NICE National Institute for Health and Care Excellence

NICE guideline

Acutely ill adults in hospital: recognising and responding to deterioration

Clinical guideline

Published: 25 July 2007

www.nice.org.uk/guidance/cg50

Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS158 and QS174.

Overview

This guideline covers how patients in hospital should be monitored to identify those whose health may become worse suddenly and the care they should receive. It aims to reduce the risk of patients needing to stay longer in hospital, not recovering fully or dying. It doesn't specifically cover the care of children, patients in critical care areas or those in the final stages of a terminal illness.

Who is it for?

- Healthcare professionals
- All adult inpatients, including patients in the emergency department being admitted to hospital and those being moved between departments
- Family and carers of adults in hospital

Introduction

Patients who are admitted to hospital believe that they are entering a place of safety, where they, and their families and carers, have a right to believe that they will receive the best possible care. They feel confident that, should their condition deteriorate, they are in the best place for prompt and effective treatment.

Yet there is evidence to the contrary. Patients who are, or become, acutely unwell in hospital may receive suboptimal care. This may be because their deterioration is not recognised, or because – despite indications of clinical deterioration – it is not appreciated, or not acted upon sufficiently rapidly. Communication and documentation are often poor, experience might be lacking and provision of critical care expertise, including admission to critical care areas, delayed.

We have endeavoured to produce practical guidance with recommendations for the measurement and recording of a set of physiological observations, linked to a 'track and trigger' system. We have emphasised the importance of a full clinical assessment, and of tailoring the written monitoring and management plans to the individual patient's clinical circumstances. Throughout the document we have emphasised the importance of training; by ensuring that routine measurements are accurately taken and recorded by staff that understand their clinical relevance, and by linking these observations to a graded track and trigger system, care can be escalated appropriately. The foundations for patient safety are laid through doing and recording simple measurements well and having agreed response strategies in place.

The guideline development group struggled with the lack of evidence to identify any 1 best model of response. It needed to balance making clear recommendations about the level and nature of the response with the absence of evidence regarding optimal configuration. Given this, the guideline development group considered that the optimal configuration of response should be agreed and delivered locally. Whatever model of care is agreed, the clinical team must have the necessary competencies. Where admission to a critical care area is considered necessary, we have emphasised the importance of involving both critical care consultants and the team caring for the patient on the ward.

The guideline development group recognised the pressure on both critical care beds and inpatient hospital beds, and the difficulties of ensuring smooth, planned transfer from critical care areas back to the wards. Nevertheless, we have set out recommendations to

avoid transfer out of critical care areas between the hours of 10:00pm and 7:00am. If this occurs, it should be documented as an adverse incident. We have been prescriptive about the need for a formal, structured handover of care between the transferring and receiving teams, recognising the understandable anxiety of patients and their carers and the need to provide reassurance and information to them at this time.

This is the first NICE short guideline to be developed. The methodology is of the same rigour as for the standard NICE guidelines, but the scope is narrower, and the development and consultation phases have been compressed. The guideline development group recognises the importance of producing guidance rapidly in an area in which patients and clinicians need advice urgently to ensure patient safety. This philosophy sits well with our emphasis on a timely and rapid response to the acutely ill hospital patient. We hope that the guideline will be welcomed by all who plan, deliver, or experience hospital inpatient clinical care.

Dr Mary Armitage
Guideline development group chair

Key priorities for implementation

- Adult patients in acute hospital settings, including patients in the emergency department for whom a clinical decision to admit has been made, should have:
  - physiological observations recorded at the time of their admission or initial assessment
  - a clear written monitoring plan that specifies which physiological observations should be recorded and how often. The plan should take account of the:
    - patient's diagnosis
    - presence of comorbidities
    - agreed treatment plan.

      Physiological observations should be recorded and acted upon by staff who have been trained to undertake these procedures and understand their clinical relevance.
- Physiological track and trigger systems should be used to monitor all adult patients in acute hospital settings.
  - Physiological observations should be monitored at least every 12 hours, unless a decision has been made at a senior level to increase or decrease this frequency for an individual patient.
  - The frequency of monitoring should increase if abnormal physiology is detected, as outlined in the recommendation on graded response strategy.
- Staff caring for patients in acute hospital settings should have competencies in monitoring, measurement, interpretation and prompt response to the acutely ill patient appropriate to the level of care they are providing. Education and training should be provided to ensure staff have these competencies, and they should be assessed to ensure they can demonstrate them.
- A graded response strategy for patients identified as being at risk of clinical deterioration should be agreed and delivered locally. It should consist of the following 3 levels:

- Low-score group:
  - Increased frequency of observations and the nurse in charge alerted.
- Medium-score group:
  - Urgent call to team with primary medical responsibility for the patient.
  - Simultaneous call to personnel with core competencies for acute illness. These competencies can be delivered by a variety of models at a local level, such as a critical care outreach team, a hospital-at-night team or a specialist trainee in an acute medical or surgical specialty.
- High-score group:
  - Emergency call to team with critical care competencies and diagnostic skills. The team should include a medical practitioner skilled in the assessment of the critically ill patient, who possesses advanced airway management and resuscitation skills. There should be an immediate response.

- If the team caring for the patient considers that admission to a critical care area is clinically indicated, then the decision to admit should involve both the consultant caring for the patient on the ward and the consultant in critical care.
- After the decision to transfer a patient from a critical care area to the general ward has been made, he or she should be transferred as early as possible during the day. Transfer from critical care areas to the general ward between 10:00pm and 7:00am should be avoided whenever possible, and should be documented as an adverse incident if it occurs.
- The critical care area transferring team and the receiving ward team should take shared responsibility for the care of the patient being transferred. They should jointly ensure:
  - there is continuity of care through a formal structured handover of care from critical care area staff to ward staff (including both medical and nursing staff), supported by a written plan
  - that the receiving ward, with support from critical care if required, can deliver the agreed plan.

    The formal structured handover of care should include:

- a summary of critical care stay, including diagnosis and treatment
- a monitoring and investigation plan
- a plan for ongoing treatment, including drugs and therapies, nutrition plan, infection status and any agreed limitations of treatment
- physical and rehabilitation needs
- psychological and emotional needs
- specific communication or language needs.

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

The following guidance is based on the best available evidence. The full guideline gives details of the methods and the evidence used to develop the guidance.

Physiological observations in acute hospital settings

1.1 Adult patients in acute hospital settings, including patients in the emergency department for whom a clinical decision to admit has been made, should have:

- physiological observations recorded at the time of their admission or initial assessment
- a clear written monitoring plan that specifies which physiological observations should be recorded and how often. The plan should take account of the:
  - patient's diagnosis
  - presence of comorbidities
  - agreed treatment plan.

  Physiological observations should be recorded and acted upon by staff who have been trained to undertake these procedures and understand

their clinical relevance.

1.2 As a minimum, the following physiological observations should be recorded at the initial assessment and as part of routine monitoring:

- heart rate
- respiratory rate
- systolic blood pressure
- level of consciousness
- oxygen saturation
- temperature.

Identifying patients whose clinical condition is deteriorating or is at risk of deterioration

1.3 Physiological track and trigger systems should be used to monitor all adult patients in acute hospital settings.

- Physiological observations should be monitored at least every 12 hours, unless a decision has been made at a senior level to increase or decrease this frequency for an individual patient.
- The frequency of monitoring should increase if abnormal physiology is detected, as outlined in the recommendation on graded response strategy.

Choice of physiological track and trigger system

1.4 Track and trigger systems (NEWS2 [National Early Warning Score] has been endorsed by NHS England) should use multiple-parameter or aggregate weighted scoring systems, which allow a graded response. These scoring systems should:

- define the parameters to be measured and the frequency of observations
- include a clear and explicit statement of the parameters, cut-off points or scores that should trigger a response.

Physiological parameters to be used by track and trigger systems

1.5 Multiple-parameter or aggregate weighted scoring systems used for track and trigger systems should measure:

- heart rate
- respiratory rate
- systolic blood pressure
- level of consciousness
- oxygen saturation
- temperature.

1.6 In specific clinical circumstances, additional monitoring should be considered; for example:

- hourly urine output
- biochemical analysis, such as lactate, blood glucose, base deficit, arterial pH
- pain assessment.

Critical care outreach services for patients whose clinical condition is deteriorating

1.7 Staff caring for patients in acute hospital settings should have competencies in

monitoring, measurement, interpretation and prompt response to the acutely ill patient appropriate to the level of care they are providing. Education and training should be provided to ensure staff have these competencies, and they should be assessed to ensure they can demonstrate them.

1.8 The response strategy for patients identified as being at risk of clinical deterioration should be triggered by either physiological track and trigger score or clinical concern.

1.9 Trigger thresholds for track and trigger systems should be set locally. The threshold should be reviewed regularly to optimise sensitivity and specificity.

