Recognising and Responding to Early Signs of Deterioration in Hospital Patients

Key Document code:	WAHT-KD-022
Approved by:	Intensive Care Forum
Date of Approval:	15th September 2022
Date of review: **This is the most current document and is to be used until a revised version is available**	15th September 2025

Key Amendments

Date	Amendment	Approved by
5th June 2018	NEWS2 chart included in Document	ICM Forum
14th October 2019	Transfer times out of ICU adjusted to match Step down policy	ICM Forum
July 2021	Document review date amended as per the Key Documents policy 3 year approval update.	Trust policy
September 2022	Document re-approved for 3 years.	ICM Forum

Introduction

Any patient in hospital may become acutely ill. However, the recognition of acute illness is often delayed and its subsequent management may be inappropriate. This may result in late referral and avoidable admissions to critical care, and may lead to unnecessary patient deaths, particularly when the initial standard of care is suboptimal (NICE 2007).
This guideline concerns the reduction of harm for patients whose physiological condition deteriorates and makes evidence-based recommendations on the recognition and management of acute illness in acute hospitals.
Worcestershire Acute NHS trust has pledged to staff that it regards the safety of patients as the highest priority.

Aim: To reduce in-hospital cardiac arrest and mortality rate through earlier recognition and treatment of the deteriorating patient

Details of Guideline

NICE (2007) advocate that adult patients in acute hospital settings, including patients in the emergency department for whom a clinical decision to admit have been made must have:

- Physiological observations recorded at the time of their admission or initial assessment

- A clear written monitoring plan that specifies which physiological observations should be recorded and how often. The plan should take account of the:
  - Patient's diagnosis
  - Presence of co morbidities
  - Agreed treatment plan

Physiological observations be recorded and acted upon by staff that have been trained in these procedures and understand their clinical relevance An Early Warning Score (EWS) to be completed at each set of physiological observations.
Staff caring for patients in acute hospital settings must have competencies in monitoring, measurement, interpretation and prompt response to the acutely ill patient appropriate to the level of care they are providing. Education and training will be provided to ensure staff are competent (On line competency

training available on link via hospital intranet and each ward area has a link nurse who can provide training and support).

National Early Warning Score (NEWS)

The National Early Warning Score (NEWS) was created to standardise the process of recording, scoring and responding to changes in routinely measured physiological parameters in acutely ill patients. The NEWS was founded on the premise that (i) early detection, (ii) timeliness and (iii) competency of the clinical response comprise a triad of determinants of clinical outcome in people with acute illness.
It applies to all adult patients (and children aged 16 years or more) with the exception of obstetrics and patients on an end-of-life care pathway. The use of the system will enable nursing and medical teams to provide early recognition and treatment of patients who are acutely unwell, or at risk of deterioration.

NEWS is based on a simple aggregate scoring system in which a score is allocated to physiological measurements, already recorded in routine practice, when patients present to, or are being monitored in hospital.

Six simple physiological parameters form the basis of the scoring system:
1 respiration rate
2 oxygen saturation
3 systolic blood pressure
4 pulse rate
5 level of consciousness or new confusion
6 temperature.

Worcestershire Acute Hospitals Trust adopted NEWS in July 2016. Audits show that it is used effectively by competently trained staff across our organisation.
In December 2017 a working party report was published by the Royal College of Physicians following a multidisciplinary group review of NEWS. Refinements and amendments to NEWS were endorsed and approved by NHS England and NHS Improvement resulting in NEWS2.
This review was enhanced by inclusion of numerous peer-reviewed research publications, evaluating and validating the NEWS in various clinical settings in the NHS and beyond.

For this NEWS update and based on feedback from users, particular attention was paid to four important themes:

- Determining how the NEWS could be used to better identify patients likely to have sepsis who were at immediate risk of serious clinical deterioration and required urgent clinical intervention
- Highlighting that that a NEWS score of 5 or more is a key threshold for an urgent clinical alert and response
- Improving the recording of the use of oxygen and the NEWS scoring of recommended oxygen saturations in patients with hypercapnic respiratory failure (most often due to COPD)
- Recognising the importance of new-onset confusion, disorientation, delirium or any acute reduction in the Glasgow Coma Scale (GCS) score as a sign of potentially serious clinical deterioration, by including new confusion as part of the AVPU scoring scale (which becomes ACVPU).

Various additional refinements to the NEWS chart were also considered and implemented.

