



Australasian College
for Emergency Medicine

**College of Emergency Nursing Australasia / Australasian College for
Emergency Medicine**

Joint Position Statement on Vital Signs Monitoring in Emergency Departments

Purpose and scope

This document describes the position of the College of Emergency Nursing Australasia (CENA) and the Australasian College for Emergency Medicine (ACEM) on vital signs monitoring in emergency departments (EDs) in Australia and Aotearoa New Zealand. The purpose of the document is to provide a minimum set of principles and recommendations about the frequency of vital signs monitoring.

It is the position of CENA and ACEM that all EDs should be staffed and resourced adequately by governments and private healthcare organisations to enable timely and equitable access to quality care throughout Australia and Aotearoa New Zealand. Both Colleges acknowledge that emergency care is provided in EDs with varied infrastructure and workforce resources (for example, regional, rural, and remote areas). These are factors that are likely to impact on the capacity of aligning care provision with this statement.

Definitions

Vital signs:	The measurement of a patient's physiological observations including level of consciousness, respiratory rate, oxygen saturation, heart rate, blood pressure and temperature. In some circumstances, other patient physiological data are measured with these observations such as pain and capillary refill time. ¹
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Vital signs monitoring:	The measurement, documentation, interpretation and tracking of patient vital signs. ²
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1. Introduction / Background

Vital signs are an objective set of measurements that are simple to collect and are a valuable tool to monitor acute hospital patients for clinical instability.³ Vital signs monitoring in the ED provides essential information about the patient's physiological status, including trends over time, and informs decisions about patient care and disposition.

The recommended frequency of vital signs monitoring in acute hospital ward settings ranges from 4-12 hourly.^{2, 4} However, EDs provide care for a more diverse range of patients, often with undifferentiated diagnoses and clinical scenarios, than acute hospital inpatient wards. This diversity calls for specific vital signs monitoring and assessment requirements, based on the clinical risk identified for each patient during an episode of ED care. Evolving circumstances may prompt a change in the type and frequency of vital signs monitoring required. Based on expert consensus from both Colleges, the CENA and ACEM joint position on vital signs monitoring in the ED is described in the following section.

2. Minimum standards for vital sign assessment in the ED

2.1. What constitutes 'a set' of vital signs?

Table 1. Vital signs required in the ED

	Adults	Children [‡]
Conscious state (ACVPU or GCS)	Yes	Yes
Respiratory rate	Yes	Yes
Oxygen saturation	Yes	Yes
Pulse / heart rate	Yes	Yes
Blood pressure	Yes	As clinically indicated (see next page)*
Temperature	Yes	Yes
Capillary refill time	As clinically indicated	Yes
Pain score	Yes (as clinically indicated)	Yes (as clinically indicated)

Note: ACVPU (alert, confusion, verbal, pain, unresponsive); GCS (Glasgow Coma Scale)

[‡] Children are defined as aged 1 year to <13 years. Infants are defined as aged 0 to <1 year.⁵



While the utility of routine blood pressure (BP) monitoring in low acuity paediatric presentations to the ED has been questioned, many children presenting to the ED require BP monitoring.⁶

*Indications for BP Assessment in children⁷:

- Critical illness, suspected sepsis and all Australasian Triage Scale (ATS)^{8,9} category 1 or 2 presentations.
- Detect hypotension in shock.
- Monitor vital signs indicating raised intracranial pressure.
- Detect complications of renal disease.
- Diagnosis or monitoring of cardiac disease.
- Detect complications of treatment (for example, high dose steroids).
- Detect BP measurements above the 95th centile in asymptomatic patients for follow-up and investigation. This may represent early onset of hypertension. BP can be affected by normal diurnal fluctuation, changes in physical activity and emotional stress.

*Children with the following conditions should have a BP recorded in the ED:

- Head injury of any severity.
- Headache.
- Urinary tract infection – suspected or diagnosed.
- Proteinuria or haematuria.
- Acute or chronic renal failure.
- Moderate to severe dehydration.
- Sepsis.
- Haemorrhage.
- Abdominal masses.
- Seizure.
- Obesity.
- Known or suspected cardiac disease.

2.2. How often should vital signs be monitored?

All emergency department patients require at least one set of vital signs.

Vital signs should be monitored on at least two occasions in 'high risk' patients including, but not limited to:

- Infants aged <3 months.
- Pregnant patients >20/40 gestation.
- Indigenous patients >50 years¹⁰ / Non-Indigenous patients aged >65 years.
- Unplanned ED re-presentation (for the same problem) within 72 hours of discharge.

Patients should have vital signs monitored and displayed graphically at a frequency that enables trends to be tracked over time (see Table 2). Suitable reference ranges should be used/displayed for paediatric and obstetric patients.

