The National Early Warning Score (NEWS) National Clinical Guideline has been updated and revised by the Irish National Early Warning System (INEWS) Guideline Development Group (GDG) under the auspices of the HSE National Deteriorating Patient Recognition and Response Improvement Programme (DPIP).

Using this summary National Clinical Guideline

This summary should be read in conjuncti  on with the full version NCEC NCG, the full version is available at: https://www.gov.ie/en/collection/c9fa9a-national-clinical-guidelines/. The complete list of references and appendices can be found in the full version. Only relevant appendices are in this summary.

Disclaimer

NCEC National Clinical Guidelines do not replace professional judgment on particular cases, whereby the clinician or health professional decides that individual guideline recommendations are not appropriate in the circumstances presented by an individual patient, or whereby an individual patient declines a recommendation as a course of action in their care or treatment plan. In these circumstances the decision not to follow a recommendation should be appropriately recorded in the patient’s healthcare record.

Users of NCEC National Clinical Guidelines must ensure they have the current version (hardcopy or softcopy) by checking the relevant section in the National Patient Safety Office on the Department of Health website: https://www.gov.ie/en/collection/c9fa9a-national-clinical-guidelines/

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Membership of the Guideline Development Group (GDG)

The GDG was co-chaired by Dr Miriam Bell, Project Lead, Guideline Revision, National Deteriorating Patient Recognition and Response Improvement Programme (DPIP) and Mr Richard Walsh, Director of Nursing National Acute Medicine Programme. This National Clinical Guideline is supported by the Health Service Executive Clinical Design and Innovation; Acute Operations Division; Office of the Nursing and Midwifery Services Director; National Quality Improvement Team; Quality Assurance and Verification; and by the National Clinical Programmes for Sepsis, Acute Medicine, Surgery, Emergency Medicine, Critical Care, COPD and Paediatrics.

Membership nominations were sought from a variety of clinical and non-clinical backgrounds to ensure representativeness of all key stakeholders within the acute setting sector. GDG members included those involved in nursing, medical, and health and social care clinical practice, education, administration, research methodology, relevant national clinical programmes and three persons representing patients and the public (Table 1). GDG Terms of Reference can be seen in Appendix 1. DPIP Steering Group provided oversight (Appendix 2). Additional clinical input was sought through focus groups with non-consultant hospital doctors and through the establishment of a Consultant Advisory Group (CAG) to advise on key clinical issues which emerged as a result of the guideline revision process. CAG membership and letter of invitation from Chief Clinical Officer can be seen in Appendices 3 and 4 respectively.

Table 1: INews GDG membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Job title and affiliation</th>
</tr>
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<tbody>
<tr>
<td>Miriam Bell (Co-Chair)</td>
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<td>Director of Nursing, National Acute Medicine Programme</td>
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<td>Critical Care Outreach, Tallaght University Hospital, Dublin</td>
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<td>Nurse Practice Development Department, South Infirmary Victoria University Hospital, Cork</td>
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<td>Nurse Lead, National Clinical Programme Critical Care</td>
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<td>Advanced Nurse Practitioner, Critical Care, University College Hospital Galway</td>
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<td>Regional Librarian, HSE South</td>
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<tr>
<td>Rosemary Kratschmar</td>
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<tr>
<td>Moira Skelly</td>
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<td>Damien Douglas</td>
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<td>Deirdre Staunton</td>
<td>Resuscitation Training Officer, Sligo University Hospital</td>
</tr>
<tr>
<td>Liz Casey</td>
<td>Resuscitation and EWS Training Officer, Sepsis Nurse Lead, Mayo University Hospital</td>
</tr>
<tr>
<td>Name</td>
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<tr>
<td>Joe Fahy</td>
<td>Resuscitation Training Officer, NEWS, PEWS and Sepsis Nurse Lead,</td>
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<td></td>
<td>University Hospital Ballinasloe</td>
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<tr>
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<td>Resuscitation Officer and NEWS, PEWS, IMEWS, Sepsis Nurse Lead,</td>
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<td>Clinical Nurse Manager 2, Trauma and Orthopaedics, Tallaght University</td>
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<td>NCHD (Registrar), St. James’s University Hospital, Dublin</td>
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<td>Group Sepsis Lead, University of Limerick Hospital Group</td>
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<tr>
<td>Peter O’Toole</td>
<td>Advanced Nurse Practitioner, National Clinical Programme, COPD</td>
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<tr>
<td>Emma Gorman</td>
<td>Clinical Specialist Physiotherapist, Critical Care, Mater Misericordiae</td>
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<td></td>
<td>University Hospital, Dublin</td>
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<tr>
<td>Serena Brophy</td>
<td>Project Lead, Service Improvement, DPIP</td>
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<tr>
<td>Irene Regan</td>
<td>Chief Medical Scientist, Children’s Health Ireland at Crumlin</td>
</tr>
<tr>
<td>Ciara Hughes</td>
<td>Programme Manager, DPIP &amp; Sepsis</td>
</tr>
<tr>
<td>Ronan O’Cathasaigh</td>
<td>Project Lead, Education, DPIP</td>
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What’s new in INEWS V2? Summary of changes

The Irish National Early Warning System (INEWS) now refers to an early warning system rather than an early warning score as in the original NEWS (2013). This is a major change where the focus is on ensuring a whole system response is in place to anticipate, recognise, escalate, respond and evaluate the clinically deteriorating adult patient. The INEWS whole system response involves situation awareness, a bedside track and trigger tool (INEWS observation chart) as an adjunct to clinician anticipation of deterioration, an escalation protocol (outlined on INEWS observation chart) an appropriate tiered clinician response (outlined in local INEWS implementation policy) and over-arching governance to include after action review, audit and improvement cycles (governance according to local appropriate Clinical Governance Committee).

The word ‘Irish’ has been added to the guideline title, making it the Irish National Early Warning System or INEWS to distinguish between the different systems in use in Ireland and the United Kingdom.

Changes to INEWS recommendations

Recommendations have been reduced from 60 in NEWS (2013) to 43 in INEWS V2 (2020). While some recommendations have been retained others are new thus recommendation numbers are different in this second version of NCG No. 1. The INEWS V2 recommendations can be seen in full in Section 1.1.

Changes in Domain 1 - Measurement and documentation of vital signs and other observations

Recommendation 1: This recommendation has been included to emphasise the role of clinical judgement in the anticipation, recognition, escalation, response and evaluation of patient deterioration.

Recommendation 4: ‘New confusion/altered mental status/delirium’ has been added to the neurological assessment tool to highlight that this can be an important sign of early deterioration. AVPU thus changes to ACVPU on the INEWS observation chart.

Recommendation 5: The frequency of monitoring of observations following admission has been increased to 6-hourly from 12 hourly for the first 24 hours following admission in acknowledgement of the vulnerability of patients in the ‘acute’ phase of illness in the 24 hours following admission.

Recommendation 6: This recommendation is aligned to Recommendation 1 and emphasizes the role of clinical judgement when using INEWS.

Recommendation 7: The Consultant Advisory Group (CAG) deliberated over this recommendation given the feedback received through focus groups, audit etc. As a result, the decision was made not to permit parameter adjustment or INEWS score adjustment as this moves away from the evidence-based INEWS and effectively removes a patient from an early warning system (see Recommendations 16a and 16b).

Changes in Domain 2 - Escalation of Care

Recommendation 11: The GDG and CAG decided to allow for a brief period of deferred escalation of care by registered nursing staff in situations where the cause of vital sign derangement is obvious and easily remedied. This highlights the role of clinical judgement when using INEWS (see Recommendations 1 and 6).
Changes in Domain 3 - Response Systems

**Recommendations 16a and 16b:** In acknowledgement of the vulnerability of patients in the 24 hours following admission the CAG recommended that the INEWS Escalation and Response Protocol should not be modified within the first 24 hours following admission. After 24 hours the INEWS Escalation and Response Protocol may be amended by a Registrar or Consultant and documented on the INEWS observation chart as a modified *INEWS Escalation and Response Protocol* (see Recommendation 7).

**Recommendation 17:** The modified INEWS Escalation and Response Protocol should be reviewed every 24 hours by a Registrar or Consultant to ensure it remains applicable and appropriate to the patient’s clinical condition.

**Recommendation 18:** This recommendation details the minimum information the modified INEWS Escalation and Response Protocol should contain.

**Recommendation 19:** The strength of this recommendation is conditional in acknowledgment of the fact that, while some hospitals already have designated response teams, for example doctor or Advanced Nurse Practitioner response teams, it will take some time for this to become standard practice across all acute settings.

**Recommendation 20:** As the CAG has endorsed a 3-tiered response model it is essential that the Executive Management Team/Board in each hospital details their hospital’s current response system and progresses towards establishing a comprehensive 3-tiered response model as recommended in INEWS V2.

Changes in Domain 4 - Clinical Communication

**Recommendation 25:** The CAG advocates the introduction of Safety Huddles to promote anticipatory care and situation awareness amongst staff to enable the early identification of patients who may be at risk of deterioration (see Recommendation 33). Situation awareness ‘Cues for Caution’ are included on the INEWS patient observation chart.

**Recommendation 26:** While clear documentation and communication is always required following clinical review a distinction is drawn between a normal medical plan of care and a *modified INEWS Escalation and Response Protocol*. The *modified* INEWS Escalation and Response Protocol is specific to a Registrar or Consultant decision to modify the standard INEWS Escalation and Response Protocol outlined on the INEWS observation chart for those patients whose baseline observations may fall outside of normal INEWS parameter ranges (see Recommendations 7, 16a and 16b).

Changes in Domain 5 - Leadership and Governance

**Recommendation 28:** Clinical leadership at Consultant level is necessary for the sustained implementation and improvement of the INEWS; this person will require protected time to carry out this function.

**Recommendation 29:** There is natural alignment between a number of patient safety systems, for example, INEWS, PEWS, IMEWS, EMEWS, along with sepsis, cardiac arrest and clinical audit. It is recommended that where possible hospital management seeks to integrate governance of these systems.
Changes in Domain 6 - Education

**Recommendation 34:** It is recommended that education and training in the use of the INEWS should be a mandatory requirement for relevant healthcare professionals.

**Recommendation 37:** It is acknowledged that as the 3-tiered response model evolves focused education and training programmes may be required for urgent and emergency tier responders.

Changes in Domain 7 - Evaluation, Audit and Feedback

**Recommendation 39:** It is essential that findings from INEWS and clinical outcome audits e.g. in-hospital unanticipated cardiorespiratory arrest are communicated to senior management and frontline staff and acted upon.

**Recommendation 41:** At national level the HSE has a responsibility to drive the clinical audit agenda in relation to the deteriorating patient in the acute setting.

Changes in Domain 8 - Systems to Support High Quality Healthcare

**Recommendation 43:** To support frontline staff in the implementation and ongoing improvement of INEWS the move towards digital early warning systems should be progressed.
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Glossary of terms and abbreviations

Definitions within the context of this document

Ceiling of Care: Limit of care. The aim is to provide guidance to staff so that there is clarity about a patient’s previously expressed wishes and/or limitations to their treatment. It may need review from time to time in line with the organisation’s guidelines and the wishes of the patient/family/carer as appropriate.

Clinician: A registered nursing, medical or health and social care professional.

Confusion (new): New onset confusion, acutely altered mental status or delirium. Confusion considered ‘new’ until proven otherwise.

Digital INEWS: An IT system which incorporates the track and trigger, escalation and alert elements of the INEWS.

Escalation of Care: the point at which a clinician successfully contacts/calls for a more senior clinical review - nursing or medical - of a patient.

Escalation threshold: the point at which medical review of the patient is required.

EWS: Early Warning System

EWSs: Early Warning Systems

Irish National Early Warning System (INEWS): a system which incorporates anticipation of deterioration, recognition, escalation, response and governance.

INEWSS - INEWS score: The INEWS score is a product of the aggregated weight assigned to each of seven physiological parameters. The INEWS score is captured on the INEWS observations chart, a track and trigger tool which is an adjunct to clinical judgement for the purpose of assisting the identification of the acutely unwell patient.

INEWS Escalation and Response Protocol: the predetermined escalation and response to INEWS triggers as outlined in the national INEWS Observation chart.

(Modified) INEWS Escalation and Response Protocol: In some circumstances a Registrar or Consultant may decide that a patient’s baseline observations fall outside of the normal INEWS physiological parameter ranges. In this instance a modified INEWS Escalation and Response Protocol is documented on the INEWS observation chart which outlines the rationale for alteration of escalation and response for this patient; the timeframe in which the alteration is to be reviewed; and any additional pertinent information about further actions and/or escalation for this particular patient. A patient’s INEWS score or the INEWS physiological parameter ranges must not be altered.

Must: The use of ‘must’ indicates an absolute duty to comply with a principle. It commands the action a clinical staff member (doctor, nurse, health and social care professional) is obliged to take from which no deviation is allowed.
**Nursing Scope of Practice:** the range of roles, functions, responsibilities and activities which a registered nurse...is educated, competent and has authority to perform.

**Physiological parameters:** INEWS uses seven parameters (six physiological parameters plus a weighting for supplemental oxygen) to quantify the severity of acute illness.

**Physiological parameter ranges:** INEWS uses the ViEWS physiological parameter ranges. Normal ranges for each physiological parameter are detailed in the INEWS physiological parameter scoring key and on the INEWS observation chart. If a patient’s observations fall within these normal ranges, they score ‘0’ for each parameter, thus, a patient’s INEWS score is ‘0’. When a patient’s observations fall outside of the normal parameter ranges, they score 1, 2 or 3 for each affected parameter depending on the level of derangement. The scores for each of the seven parameters are then added to give a patient’s INEWS score.

**Safety huddle:** Safety huddles are brief and routine meetings for sharing information about potential or existing safety problems facing patients or workers. They increase safety awareness among front-line staff, allow for teams to develop action plans to address identified safety issues, and foster a culture of safety. Situation awareness ‘cues for caution’ are included on the INEWS patient observation chart to guide this practice.

**Should:** The use of ‘should’ indicates a strong recommendation to perform a particular action from which deviation in particular circumstances must be justified; clinical judgement is used.

**Situation awareness (SA):** ‘knowing what is going on’. SA is a system which originated in high reliability organisations such as nuclear power and commercial aviation which deal with constant and catastrophic risk yet maintain exemplary safety records. Situation awareness ‘cues for caution’ are included on the INEWS patient observation chart.