The NEWS2 chart update

The NEWS chart has been updated. In the NEWS2 chart:

- the recording of physiological parameters has been reordered to align with the Resuscitation Council (UK) ABCDE sequence
- the ranges for the boundaries of each parameter score are now shown on the chart
- the chart has a dedicated section (SpO2 Scale 2) for use in patients with hypercapnic respiratory

failure (usually due to COPD) who have clinically recommended oxygen saturation of
88–92%. This must only be used if directed by a competent clinician. The unused scale must be crossed through by the clinician, signed and dated.

- the section of the chart for recording the rate of (L/min) and method/device for supplemental oxygen delivery has been improved
- the importance of considering serious sepsis in patients with known or suspected infection, or at risk of infection, is emphasised. A NEW score of 5 or more is the key trigger threshold for urgent clinical review and action
- the addition of 'new confusion' (which includes disorientation, delirium or any new alteration to mentation) to the AVPU score, which becomes ACVPU (where C represents confusion)
- the chart has a new colour scheme, reflecting the fact that the original red–amber–green colours were not ideal for staff with red/green colour blindness.

Clinical Response to NEWS

A low NEW score (1–4) should prompt assessment by a competent registered nurse or equivalent, who should decide whether a change to frequency of clinical monitoring or an escalation of clinical care is required. Minimum frequency of observations is 4-6 hourly

A single red score (3 in a single parameter) is unusual, but should prompt an urgent review by a clinician with competencies in the assessment of acute illness (usually a ward-based doctor) to determine the cause, and decide on the frequency of subsequent monitoring and whether an escalation of care is require. Minimum frequency of observations is 1 hourly.

A medium NEW score (**5–6) is a key trigger threshold** and should prompt an urgent review by a clinician with competencies in the assessment of acute illness – usually a ward-based doctor or acute team nurse, who should urgently decide whether escalation of care to a team with critical care skills is required (ie critical care outreach team). Minimum frequency of observations is 1 hourly.

A high NEW score (7 or more) **is a key trigger threshold** and should prompt emergency assessment by a clinical team / critical care outreach team with critical care competencies and usually transfer of the patient to a higher-dependency care area. Continuous observations should be performed.

It is important to note that serious concerns regarding clinical deterioration of patients must be escalated even when NEWS is not raised.

Where unqualified staff (HCA's and student nurses) are carrying out patient observations, they are responsible for informing a qualified nurse if any patient triggers a NEWS 1 or above.
Physiological observations should be monitored at least once per shift, unless a decision has been made at a senior level to increase or decrease this frequency for an individual patient.

Note:

- NEWS should be used alongside validated scoring systems, such as the Glasgow Coma Scale (GCS) or disease-specific systems as dictated by patient need.
- Urine output is not part of the scoring system for NEWS. However, it remains an important observation and has been included on the NEWS chart to highlight the importance of recording urine output when considered clinically appropriate to do so. Strict fluid balance monitoring is an essential tool for all acutely unwell patients. A correct balance provides valuable information regarding the patients input (oral and IV) and output (urine / stoma loss / NG loss / diarrhoea). A correct fluid balance chart will help determine the correct course of treatment needed for the patient and enables staff to monitor the effectiveness of such treatment.

Patient Assessment

Assessment of any acutely unwell or deteriorating must follow the universally recognised structured ABCDE approach. This is now facilitated by the structured layout of NEWS2 chart

A – Airway
B – Breathing
C – Circulation
D – Disability of the nervous system/decreased consciousness – using the AVPU scale, blood glucose and pupil reaction
E – Exposure of the patient (including observation of any drains or wounds), NEWS, test results

- In any acutely unwell patient, assessment and treatment must occur concurrently and potentially lifesaving treatment must not be delayed in the absence of a diagnosis.
- Documentation of the above assessment should detail the ABCDE approach in the health record and nursing notes.

Treatment and Management

Immediate Actions:

The registered nurse attending the patient (if trained to do so) must:

- Make appropriate use of the relevant Patient Group Directions (PGDs), such as high flow oxygen, adrenaline for anaphylaxis, and a stat bolus of Sodium Chloride 0.9% IV infusion(normal saline).
- Administer prescribed medications, such as analgesia and nebulisers, where appropriate as these may improve the patient's clinical condition.
- Escalate to a senior member of staff accordingly using SBAR (see below), and if required to, ensure the patient is assessed as soon as is practicable.
- Where treatment has been instigated the patient must be re-assessed in a timely fashion.

Critical Care Referral

If the team caring for the patient considers that admission to a critical care area is clinically indicated, then the decision to admit should involve both the Consultant caring for the patient on the ward and the Consultant in critical care.