Vital signs should be monitored pre- and post-interventions according to the anticipated patient response to the intervention (for example, sedation, cardioversion, fluid bolus).

Where relevant, routine assessments (for example, neurovascular observations) and point of care testing (for example, blood glucose monitoring) should be used to complement vital signs monitoring.

Table 2. Frequency of vital signs monitoring in ED

	Patient situation	Frequency of vital signs
Prior to initial review by treating clinician†	At triage - life-threatening / imminently life-threatening presentations (for example, ATS 1 or 2, major trauma, upper airway obstruction).	Vital sign measurement should not delay movement to appropriate treatment area (for example resuscitation bay).
	At triage.	Vital signs are required for all emergency department patients (except those defined below).
	After triage – in waiting room and treatment areas.	Repeat at intervals guided by triage category. <ul style="list-style-type: none"> - Triage category 2 – every 10 minutes. - Triage category 3 – every 30 minutes. - Triage category 4 or 5 – every hour.
	At triage - asymptomatic patients presenting with non-acute, non-emergent conditions (for example prescription refill, dressing change)	Vital signs are not generally indicated.
After initial review by treating clinician.	High-risk clinical situations including but not limited to: <ul style="list-style-type: none"> - Previous set of vital signs abnormal or triggers local hospital emergency response. - Administration of medications known to affect conscious state, cardiovascular or respiratory status. - Agitation / aggression. 	Repeat every 15 minutes (or as per local hospital emergency response for deteriorating patients) until condition is deemed stable by treating clinician and no further active treatment is required. Note, agitated or aggressive patients may require control of behaviour with sedation before regular measurement of vital signs is safe and practicable.
	Other situations where close monitoring is required: <ul style="list-style-type: none"> - Worsening or new symptoms. - Subjective concern in the absence of other escalation criteria ('worried'). 	Repeat every 30 minutes until condition deemed stable and no further active treatment required.
	In waiting room and treatment areas.	Hourly vital signs until deemed clinically stable and at low risk of deterioration, then 2-hourly for 4 hours, then 4-hourly unless condition deteriorates.
	All patients prior to separation from ED (that is: admission, transfer, discharge). ^{††}	Within 30 minutes prior to leaving the ED [§] . Note, should not delay urgent transfer of unstable patients to another critical care area (for example, cardiac catheterisation lab, operating theatre, Intensive Care Unit).
Patient admitted to the short stay / observation unit or waiting for admission to inpatient bed.	Waiting for Intensive Care Unit bed.	Hourly or more frequently as indicated by patient's condition.
	Waiting for High Dependency / Telemetry Monitoring / Coronary Care inpatient bed.	Hourly for 4 hours, then 2-hourly unless patient's condition deteriorates.
	In short stay / observation unit or waiting for acute hospital ward bed.	2-hourly for 4 hours, then 4-hourly unless condition deteriorates.

† The term *treating clinician* refers to any health professional (for example, Nurse, Doctor, Physiotherapist) responsible for the patient's discharge/separation from ED.

†† Excluding asymptomatic patients presenting with non-acute, non-emergent conditions (e.g., prescription refill, dressing change).

§ Vital sign instability on discharge is associated with increased risk-adjusted rates of 30-day mortality and unplanned readmission.¹¹

Senior nursing or medical staff (for example shift managers) and the treating clinician may amend the frequency of vital signs according to the patient's acuity (this decision should be documented in the patient's medical record). Minimum review and decision points for consideration of changes to frequency of vital signs monitoring include:

- During triage.
- Time that treating clinician[†] reviews patient.
- Patient moved to a different area within the ED.
- Consulted by inpatient team or bed request made.
- Nursing shift handover
- Worsening / new symptoms[¶] or subjective patient, relative or clinician concern in the absence of other criteria (e.g. 'worried' or parental concern).
- Transition to palliative or end of life care

¶ If a patient's condition changes while waiting for treatment, or if additional relevant information becomes available that impacts on the patient's urgency, the patient should be re-triaged.⁸

2.3. ED systems for monitoring and responding to abnormal vital signs

Any abnormal vital sign, whether in ED or during pre-hospital care, may indicate the presence of an underlying acute or chronic health abnormality. ED clinicians should be aware of the normal range of vital signs applicable to specific patients.

All EDs must have an escalation policy for patients whose thresholds for vital signs abnormality are reached.

Early warning tools should inform vital signs frequency in accordance with site clinical deterioration policy and include information about the response or action/s required when thresholds for abnormality are reached (for example, emergency response, Clinical Review Criteria, Medical Emergency Team (MET) call criteria, Between the Flags). Vital signs trigger thresholds in hospital early warning tools (which are not specifically developed for EDs) are not the same as normal ranges for vital signs.

Where available, feasible and reliable, vital signs monitoring should be automated and integrated into electronic medical record systems that display graphical information so that trends can be tracked over time.

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