Acute care toolkit 6
The medical patient at risk: recognition and care of the seriously ill or deteriorating medical patient
May 2013

This acute care toolkit concentrates on the recognition of the altered physiology induced by ill-health and the responses appropriate to these findings. However it is also important to recognise that there are certain clinical situations which define a patient at high risk. These have been termed clinical red flags\(^1\) and need not be associated with altered physiology.

A large proportion of patients admitted acutely are elderly, and issues relating to this patient group formed Acute care toolkit 3: Acute medical care for frail older people. This document should be used in conjunction with this and all the previous toolkits.

**Patient assessment: physiological disturbance and NEWS**

All patients admitted to an acute medical unit (AMU) should have their physiological status defined by a validated track-and-trigger tool as part of their reception to the unit.\(^2,3\) This facilitates the prompt recognition of a subgroup of more severely ill patients needing particular attention. The RCP recommends the use of the National Early Warning Score (NEWS)\(^4\) for this purpose. Adopting NEWS widely in the NHS, including the emergency department and the pre-hospital sector, is a key step in standardising the assessment of, and response to, acute illness. The early warning scores recorded are derived from routine physiological observations (Appendix 1)\(^5\) and are linked to pre-defined responses for the frequency of future monitoring and the need for clinician input at that time\(^6\) (Appendix 2). These responses may however, be modified in the presence of agreed ceilings of care for individual patients. The score generated by NEWS correlates with the scoring structure defined by the National Institute for Health and Clinical Excellence (NICE) in its Clinical Guideline 50(CG50) Acutely ill patients in hospital: Recognition of and response to illness in adults in hospital.\(^7\) The Intensive Care Society (ICS) has also described a number of levels of care and recently has also related them to particular activities in patient care. Table 1 modifies the ICS document\(^8\) removing surgical issues not found in medicine.

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\(^{1}\) Appendices 1–4 are available on the RCP website www.rcplondon.ac.uk/resources/acute-care-toolkit-6-medical-patient-risk
Outline clinical responses to NEWS triggers

The NEWS has four groups, which indicate increasing degrees of physiological disturbance, and are colour coded to enhance their significance:

- **Total NEWS: 0 – White Zone**
  - NICE CG50: No score, ICS level 0
  - Physiological monitoring needed: **12 hourly**.
  - No clinical response required.
  - This level of care can be provided on any medical ward in an acute hospital.

- **Total NEWS: 1–4 – Green Zone**
  - NICE CG50: Low score, ICS Level 0–1
  - Physiological monitoring needed: **Minimum of 4–6 hourly**.
  - Demands review by the registered nurse who will decide:
    - i. Is the immediate involvement of the medical team required?
    - ii. To what extent should the frequency of monitoring be increased?
    - iii. Can this patient still be managed in their current ward?

- **Total NEWS: 5–6 or more OR a score of 3 in any one parameter – Amber Zone**
  - NICE CG50: Medium score, ICS Level 1–2
  - Physiological monitoring needed: **Minimum of 1 hourly**.
  - Demands urgent review by the registered nurse responsible for the patient.
  - Demands the **urgent** involvement of the medical team within 15 minutes.
  - Assessment to be made by a clinician with core competencies to assess acutely ill patients.
  - Determine any ceilings of care.
  - Escalation to a facility with continuous ECG monitoring available, e.g., enhanced care (level 1) or HDU (high dependency unit), unless ceilings of care are in place.

- **Total NEWS: 7 or more – Red Zone**
  - NICE CG50: High score, ICS Level 2–3
  - Continuous monitoring of vital signs.
  - Demands immediate review by the registered nurse responsible for the patient.
  - Demands the **immediate** involvement of the medical team at ST3+ level.
  - Emergency assessment to be made by a clinical team with critical care competencies with the involvement of the patient’s consultant.
  - Consider transfer of clinical care to a level 2 or 3 care facility, i.e., HDU or ITU.

Notes on NEWS

- **Enhanced care areas.** These are facilities which may be a part of an existing ward flexibly upgraded to provide an enhanced care at level 1, or a discrete and permanent facility always available to provide this level of care. It is likely that such a facility would need the constant presence of one registered nurse to care for up to four patients.

- **Management of hypoxia.** Supplementary oxygen given in an attempt to improve low O2 saturation can be very hazardous for patients with type 2 hypercapnic respiratory failure. Patients at risk are those suffering from chronic obstructive pulmonary disease (COPD), cystic fibrosis, morbid obesity, chronic neuro-muscular disorders and severe kyphoscoliosis. Oxygen therapy should follow the guidelines set down by the British Thoracic Society.7

Box 1
Clinical red flags

Red flag scenarios are collections of symptoms and signs suggestive of clinical risk to the patient, but which are not necessarily associated with altered physiology. Failure to recognise the significance of these scenarios can have serious adverse clinical consequences for the patients. Here are some examples.