Transfer/Step-down from Critical Care

After the decision to transfer a patient from a critical care area to the general ward has been made, he or she should be transferred as early as possible during the day. Transfer from critical care areas to the general ward between 19.30 and 07.30 should be avoided whenever possible, and should be documented as an adverse incident if it occurs.

The critical care area transferring team and the receiving ward team should take shared responsibility for the care of the patient being transferred. They should jointly ensure:

- there is continuity of care through a formal structured handover of care from critical care area staff to ward staff (including both medical and nursing staff),

- there is a written plan that the receiving ward, with support from critical care if required, can deliver the agreed plan. (Transfer/ Step down from Critical Care guidelines can be viewed on the intranet)

SBAR – A structured process for communication

To improve communication, reduce errors and to ensure a consistent approach, all healthcare professionals are to use the same process for patient-related clinical communication. The SBAR structure is to be used for communication such as nursing and medical handovers, inter-speciality referrals and when calling someone with concern over a deteriorating patient. (see appendix)

Clinical Support

The Critical Care Outreach service operates from **7.30pm to 8am,** 7 days a week. Out-of -hours Nurse Practitioners are available at night to support ward staff. “At risk” patients are handed over between these teams at the commencement of each shift.

The service is available to all staff in all wards and departments who may find they are caring for “at risk” patients. The service applies to all adult areas only.
At Worcester Royal Hospital, the Outreach Team can be contacted on **ext 39555 or bleep 421/422**

At the Alexandra Hospital, Outreach can be contacted on **ext 44233 or bleep 0216/0217**

Out of Hours Practitioner Nurses Bleep 7.30pm-8am **Worcester: 103/104** **Alex: 0932**

RECOGNITION OF AND RESPONSE TO ACUTE ILLNESS IN ADULTS IN HOSPITAL

Patient in acute hospital setting:
- at the time of admission to the ward
- in the emergency department
- after a decision to admit has been made
- transferred to a general ward from a critical care area

Initial assessment
- Record at least:
  - heart rate
  - respiratory rate
  - systolic blood pressure
  - level of consciousness
  - oxygen saturation
  - inspired oxygen
  - temperature
  - NEWS
- Write a clear monitoring plan specifying the physiological observations to be recorded and how often. Take into account:
  - diagnosis
  - comorbidities

Routine Monitoring
- Monitor physiological observations at least every 12 hours, unless decided at a senior level to increase or decrease the frequency for an individual patient.
- Use National Early Warning Score (NEWS2)

Consider monitoring:
- biochemistry (for example, lactate, blood glucose, base deficit, arterial pH)
- hourly urine output

PATIENT AT RISK OF DETERIORATION
Follow graded response strategy as NEWS

Low score 1 – 4
Minimum of 4-6 hourly monitoring
Registered Nurse must assess the patient and consider increased frequency of monitoring and/or escalation of clinical care

Medium score 5 – 7 or 3 in a single parameter
Increase frequency of observations to 1 hourly
Registered Nurse to urgently inform the medical team
Urgent assessment by a clinician with core competencies to assess the acutely ill patient
Clinical care in an environment with monitoring facilities

High score 7 and above
Continuous monitoring of vital signs
Registered Nurse to inform Specialist Registrar
Emergency assessment by a clinical team with critical care competencies
Consider transfer of clinical care to level 2 or 3

Initiate appropriate interventions.
- Assess response.
- Formulate a management plan, including location and level of care

Admission to a critical care area
The decision to admit should involve both the Patient's Consultant and the Consultant in ICU

Transfers from a critical care area
Transfers to general wards should be as early in the day as possible
- Avoid transfers between 22.00 and 07.00 wherever possible
- Document as an adverse incident if they occur outside of these times
- The critical care and ward teams have shared responsibility for the patient's care
- A formal structured handover should be used (including both medical and nursing staff), supported by a written plan, to ensure continuity of care

Affix Patient Label here or record

NAME: . . . . . .

NHS NO:

HOSP NO:

D.O.B: D D / M M / Y Y Y Y MALE ☐ FEMALE ☐

NEWS 2

National Early Warning Score

NHS
Worcestershire
Acute Hospitals
NHS Trust

	DATE															
	TIME															
A+B Respirations Breaths/min	≥25								3							
	21–24								2							
	18–20															
	15–17															
	12–14															
	9–11								1							
	≤8								3							
A+B SpO_2 Scale 1 Oxygen saturation (%)	≥96															
	94–95								1							
	92–93								2							
	≤91								3							
SpO_2 Scale 2† Oxygen saturation (%) Use Scale 2 if target range is 88–92%, eg in hypercapnic respiratory failure †ONLY use Scale 2 under the direction of a qualified clinician	≥97 on O_2								3							
	95–96 on O_2								2							
	93–94 on O_2								1							
	≥93 on air															
	88–92															
	86–87								1							
	84–85								2							
	≤83%								3							
Air or oxygen?	A=Air															
	O_2 L/Min								2							
	Device															
C Blood Pressure mmHg Score uses systolic BP only	≥220								3							
	201-219															
	181-200															
	161-180															
	141-160															
	121-140															
	111-120															
	101-110								1							
	91-100								2							
	81-90															
	71-80															
	61-70								3							
	51-60															
	≤50															
C Pulse Beats/min	≥131								3							
	121-130								2							
	111-120															
	101-110								1							
	91-100															
	81-90															
	71-80															
	61-70															
	51-60															
	41-50								1							
	31-40								3							
	≤30															
D Consciousness Score for NEW onset of confusion (no score if chronic)	Alert															
	Confusion								3							
	V															
	P															
	U															
E Temperature °C	≥39.1°								2							
	38.1-39.0°								1							
	37.1-38.0°															
	36.1-37.0°															
	35.1-36.0°								1							
	≤35.0°								3							
NEWS TOTAL																
Urine output >/<																
Monitoring frequency																
Escalation of care Y/N																
Initials																

Situation Background Assessment Recommendation

PF WR5044 NEWS 2 National Early Warning Score Version 2 Page 1 of 2

Affix Patient Label here or record

NAME: . . . . . .

NHS NO:

HOSP NO:

D.O.B: D D / M M / Y Y Y Y MALE ☐ FEMALE ☐

WARD:.....CONS:.....

NEW Score	Frequency of monitoring	Clinical response
0	Minimum 12 hourly	• Continue routine NEWS monitoring
Total 1-4	Minimum 4-6 hourly	• Inform registered nurse, who must assess the patient • Registered nurse decides whether increased frequency of monitoring and/or escalation of care is required
3 in single parameter	Minimum 1 hourly	• Registered nurse to inform medical team caring for the patient, who will review and decide whether escalation of care is necessary
Total 5 or more Urgent response threshold	Minimum 1 hourly	• Registered nurse to immediately inform the medical team caring for the patient • Registered nurse to request urgent assessment by a clinician or team with core competencies in the care of acutely ill patients • Provide clinical care in an environment with monitoring facilities
If NEWS is 5 or more use Sepsis Screening Tool. Rescreen in 24hours if no improvement or condition changes.		
Date screened:	Date screened:	Date screened:
Total 7 or more Emergency response threshold	Continuous monitoring of vital signs	• Registered nurse to immediately inform the medical team caring for the patient - this should be at least at specialist registrar level • Emergency assessment by a team with critical care competancies, including practitioner(s) with advanced airway management skills • Consider transfer of care to a level 2 or 3 clinical care facility, ie higher-dependency unit or ICU • Clinical care in an environment with monitoring facilities

Codes for recording oxygen delivery on the NEWS2 observations chart	
A (Breathing air)	**NRB** (Non Re-Breath Mask)
N (Nasal cannula)	**TM** (Tracheostomy mask) eg. TM28
SM (Simple mask)	**CP** (CPAP mask) eg. CP35
V (Venturi mask and percentage) eg. V24, V28, V35, V40, V80	**H** (Humidified oxygen and percentage) eg. H28, H35, H40, H60
NIV (Patient on NIV system)	**OTH** (Other, specify _____)

Situation Background Assessment Recommendation

PF WR5044 NEWS 2 National Early Warning Score Version 2 Page 2 of 2

Appendix 2

S	**SITUATION:** I am (name), (X) a nurse on ward (X) I am calling about (patient X) I am calling because I am concerned that..... (e.g. BP is low/high, pulse is XX, temperature is XX, Early Warning Score is XX)
B	**BACKGROUND:** Patient (X) was admitted on (XX date) with (e.g. MI / chest infection) They have had (X operation/procedure/investigation) Patient (X)'s condition have changed in the last (XX mins) Their last set of obs were (XX) Patient (X)'s normal condition is..... (E.G. alert/drowsy/ confused, pain free)
A	**ASSESSMENT:** I think the problem is (XXX) and I have ..... (e.g. given O2 / analgesia, stopped the infusion) OR I am not sure what the problem is but patient (X) is deteriorating OR I don't know what's wrong but I am really worried
R	**RECOMMENDATIONS:** I need you to..... Come to see the patient in the next (XXmins) AND Is there anything I need to do in the meantime? (e.g. stop the fluids/repeat the obs)

Ask receiver to repeat key information to ensure understanding

Worcestershire NHS
Acute Hospitals NHS Trust

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