**Unanticipated Cardiopulmonary Arrest:** a cardiac or respiratory arrest in the absence of a ‘Do Not Attempt Cardiopulmonary Resuscitation (DNACPR)’ order.
### Abbreviations

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<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tr>
<td>ACVPU</td>
<td>Alert, Confusion, Voice, Pain, Unresponsive</td>
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<td>BIA</td>
<td>Budget Impact Analysis</td>
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<td>BIU</td>
<td>Business Information Unit</td>
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<td>BP</td>
<td>Blood pressure</td>
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<td>CAG</td>
<td>Consultant Advisory Group</td>
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<td>CCO</td>
<td>Chief Clinical Officer</td>
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<td>CEO</td>
<td>Chief Executive Officer</td>
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<td>CPA</td>
<td>Cardiopulmonary arrest</td>
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<td>DOH</td>
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<td>DPIP</td>
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<td>EOLC</td>
<td>End of Life Care</td>
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<td>EMEWS</td>
<td>Emergency Medicine Early Warning System</td>
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<td>EWS(s)</td>
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<td>GDG</td>
<td>Guideline Development Group</td>
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<td>GRADE</td>
<td>Grading of Recommendations Assessment, Development and Evaluation</td>
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<td>HCA</td>
<td>Health Care Assistant</td>
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<td>HDU</td>
<td>High Dependency Unit</td>
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<td>HIPE</td>
<td>Hospital In-Patient Enquiry System</td>
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<td>Health Information and Quality Authority</td>
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<td>Hospital Length of Stay</td>
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<td>HRB-CICER</td>
<td>Health Research Board – Collaboration in Ireland for Clinical Effectiveness Reviews</td>
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<td>Intensive Care Unit</td>
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<td>IMEWS</td>
<td>Irish Maternity Early Warning System</td>
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<td>INEWS</td>
<td>Irish National Early Warning System</td>
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<td>INEWSS</td>
<td>Irish National Early Warning System Score</td>
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<td>ISBAR</td>
<td>Identify, Situation, Background, Assessment, Recommendation</td>
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<td>ITU</td>
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<td>KPI</td>
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<td>NMBI</td>
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<td>NMPDU</td>
<td>Nursing and Midwifery Planning and Development Unit</td>
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<td>Abbreviation</td>
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<td>NOCA</td>
<td>National Office for Clinical Audit</td>
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<td>National Quality Assurance Information System</td>
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<td>ONMSD</td>
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<td>PEWS</td>
<td>Paediatric Early Warning System</td>
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<td>QAV</td>
<td>Quality Assurance and Verification (Division HSE)</td>
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<td>Quality Improvement</td>
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<td>Rapid Response Team</td>
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<td>SA</td>
<td>Situation awareness</td>
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<td>Serious Adverse Event</td>
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<td>TYC</td>
<td>Test Your Care</td>
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<td>ViEWS</td>
<td>VitalPac Early Warning System</td>
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1 National Clinical Guideline summary

1.1 Summary of recommendations

Measurement and documentation of vital signs and other observations

**Recommendation 1**
INEWS is an adjunct to complement clinical judgement. It is designed to aid clinical decision-making. It does not replace clinician judgement.

Certainty of evidence: ☑️ ☑️ ☑️
Strength of recommendation: **Strong**
Responsibility for implementation: **Doctors, nurses and health and social care professionals.**

**Recommendation 2**
Observations must be recorded and documented in the INEWS patient observation chart (hard copy or digital) for all patients admitted to an acute setting at the time of admission or initial assessment.

Certainty of evidence: ☑️ ☑️ ☑️
Strength of recommendation: **Strong**
Responsibility for implementation: **Doctors, nurses, health and social care professionals and healthcare assistants.**

**Recommendation 3**
A full set of INEWS observations should be undertaken and documented on the INEWS chart when a patient is transferred between areas within a hospital or on discharge from a higher level of care (HLOC), ED or Theatre Recovery Room and again on arrival to the ward.

Certainty of evidence: ☑️ ☑️ ☑️
Strength of recommendation: **Strong**
Responsibility for implementation: **Doctors, nurses, health and social care professionals and healthcare assistants.**
**Recommendation 4**

The INEWS physiological observations are:

- Respiratory rate
- Oxygen saturation (SpO2)
- Room air or supplemental oxygen (a score of ‘3’ is added for ‘any O2’)
- Heart rate
- Blood pressure
- Level of consciousness - ACVPU (C=new confusion/altered mental status/delirium)
- Temperature.

A full set of INEWS physiological observations should be recorded on all occasions.

Certainty of evidence: ☐☐☐☐

Strength of recommendation: **Strong**

Responsibility for implementation: **Doctors, nurses, health and social care professionals and healthcare assistants.**

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**Recommendation 5**

In the acute setting the minimum standard for the assessment of observations is every six hours for the first 24 hours following admission and a minimum of every 12 hours monitoring thereafter if the patient’s clinical condition dictates. For every patient the frequency of monitoring of observations should be consistent with the clinical situation and history of the patient.

Certainty of evidence: ☐☐☐☐

Strength of recommendation: **Strong**

Responsibility for implementation: **Doctors, nurses, health and social care professionals and healthcare assistants.**

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**Recommendation 6**

The INEWS Escalation and Response Protocol provides guidance on suggested frequency of monitoring of vital signs relevant to the patient’s INEWS score. The need for more or less frequent monitoring should be determined by a registered nurse or doctor and documented.

Certainty of evidence: ☐☐☐☐

Strength of recommendation: **Strong**

Responsibility for implementation: **Doctors and nurses.**

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**Recommendation 7**

A patient’s INEWS score or the INEWS physiological parameter ranges **must not** be altered.

Certainty of evidence: ☐☐☐☐

Strength of recommendation: **Strong**

Responsibility for implementation: **Doctors, nurses, health and social care professionals and healthcare assistants.**
Recommendation 8
The patient’s INEWS chart (hard copy or digital) should display physiological information in the form of a trend graph. The INEWS includes:

- A system for tracking changes in physiological parameters over time
- Thresholds for each physiological parameter or combination of parameters that may indicate possible deterioration in patient condition
- Information about the responses or action required as per the INEWS Escalation and Response protocol
- Information about the responses or action required as per Sepsis escalation protocol
- A section for documentation of modified INEWS Escalation and Response Protocol if used
- A section for documentation of Deferred Escalation (Nursing) if used
- Cues for Caution
- ISBAR communication tool.

Certainty of evidence: ☒☒☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses, health and social care professionals, hospital managers, clinical directors, practice development and Quality & Patient Safety Leads.

Recommendation 9
There are patients for whom the recording of data for the INEWS may be inappropriate such as during end of life care where death is anticipated. In these circumstances, clinical teams may decide that modifications to the usual observations monitoring frequency and escalation protocol are appropriate. Such decisions should be discussed with the patient/family/carer and documented as a modified INEWS Escalation and Response Protocol on the INEWS observations chart and in the patient’s healthcare record.

Certainty of evidence: ☒☒☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses and health and social care professionals.

Escalation of Care

Recommendation 10
The INEWS Escalation and Response Protocol should be followed in the event of an INEWS trigger.

Certainty of evidence: ☒☒☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses, health and social care professionals, hospital managers, clinical directors and Quality & Patient Safety Leads.
**Recommendation 11**
A registered nurse, using their clinical judgement and working within their scope of professional practice, may decide against immediate escalation as outlined in the INEWS Escalation and Response Protocol when they believe that immediate simple measures are likely to reduce the INEWS score over a short period of observation, within or up to a maximum period of 30 minutes. The rationale for the decision not to escalate care should be explicitly documented on the INEWS observation chart and/or nursing record. If the INEWS score does not improve escalation should occur as per protocol.

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: **Strong**
Responsibility for implementation: *Nurses, nurse managers and practice development.*

**Recommendation 12**
In a case where infection (or sepsis) is suspected as the cause of deterioration the Sepsis Clinical Decision Support Tool should be used for the identification, escalation and response to sepsis.

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: **Strong**
Responsibility for implementation: *Doctors, nurses, health and social care professionals and Quality & Patient Safety Leads.*

**Recommendation 13**
The INEWS Escalation and Response Protocol allows for the capacity to escalate care based only on the concern of the staff member at the bedside in the absence of other documented abnormal physiological measurements (‘staff member worried’ criterion).

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: **Strong**
Responsibility for implementation: *Doctors, nurses, health and social care professionals and healthcare assistants.*

**Recommendation 14**
Patient, family or carer concern is an important indicator for patient deterioration. The INEWS Escalation and Response Protocol allows for the concerns of the patient, family or carer to trigger clinical review (‘patient/family/carer concern’ criterion).

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: **Strong**
Responsibility for implementation: *Doctors, nurses, nurse managers, health and social care professionals, healthcare assistants, clinical directors and Quality & Patient Safety Leads.*
**Recommendation 15**
The needs and wishes of patients on End-of-Life-Care Pathways and/or where treatment-limiting decisions (ceilings of care) have been made and documented should be considered when escalating care.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses and health and social care professionals.

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**Response Systems**

**Recommendation 16a**
For the first 24 hours following admission the frequency of observations and the standard INEWS Escalation and Response Protocol should not be altered.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses and health and social care professionals.

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**Recommendation 16b**
After 24 hours a Registrar or Consultant can modify the standard INEWS Escalation and Response Protocol based on a patient’s baseline, observations trend, clinical risk factors and INEWS score and document these modifications as a modified INEWS Escalation and Response Protocol on the INEWS observation chart.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors.

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**Recommendation 17**
The modified INEWS Escalation and Response Protocol should be reviewed by a Registrar or Consultant doctor every 24 hours and documented on the INEWS observation chart.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors.
Recommendation 18
A modified INEWS Escalation and Response Protocol will include at a minimum:

- Rationale for modification of escalation and response
- Timeframe for review of patient and modified response protocol (minimum 24 hourly review)
- Information about further action(s) and/or escalation.

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: Strong
Responsibility for implementation: Doctors.

Recommendation 19
A tiered response model is recommended. A tiered response model will encompass the following elements:

- **Bedside response** (INEWS scores of 0-2): nurse-led, ward-based response. An urgent response can be called for scores of 0-2 if there is clinician concern.
- **Urgent response** (INEWS scores of 3-6): response by a clinician or team with competence in the assessment and treatment of acutely ill patients e.g. primary medical practitioner/team or Advanced Nurse Practitioner service.
- **Emergency response** (INEWS scores of ≥ 7): as above in addition to staff with critical care competencies and diagnostic skills.

Escalation should occur for any patient with a score of 3 in any single parameter.

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: Conditional
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses and health and social care professionals.

Recommendation 20
The Executive Management Team/Board in each hospital should agree and document their standardised local tiered response model.

Certainty of evidence: ⬤⬤⬤⬤
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams and senior healthcare professionals.
Recommendation 21
Clinicians responding to the deteriorating patient should:

1. Be available to respond within agreed timeframes
2. Be able to assess a patient and provide a provisional diagnosis or differential diagnosis
3. Be able to undertake appropriate initial therapeutic intervention which may include mobilisation of specialist team
4. Be able to commence stabilisation and maintenance of a patient pending decisions on further management
5. Have authority to make transfer decisions and to access other care providers to deliver definitive care
6. As part of the Emergency Response tier there should be access at all times to at least one clinician who can practice advanced life support e.g. ACLS certified
7. In cases where patients need to be transferred to another acute setting to receive emergency care, appropriate care needs to be provided until such assistance is available as per local policy

Certainty of evidence: ☑️️️️
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses and health and social care professionals.

Recommendation 22
Events surrounding a call for assistance (time of call, response, plan of care and outcome) should be documented in the healthcare record. Records should be suitable for audit purposes as part of on-going quality improvement processes.

Certainty of evidence: ☑️️️️
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses, health and social care professionals, and Quality & Patient Safety Leads.

Recommendation 23
Clinicians providing response assistance should communicate with the primary medical practitioner/team or deputising team in an acute setting about the call for assistance, the response, the outcome and the future plan of care.

Certainty of evidence: ☑️️️️
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses and health and social care professionals.
Clinical Communication

Recommendation 24
The ISBAR clinical communication tool should be used when communicating information verbally and in writing between healthcare professionals. The ISBAR3 communication tool should be used for interdepartmental and shift handovers.

Where a patient’s condition and/or a situation is deemed to be critical, this should be clearly stated at the outset of the conversation.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses, health and social care professionals, healthcare assistants and Quality & Patient Safety Leads.

Recommendation 25
Safety huddles should be used as forums where staff/patient/family concerns can be raised and discussed.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses, health and social care professionals and Quality & Patient Safety Leads.

Recommendation 26
Following clinical review in response to escalation a plan of care should be clearly documented and verbally communicated.

If a Registrar or Consultant determines that a modified INEWS Escalation and Response Protocol is required it should be clearly documented on the INEWS observation chart and verbally communicated.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors.

Recommendation 27
In line with best practice and shared decision-making information about deterioration should be communicated to the patient family or carer in a timely and ongoing way and documented in the healthcare record in keeping with patient consent and confidentiality.

Certainty of evidence: ☐☐☐☐
Strength of recommendation: Strong
Responsibility for implementation: Doctors, nurses and health and social care professionals.
Leadership and Governance

Recommendation 28
Hospital management should designate a Consultant Lead and executive sponsor at senior management level with overall responsibility for the ongoing performance and improvement of the INEWS supported by a designated INEWS co-ordinator.

Certainty of evidence: ⭕⭕⭕⭕
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams and senior healthcare professionals.

Recommendation 29
A formal hospital-level governance committee should be established in each hospital which has direct access to the Hospital Clinical Governance Committee. Where possible this forum should seek to align governance for sepsis, cardiac arrest, resuscitation, INEWS, PEWS, IMEWS, EMEWS, Mortality & Morbidity, ICU admissions and discharges etc.

Certainty of evidence: ⭕⭕⭕⭕
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams and senior healthcare professionals.

Recommendation 30
The Governance Committee should oversee the ongoing performance and improvement of the anticipation, recognition, escalation, response and evaluation elements of the INEWS system locally. It should:
1. Have appropriate responsibilities delegated to it and be accountable for its decisions and actions.
2. Monitor the effectiveness of interventions and education.
3. Have a role in reviewing clinical outcome data and healthcare audits.
4. Provide advice about the allocation and prioritisation of resources.
5. Include service users, clinicians, managers and executives.
6. Develop quality improvement plans and report on progress.

Certainty of evidence: ⭕⭕⭕⭕
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, service users, and Quality & Patient Safety Leads.
**Recommendation 31**

A formal guideline/policy framework for the implementation of the INEWS National Clinical Guideline No. 1 should be in place and include issues such as:

1. Governance arrangements.
2. Roles and responsibilities.
3. Communication processes.
4. Safety huddles.
5. Resources for the Response System, such as staff and equipment.
6. Education and training requirements.
7. Evaluation, audit and feedback processes.
8. Arrangements with external organisations that may be part of a response system.
10. Patient and service user involvement.

Local planned variations to the INEWS Escalation and Response Protocol that might exist in different circumstances (such as for different times of day or at night) should be identified and documented.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, practice development, service users and Quality & Patient Safety Leads.

**Recommendation 32**

There should be appropriate policies and documentation regarding goals of care to include ‘Do Not Attempt Resuscitation’ decisions; treatment-limiting decisions (ceilings of care); and end-of-life decision making as they are critical in ensuring that the care delivered in response to deterioration is consistent with appropriate clinical practice and the patient’s expressed wishes.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, practice development, doctors, nurses and health and social care professionals.

**Recommendation 33**

Hospitals should support additional safety practices that enhance the INEWS. Incorporating briefings, safety pauses and huddles into practice can lead to greater situation awareness amongst clinicians and multi-disciplinary teams.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior managers, doctors, nurses, health and social care professionals and Quality & Patient Safety Leads.
Education

**Recommendation 34**
To improve knowledge, clinical performance and self-confidence in using INEWS it is recommended that INEWS education and training is mandatory for relevant healthcare professionals, that is, nurses, doctors and relevant HSCPs.

Certainty of evidence: ★★★★★
Strength of recommendation: **Strong**
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, practice development and education providers.

**Recommendation 35**
Clinical staff in all acute settings should complete INEWS education and training and maintain their knowledge and skills in INEWS. On induction to an organisation all medical, nursing, HSCPs and HCAs should become familiar with a hospital’s INEWS Escalation and Response Protocol.

Certainty of evidence: ★★★★★
Strength of recommendation: **Strong**
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, practice development and education providers.

**Recommendation 36**
Education and training on the use of the INEWS system should form part of undergraduate curricula in nursing, medical and health and social care professionals’ programmes. The Department of Health/National Patient Safety Office and the Health Service Executive should work with academic partners to progress this practice.