- Cardiac chest pain at rest lasting longer than 20 minutes.
- Headache of dramatically sudden onset.
- Recent onset headache with scalp tenderness and/or jaw claudication.
- Palpitations associated with syncope.
- Cauda equina syndrome.
- Painful swollen calf.

Recommendations for assessment

- All patients should have a NEWS on admission and as part of every reassessment.
- Systems must be in place to ensure timely and appropriate responses to NEWS.
- NEWS > 5 should trigger an assessment of ceilings of care and DNACPR status.
- Red flag scenarios should be considered at each assessment.
- NEWS should be used as an aid to clinical assessment but not as a substitute for competent clinical judgement.
- Concern about a patient’s clinical condition should always override the calculated score from NEWS when considering the need to escalate the level of care.
- Patients must always be managed in areas appropriate to their clinical needs.

Recommendations for escalation of care

For those patients where it has been agreed by the clinical team (including the patient’s medical consultant, in conjunction with the patient and/or relatives) that escalation of care is not appropriate, a NEWS of 5 or more should prompt a check that this decision has been clearly documented and communicated. Related decisions, such as do not attempt cardio-pulmonary resuscitation (DNACPR) orders, must also be made and documented.
Patient assessment: clinical ‘red flag’ scenarios

Physiological abnormality is not the only marker of the patient at risk, and other clinical factors may add significantly to the assessment. For example, a patient presenting with prolonged classical anginal chest pain, occurring at rest and accompanied by an ECG showing ST segment deviation, may have a NEWS of zero but is clearly at risk. Other presentations may be less obvious. Such clinical situations have been termed ‘red flags’ and should be known to all practitioners (Box 1).

Formal assessment on admission:

Following their initial assessment, which should be made immediately on their arrival on the AMU, all patients requiring admission should be formally clerked by a clinician with clinical competencies appropriate for the patient’s degree of ill health as indicated by their initial assessment and NEWS. For many patients with a low NEWS this could be undertaken by a foundation or core trainee with appropriate supervision, or by an advanced nurse practitioner. This formal assessment should be completed within 4 hours. Where the NEWS indicates significant physiological abnormality or when red flag scenarios are identified, then the assessment should be performed by a more experienced clinician, such as a specialty trainee year three or above (ST3+), and might need to be preceded by a period of resuscitation and stabilisation. Formal training in assessment and resuscitation is invaluable in ensuring good clinical performance. The ALERT course is well suited to the needs of both nurses and foundation trainees, whereas the IMPACT course provides good training for core trainees, as does the MedicALS course, for higher trainees and consultants.

Timeliness of assessment and response to critical illness

The promptness of the responses to the ongoing NEWS assessments (see Appendix 2) is crucial and an ‘urgent’ response should be within 15 minutes. However, as the role of the medical registrar on-call is increasingly onerous, the timeliness of urgent or even immediate review is challenging. When review is delayed there will be substandard care and this should be reported as a critical incident. Inadequate responses to medical patients’ deterioration has been well documented, notably by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD). 11

Recommendation for staffing

Hospitals have a responsibility to provide enough experienced medical and nursing practitioners to deliver prompt high-quality care to all their patients.

Consultant involvement in acute medical care

The importance of early consultant review of critically ill patients has been highlighted as key to rapid decision-making and improving outcomes. It is the recommendation of both the RCP and the Society for Acute Medicine (SAM) that:

- During the extended working day, the consultant on call should review patients as soon as possible after their formal assessment has been completed. During the working day this review should take place within 6-8 hours of the patient’s admission to the AMU. Patients admitted overnight should receive a consultant review within 1-4 hours.
- All patients admitted on to a ward from the AMU should have first been reviewed by the consultant on call.
- The medical consultant on call should be involved in all admissions of medical patients to critical care areas. Proactive communication at senior (ST3+ or consultant) level between the acute medical and critical care teams is key to achieving the best outcomes for the most acutely ill patients. These working practices should be explicit in consultant job plans and in new consultant job descriptions. They should also be made clear to trainees seeking training posts in general internal medicine and acute internal medicine.