Graded response strategy

No specific service configuration can be recommended as a preferred response strategy for individuals identified as having a deteriorating clinical condition.

1.10 A graded response strategy for patients identified as being at risk of clinical deterioration should be agreed and delivered locally. It should consist of the following 3 levels:

- Low-score group:
  - Increased frequency of observations and the nurse in charge alerted.
- Medium-score group:
  - Urgent call to team with primary medical responsibility for the patient.
  - Simultaneous call to personnel with core competencies for acute illness. These competencies can be delivered by a variety of models at a local level, such as a critical care outreach team, a hospital-at-night team or a specialist trainee in an acute medical or surgical specialty.
- High-score group:
  - Emergency call to team with critical care competencies and diagnostic skills. The team should include a medical practitioner skilled in the

assessment of the critically ill patient, who possesses advanced airway management and resuscitation skills. There should be an immediate response.

1.11 Patients identified as 'clinical emergency' should bypass the graded response system. With the exception of those with a cardiac arrest, they should be treated in the same way as the high-score group.

1.12 For patients in the high- and medium-score groups, healthcare professionals should:

- initiate appropriate interventions
- assess response
- formulate a management plan, including location and level of care.

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

Transfer of patients from critical care areas to general wards

1.14 After the decision to transfer a patient from a critical care area to the general ward has been made, he or she should be transferred as early as possible during the day. Transfer from critical care areas to the general ward between 10:00pm and 7:00am should be avoided whenever possible, and should be documented as an adverse incident if it occurs.

Care on the general ward following transfer

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

jointly ensure:

- there is continuity of care through a formal structured handover of care from critical care area staff to ward staff (including both medical and nursing staff), supported by a written plan
- that the receiving ward, with support from critical care if required, can deliver the agreed plan.

The formal structured handover of care should include:

- a summary of critical care stay, including diagnosis and treatment
- a monitoring and investigation plan
- a plan for ongoing treatment, including drugs and therapies, nutrition plan, infection status and any agreed limitations of treatment
- physical and rehabilitation needs
- psychological and emotional needs
- specific communication or language needs.

1.16 When patients are transferred to the general ward from a critical care area, they should be offered information about their condition and encouraged to actively participate in decisions that relate to their recovery. The information should be tailored to individual circumstances. If they agree, their family and carers should be involved.

1.17 Staff working with acutely ill patients on general wards should be provided with education and training to recognise and understand the physical, psychological and emotional needs of patients who have been transferred from critical care areas.

Recommendations for research

1 Identification and evaluation of risk scoring tools

- What is the clinical effectiveness and cost effectiveness of automated (electronic) monitoring systems compared with manual recording systems in identifying people at risk of clinical deterioration in general hospital ward settings?
- What are the sensitivities and specificities of track and trigger systems in different clinical settings?
- Can track and trigger systems that have higher sensitivities and specificities than existing scores be developed and validated?

2 Response strategies for patients identified as having a deteriorating clinical condition

- What is the clinical and cost effectiveness of a structured educational programme to improve recognition of and response to acute illness compared with no structured programme in improving outcomes for people who clinically deteriorate in general hospital ward settings?
- What is the clinical and cost effectiveness of critical care outreach services compared with usual care or educational outreach in improving health outcomes for patients who clinically deteriorate in general hospital ward settings? Such research should:
  - use a cluster randomised controlled trial design conducted on multiple sites, with analysis of the cluster at hospital level rather than ward level
  - investigate a range of health outcomes, including mortality, morbidity, quality of life measures and patient satisfaction
  - include a parallel qualitative process evaluation to help establish which components of outreach (a complex intervention) are likely to be most effective
  - consider 24-hour critical care outreach as well as daytime outreach.

3 Transfer of patients from critical care areas

- What is the clinical and cost effectiveness of providing structured educational advice (such as an information booklet) compared with usual care to patients who have been transferred from critical care areas back to general hospital ward settings?
- What is the clinical and cost effectiveness of a transfer facilitator for patients transferred from critical care to a general ward environment? Such research could include outcome measures on:
  - patient satisfaction
  - time to discharge from acute hospital
  - destination when transferred.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic page on acute and critical care.

For full details of the evidence and the guideline committee's discussions, see the full guideline and appendices. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

Minor changes since publication

April 2019: Recommendation 1.4 has been updated to add details of the NEWS2 tool.

ISBN: 978-1-4731-3420-1