Certainty of evidence: ★★★★★
Strength of recommendation: **Strong**
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams and Higher Education Institute (HEIs) partners.

**Recommendation 37**
As response teams evolve consideration should be given to the development of education and training programmes focusing on relevant competencies and skills.

Certainty of evidence: ★★★★★
Strength of recommendation: **Strong**
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, senior healthcare professionals, HEI partners and continuing education providers.
Audit, evaluation and feedback

Recommendation 38
INEWS audit data should be collected and reviewed locally by interprofessional teams to inform improvement and patient outcomes.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals and Quality & Patient Safety Leads.

Recommendation 39
All audits should be reviewed by the relevant governance committee and findings escalated upwards to the Hospital Clinical Governance Committee/Hospital Senior Management Team and to all levels of staff where INEWS is used.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals and Quality & Patient Safety Leads.

Recommendation 40
INEWS implementation and sustainability should form part of the hospital’s patient safety and quality improvement strategy. It should be supported through the application of quality improvement methods, such as engagement strategies, testing and measurement to ensure successful implementation, sustainability and future progress.

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, Quality & Patient Safety Lead and service users.

Recommendation 41
INEWS improvement and sustainability should form part of the Health Service Executive’s patient safety and quality improvement strategy. It should be supported through the development and application of a national clinical audit of patient deterioration-related clinical outcomes (e.g. unanticipated cardiopulmonary arrest, unplanned admissions/readmissions to ICU).

Certainty of evidence: ★★★★★
Strength of recommendation: Strong
Recommendation 42
National and local health service organisations should seek opportunities to align their systems to support best practice and maximise patient safety. For example, aligning systems for end-of-life care with INEWS will help to ensure co-ordinated and effective care for patients whose condition is irreversibly deteriorating.

Certainty of evidence: ★★★★
Strength of recommendation: Strong
Responsibility for implementation: Hospital and Hospital Group Boards, Executive Management Teams, doctors, nurses, health and social care professionals, Quality & Patient Safety Leads, service users and Palliative Care.

Recommendation 43
A move towards a digital INEWS should be incorporated into service planning and development. These systems should enhance patient safety care processes and clinician/patient interaction.

Certainty of evidence: ★★★★
Strength of recommendation: Strong
Responsibility for implementation: Acute Operations HSE, Office of the Chief Information Officer HSE, Clinical Design & Innovation HSE, National Patient Safety Programme HSE, National Quality Improvement Team HSE, Hospital and Hospital Group Boards and Executive Management Teams.

Symbol | Quality rating
---|---
★★★★ | High
★★★ | Moderate
★★ | Low
★ | Very low

GRADE certainty of evidence symbol key
* See Section 2.8, Tables 3 and 4 for additional information
Development of the National Clinical Guideline

2.1 Background

Unanticipated cardiopulmonary/cardiorespiratory arrests (CRAs/CPAs) and unplanned admissions and readmissions to the Intensive Care Unit (ICU) in the adult non-pregnant in-patient in the acute setting are now referred to as serious adverse events (SAEs) in the international literature (Bunkenborg et al. 2014, DeMeester et al. 2013, Ludikhuize et al. 2014, Petersen et al. 2016, Simmes et al. 2013, Smith et al. 2012). Internationally it has been recognised that these events are no longer considered ‘the norm’, that is, an accepted outcome of hospitalisation, but instead are considered ‘harm’ events.

When a patient is admitted to hospital acutely unwell, or deteriorates while in hospital and becomes acutely unwell, time is critical in the prevention of irreversible deterioration and death. A system encompassing the anticipation, early recognition, escalation, competent clinical response and closed loop governance is necessary to assist clinicians in preventing irrevocable deterioration and death. A systematic review of the literature identified 47 different early warning systems (EWSs) in use internationally (HRB-CICER 2019). The National Early Warning System, based on the VitalPac EWS (ViEWS) is in use in Ireland since 2013.

Unanticipated cardiopulmonary arrest is defined as that which occurs in a patient in the ward environment where a Do Not Attempt Resuscitation order was not documented. Physiological abnormalities occur in the majority of these patients in the 12 to 24 hours prior to cardiorespiratory arrest, detectable by measurement of a patient’s vital signs. If detected and acted upon cardiorespiratory arrest and possible death may be prevented. Internationally, reported rates of unanticipated cardiorespiratory arrests per thousand discharges range between 3.54/1,000 discharges (Goncales et al 2012) in São Paulo, Brazil, 3.28/1,000 discharges (Beilter et al 2011) in Boston, Massachusetts and 3.1/1,000 discharges (Sebat et al. 2018) in California, USA. A death which occurs as an outcome of an unanticipated cardiorespiratory arrest is defined as a preventable death as failure of healthcare professionals to recognise patient deterioration contributed to the death.

In the four year period between 2015 and 2018 3,592 unanticipated cardiopulmonary arrests were recorded to have occurred in patients in the twenty-six Model 3 and Model 4 acute settings in Ireland. 44% (1,580) of these patients died. Events were captured on the HIPE system using NQAIS Clinical data. It is reasonable to assume that a proportion of these patients would have benefited from being on an end-of-life care (EOLC) pathway and thus should not be included in these numbers. However, a recent single-centre study conducted in a Model 4 hospital in Ireland demonstrated that not all unanticipated cardiopulmonary arrests are captured using HIPE coding and the true figure may be nearer to double the number of events recorded (Earls et al. 2019).

2.2 Clinical and financial impact of early warning systems

A systematic review of the literature was undertaken by the Health Research Board–Collaboration in Ireland for Clinical Effectiveness Reviews (HRB-CICER) to underpin the INEWS guideline update (Annex 1). Sixty-eight studies were identified which investigated the predictive ability of one or more early warning systems (HRB-CICER 2018). Studies included were those which used mortality, cardiac arrest, unplanned admission to ICU or length of stay as primary outcome measures. Relatively little high quality evidence emerged evaluating the predictive ability of NEWS. Included studies found a wide range of early warning system interventions, variation in the definitions of outcomes used from study to study, variation in study populations, low event rates and small study sizes. The content and grade of recommendations in the updated NCG No. 1 (INEWS)
therefore reflects the expert consensus opinion of the INEWS Guideline Development Group and INEWS Consultant Advisory Group alongside all available evidence (literature review, focus groups, audits, critical analyses reports etc).

While the NEWS system has been in use in acute settings in Ireland since 2013 no national data exists determining the clinical or financial impact of NEWS. The majority of hospitals collect data on in-hospital cardiopulmonary arrests; however, there is currently no minimum data set or central collation system of this data. A national clinical audit has not been undertaken in relation to the measurement of in-hospital unanticipated cardiopulmonary arrests. The absence of digital INEWS systems prevents large-scale research or audit. The DPIP explored HIPE data using NQAIS Clinical in the four year period between 2015 and 2018 and determined that 3,592 unanticipated cardiopulmonary arrests were recorded to have occurred in patients in the twenty-six Model 3 and Model 4 acute settings in Ireland. This provides a baseline from which to improve.

Many recommendations in this guideline represent existing good practice and are therefore cost neutral. Implementation is addressed in the Implementation Plan (Appendix 5) and the Budget Impact Analysis (Annex 2). It is not possible to estimate savings related to improved outcomes until a national evaluation of INEWS takes place to include economic impact. It is also important to note that inadequate monitoring, and subsequent failure to recognise patient deterioration, may increase financial costs associated with adverse outcomes and, in some cases, legal claims.

2.3 Rationale for this National Clinical Guideline

Acute physiological deterioration is a time-crucial medical emergency and failure to detect and treat patient deterioration in a timely manner poses a threat to patient safety, which may lead to adverse patient outcomes. Deterioration of a patient’s condition in hospital is frequently preceded by measurable physiological abnormalities. Regular measurement and documentation of physiological parameters is an essential requirement for recognising clinical deterioration. Early recognition of clinical deterioration, followed by prompt and effective action, can minimise the occurrence of adverse events such as cardiac arrest and may mean that a lower level of intervention is required to stabilise a patient.

Health care organisations adopt a multi-faceted approach including four main categories of interventions to detect and manage deteriorating patients more effectively (rapid response teams/medical emergency teams, early warning systems, education programmes for health care staff, and standardised approaches to patient handover). The overarching aim of these interventions is to facilitate early detection of deterioration by categorising an adult patient’s severity of illness and prompting escalation of care as appropriate.

Traditionally, early warning systems have come in two primary configurations: single parameter criteria and aggregated weighted scores. The former originated in Australia over two decades ago as a set of equally weighted abnormal physiologic thresholds, the presence of any of which would trigger the system. In contrast, aggregated weighted scoring systems, such as the Modified Early Warning Score (MEWS), which was developed in the UK, involve summing up points from multiple parameters based on the degree of derangement.

The National Early Warning System (NEWS), based on the VitalPac EWS (Prytherch et al. 2010), was the first National Clinical Effectiveness Committee (NCEC) National Clinical Guideline (NCG) commissioned and endorsed by the Minister for Health. It was published in February 2013 and a subsequent update to the guideline to include additional practical guidance specific to sepsis management was approved by the NCEC in August 2014. Subsequently, an updated systematic search of the literature specific to EWSs in adult patients was completed in 2015 by a team from University College Cork (UCC). Guideline revision
commenced in 2018 supported by a further updating of the systematic review of the literature (2015 to 2018), conducted by HRB-CICER; two additional clinical questions were included in this review. The evolution of early warning systems internationally was reflected in the breadth of the literature identified, appraised and included in this review update.

The INEWS facilitates the timely assessment of, and response to, the deterioration of acutely ill patients by:

- Classifying the severity of a patient’s illness
- Providing prompts and structured communications tools to escalate care
- Following a definitive escalation protocol
- Providing a clear, structured tiered response model.

To be effective INEWS must be supported by a robust system of clinical and organisational governance.

Patient’s physiological observations (blood pressure, pulse, respirations etc.) are routinely recorded in acute settings. With the INEWS, each of seven physiological parameters (respiratory rate, oxygen saturation, supplemental oxygen, heart rate, systolic blood pressure, level of consciousness, temperature) is allocated a numerical score from 0 to 3, on a colour coded observation chart (a score of ‘0’ represents the least risk and a score of ‘3’ represents the highest risk). Scores are then combined to give the patient’s INEWS score. The INEWS scoring key can be seen in Figure 1. The INEWS patient observation chart can be seen in Appendix 6. A graphical trend of physiological observations can be seen on the INEWS observation chart. Depending on the score, care can be escalated to senior medical staff as appropriate. The INEWS is a clinical assessment tool and does not replace the clinical judgement of a qualified health care professional. Where there are concerns regarding a patient’s condition, staff can escalate care based on clinical concern and should not hesitate in contacting a senior member of the patient’s medical team to review the patient, irrespective of an INEWS score (i.e. low or ‘no’ scores). Patient/family/carer concern is also an important indicator for patient deterioration and can initiate a trigger for clinical review.

Information on how to complete the INEWS patient observation chart can be seen in Appendix 7.

<table>
<thead>
<tr>
<th>Irish National Early Warning System (INEWS) Scoring Key</th>
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<tbody>
<tr>
<td><strong>SCORE</strong></td>
</tr>
<tr>
<td>Respiratory Rate (bpm)</td>
</tr>
<tr>
<td>SpO2 (%)</td>
</tr>
<tr>
<td>Inspired O2 (FiO2)</td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
</tr>
<tr>
<td>Heart Rate (BPM)</td>
</tr>
<tr>
<td>ACVPU/CNS Response</td>
</tr>
<tr>
<td>Temp (°C)</td>
</tr>
</tbody>
</table>

**Figure 1:** INEWS scoring key
On commencement of the revision of the NEWS (2013) guideline, and because the NEWS had been in use in the system for six years, a multidisciplinary focus group of NEWS users was held in October 2017 to capture what had worked to date and what needed improvement. Subsequently a number of focused workshops were held with medical interns and registrars. Nine key themes were identified through the focus group work. These themes facilitated the development of problem statements which guided the subsequent Root Cause Analysis. Key themes which emerged were

- Physiological parameter adjustment
- Escalation and documentation of escalation
  - Escalation response: systems and people
- Governance (leadership/audit/evaluation/feedback loop)
- Over-reliance on score versus clinical judgement
- EWS seen as nurse-led with little MDT engagement
- Communication/ISBAR
- Patient and family engagement
- Education

Further information can be found in the Focus Group summary report available on request from the DPIP team at dpip.1@hse.ie

Findings from the original focus group informed the additional two questions for the systematic review of the literature. These questions pertained to escalation of care and alternative early warning systems for sub-populations, for example, respiratory patients. Through the process of review of NEWS (2013) recommendations, international evidence, audit and focus group findings some key clinical issues emerged which required senior clinical input. As a result, a Consultant Advisory Group (CAG) was established by the Chief Clinical Officer (CCO) in the HSE. Recommendations in INEWS V2 reflect this senior clinical input. CAG membership can be seen in Appendix 3. Letter of invitation from CCO to CAG members can be seen in Appendix 4.

The revised NCG No. 1 INEWS V2 emphasises an anticipatory approach to the management of deterioration. This means highlighting the role of situation awareness in the detection of deterioration with a subsequent increased focus on those patients with low or ‘no’ INEWS scores. These patients are often the most vulnerable to unrecognised deterioration. Anticipatory care involves the use of situation awareness by staff, that is, ‘knowing what is going on’ for each patient so that the potential for deterioration can be detected and acted upon. To facilitate this approach situation awareness ‘cues for caution’ are included on the revised INEWS patient observation chart and include

- Patient’s with increasing O2 requirements to maintain SpO2 levels
- Patients located outside of specialist ward
- Patients receiving high-risk/unfamiliar therapies
- Communication concerns between healthcare professionals and/or between healthcare professionals and patients
- Nurse’s intuition/‘gut-feeling’.
2.4 Aim and objectives

The INEWS aims to provide guidance and evidence-based support to hospital executives, managers and healthcare professionals on best practice in providing safe, timely, effective and standardised care in the anticipation, recognition, escalation, response and governance of the acutely unwell non-pregnant adult patient (≥16 years) in the acute setting.

2.5 Guideline scope

The INEWS applies to the non-pregnant adult (≥ 16 years) patient in an acute setting, inclusive of Model 2, 3 and 4 hospitals. The INEWS does not apply to children or pregnant or post-partum women. Continuous monitoring and 1:1 surveillance in Intensive Care Units (ICU)/Therapy Units (ITU) precludes the need for the use of INEWS in these areas (see Recommendation 3 in relation to patient transfer to or from ICU/ITU. There is a move towards adopting INEWS in mental health settings to assist in the recognition and response to physiological deterioration in this patient cohort. The INEWS scoring key was used by healthcare professionals as a tool to assist clinical judgement and decision-making in the Community Assessment Hubs during the Covid19 pandemic.

Early detection of deterioration in children and pregnant women is identified by different physiological parameters and signs to those of adult patients admitted to acute settings. Two other early warning systems were developed specifically for these patient groups: the NCEC NCG No. 12 Paediatric Early Warning System (PEWS)(2016) to detect deterioration in paediatric patients and the NCEC NCG No. 4 Irish Maternity Early Warning System (IMEWS) V2 (2019) to detect deterioration in the pregnant woman. PEWS and IMEWS are currently in use in all paediatric and maternity services in Ireland. The NCEC NCG No. 18 Emergency Medicine Early Warning System (EMEWS)(2018) for use in the Emergency Department setting was published in 2019 and is being implemented nationally on a phased basis.

The National Clinical Guideline No. 1 INEWS V2 relates to the situation in an acute setting, where an adult patient’s physiological condition is deteriorating. The general provision of care in an acute setting is outside the scope of this document.