The medical patient at risk due to severe sepsis

Independent of their presenting complaint, many seriously ill patients become systemically unwell as a complication of infection. Sepsis should therefore be considered in any patient with an abnormal NEWS and it is essential that clinicians are familiar with the criteria for its diagnosis. Patients in septic shock will have a high NEWS and will have a poor prognosis unless they are treated within the first hours of presentation using haemodynamic targets. Sepsis is treatable and its consequences can be avoided by prompt implementation of the sepsis care bundle (Appendix 3).

Assessment of risk of medical complications

Any formal assessment should routinely include consideration of important medical complications, particularly of the risks of venous thromboembolism (VTE) according to NICE Clinical Guideline 92 and of AKI – acute kidney injury (Appendix 4). Clerking pro formas should incorporate checklists to facilitate such assessments and patients at risk of AKI should be monitored regularly, with the involvement of departments of clinical chemistry providing electronic alerts to ensure appropriate response to changes in renal function.

The newly admitted or deteriorating patient: physiological monitoring requirements

The management plan at the time of admission or review should include a clear plan for future monitoring, as recommended by NICE Clinical Guideline 50. This would include frequency of NEWS monitoring, but might also include observations such as monitoring of neurological function by the Glasgow Coma Scale, of hourly urinary output, or of blood sugar levels. The monitoring plan should be an integral part of any clerking pro forma, and should specify the frequency of all observations and explicitly indicate which findings, in addition to NEWS, demand a request for review by medical staff.
No patient should be transferred from the AMU to a ward which is unable to meet their clinical requirements.

Continuing assessment: Using NEWS to ‘track and trigger’

The RCP recommends using NEWS to track a patient’s progress throughout their admission to provide early warning of deterioration and a trigger for escalation of care. Care must be escalated for patients with persistent abnormalities (or their ceilings of care defined). They must not be allowed to progress to cardio-pulmonary arrest or have delayed intensive care admissions – ‘failure to rescue’. Conversely, when a patient’s NEWS falls, it may be appropriate to reduce the frequency of clinical monitoring.

Right patient – right bed (level 0–3 care beds)

With reducing length of stay and the increasing development of alternatives to hospital admission, the acuity and complexity of illness in medical inpatients has increased, with implications for the provision of level 1–3 care. A population-based survey of critical care needs in 2000, reported shortfalls, particularly of level 2 beds. Changes to clinical referral practices, including referral fatigue, where previous experiences of rejection alters the threshold for referral, can obscure the clinical need for level 2 critical care beds.

- Following their initial and formal assessments and the delivery of any immediate treatment, the newly admitted patient’s subsequent inpatient care should be on a ward that has facilities appropriate to their clinical condition.
- The appropriate place of care for patients whose NEWS are at the extremes of the scale is uncontroversial. What is more problematic is the appropriate place of care for patients with NEWS of 1–6.
- Many patients with NEWS of 1–2 can be managed safely on an ordinary medical ward (ICS level 0). However, many other patients with NEWS 3–4 would qualify for level 1 care, as would all patients with medium scores (NEWS 5–6 or 3 or more in one parameter).
- With the help of critical care outreach services, any medical ward should be able to support a few patients needing level 1 care for a short period of time. However, this is dependent on nursing skills and the skillmix of staff on the ward, and the heavy nursing workload often makes it impractical to do this safely and consistently for an extended period.
- Although patients with organ-specific illnesses benefit from care on specialty wards, creating level 1 beds on such wards is demanding of nurse and medical staffing. The strategy of co-locating patients needing intense monitoring and treatment led to the development of critical care. There is merit to a cross-specialty approach to provision of level 1 beds, pooling resources and expert staff.

The RCP Acute Medicine Taskforce recommended in 2007 that enhanced care areas, as distinct from HDUs, should be established as part of AMUs to provide level 1 care. The provision of level 1 care must be a top priority in those hospitals which have not yet implemented this recommendation.

- Provision of level 1 beds on every AMU would not only enhance the ability to monitor and treat acutely ill patients but also embed collaborative working with critical care staff on the AMU and highlight a cohort of medical patients at risk of requiring level 2–3 care.
- NCEPOD has recommended that any delay in admission to critical care should be recorded as a critical incident and may also attract the attention of the ombudsman. A similar emphasis on the prompt provision of high-quality care should apply to the acutely ill patient requiring level 1 care.

