on Rapid Response Systems. *Resuscitation*. 2019 May 23;141:1–12.

20. Peberdy MA, Cretikos M, Abella BS, Devita M, Goldhill D, Kloeck W, et al. Recommended guidelines for monitoring, reporting, and conducting research on medical emergency team, outreach, and rapid response systems: an Utstein-style scientific statement. A Scientific Statement from the International Liaison Committee on Resuscitation; the American Heart Association Emergency Cardiovascular Care Committee; the Council on Cardiopulmonary, Perioperative, and Critical Care; and the Interdisciplinary Working Group on Quality of Care and Outcomes Research. *Resuscitation*. 2007 Dec; 75(3):412–33.
21. NHS Patient Safety First Campaign. The 'How to Guide' for Reducing Harm From Deterioration UK: NHS Institute for Innovation and Improvement; 2008.
22. diagnosis. (n.d.) The American Heritage® Science Dictionary. Houghton Mifflin Company. Retrieved July 7 2019 from [medical-dictionary.thefreedictionary.com/diagnosis](https://www.thefreedictionary.com/diagnosis)
23. Australian Commission on Safety and Quality in Health Care. Review of trigger tools to support the early identification of sepsis in healthcare settings. Sydney; ACSQHC; 2021.
24. Singer M, Deutschman CS, Seymour CW, Shankar-Hari M, Annane D, Bauer M, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA*. 2016;315(8):801–10.
25. vital sign. (n.d.) McGraw-Hill Concise Dictionary of Modern Medicine. 2002. Retrieved July 7 2019 from [medical-dictionary.thefreedictionary.com/vital+sign](https://www.thefreedictionary.com/vital+sign)



AUSTRALIAN COMMISSION
ON SAFETY AND QUALITY IN HEALTH CARE

Level 5, 255 Elizabeth Street, Sydney NSW 2000
GPO Box 5480, Sydney NSW 2001
PHONE: (02) 9126 3600



@ACSQHC

safetyandquality.gov.au