The National Clinical Guideline focuses on ensuring that a whole system response is in place to anticipate, recognise and respond to the clinically deteriorating patient. A whole system response involves creation of situation awareness, a bedside ‘track and trigger’ tool as an adjunct to clinician anticipation of deterioration, an escalation protocol, an appropriate tiered clinician response and over-arching governance to include after action review, audit and improvement cycles. This guideline outlines the clinical processes and the organisational leadership and governance required to implement the guideline.

The National Clinical Guideline No. 1 INEWS Version 2 applies to all adult non-pregnant patients (≥16 years) in acute settings. This includes:

- All inpatients at time of admission or on initial assessment
- Any outpatient/day service patients who attend acute settings for an invasive procedure or who receive sedation.
- All patients attending an Acute Assessment Unit (e.g. Medical or Surgical).
The National Clinical Guideline applies to healthcare professionals, doctors, nurses, physiotherapists and healthcare workers involved in the clinical care of patients and managers responsible for the development, implementation, review and audit of deteriorating patient recognition and response systems in individual hospitals or groups of hospitals. The National Clinical Guideline also applies to education and training support staff involved in the organisation and delivery of the education programme.

2.6 Conflict of interest statement

The INEWS guideline revision process followed the conflict of interest policy set out by the NCEC. All members of the INEWS GDG and the NCEC QA appraisal team were required to complete a Conflict of Interest declaration which was managed by the Project Lead and the CEU respectively. There were no conflicts of interest stated.

2.7 Sources of funding

No external funding was received for this project. The Deteriorating Patient Improvement Programme (DPIP) is funded by the HSE. The systematic review of the literature and the budget impact analysis (BIA) were funded by the Department of Health.

2.8 Guideline methodology

Reproduced below is an extract of the *Clinical effectiveness and Cost-effectiveness of the Irish National Early Warning System (INEWS): a systematic review update*. The full systematic review was written by the Health Research Board - Collaboration in Ireland for Clinical Effectiveness Reviews (HRB-CICER). The detailed search strategy can be seen in Appendix 8. See Annex 1 for the full systematic review.

**Step 1: Formulate the key questions**

The aim of the HRB-CICER systematic review was to update a systematic review of the clinical and economic literature on EWSs (also known as track and trigger systems) used in adult (non-pregnant) patients in acute health care settings for the detection or timely identification of clinical deterioration, with a particular focus on the NEWS. Any changes in the totality of the evidence on the NEWS for use in the assessment of adult patients in the acute health care setting will be used to inform the update of the NEWS NCG.

The proposed review questions for this update fell under the remit of two overarching categories as per the NCG:

1. CLINICAL PROCESSES
   - Measurement and documentation of observations
   - Escalation of care
   - Emergency Response Systems
   - Clinical communication
2. ORGANISATIONAL PROCESSES

- Organisational supports
- Education
- Evaluation, audit and feedback

The review questions were as follows:

Q1. What EWSs or track and trigger systems are currently in use for the detection or timely identification of physiological deterioration in adult (non-pregnant) patients in acute health care settings? In line with the previous review update, studies investigating the development and efficacy of various EWSs will be compared under the following categorisations:

- Type of EWS
- General acute patients or specific sub-populations
- Vital sign parameters recorded and weightings given to each vital sign
- Single-parameter EWS compared to aggregate EWS
- Evaluation of chart design (paper-based EWS compared to digital EWS)
- Implementation of EWSs and/or RRTs

Q2. How effective are the different EWSs in terms of improving key outcomes in adult (non-pregnant) patients in acute health care settings?

Primary Outcomes:

- Mortality
- Cardiac Arrest
- Length of stay (LOS)
- Transfer/admission to the Intensive Care Unit (ICU).

Secondary outcomes:

- Clinical deterioration in sub-populations
- Any other outcomes identified post-hoc.

Q3. What education programmes (e.g. COMPASS©, other) have been established to train health care professionals (HCPs) relating to the implementation of EWSs or track and trigger systems for the detection or timely identification of physiological deterioration in adult (non-pregnant) patients in acute health care settings?

3.1 How effective were the various education programmes?

Primary outcomes:

- Increase in knowledge and performance
- Effect on patient outcomes
- Improved patient rescue strategies.

Secondary outcomes:

- Improved documentation of patient observations
- Improved compliance
- Any other outcomes identified post-hoc.
Q4. What are the findings from the economic literature on cost-effectiveness, cost impact and resources involved with the implementation of EWSs or track and trigger systems for the detection or timely identification of physiological deterioration in adult (non-pregnant) patients in acute health care settings?

Review questions 1-4 are consistent with those set out in the previous searches which informed the NEWS guideline published in 2013, and a subsequent systematic review update in 2016. The purpose of this systematic review was to update the evidence for these four questions. A new search was conducted for the two additional new questions (5 and 6).

The new review questions are as follows:

Q5. Are modified EWSs (e.g. the Chronic Respiratory Early Warning Score [CREWS]) more effective than the NEWS for the detection or timely identification of physiological deterioration in the following adult sub-populations in acute health care settings?

- Frail older adults
- Patients with chronic respiratory conditions (including chronic hypoxia, chronic physiological abnormalities and chronic obstructive pulmonary disease [COPD]).

The NEWS is based on an EWS designed to maximise discrimination between patients at risk of adverse outcomes (death, cardiac arrest or unplanned ICU admission) and those not at risk of these outcomes. The aim of question 5 is to investigate whether modified EWSs (such as CREWS) can improve specificity and maintain sensitivity in specific sub-populations where NEWS has been shown to trigger false alarms.

Q6. Why do Healthcare Professionals (HCPs) fail to escalate as per the NEWS escalation protocol? The previous systematic review update conducted by UCC highlighted that HCPs were failing to escalate as per protocol and identified a number of barriers based on suggestions extracted from the literature. However, an in-depth understanding as to ‘why’ this is happening requires a qualitative approach to be included in this review update.

Step 2: Search methodology

Searches were conducted consistent with the search strategy developed by the research team involved in the previous review. Key terms and their variations were associated with the PICOS (Population/Patient/Problem, Intervention, Comparison, Outcome, Study design) framework which is applicable when addressing a clearly defined clinical question relevant to a defined population group and clinical context. Key terms included a combination of terms associated with “early warning scoring systems”. The search strategy is detailed in Appendix 8. A sample evidence table can be seen in Appendix 9. The economic literature search was based on the clinical literature search strategy with the addition of an economic filter for the Medline and EMBASE search (Appendix 10). The full literature review is available as Annex 1 at https://www.gov.ie/en/collection/c9fa9a-national-clinical-guidelines/

Step 3: Screen and appraise the evidence

Two reviewers independently assessed the methodological quality or risk of bias of included studies, using standardised critical appraisal instruments, with any disagreements resolved through discussion. Different study designs warranted different tools to assess methodological quality, thus a number of different instruments were used as appropriate (Table 2).
Table 2: Critical appraisal instruments

<table>
<thead>
<tr>
<th>Study category</th>
<th>Critical appraisal instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCTs</td>
<td>Cochrane Risk of bias tool[^23]</td>
</tr>
<tr>
<td>NRCTs, CBA studies, ITS studies</td>
<td>Risk of bias criteria for Cochrane EPOC reviews[^24]</td>
</tr>
<tr>
<td>Clinical practice guideline</td>
<td>AGREE II tool, ‘rigour of development’ domain (National Quality Assurance Criteria for Clinical Guidelines[^25])</td>
</tr>
<tr>
<td>Observational designs</td>
<td>Newcastle Ottawa Scale[^26]</td>
</tr>
<tr>
<td>Economic evaluations</td>
<td>1. CHEC-list for quality assessment[^27], 2. ISPOR to assess transferability[^28]</td>
</tr>
<tr>
<td>Development &amp; validation studies</td>
<td>The QUADAS 2 Tool[^29]</td>
</tr>
<tr>
<td>Qualitative studies</td>
<td>CASP[^30] Qualitative Checklist</td>
</tr>
</tbody>
</table>


The Newcastle Ottawa Scale quality appraisal tool was used for observational studies.

Step 4: Develop and grade the recommendations

Review Questions 1-5

Where appropriate, ‘Summary of findings’ (SOF) tables using the GRADEpro software were generated for the primary outcomes of each review question. The certainty of the evidence for each outcome was assessed using the GRADE approach (Table 3). We downgraded the evidence from high quality by one level for serious (or by two levels for very serious) limitations, depending on our assessments of the risk of bias, indirectness of evidence, serious inconsistency, imprecision of effect estimates, or potential publication bias. Evidence was graded as high, moderate, low or very low.

Table 3: Grading of the certainty of evidence for recommendations

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Quality rating</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐☐☐☐☐</td>
<td>High</td>
<td>Very confident that the true effect lies close to that of the estimate of the effect</td>
</tr>
<tr>
<td>☐☐☐☐</td>
<td>Moderate</td>
<td>Moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect but there is a possibility that it is substantially different</td>
</tr>
<tr>
<td>☐☐☐</td>
<td>Low</td>
<td>Our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect</td>
</tr>
<tr>
<td>☐☐</td>
<td>Very low</td>
<td>Very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of the effect</td>
</tr>
</tbody>
</table>
Review question 6

For qualitative studies, we used the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) approach to summarise our confidence in the evidence. Four components contribute to an assessment of confidence in the evidence for an individual review finding: methodological limitations, relevance, coherence, and adequacy of data. The CERQual components reflect similar concerns to the elements included in the GRADE approach for assessing the certainty of evidence on the effectiveness of interventions. However, CERQual considers these issues from a qualitative perspective. Confidence in the evidence was graded as high, moderate, low, or very low for each key finding.

The strength of the recommendation was decided following a process of considered judgement by the INEWS GDG that took into account the problem priority, potential benefits and harms of the options, resource use, equity, acceptability, feasibility and the available evidence as described (Table 4).

Table 4: Factors that strengthen a recommendation

<table>
<thead>
<tr>
<th>Factors that can strengthen a recommendation</th>
<th>Questions to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits and harms of the options</td>
<td>Certainty of this evidence? Is there important uncertainty about how much people value the main outcomes? Are the desirable anticipated effects large? Are the undesirable anticipated effects small? Are the desirable effects large relative to the undesirable effects?</td>
</tr>
<tr>
<td>Costs (resource allocation)</td>
<td>Are the resources required small? Is the incremental small relative to the net benefit?</td>
</tr>
<tr>
<td>Equity</td>
<td>What would be the impact on health inequities?</td>
</tr>
<tr>
<td>Acceptability</td>
<td>Is the option acceptable to key stakeholders?</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Is the option feasible to implement?</td>
</tr>
</tbody>
</table>

A strong recommendation reflects the INEWS GDG’s consensus that the potential positive outcome is highly valued, benefits will outweigh the harms and the cost implications are justified. A conditional recommendation reflects the INEWS GDG’s consensus that the balance between benefit and harm is uncertain or the feasibility of implementation is uncertain or likely to be difficult. Good practice points that denote recommended best practice based on clinical expertise of the INEWS GDG are also included. In addition, the INEWS GDG has offered practical guidance where it is felt that this may aid implementation. All recommendations are of equal importance and should be implemented without preference or bias.

The recommendations are presented in the following domains:
2.9 Consultation summary

The INEWS GDG ensured that all stakeholders had an opportunity to contribute to the revision of the NEWS national clinical guideline. Focus groups were held with frontline staff throughout the revision process including nurses, health and social care professionals and Non-Consultant Hospital Doctors (NCHDs – interns and registrars). It was not feasible to convene a focus group of SHOs. Additional focus groups were held specifically to gain insight into INEWS chart design in terms of ease of use and user-friendliness. Human factors expertise was sought when re-designing the INEWS chart.

The final draft of NCG No. 1 INEWS V2 was circulated to the following for review and feedback:

- Group Directors and Directors of Nursing all Hospital Groups and all acute settings
- Clinical Directors Hospital Groups and acute settings
- ONMSD and all NMPDUs/CNMEs
- NCAGLs, National Clinical Programmes, HSE
- National Clinical Programme Clinical Leads for Surgery, Anaesthesia, Acute Medicine, Emergency Medicine, Critical Care, Sepsis, Paediatrics
- Dr Colm Henry, Chief Clinical Officer, HSE
- National QI Team, HSE
- Nursing and Midwifery Board of Ireland (NMBI)
- Schools of Nursing and Midwifery, HEIs, Ireland
- Colleges of Medicine, HEIs, Ireland
- Office of the Chief Nursing Officer, Department of Health
- Irish College of General Practitioners
- Patient forums
- Regulatory bodies
- Hospital/Group CEOs and GMs
- Professional bodies

Responses received from consultation can be seen in the Consultation report in Appendix 11.

2.10 External review

International external review of the revised INEWS guideline was completed by three experts in their respective fields:

1. Professor Imogen Mitchell, Dean of Medicine, Australia National University, Senior Intensive Care Specialist, Canberra Hospital; previously Senior Medical Advisor Australian Commission on Safety and Quality in Healthcare and currently Medical Advisor

2. Professor Peter Watkinson, Associate Professor of Intensive Care Medicine, Joint Clinical Lead for Critical Care Research Group, John Radcliffe Hospital, Oxford

3. Dr. Mandy Odell, Nurse Consultant Critical Care, Royal Berkshire NHS Foundation Trust

Professor Imogen Mitchell and Professor Peter Watkinson are experts in their respective fields and internationally recognised pioneers and authors on early warning systems. Professor Mitchell consulted on the original NCEC NCG No. 1 NEWS (2013). Dr. Mandy Odell provided a nursing perspective and was selected as an expert reviewer given her experience of patient-initiated escalation within early warning systems.
The INEWS GDG is very grateful to these reviewers and appreciates the time commitment and expertise that was involved in their review. Reviewers were asked to consider the guideline in accordance with the questions recommended by the National Quality Assurance Criteria for Clinical Guidelines Version 2 (HIQA/NCEC, 2015, p.14). External reviewers were also asked to provide any additional feedback they felt was relevant. All feedback was reviewed and incorporated into the revised guideline where appropriate.

Human factors expertise was acquired when redesigning the INEWS patient observation chart as were the views of frontline staff who use the INEWS observation chart on a daily basis.

2.11 Implementation

A comprehensive implementation plan for this guideline is outlined in Appendix 5. The Irish National Early Warning System (INEWS) now refers to an early warning system rather than an early warning score as in the original version in 2013. This is the result of the evolution of early warning systems internationally and the recognition that a system reflects all elements of the management of the acutely unwell patient in the acute setting – anticipation, recognition, escalation, response, assessment, intervention, reassessment, education, evaluation and governance. Each hospitals’ senior management team, in conjunction with the designated local implementation leads, should review NCEC NCG No.1 INEWS (V2), to appropriately plan implementation and recognise the system-wide implications.

It is recommended that hospitals use quality improvement (QI) methodology when implementing and seeking to improve the use of the Irish National Early Warning System (INEWS). Such methods enhance stakeholder engagement, empowerment and adoption through the use of testing, measurement and feedback on key interventions. Recognition must also be given to the complex task of improving the patient safety climate and culture (beliefs, attitudes and actions) that successful implementation of the INEWS is dependent upon.