Recommendations - Right patient, right bed

- No patient should be transferred from the AMU to a ward which is unable to meet their clinical requirements.
- All hospitals managing acutely ill medical patients should have adequate provision of level 1 care – enhanced care.
- Enhanced care areas, as distinct from HDUs, should be established as part of AMUs and this must be a top priority.
- All patients eligible for level 2 care should have access to HDU or ACCU – acute cardiac care unit beds.
Table 1 Levels of critical care for adult (medical) patients (after The Intensive Care Society, 2009)

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<th>LEVEL</th>
<th>Criteria</th>
<th>Medical Examples</th>
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| Level 0 (General Ward) | Requires hospitalisation. Needs can be met through normal ward care. | • Intravenous therapy  
• Observations required less frequently than 4 hourly. |
| Level 1 (enhanced care) | Patients in need of additional monitoring, clinical interventions, clinical input or advice. Patients requiring critical care outreach service support. | • Requiring a minimum of 4-hourly observation.  
• Requiring a minimum of 4-hourly GCS assessment.  
• Requiring frequent (>2x day) peak expiratory flow rate measurement.  
• Requiring continuous oxygen therapy.  
• Requiring respiratory physiotherapy to treat or prevent respiratory failure.  
• At risk of aspiration pneumonia.  
• With a chest drain in situ.  
• With diabetes, receiving a continuous infusion of insulin.  
• Requiring administration of bolus intravenous drugs through a central venous catheter.  
• Abnormal vital signs but not requiring a higher level of critical care.  
• Risk of clinical deterioration and potential need to step up to level 2 care. Patients fulfil the ‘medium’ risk category as defined by NICE Guideline 50. |
| Level 2 (HDU) | Patients receiving single organ support. Patients stepping down to Level 2 care from Level 3. (Cardiac cases excluded as they would go to Level 2 in ACCU). | • Requiring a minimum of hourly observations.  
• Mask/hood CPAP or mask/hood bi-level positive airway pressure (non-invasive ventilation).  
• More than 50% oxygen delivered by face mask.  
• Close observation due to the potential for acute deterioration to the point of needing advanced respiratory support.  
• Central nervous system depression sufficient to prejudice the airway and protective reflexes.  
• Use of a CVP line for monitoring central venous pressure and/or provision of central venous access to deliver titrated fluids to treat hypovolaemia.  
• Single intravenous vasoactive drug used to support or control arterial pressure, cardiac output or organ perfusion.  
• At risk of deterioration and requiring level 3 care again. |
| Level 3 (ICU) | Patients receiving Advanced Respiratory Support alone. Patients receiving a minimum of two organs supported. | |

Handover of care

The use of SBAR (Situation – Background – Assessment – Recommendation) structured communication is recommended when handing over a patient as described in Acute care toolkit 1: Handover.

Ceilings of care:

- It is notoriously difficult to predict the outcome of all medical patients’ illnesses soon after their admission.
- For some patients, however, it is evident at an early stage that they are suffering their final illness, and that there should be ceilings to their care.
- Decisions on the ceilings of care for a patient should involve the patient’s consultant at the earliest opportunity and should, wherever possible, be agreed by the whole healthcare team.
- Decisions must not be made on the basis of assumptions based solely on factors such as the patient’s age, disability, or on a professional’s subjective view of a patient’s quality of life.
- The views of the patient, information from relatives and carers, and the opinions of other healthcare professionals, can help to formulate these decisions.
- The ceilings of care for that patient should then be clearly documented in the case notes and known by both medical
and nursing staff. This may include the completion of a DNACPR order.

> Where death is clearly imminent, a multidisciplinary team, including the patient’s consultant and senior nurses, should consider whether the patient should enter an end-of-life pathway.

> All decisions on ceilings of care should be reviewed periodically and should not be considered irrevocable.

**Recommendation - ceilings of care**

No patient who is terminally ill, or who has endured a prolonged period of documented illness not responding to treatment where it is agreed CPR would be futile, should suffer the indignity of an inappropriate cardiopulmonary resuscitation (CPR) attempt.

**Conclusion**

The medical patient at risk of deterioration presents the most challenging clinical situation for junior and senior doctors alike, but the potential rewards in terms of improving outcomes, or agreeing ceilings of care to allow a dignified comfortable death, are immense. Integrating the assessment of clinical status by NEWS into clinical decision-making is key to responding promptly and effectively to evolving acute medical illness. For the acutely ill patient, NEWS provides the link between the ward nurse or junior doctor looking after the patient and consultant decision-making. For the sickest patients who require escalation of care, early involvement of the critical care team is crucial. Some patients with a medium level of illness acuity (NEWS 2–6) not requiring a level 2 (HDU) care, would benefit from enhanced monitoring and treatment in a level 1 bed. Level 1 beds should be available in all acute hospitals.

The toolkits can be accessed online at www.rcplondon.ac.uk/resources/acute-care-toolkits

**References**


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