It is recommended that local governance groups (INEWS V2 Recommendation 29) are established to direct ongoing implementation and evaluation. Many hospitals now use a variety of early warning systems (IMEWS, PEWS, EMEWS, Sepsis); consideration should be given to aligning and harmonising the governance of these systems. Governance groups should be multidisciplinary, have a designated senior consultant clinical lead and senior hospital management sponsorship. There should be designated local INEWS/EWS medical and nursing co-ordinators within the membership of the governance group to coordinate implementation, education and evaluation, inclusive of audit. The governance group should regularly report directly to the hospital senior management team and should actively engage with the hospital quality and risk governance structures. Patient representation should be strongly considered on these governance groups. Patient outcomes aligned to effective management of clinically deteriorating patients, for example, unanticipated cardiopulmonary arrests, unplanned admissions to ICU, should be reviewed to determine the elements of the system in need of focussed quality improvement efforts.

Some of the potential enablers and barriers for implementation of INEWS are listed in Table 5. These are similar to the enablers and barriers to implementation of other early warning system guidelines - NCEC NCG No. 4 IMEWS V2, NCG No. 12 PEWS and NCG No. 18 EMEWS. Local issues should be identified, and action plans initiated to manage improvement at local hospital level. Hospital Groups may consider the use of a quality improvement collaborative style approach.
Table 5: Summary of enablers and barriers to the implementation of INEWS V2

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acute clinical deterioration designated a patient safety priority at senior management team level</td>
<td>• Staff familiarity with current INEWS</td>
</tr>
<tr>
<td>• Organisation-wide communication of the leadership’s patient safety priorities</td>
<td>• Staff resistance to change of practice</td>
</tr>
<tr>
<td>• Clinical champion(s) and good local leadership</td>
<td>• Absence of clearly defined roles and responsibilities</td>
</tr>
<tr>
<td>• Clearly defined roles and responsibilities</td>
<td>• Ill-defined or inappropriate governance arrangements</td>
</tr>
<tr>
<td>• Effective governance with direct reporting to hospital senior management team</td>
<td>• Lack of adequate resources e.g. staff, equipment, audit, time designated to provide clinical leadership</td>
</tr>
<tr>
<td>• Effective multidisciplinary teamwork</td>
<td>• Lack of staff familiarity with escalation and response protocols</td>
</tr>
<tr>
<td>• Effective communication pathways</td>
<td>• Lack of clear escalation and response policies and protocols</td>
</tr>
<tr>
<td>• Complementary safety initiatives such as huddles/safety pause/briefings use of situation awareness</td>
<td>• Inadequate communication systems lacking in clarity, standardisation, accountability</td>
</tr>
<tr>
<td>• Clear protocol for the safe and timely transfer of patients to a higher level of care (both internally and externally)</td>
<td>• Inadequate access to education, lack of development of appropriate skill set required for urgent and emergency responders</td>
</tr>
<tr>
<td>• Multidisciplinary team tiered response model</td>
<td>• Inadequate audit and evaluation schedule and resources. Lack of adequate systems to support audit e.g. ICT, data and analytics expertise</td>
</tr>
<tr>
<td>• Ongoing targeted education and training and reinforcement of learning</td>
<td>• Resistance to patient/family/carer involvement with audit, evaluation, improvement</td>
</tr>
<tr>
<td>• Regular audit and evaluation with the results informing quality improvement work</td>
<td>• Absence or poorly formed/supported complementary safety initiatives</td>
</tr>
<tr>
<td>• Patient/family/carer engagement and co-production of improvements</td>
<td>• INEWS viewed as a score rather than a system therefore tendency to unidisciplinary implementation</td>
</tr>
<tr>
<td>• Digital observation recording and alert systems</td>
<td>• Absence of multidisciplinary tiered response model</td>
</tr>
<tr>
<td>• Conduction and dissemination of research evidence related to INEWS</td>
<td></td>
</tr>
</tbody>
</table>

Barriers to implementation should be identified and addressed as part of the organisational quality improvement and patient safety agenda. Attention to the enablers listed above and in the implementation plan in Appendix 5 will provide guidance to local sites and Hospital Groups for service planning, development and implementation.

For full implementation of this guideline, it is essential that all healthcare professionals responsible for the care of adult non-pregnant patients in an acute setting understand their responsibility, accountability and authority for improving care to clinically deteriorating patients. Improvement should occur in all phases to include anticipation, recognition, escalation, response, assessment, intervention, reassessment, evaluation, education and governance. This must be supported by clear lines of accountability which include systems that can detect and correct lapses in appropriate reliable safe care in a timely basis as outlined in NCEC NCG No 1 INEWS (V2).

Funding for INEWS implementation and improvement is subject to service planning and the estimates process. However, many recommendations in INEWS represent a reiteration of previous good practice and existing INEWS implementation and are thus cost neutral as outlined in the summary budget impact analysis (BIA) in Section 3.2 (full BIA report available as Annex 2).
Senior manager responsibilities:

- Agree and provide a local governance structure to support the implementation, ongoing audit and evaluation of patient outcomes pertaining to the recommendations of the NCEC NCG No.1 INEWS V2.
- Assign personnel with delegated responsibility, accountability authority and autonomy to implement and evaluate the NCEC NCG No. 1 INEWS V2. Provide documented clear roles and responsibilities for staff.
- Provide managers and clinician leads with support to implement the NCEC NCG No.1 INEWS V2 and ensure clinical staff have access to and undertake education and training as appropriate to the successful implementation and evaluation of INEWS.
- Ensure local policies, protocols and procedures are in place to support implementation and are regularly adapted based on new learning and as a result of quality improvement work.
- Seek regular reports on implementation and evaluation of INEWS from the INEWS/EWS governance group and provide direction on subsequent action plans.
- Enable and support implementation co-ordinators and governance group by providing a direct link to corporate governance team/senior management team.
- Plan for the procurement and implementation of digital technologies through the estimates and service planning processes to support implementation and evaluation of NCEC NCG No.1 INEWS V2.

Clinician responsibilities:

- Ensure familiarity with and comply with the NCEC NCG No.1 INEWS V2 and related hospital policies, protocols and procedures.
- Adhere to relevant code of professional conduct and scope of professional practice appropriate to role and responsibilities.
- Develop and maintain relevant competencies in the anticipation, recognition, escalation, response, assessment, intervention, reassessment and evaluation of the clinically deteriorating adult non-pregnant patient in an acute setting.
- Be aware of the role of clinical judgement, anticipatory care and delegation, in using the NCEC NCG No.1 INEWS V2.
- Support the development of a tiered response model and current/future development of response teams e.g. Advanced Nurse Practitioner Response Service
- Seek to provide clinical leadership, mentorship of staff and ongoing education of multidisciplinary team.
- Advocate on behalf of patients and staff to hospital senior management for the robust development of systems and service improvement to support implementation, improvement and evaluation of NCEC NCG No.1 INEWS V2.
- Create and lead engagement with patient/family/carer to co-produce quality improvement initiatives for INEWS.
- Participate in relevant education programmes and contribute to education and training programme development.
- Advocate for and use digital technologies to support implementation and evaluation of NCEC NCG No.1 INEWS V2.
- Promote and engage in research to improve INEWS.
- Assist with the performance of clinical and healthcare audits associated with INEWS.
Patient/family/carer responsibilities:

- Participate in the co-production of quality improvement initiatives for INEWS.
- Contribute to and/or participate in education programmes to enhance healthcare staff understanding of the patient/family/carer role in escalation of care.

Tools provided as supports for the implementation of NCEC NCG No.1 INEWS V2

- The revised INEWS patient observation chart can be seen in Appendix 6.
- Information on how to complete the INEWS V2 patient observation chart can be seen in Appendix 7.
- The revised INEWS e-learning programme can be accessed on www.HSELand.ie.
- Implementation guidance is included in detail in Appendix 5.
- The INEWS Physiological Parameter Scoring Key can be seen in Section 2.3 of the NCG No. 1 INEWS (V2) and on the INEWS patient observation chart in Appendix 6.
- Audit tools are available in Appendix 12.
- The INEWS Escalation and Response Protocol can be seen on the INEWS observations chart in Appendix 6.
- The National Quality Improvement Team’s QI Method Toolkit (link in Appendix 12).

2.12 Monitoring and audit

Regular audit is required to support implementation of the recommendations within this revised NCG and monitoring the efficacy and on-going performance of INEWS in the acute setting. It is recommended that the audit process is co-ordinated locally in each acute setting by the relevant local governance committee, as per the NCEC NCG No 1 INEWS V2 recommendations. It is recommended that the INEWS audit process has a multidisciplinary approach. In planning the audits to be undertaken, consideration should be given to the frequency of the audits and competencies required to conduct, interpret, and compile the final report and recommendations. Information on frequency of audit and sample sizes can be found in Appendix 12.

INEWS audit datasets

Process measures

Process measures can be audited using the INEWS patient observation chart (track and trigger tool), the INEWS Escalation and Response Protocol and the ISBAR communication tools.

**INEWS chart completion audit**

The audit for chart completion may be co-ordinated in each acute setting using the Nursing and Midwifery Quality Care Metrics via the Test Your Care IT platform (www.testyourcarehse.com). This data collection and analysis is carried out on a monthly basis. If this option is not available, sample audit charts are available in Appendix 12; chart audits should be undertaken monthly. Where the compliance is less than 80% it is proposed that local action plans are put in place, e.g. increase frequency of audits and identify problem areas. Quality improvement methodology should be applied to implement a sustainable solution for problem areas.
Escalation and response protocol audit
To monitor the efficacy and on-going performance of INEWS a more detailed audit of the escalation and response processes should be carried out for:

- patients triggering an INEWS score of 3 or more
- patients who have had an unanticipated cardiopulmonary arrest and/or an unplanned admission/readmission to ICU
- patients for whom care has been escalated to the urgent or emergency care teams.

Utilisation of ISBAR and ISBAR3 communication tools
The use of ISBAR and ISBAR3 communication tools for communication in relation to deteriorating patient should be audited. This can be done through the National Clinical Guideline No. 11 ‘Communication (Clinical Handover) in Acute and Children’s Hospital Services’ Audit Tool Sample template (Appendix 12). All sample audit tools to support the recommended INEWS audits above are available in the Appendices of this document.

Outcome measures
The following suggested outcome measures are based on international best practice and should be included in a hospital’s planned patient safety and quality improvement audit cycle as well as the national schedule for clinical audit. Some of these outcome measures are supported by national clinical audit e.g. the NOCA Irish National ICU Audit.

- Patient outcome measures e.g. hospital length of stay (HLOS), ICU length of stay, mortality rates.
- Number of unanticipated cardiopulmonary arrests (ward-based arrests).
- Number of unplanned admissions and readmissions to ICU/ITU/HDU.
- Scope of care decisions for example ‘Do Not Attempt Resuscitation’ or ‘Palliative care’ orders.

Structural measures
Structural measures can be audited using education and training records and Key Performance Indicators.

Education/training audit
- Audit of INEWS education/training and evaluation record.
- Database of staff trained - each hospital to make their own local arrangement to best meet their needs.

Key performance indicators (KPIs)
INEWS implementation is supported by National KPIs, which are reported quarterly to the Acute Business Information Unit (BIU), HSE. The INEWS KPI measures the % of hospitals that confirm they are implementing INEWS in all clinical areas of the acute hospital. The criteria which need to be met are outlined in Appendix 13. The aim of the INEWS KPI is to monitor implementation of INEWS, improve governance through the use of outcome data, improve the recognition and response to the deteriorating adult non – pregnant patient and ensure adequate numbers of healthcare professionals are trained in the use of INEWS.

Audit findings and governance
The audit results and reports should be discussed at the appropriate INEWS/EWS Governance group e.g. Deteriorating Patient Committee and findings fed upwards to the Hospital Clinical Governance Committee/ Hospital Senior Management Team and to all levels of staff where INEWS is used (as outlined in recommendations 30 & 31, NCEC NCG No 1 INEWS (V2). The hospital’s healthcare audit/clinical audit cycle as part of the continuous quality improvement process should inform the audit plan.
Results and learning points can be used in the on-going education delivered by the designated INEWS Coordinator and in the local quality improvement initiatives. The chart completion audit results should facilitate learning discussions at handover, ward rounds or education sessions. Consideration should be given to reviewing a chart at multidisciplinary ward forums/safety huddles to identify good practice and opportunities for learning.

Additional databases
As the tiered Response System evolves it is important for the hospital to progress towards maintaining a database of patients whose care is escalated, and are seen by, the designated response team. The National Deteriorating Patient Recognition and Response Improvement Programme (DPIP) will support hospital sites in the development of a minimum dataset for the relevant database.

NQAIS Clinical is an online interactive application that analyses hospitals’ HIPE data and can provide detailed feedback to clinicians and managers. Hospitals can explore NQAIS Clinical to look at patient outcomes, for example, cardiopulmonary arrest and ICU length of stay.

The NOCA Irish National ICU Audit (INICUA) is a quality and patient safety initiative that measures the quality of care in each ICU, benchmarking against international standards. Hospitals participating in this audit will have access to their data pertaining to unplanned admissions to ICU and collected information related to the patients INEWS score prior to admission.

The Sepsis Audit provides on-going feedback on the quality of care of patients with a diagnosis of sepsis to individual hospital sepsis committees and can provide information aligned to care of the clinically deteriorating patient.

2.13 Plan to update this National Clinical Guideline

The NEWS GDG agreed that the INEWS guideline should be reviewed on a three-yearly basis and updated in line with NCEC procedures. As a result, NCG No. 1 (INEWS) V2 will require updating in 2023 by the DPIP.
Only appendices 5, 6, 7 and 15 are presented here as they are key to interpretation of the recommendations in this summary guideline.

Refer to the full guideline report for the remaining appendices:

**Appendix 1** Guideline Development Group terms of reference

**Appendix 2** DPIP Steering group membership

**Appendix 3** Consultation advisory group (CAG) membership

**Appendix 4** Letter of invitation to CAG members from Chief Clinical Officer HSE

**Appendix 8** Literature search strategy

**Appendix 9** Evidence tables (sample)

**Appendix 10** Economic assessment

**Appendix 11** Consultation report

**Appendix 12** Monitoring and audit

**Appendix 13** National INEWS KPIs

**Appendix 14** Guidance on roles of INEWS Consultant lead and INEWS Co-ordinator
## Appendix 5: Implementation Plan

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<tr>
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</table>
| **All recommendations all Domains**  | **Enablers:** Engagement          | Develop and roll-out a communication and dissemination, including public engagement. Recommend further development of patient/family/carer empowerment options | Deteriorating Patient Improvement (DPIP) team Hospital executive management teams each acute hospital | X X X | **Outcome:** Improved awareness and knowledge of guideline  
**Verification:** Records of dissemination activities. Evidence of the adoption of INEWS. Patient/family/carer escalation process developed and adopted. |
|                                      | **Enablers:** Governance and QI   | Improve Hospital Deteriorating Patient Governance structure. Use data from outcome indicators to guide improvement projects Further Consultant engagement to identify medical champions to fulfil key governance roles. Essential to provide designated time to consultant lead. Quality improvement leads/project co-ordinators to use outcome and audit data to drive improvement in INEWS Practice development leads, Resuscitation officers to use information from governance group to inform practice improvements. | Hospital executive management team. Clinical Director and Director of Nursing in each acute hospital Quality & Patient Safety and Risk Management leads in Hospital Group/ Hospital | X X X | **Outcome:** This clinical governance framework will enable a safe devolved accountable system. Create a Clinical champion network to evolve practice and critical clinical decision making in relation to INEWS  
**Verification:** Clinical audit of e.g. In Hospital Cardiopulmonary Arrest, Unplanned admissions to ICU. Evidence of clinical leadership displayed through audit, research, improvement projects, national conferences. Records of actions taken by INEWS governance committee. Evidence of INEWS QI projects. |
### Appendix 5: Implementation Plan (continued)

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<tr>
<td></td>
<td><strong>Enablers: Education</strong></td>
<td>Develop an open access eLearning programme for INEWS and a supporting manual and tools</td>
<td>DPIP On site Practice Development Centres for Nurse &amp; Midwifery Education</td>
<td>X</td>
<td>Outcome: Staff will have the capability to deliver the necessary service</td>
</tr>
<tr>
<td></td>
<td>• Provision of and access to Education and training</td>
<td>Hospitals to provide local onsite education and training</td>
<td>Deteriorating Patient Response Team members Quality Improvement (QI) and Risk Management leads</td>
<td>X X X</td>
<td>Verification: Staff participation in the programmes on offer. Evidence of the development and application of support tools</td>
</tr>
<tr>
<td></td>
<td>• Development of support tools</td>
<td>Standardised tools for dissemination and local empowerment to development specific tools based on their own need Identification and development of specific skills and competencies for staff on response teams Education for safety improvement e.g. safety huddles, use of clinical risk criterion.</td>
<td>Quality Improvement (QI) and Risk Management leads</td>
<td>X</td>
<td>Outcome: Competent response teams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiate a demonstrator project on an acute hospital site – ANP response team for urgent response model, supported by a digital INEWS to aid recognition and escalation. Measure patient outcome data to determine improvement in patient safety and outcomes. Report on learning regarding leadership, governance, integration, practice development and communication.</td>
<td>Chief Clinical Officer (CCO) DPIP Hospital management team of chosen site. Office of the Chief Information Officer (OoCIO), Biomedical and IT team on site. Clinical Director and Director of Nursing/delegate’s Healthcare professionals with responsibility for policy and/or QI</td>
<td>X X X</td>
<td>Verification: Response teams with clear roles and responsibilities</td>
</tr>
<tr>
<td></td>
<td><strong>Enabler: Service design</strong></td>
<td>Initiate a demonstrator project on an acute hospital site – ANP response team for urgent response model, supported by a digital INEWS to aid recognition and escalation. Measure patient outcome data to determine improvement in patient safety and outcomes. Report on learning regarding leadership, governance, integration, practice development and communication.</td>
<td>Chief Clinical Officer (CCO) DPIP Hospital management team of chosen site. Office of the Chief Information Officer (OoCIO), Biomedical and IT team on site. Clinical Director and Director of Nursing/delegate’s Healthcare professionals with responsibility for policy and/or QI</td>
<td>X</td>
<td>Outcome: Penetration into service</td>
</tr>
<tr>
<td></td>
<td>Development of ANP Response Service</td>
<td>Develop an open access eLearning programme for INEWS and a supporting manual and tools</td>
<td>Deteriorating Patient Response Team members Quality Improvement (QI) and Risk Management leads</td>
<td>X X X X</td>
<td>Verification: Evidence of safety huddles in use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiate a demonstrator project on an acute hospital site – ANP response team for urgent response model, supported by a digital INEWS to aid recognition and escalation. Measure patient outcome data to determine improvement in patient safety and outcomes. Report on learning regarding leadership, governance, integration, practice development and communication.</td>
<td>Chief Clinical Officer (CCO) DPIP Hospital management team of chosen site. Office of the Chief Information Officer (OoCIO), Biomedical and IT team on site. Clinical Director and Director of Nursing/delegate’s Healthcare professionals with responsibility for policy and/or QI</td>
<td>X</td>
<td>Outcome: Evidence to determine the most appropriate and effective recognition and response model to ensure patients receive right care right time right staff. Define appropriate outcome measures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiate a demonstrator project on an acute hospital site – ANP response team for urgent response model, supported by a digital INEWS to aid recognition and escalation. Measure patient outcome data to determine improvement in patient safety and outcomes. Report on learning regarding leadership, governance, integration, practice development and communication.</td>
<td>Chief Clinical Officer (CCO) DPIP Hospital management team of chosen site. Office of the Chief Information Officer (OoCIO), Biomedical and IT team on site. Clinical Director and Director of Nursing/delegate’s Healthcare professionals with responsibility for policy and/or QI</td>
<td>X</td>
<td>Verification: Measure outcome data related to e.g. in hospital cardiopulmonary arrest, unplanned admission and readmission to ICU, patient access to end of life care pathway. Agreement on roles and responsibilities.</td>
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<tr>
<td><strong>Enabler: E Health</strong>&lt;br&gt;Plan and progress towards the use of digital monitoring and recording systems&lt;br&gt;<strong>Guideline recommendation:</strong> Implement and follow-up on the roll-out of e-health infrastructure to support INEWS</td>
<td>Develop procurement tender documents for the purchase of digital system to use on demonstrator site Implement digital monitoring and recording system(s) Make digital system tender document available to other sites Share learning with other sites</td>
<td>DPIP, OoCIO, CCO Project team on site</td>
<td>X</td>
<td>X</td>
<td>X Year 1 Year 2 Year 3</td>
</tr>
<tr>
<td><strong>Enabler: Communication</strong>&lt;br&gt;Create a communication plan that engages all stakeholders and creates new awareness&lt;br&gt;<strong>Guideline recommendation:</strong> Implement and follow-up on the roll-out of communication strategies to promote INEWS and its benefits to all stakeholders</td>
<td>Develop and disseminate information guides. Ensure the new guideline available in a variety of mediums, hardcopy electronic, web link Create an easy recognisable brand for INEWS and supporting tools Encourage staff to generate publications and posters</td>
<td>DPIP, HSE communications Patient Safety – DOH, HSE, CIS, HIQA. Hospital Management Teams Acute Operations HSE</td>
<td>X</td>
<td>X</td>
<td>X Year 1 Year 2 Year 3</td>
</tr>
<tr>
<td><strong>Enablers: Resources</strong>&lt;br&gt;• Demonstrator project for digitally supported ANP response team funded&lt;br&gt;• Clinical Champions&lt;br&gt;<strong>Guideline recommendation:</strong> Implement and follow-up on the roll-out of resources to support INEWS and its benefits to all stakeholders</td>
<td>Initiate demonstrator project. Measure outcomes. Share learning Designated time allocated to Clinical champions to establish and lead INEWS governance framework</td>
<td>CCO DPIP Designated Project management team Health service managers. Health professionals with responsibility for policy patient safety and QI.</td>
<td>X</td>
<td>X</td>
<td>X Year 1 Year 2 Year 3</td>
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<tr>
<td></td>
<td>Barriers: Requires effective change management, resourcing, digital applications, audit &amp; clinical leadership</td>
<td>Resource approval from INEWS programme sponsors for implementation of INEWS</td>
<td>CCO, Acute Operations, Quality Assurance &amp; Verification (QAV), QI, OoCIO, DPIP, Hospital Groups Acute Hospitals</td>
<td>X X X</td>
<td>Outcome: Mandate and resources for implementation secured Verification: Targeted budget allocation. Inclusion in HSE National Service Plan, Patient safety strategy and National QI team Strategy. Governance groups established at hospital level</td>
</tr>
<tr>
<td>Measurement and Documentation of Vital Signs and Other Observations Recommendations 1 – 9</td>
<td>Enabler: Redesign of the INEWS Chart according to human factors principles</td>
<td>Co-design with frontline service staff an updated INEWS chart inclusive of the escalation and response guide template</td>
<td>DPIP team Doctors, nurses, health and social care professionals, healthcare assistants</td>
<td>X</td>
<td>Outcome: Improved use of track and trigger tool i.e. Observation chart Verification: Audits (Nursing Quality Care metric) and HSE KPIs Focus group feedback.</td>
</tr>
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<td></td>
<td>Enabler: NEWS education and communication packages</td>
<td>Include measurement/documentation as part of blended learning education approach. Ensure a focus on clinical judgement is contained within the education programmes and in other communication mediums</td>
<td>DPIP team</td>
<td>X X</td>
<td>Outcome: Improved measurement and documentation Verification: Audits and KPIs Use of case studies to enhance learning. Use of scenario based learning sets.</td>
</tr>
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<td></td>
<td>Enabler: Adoption of new recommendations based on evidence and feedback</td>
<td>Inclusion of new ‘confusion’ into AVPU scale Inclusion of acknowledgement of Patient/Family/Carer concern row on observation chart</td>
<td>DPIP Doctors, nurses, health and social care professionals, healthcare assistants</td>
<td>X</td>
<td>Outcome: Improved recognition of deterioration/delirium Acknowledging the key role service users play in the recognition of deterioration. Verification: Audit, Patient outcomes</td>
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</table>
| **Barriers: Absence of digital monitoring and recording systems** | Establish a demonstrator project using an INEWS digital system to record and escalate supported by an ANP response team | CCO Acute Operations, OoCIO DPIP Executive management team of demonstrator project site Doctors, nurses, health and social care professionals, healthcare assistants | X X X | **Outcome:** Learning from demonstrator project will inform phased service planning and implementation to other acute hospitals. Evaluated Procurement documents for digital system available for use  
**Verification:** Patient outcomes measured, and improvements identified |
| **Barrier: Lack of application of escalation and response protocol.** | Ensure ease of recording and visibility of documented modified escalation and response protocol within the observation chart Provide education to healthcare professionals on the significance of adhering to recommendation 7 (No alteration of score or parameters) | DPIP team. Doctors, nurses, health and social care professionals, healthcare assistants Practice development. Educators. Governance committee | X X X | **Outcome:** Improved measurement and documentation  
**Verification:** Audits and KPIs. Incidents of failed escalation used as teaching and improvement opportunities. Feedback on audit results to frontline staff. |
| **Escalation of Care Recommendations 10 – 15** | Develop a consensus on guidance for the escalation and response to clinically deteriorating patients inclusive of position on Parameter Adjustment, Trigger Thresholds and tiered Response System | Consultant Advisory Group (CAG) Guideline Development Group (GDG) DPIP team CCO Hospital Groups Doctors, nurses, health and social care professionals | X | **Outcome:** Consensus on revised guidance on Parameter Adjustment, Trigger Thresholds and tiered Response System  
**Verification:** Recommendations within revised guideline are adopted and penetrate into the service setting |
### Enabler: Hospital escalation and response model tailored to the characteristics of the site

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<td>Acute hospitals to include consideration of issues such as: Model of hospital, location, available resources e.g. staffing mix and skills, equipment, external transport access.</td>
<td>Hospital management team/Board Governance committee Doctors, nurses, health and social care professionals</td>
<td>X X X</td>
<td><strong>Outcome:</strong> Hospital Clinical escalation and response protocol (with built-in review) available to the workforce. <strong>Verification:</strong> To change practice and improve health systems health professionals and hospital management need to determine who will take responsibility for undertaking the tasks required for this essential element.</td>
</tr>
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### Barriers:
- Current practice of Parameter and trigger thresholds adjustment
- Limited experience, confidence and education
- Hierarchical Hospital Structures and culture
- Inadequate involvement of patients/carers/families

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<td>Provide acute hospital system-wide communication and education regarding revisions in the guideline to target specifically</td>
<td>DPIP Hospital NEWS Governance Groups, On-site Practice Development, Resuscitation Officers Doctors, nurses, health and social care professionals healthcare assistants</td>
<td>X X X</td>
<td><strong>Outcome:</strong> Evidence of escalation based on staff and patient/carer/family concerns. Documented evidence of cessation of the practice of parameter and NEWS score adjustments Documented evidence of the appropriate use of modified escalation and response protocol. Aids to support situation awareness embedded in practice <strong>Verification:</strong> Healthcare audit, clinical audit. QI projects on sites to develop safety huddles/pause etc</td>
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</table>

Through QI projects implement situation awareness supports e.g. safety huddle/safety pause/“watcher criteria”, clinical risk criteria. Develop and implement patient/family/carer escalation process.
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<td><strong>Barrier:</strong> Currently limited INEWS/EWS governance structure, minimal Consultant and senior medical engagement</td>
<td>Provide a clinical governance framework to support the adoption and improve the fidelity and penetration of INEWS.</td>
<td>DPIP Hospital Board and Executive Management Teams Clinical Director, doctors, nurses, health and social care professionals</td>
<td>X X</td>
<td>Outcome: Hospital INEWS governance group with direct reporting to senior executive management team. Consultant lead with designated time, and agreed roles and responsibilities supported by designated INEWS co-ordinator. <strong>Verification:</strong> Terms of reference for Governance committee, Minimum of quarterly Governance group meetings Regular progress reports containing patient outcome data and action plans, evidence of 6 monthly reports to the Board/Executive Management team. CDI annual report to Board of HSE</td>
<td></td>
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<tr>
<td><strong>Barriers:</strong></td>
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<tr>
<td>• Change of practice in majority of sites</td>
<td>Develop an Urgent/Emergency ANP Response Team Model. Fund a demonstrator project to provide proof on concept in an Irish context Provide guidance to sites progressing development of tiered response model.</td>
<td>CCO, Acute Operations, DPIP, CAG, Demonstrator site Doctors, nurses.</td>
<td>X X X</td>
<td><strong>Outcome:</strong> Improved understanding and guidance on how to implement an ANP Response Team Model <strong>Verification:</strong> Framework document based on measurement of patient outcomes, roles and responsibilities, governance and leadership, “ownership” challenges, reporting and clinical handover and governance.</td>
<td></td>
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<tr>
<td>• Resource requirements</td>
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<td>• Skills shortages</td>
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<td>• Ownership and clinical governance</td>
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<tr>
<td>Hospital service planning to embed and resource ANP Response Team Model</td>
<td>Hospital management teams</td>
<td></td>
<td>X</td>
<td><strong>Outcome:</strong> ANP Response Team Model widely embedded in services <strong>Verification:</strong> Audit and KPIs, Clinical Outcome Data, Learning from demonstrator sites</td>
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| **Response System Recommendations 16 – 23** | **Enabler: Agreed Tiered Response System and ANP Response Team Model** | Develop 1. tiered response and 2. ANP response team model demonstrator project plan with steering group (SG) and CAG (yr 1) and designated demonstrator site. | DPIP CCO & CAG Acute Operations Hospital Group, hospital site Doctors, nurses, health and social care professionals | Year 1 Year 2 Year 3 | **Outcome:** ANP Response Team model framework developed. Governance for response team, clear lines of clinical responsibility between response team(s) and primary teams. Project committee and hospital executive level support established and functioning  
**Verification:** Project reports, patient outcome measures, guidance framework |
| **Barrier: Lack of resources and interprofessional differences/ boundaries** | | Endorsement by national corporate leadership to support effective change management, resourcing, clinical leadership and education  
Support and evaluate ANP response model on demonstrator sites and other self-led change sites | HSE leadership team, CCO, DPIP Acute Operations, Hospital Groups, Hospital site Doctors, nurses, health and social care professionals | Year 1 Year 2 Year 3 | **Outcome:** Demonstration sites initiated and evaluated.  
**Verification:** Future model agreed and evident in service planning and development.  
**Outcome:** Guideline implementation prioritised by HSE national leadership team  
**Verification:** Inclusion in National Service Plan, Patient Safety Strategy, QI Strategy, KPI reports, Plan for clinical audit reporting |
| **Barrier: Not all acute hospitals have well-coordinated processes or resources in place to provide the recommended tiered response model.** | | Through each hospital’s established formal INEWS (EWS) governance committee a plan to provide a tiered urgent and emergency response system capable of delivering specialised timely assistance to clinically deteriorating patients | Acute Operations, Hospital Group Boards/Executive management teams, hospitals Doctors, nurses, health and social care professionals | Year 1 Year 2 Year 3 | **Outcome:** Reliable effective tiered response model in alignment with the guideline recommendations.  
**Verification:** Documented evidence of the nature of the response system appropriate to the size, role, resources and staffing mix and skills.  
Designated protected time for the clinical lead to oversee development of plan and system. |
## Appendix 5: Implementation Plan (continued)

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<tr>
<td><strong>Response System Recommendations 16 – 23</strong></td>
<td><strong>Barrier:</strong> Understanding roles and responsibilities of ANP Response Team Model</td>
<td>Discuss and present on model at various fora Incorporate messaging/linked terminology into communication plan Meet with individual sites to explain the model and provide guidance.</td>
<td>DPIP, ANPs currently in the acute hospital system on response teams ONMSD/NMPDUs</td>
<td>X X X</td>
<td><strong>Outcome:</strong> Improved understanding of ANP Response Team Model, <strong>Verification:</strong> communication materials</td>
</tr>
<tr>
<td><strong>Recommendations 16, 17, 18</strong></td>
<td><strong>Enabler:</strong> New documentation process to aid individualised care protocol <strong>Barrier:</strong> Change from the current practice</td>
<td>INEWS chart will provide space to record modified escalation and response protocol. Hospital INEWS Governance committee to oversee implementation through evaluation, case review, audit, incident reviews.</td>
<td>DPIP Doctors, nurses, health and social care professionals, healthcare assistants INEWS Consultant Lead, designated INEWS co-ordinator, Quality &amp; Patient Safety Lead</td>
<td>X</td>
<td><strong>Outcome:</strong> Appropriate individualised modified escalation and response protocol. Abandonment of the current practice of adjusting scores and parameters. Safety processes on the ward should identify patient on a modified escalation and response protocol. <strong>Verification:</strong> Evaluate modified protocols for effectiveness and appropriateness. Compliance with the 24hr review of a modified escalation and response protocol. Evidence on audit of cessation of practice of score or parameter adjustments.</td>
</tr>
<tr>
<td><strong>Enabler:</strong> Education and training to support development of capacity and capability of response teams</td>
<td>Utilise and promote available life support education programmes. Identify skills and competencies required for responders in the 3 tier response model. Access at all times to a healthcare professional who can practice advanced life support.</td>
<td>DPIP, Response team ANPs INEWS Consultant Leads, INEWS co-ordinators, educators, Resuscitation Officers. Doctors, nurses, health and social care professionals</td>
<td>X X X</td>
<td><strong>Outcome:</strong> Education and training available to staff via a variety of access routes <strong>Verification:</strong> Education audits and records. Development of skilled teams. Training needs analysis and plan to improve uptake of training.</td>
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| **Clinical communication Recommendations 24, 25, 26** | **Enabler:** Strengthening of the use of communication tools e.g. ISBAR/ISBAR3 tools, safety huddles aligned to clinical handover guideline **Barriers:**  
  - Cultural, hierarchy and lack of compliance and knowledge  
  - “not regarded as essential”  
  - Lack of written communication  
  - Patchy implementation of clinical handover guideline | Deliver education and tools to improve adoption of ISBAR tool and ISBAR 3 | DPIP  
QI Team  
QAV  
Doctors, nurses, health and social care professionals  
INEWS Consultant Lead, designated  
INEWS co-ordinator, Quality & Patient Safety Lead | X X | Outcome:  
Standardised effective communication  
Verification: Audit, Development and implementation of support tools e.g. use of ISBAR sticker. Use of clinical risk criterion and INEWS scores at safety huddle/clinical handover |
| **Recommendation 27** | **Acknowledgement:** Deliver education and training on the importance of clinical communication  
**Barriers:**  
  - Cultural, hierarchy and lack of compliance and knowledge  
  - “not regarded as essential”  
  - Lack of written communication  
  - Patchy implementation of clinical handover guideline | Deliver education and tools to improve adoption of ISBAR tool and ISBAR 3 | DPIP  
QI Sustainability Team Partnership to determine if possible, to develop national QI bundle for NEWS improvement. Co-design with post QA&V 2017/18 audit sites and patient representatives | X X | Outcome:  
INEWS QI Improvement Bundle  
| **Awareness of the INEWS guideline through its alignment with the Patient Safety Strategy and national QI Team Strategy.** | | Quality & Patient Safety Lead  
Hospital Senior Management Teams  
Doctors, nurses, health and social care professionals | Quality & Patient Safety Lead  
Hospital Senior Management Teams  
Doctors, nurses, health and social care professionals | X | Outcome:  
Improve recognition of the role of INEWS in patient safety  
Verification: Improved patient outcome measures. Improved KPI reports |
| **Link implementation structures for clinical handover guideline to INEWS** | | Hospital Quality & Patient Safety Lead  
INEWS Consultant Lead INEWS co-ordinator | Hospital Quality & Patient Safety Lead  
INEWS Consultant Lead INEWS co-ordinator | X X X | Outcome:  
Evidence of use of ISBAR and ISBAR 3  
### Appendix 5: Implementation Plan (continued)

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<th>Implementation barriers / enablers</th>
<th>Action / intervention / task to implement recommendation</th>
<th>Lead responsibility for delivery of the action</th>
<th>Timeframe for completion</th>
<th>Expected outcome and verification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Barrier:</em> It is a complex process knowing how to effectively communicate with patient/family/carer</td>
<td>Patients/family/carer should be involved in processes to improve communication about clinical deterioration. Use QI projects to evolve patient/family/carer communication systems and practices. Explore synergies with other patient engagement programmes/projects. Emphasise patient/family/carer engagement, communication and co-production in education and training programmes. Align INEWS guidance with End of Life/Palliative Care guidance.</td>
<td>DPIP Clinical Champions, Practice Development Palliative Care teams Doctors, nurses, health and social care professionals Quality &amp; Patient Safety Lead</td>
<td>X X X</td>
<td>Outcome: Enhanced patient/family/carer engagement and communication structures, tools, access. Verification: Audit, patient experience, complaints, incidents.</td>
</tr>
<tr>
<td></td>
<td><em>Barrier:</em> System wide scepticism about the need for patient engagement with INEWS/deterioration</td>
<td>Gather evidence relating to current communication processes with patient/family/carer. E.g. process map current process and complexity. Forums established to explore with patients/family/carers as to how their concerns about deterioration can be valued and acted upon by clinicians.</td>
<td>Clinical Champions, Practice Development Palliative Care teams Doctors, nurses, health and social care professionals Quality &amp; Patient Safety Lead Risk management</td>
<td>X X X</td>
<td>Outcome: use patient stories, incidents of missed opportunity and examples of when things worked well to inform process improvement. Verification: Visible evidence of efforts to improve processes, posters, documented guidance, patient feedback, patient representation on relevant groups/committees.</td>
</tr>
</tbody>
</table>
## Appendix 5: Implementation Plan (continued)

<table>
<thead>
<tr>
<th>Guideline recommendation or number(s)</th>
<th>Implementation barriers / enablers</th>
<th>Action / intervention / task to implement recommendation</th>
<th>Lead responsibility for delivery of the action</th>
<th>Timeframe for completion</th>
<th>Expected outcome and verification</th>
</tr>
</thead>
</table>
| **Leadership and Governance Recommendations 28 – 33** | **Enabler:**  
- Clinical Leadership of all disciplines  
- Executive management support | Co-design appropriate clinical governance framework for INEWS implementation and evaluation. Each hospital to convene an INEWS governance committee with a consultant/champion lead and designated INEWS co-ordinator. Develop role and responsibility guidance specifying what is expected of clinical leaders for INEWS. | Doctors, nurses, health and social care professionals INEWS Consultant Leads and INEWS co-ordinators, DPIP Hospital Groups Clinical leaders Acute Operations, QI | Year 1 | X | X | X |
| | | | **Outcome:** Full implementation of INEWS and improved clinical outcomes.  
**Verification:** Audit and KPIs.  
**Outcome:** Greater clarity on role of the clinical leaders and consultant lead.  
**Verification:** Role and responsibility guidance produced |
| | **Enabler:** There are a number of EWS and supporting resources currently within hospitals | The hospital should seek to align governance processes for other EWSs within their remit e.g. IMEWS, PEWS, EMEWS, Sepsis, Mortality and Morbidity, ICU Clinical audit, Resuscitation committee/service. | Doctors, nurses, health and social care professionals Hospital Groups, hospital management teams, Clinical leaders Resuscitation Officers, Sepsis leads, INEWS co-ordinators | Year 1 | X | | **Outcome:** Agreed reporting lines to ensure performance and outcome data is considered by clinicians, managers and executive management teams.  
**Verification:** System wide improvement planning and alignment of EWS and patient safety programmes, Clinical programme guidance and QI projects. |
| | **Barrier:** Clinical consultant champions require resourcing | Corporate and hospital support and resourcing to provide consultant champions with the time and supports to:  
- Measure and evaluate data  
- Provide clinical mentorship, governance and education  
- Lead improvement projects  
- Engage in ongoing education, research, audit  
- Secure meaningful patient engagement | Acute Operations, Hospital Groups, Hospital Consultants | Year 1 | X | | **Outcome:** Guideline implementation adequately consultant driven and resourced at hospital level  
**Verification:** Organisation support for improvement plans. Evidence of systematic continuous efforts to improve the organisations INEWS performance against INEWS guideline and international best practice standards. |
# Appendix 5: Implementation Plan (continued)

<table>
<thead>
<tr>
<th>Guideline recommendation or number(s)</th>
<th>Implementation barriers / enablers</th>
<th>Action / intervention / task to implement recommendation</th>
<th>Lead responsibility for delivery of the action</th>
<th>Timeframe for completion</th>
<th>Expected outcome and verification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education Recommendations 34, 35, 36</strong></td>
<td><strong>Enabler:</strong> Review, redesign and update of education programme</td>
<td>Co-design and produce a blended learning education programme - e-learning module, Promote and enable simulation and face to face engagement with different MDT disciplines (e.g. teaching opportunities on site) Hospitals to liaise with their academic partners to provide INEWS education on the relevant undergraduate programmes.</td>
<td>DPIP Practice Development, CNMEs NMPDUs HEIs Doctors, nurses, health and social care professionals Hospital Executive Management Team</td>
<td>X X</td>
<td>Outcome: Improved knowledge and skills in correct use of INEWS. Evidence of correct use of: Track and trigger tool (chart), escalation and response protocol, application of skills and competencies to tiered response model, use of ISBAR, ISBAR 3 Evidence of the use of clinical judgement, growing use of situation awareness and relevant tools i.e. safety huddles etc. Verification: Participation records. Provision of in hospital programmes. Improved access to education programmes online and face to face.</td>
</tr>
<tr>
<td><strong>Barriers:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Nonattendance or unidisciplinary attendance</td>
<td></td>
<td>INEWS KPI set an expectation of 85% of hospital relevant staff participating in training. Education programme made relevant to participating staff groups</td>
<td>Hospital Senior Management Teams (SMTs) Hospital Groups Acute Operations DPIP CNME Human Resources</td>
<td>X X X</td>
<td>Outcome: Education programme available to all disciplines Staff educated in correct use of INEWS Verification: Participation records. Improvement in compliance and application of tools evident in audits</td>
</tr>
<tr>
<td><strong>Education Recommendation 37</strong></td>
<td><strong>Enabler:</strong> The ANP response team demonstrator project will establish relevant skills and competencies</td>
<td>DPIP will co-produce with the clinical leads on the demonstrator site and other sites initiating ANP response models a skills and competencies framework for urgent response model. Align programme to existing models e.g. RCSI’s CCRISP programme.</td>
<td>DPIP Doctors, nurses, health and social care professionals ANPs NMPDUs Consultant leads National Clinical programmes</td>
<td>X</td>
<td>Outcome: Skills and competency Framework for ANP response team Skills and competencies identified for all tiered response model responders (interprofessional). Project to develop a skills education programme. Verification: Published skills and competencies framework document. Project to develop education and training for responders established</td>
</tr>
</tbody>
</table>
### Evaluation and Audit Recommendations

<table>
<thead>
<tr>
<th>Guideline recommendation or number(s)</th>
<th>Implementation barriers / enablers</th>
<th>Action / intervention / task to implement recommendation</th>
<th>Lead responsibility for delivery of the action</th>
<th>Timeframe for completion</th>
<th>Expected outcome and verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation and Audit Recommendations</td>
<td>Enablers:</td>
<td>Propose and agree a HSE QAV Audit Schedule</td>
<td>CCO, Clinical Design &amp; Innovation (CDI)</td>
<td>X X X</td>
<td>Outcome: Established audit schedule &amp; Outcome Agreed outcome indicators</td>
</tr>
<tr>
<td>38, 39, 40, 41</td>
<td></td>
<td>Conduct a feasibility study with NOCA to determine if a combined Deteriorating Patient and In Hospital Cardiopulmonary Arrest clinical audit is deliverable. Align other Clinical Audit Reports e.g. Sepsis, ICU admission to improvement plans. At a minimum establish a National In-Hospital Cardiopulmonary Arrest Clinical Audit</td>
<td>QAV, DPIP, Acute Hospitals Health Intelligence Business Intelligence unit NOCA Key stakeholders Doctors, nurses, health and social care professionals</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review and collate national and local data collection sources (e.g. quality care metrics, audit data, HIPE) to explore their potential for use in guideline monitoring, audit and evaluation</td>
<td>No responsibility identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enabler: A feasibility study of developing and implementing a combined clinical audit of the deteriorating phase and unanticipated cardiopulmonary arrest has been initiated.</td>
<td>In order to drive system wide improvement in INEWS and associated outcome measures at a minimum a national clinical audit for In Hospital Cardiopulmonary Arrest should be established under the auspices of NOCA</td>
<td>CCO, Clinical Design &amp; innovation, DPIP NOCA</td>
<td>X X</td>
<td>Outcome: Improved use of data for QI Verification: Reports published. Audit schedule.</td>
</tr>
<tr>
<td></td>
<td>Barrier: Resources and ongoing funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Verification:** QI projects based on audit results. Reports produced. Improvement plans with responsibilities and timelines agreed, implemented and evaluated.
## Appendix 5: Implementation Plan (continued)

<table>
<thead>
<tr>
<th>Guideline recommendation or number(s)</th>
<th>Implementation barriers / enablers</th>
<th>Action / intervention / task to implement recommendation</th>
<th>Lead responsibility for delivery of the action</th>
<th>Timeframe for completion</th>
<th>Expected outcome and verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems to Support High Quality care</td>
<td>Enabler: Number of natural alignments of INEWS with other patient safety resources and programmes</td>
<td>National and local health service organisations should seek opportunities to align their systems to support improvement in the anticipation, recognition, escalation, response and evaluation of clinically deteriorating patients as well as with other related clinical care programmes e.g. EOLC</td>
<td>CDI, QAV, National QI Team, National Clinical Programmes, Education providers, Key stakeholders. DPIP</td>
<td>X X X</td>
<td>Outcome: System wide INEWS, patient safety improvement. Patients requiring treatment limiting decisions identified. Verification: Co-ordinated effective care. Improvement in key outcome measures. Further improvement and development in INEWS. Greater access to end of life pathways.</td>
</tr>
<tr>
<td>Recommendations 42 and 43</td>
<td>Enabler: Track and trigger tool is well established in all acute hospitals Barrier: prohibitive cost of digital system Staff reluctance to use a digital system</td>
<td>Improvement in INEWS has reached a plateau and only minimal gains in compliance with recognition and escalation can be achieved with manual records. In line with other jurisdictions the HSE and hospitals should incorporate into service plans a digital observation monitoring, recording and alert system i.e. Digital INEWS</td>
<td>CCO, OoCIO, Acute Operations Dpip Executive management teams of hospitals, Doctors, nurses, health and social care professionals Biomedical engineers</td>
<td>X</td>
<td>Outcome: Reliable efficient recording of observations, escalation of care. Improved patient welfare. Reduction in missed opportunities to provide care. Support resource for frontline staff. Direct impact on patient safety. Verification: Digital system reports on accuracy of recording and alerts. Staff confidence in use of the system.</td>
</tr>
</tbody>
</table>
Implementation of overall guideline

While the implementation plan is specific to recommendations contained within the domains of the guideline, some actions will assist with guideline implementation as a whole. These include establishing an INEWS governance committee with designated implementation responsibilities; developing a dissemination and communication plan and designing or availing of specific implementation tools and resources.

Implementation team:

- National Team - DPIP/CDI National Lead, Programme Manager, Project Leads x 3 workstreams (guideline revision, education and service improvement), administrative support. Steering Group – meeting twice a year. Working groups for workstreams – dependant on progress, usually monthly at a maximum. DPIP team meetings – fortnightly. Demonstrator project (once established) – fortnightly initially then monthly.

- Hospital Level - INEWS Governance Committee membership,( hospitals should consider aligning all Early Warning Systems, Sepsis, Resuscitation, Morbidity & Mortality etc ) Example of membership of the governance committee; to include executive lead sponsor, Consultant lead/champion, designated INEWS co-ordinator, doctors, nurses, health and social care professionals, education leads for healthcare professionals and members of the hospital Quality & Patient Safety leads, QI team and or risk manager, resuscitation officer, critical care representative, sepsis lead, EWS leads. Quarterly meetings as per local policy. In partnership with QI sustainability team provide access to QI training for local teams. Local INEWS co-ordinators to facilitate the delivery of education sessions as required.

Dissemination and communication plan:

- Literature review and BIA
- Communication / Marketing: DPIP Website / DPIP Email Account / Twitter / Flyers / Infographics/ local hospital newsletters/intranets/ National conferences e.g. Patient Safety Conference,
- Organise an inaugural Deteriorating Patient conference for Ireland
- Seek to host the International Society for Rapid Response Systems (iSRRS) conference in Ireland
- Case scenarios to be used in education
- Communicate with hospitals on their key responsibilities and expectations e.g. all staff to have protected time to participate in education, review and improvement of governance, embed in existing forums/meetings, journal clubs, grand rounds etc.

Key communication messages:

- Shift from a score to a system
- Unanticipated cardiopulmonary arrest is a patient safety issue – aim is to eliminate preventable deaths from unrecognised deterioration
- INEWS is an adjunct to clinical judgement
- Situation awareness contributes to an environment which enhances patient safety
- Patient/family/carer engagement, communication, and escalation are essential to effectiveness
- Aim is to provide safe, efficient, reliable care.
Appendix 6: INEWS 2020 Patient Observation Chart

**Irish National Early Warning System (INEWS)**

**ADULT PATIENT OBSERVATION CHART**

INEWS should be used as an aid to clinical judgement and decision making.

<table>
<thead>
<tr>
<th>INEWS Score</th>
<th>Minimum Observation Frequency</th>
<th>Escalation</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare worker / patient / family concern</td>
<td>As indicated by patient condition</td>
<td>Nurse at the bedside / Nurse in Charge (NIC)</td>
<td>• NIC to review if concern and escalate as appropriate</td>
</tr>
<tr>
<td>0 – 1</td>
<td>6 hourly (first 24 hours following admission) then 12 hourly minimum</td>
<td>NIC</td>
<td>• NIC to review if new score 1</td>
</tr>
<tr>
<td>2</td>
<td>6 hourly</td>
<td>NIC</td>
<td>• NIC to review</td>
</tr>
</tbody>
</table>

For INEWS scores of 0 – 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern.

<table>
<thead>
<tr>
<th>INEWS Score</th>
<th>Minimum Observation Frequency</th>
<th>Escalation</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4 hourly</td>
<td>NIC and Team / On-call SHO</td>
<td>• SHO or ANP service to review within 1 hour</td>
</tr>
<tr>
<td>4 – 6</td>
<td>1 hourly</td>
<td>NIC and Team / On-call SHO</td>
<td>• SHO or ANP service to review within 1/2 hour</td>
</tr>
<tr>
<td>THINK SEPSIS*</td>
<td></td>
<td></td>
<td>• Screen for Sepsis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If no response to treatment within 1 hour, contact Registrar and/or ANP service</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Consider continuous patient monitoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Consider transfer to higher level of care</td>
</tr>
<tr>
<td>7</td>
<td>½ hourly</td>
<td>NIC and Team / On-call Registrar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Registrar / Consultant / ANP service to review immediately</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Continuous patient monitoring recommended</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Plan to transfer to higher level of care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Consider activating Emergency Response System (as appropriate to hospital model)</td>
</tr>
</tbody>
</table>

If response does not occur as per protocol the CNM/NiC should contact the Registrar or Consultant.

**CUES FOR CAUTION**

- Increasing O₂ requirements to maintain SpO₂ levels
- Patient located outside of specialist ward
- Patient receiving high-risk / unfamiliar therapies
- Communication concerns between staff and/or patient
- Nurse intuition / “gut-feeling”

*THINK SEPSIS* (Use clinical judgement)

INEWS ≥ 4 (or ≥ 5 on Oxygen) and suspicion of infection

Older people or those immunocompromised may present with sepsis with an INEWS < 4 (< 5 if on Oxygen)
**Irish National Early Warning System (INEWS) V2**

**National Clinical Guideline No. 1**

---

**Modified INEWS Escalation and Response Protocol (to be completed by Consultant or Registrar only)**

Not for use within first 24 hours of admission

<table>
<thead>
<tr>
<th>Date/Time (use 24hr clock)</th>
<th>Rationale and Instructions/Interventions</th>
<th>Next medical review</th>
<th>Doctor (Signature and MCRN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start 0400 / 25 / 05</td>
<td>Imp: Chronic COPD, admitted &gt; 24 hours ago. Stable with RR 22, SpO2 92%, O2 2L/min. (INEWS score 7) Escalate if change in RR or increased O2 requirement to maintain SpO2 treatment target of 92%.*</td>
<td>Maximum 6 hours (10am) or at ward round if sooner if concern</td>
<td>Dr. A Medical Registrar MCRN 1234567</td>
</tr>
<tr>
<td>End 1000 / 25 / 05</td>
<td>Reassessed—continue as above.</td>
<td>24 hours or sooner if concern</td>
<td>Dr. A Medical Registrar MCRN 1234567</td>
</tr>
<tr>
<td>Start 0400 / 26 / 05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End 1000 / 26 / 05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start /</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End /</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Text within sections above is provided as example only - please write over the watermark

---

**Deferred Escalation (to be completed by Registered General Nurse (RGN))**

<table>
<thead>
<tr>
<th>Date/Time (use 24hr clock)</th>
<th>Rationale and Interventions</th>
<th>Review at 30 minutes</th>
<th>Nurse (Signature and MNBPI PIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0400 / 25 / 05</td>
<td>Imp: Decrease in SpO2 to 94%, on 2L/min O2 via n/prongs, patient lying flat, patient states they feel okay. Intervention: patient repositioned and n/prongs adjusted. Repeat observation and review decision at 30 minutes. NIC informed.*</td>
<td>0430 hours: SpO2 back up to 96% on 2L/min O2. No need for escalation.</td>
<td>Nurse Brown PIN 123456</td>
</tr>
</tbody>
</table>

*Text within sections above is provided as example only - please write over the watermark

---

**ISBAR Communication Tool**

- I dentify
- S ituation
- B ackground
- A ssessment
- R ecommendation
### Neurological Observations

#### Glasgow Coma Scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Core Tone</th>
<th>Best Motor Response</th>
<th>Best Verbal Response</th>
<th>Best Eye Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td></td>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
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<td>7</td>
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<td>8</td>
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<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Pupils

- **Right:**
  - Size: 3
  - Reaction: Normal
  - Medial: Normal
  - No reaction: Normal
- **Left:**
  - Size: 3
  - Reaction: Normal
  - Medial: Normal
  - No reaction: Normal

#### Limb Movement

- **Arms:**
  - Spastic Flexion
  - Extension
  - Normal
  - No reaction
- **Legs:**
  - Spastic Flexion
  - Extension
  - Normal
  - No reaction

#### NMBI Pin

<table>
<thead>
<tr>
<th>Grade</th>
<th>Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Pain</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>Worst Pain Imaginable</td>
</tr>
</tbody>
</table>

### Numerical Pain Assessment Scale

Directions: On a scale of 0-10, how would you rate your pain now, if 0 is no pain and 10 is the worst pain imaginable.
Appendix 7: How to complete the INEWS Patient Observation Chart

‘Healthcare worker or patient or family concern’ is new to INEWS V2 and should be recorded with each set of INEWS observations.

<table>
<thead>
<tr>
<th>HEALTHCARE WORK (HCW) / PATIENT (P) / FAMILY (F) CONCERN (new addition to INEWS V2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How to assess</strong></td>
</tr>
</tbody>
</table>
| If a healthcare worker is concerned about the patient or the patient themselves or the patient’s family express concern this should be recorded and escalated appropriately. | Record ‘no concern’ as ‘0’  
Record Healthcare worker concern as ‘HCW’  
Record Patient concern as ‘P’  
Record family concern as ‘F’ |

All 7 INEWS physiological observations are completed and scored to obtain the INEWS score. These are as follows:

1. **RESPIRATORY RATE (RR)**
   - **How to assess**: Count breaths for one minute.
   - **How to record**: Enter RR count in the corresponding row. Place a dot in the corresponding row & join the dot to the previous dot using a line to indicate RR trend. Enter the INEWS value (0,1,2 or 3) for RR in the grey row below the RR section.

2. **PERIPHERAL OXYGEN SATURATION (SpO2 %)**
   - **How to assess**: Use pulse oximeter to measure oxygen saturation.
   - **How to record**: Enter % value in the corresponding row. Enter the INEWS value (0,1,2 or 3) for SpO2 in the grey row below SpO2 section.

3. **ROOM AIR OR SUPPLEMENTARY OXYGEN (FiO2)**
   - **How to assess**: Is the patient on room air? Or do they need supplementary oxygen?
   - **How to record**: If on ‘room air’ record “0” into Room Air Box  
If on Supplementary O2 enter either  
  - L/min of O2 being delivered or  
  - % of O2 being delivered  
Record the device in use as per legend e.g. ‘RA’ for ‘Room Air’. Enter the INEWS value (0,1,2 or 3) for FiO2 in the grey row below FiO2 section.

4. **HEART RATE (HR)**
   - **How to assess**: Count the patient’s pulse for 60 seconds
   - **How to record**: Record the HR by placing a dot in the corresponding row. Join the dot to the previous dot using a line to indicate HR trend. Enter the INEWS value (0,1,2 or 3) for HR in the grey row below HR section.

5. **BLOOD PRESSURE (BP)**
   - **How to assess**: Perform blood pressure measurement. Record both systolic and diastolic readings. The systolic blood pressure (SBP) provides the INEWS value.
   - **How to record**: Symbol ▲ Systolic Reading  
  Symbol ▼ Diastolic Reading  
Enter the INEWS value (0,1,2 or 3) for SBP in the grey row below BP section.
6. ACVPU ('C’ had been added to AVPU to capture ‘new confusion/altered mental status/delirium’)

<table>
<thead>
<tr>
<th>How to assess</th>
<th>How to record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess the neurological response using the ACVPU scale;</td>
<td>Record the HR by placing a dot in the corresponding row</td>
</tr>
<tr>
<td>• If fully awake and talking to you the patient is alert (A = Alert).</td>
<td>Join the dot to the previous dot using a line to indicate HR</td>
</tr>
<tr>
<td>• If the patient is experiencing new confusion, altered mental status or delirium record C (Confusion).</td>
<td>trend</td>
</tr>
<tr>
<td>• If the patient is not fully awake and responds to voice only record V (Voice)</td>
<td>Enter the INEWS value (0,1,2 or 3) for HR in the grey row</td>
</tr>
<tr>
<td>• If the patient does not respond to voice, administer a painful stimulus such as a trapezium squeeze and check for a response (eye opening, verbal such as moaning, or movement); if the patient responds to the painful stimulus record P (Pain).</td>
<td>below HR section</td>
</tr>
<tr>
<td>• If the patient is unresponsive record U (Unresponsive).</td>
<td></td>
</tr>
</tbody>
</table>

7. TEMPERATURE

<table>
<thead>
<tr>
<th>How to assess</th>
<th>How to record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform temperature measurement.</td>
<td>Record the value by placing a dot and exact temperature</td>
</tr>
<tr>
<td></td>
<td>reading in the corresponding row</td>
</tr>
<tr>
<td></td>
<td>Join the dot to the previous dot using a line to demonstrate</td>
</tr>
<tr>
<td></td>
<td>trend.</td>
</tr>
<tr>
<td></td>
<td>Enter the INEWS value (0,1,2 or 3) for temperature in the</td>
</tr>
<tr>
<td></td>
<td>grey row below Temperature section.</td>
</tr>
</tbody>
</table>

**INEWS Score**

Calculate the patient’s INEWS score by adding the INEWS values for each of the seven observations.
Follow the INEWS Escalation and Response Protocol for appropriate action.
If you are concerned about a patient escalate care even if patient’s INEWS score is low or where there is no score.

---

**Irish National Early Warning System (INEWS) Scoring Key**

<table>
<thead>
<tr>
<th>SCORE</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate (bpm)</td>
<td>≤ 8</td>
<td>9 - 11</td>
<td>12 - 20</td>
<td>21 - 24</td>
<td>≥ 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SpO₂ (%)</td>
<td>≤ 91</td>
<td>92 - 93</td>
<td>94 - 95</td>
<td>≥ 96</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspired O₂ (F₂O₂)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
<td>≤ 90</td>
<td>91 - 100</td>
<td>101 - 110</td>
<td>111 - 249</td>
<td>≥ 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Rate (BPM)</td>
<td>≤ 40</td>
<td>41 - 50</td>
<td>51 - 90</td>
<td>91 - 110</td>
<td>111 - 130</td>
<td>≥ 131</td>
<td></td>
</tr>
<tr>
<td>ACVPU/CNS Response</td>
<td></td>
<td></td>
<td>Alert (A)</td>
<td></td>
<td>New confusion (C), Voice (V), Pain (P), Unresponsive (U)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp (°C)</td>
<td>≤ 35.0</td>
<td>35.1 - 36.0</td>
<td>36.1 - 38.0</td>
<td>38.1 - 39.0</td>
<td>≥ 39.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 15: Resources

Annex 1: HRB-CICER Systematic Review of the Literature

Annex 2: Budget Impact Analysis

HSELand
https://www.hseland.ie/

National Acute Medicine Programme:
https://www.hse.ie/eng/about/who/cspd/ncps/acute-medicine/national-early-warning-score/

National Clinical Programmes:
https://www.rcpi.ie/national-clinical-programmes/

NCG No. 4 IMEWS:
https://www.hse.ie/eng/about/who/cspd/ncps/obstetrics-gynaecology/resources/imews/

NCG No. 5 Communication (Clinical Handover) in Maternity Services:

NCG No. 6 Sepsis:

NCG No. 11 Clinical Handover in Acute and Children's Hospital Services:

NCG No. 12 PEWS:
https://www.rcpi.ie/paediatric-early-warning-system/

NCG No. 18 EMEWS:
https://assets.gov.ie/35813/bc67aa6f072140f59b6125e7a24dd923.%2018%20Full%20Report

ONMSD:
https://healthservice.hse.ie/about-us/onmsd/

QI Toolkit: