NICE National Institute for Health and Care Excellence

2020 surveillance of acutely ill adults in hospital: recognising and responding to deterioration (NICE guideline CG50)

Surveillance report

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Surveillance decision

We will not update the NICE guideline on acutely ill adults in hospital: recognising and responding to deterioration.

Reasons for the decision

Topic experts suggested key areas to focus on in this surveillance review, including the use of track and trigger/early warning systems in the recognition of patient deterioration, electronic compared with paper-based systems for recognition of patient deterioration, and response strategies for patients identified as experiencing clinical deterioration (for reasons including changes in policy and their view of possible new evidence). Focused searches for new evidence were undertaken in these areas as part of this surveillance review. Evidence we identified was either consistent with current recommendations or was not considered sufficient to impact on the recommendations in this guideline. Evidence allowing direct comparisons between different track and trigger tools/early warning scores or between different response strategies was limited. Overall, the new evidence that was identified was not considered to impact on the recommendations in this guideline.

We identified ongoing research on the use of early warning scales and monitoring of vital signs. The publication status of these studies and any potential impact on guideline recommendations upon publication will be monitored.

The use of early warning scores in the assessment of people with suspected sepsis is covered by the NICE guideline on sepsis: recognition, diagnosis and early management.

For further details and a summary of all evidence identified in surveillance, see appendix A.

Overview of 2020 surveillance methods

NICE's surveillance team checked whether recommendations in the NICE guideline on acutely ill adults in hospital: recognising and responding to deterioration remain up to date.

The surveillance process consisted of:

- Feedback from topic experts via a questionnaire.
- A search for new or updated Cochrane reviews.
- Consideration of evidence from previous surveillance.
- Examining related NICE guidance and quality standards and National Institute for Health Research (NIHR) signals.
- A search for ongoing research.
- Focused literature searches to identify relevant evidence.
- Assessing the new evidence against current recommendations to determine whether or not to update sections of the guideline, or the whole guideline.
- Consulting on the proposal with stakeholders as the proposal was not to update the guideline.
- Considering comments received during consultation and making any necessary changes to the proposal.

For further details about the process and the possible update decisions that are available, see ensuring that published guidelines are current and accurate in developing NICE guidelines: the manual.

Evidence considered in surveillance

Search and selection strategy

We searched for new evidence related to specific parts of the guideline. These areas were suggested by topic experts as the key ones to focus on in this surveillance review. We

searched for systematic reviews, experimental primary studies, and observational primary studies published between the date of the last surveillance review and 30 July 2019. Evidence specific to sepsis was not summarised in this surveillance review as this is covered by the related NICE guideline on sepsis: recognition, diagnosis and early management.

Track and trigger/early warning systems for recognition of patients whose clinical condition is deteriorating or who are at risk of deterioration

We searched for evidence on the use of any tool (for example, track and trigger or early warning score) which triggers a set response to predetermined patterns of physiological derangements and includes 'periodic observation' of parameters compared with any other track and trigger system/early warning score or no track and trigger system/early warning score.

Electronic and paper-based warning systems for recognition of patients whose clinical condition is deteriorating or who are at risk of deterioration

We searched for evidence on the use of electronic alert/monitoring/warning systems compared with any other electronic alert/monitoring/warning system, paper-based alert system, or no alert/monitoring/warning system.

Response strategies for patients identified as having a deteriorating clinical condition

We searched for evidence on the effects of any response strategy (for example, formal approach agreed within setting) to deterioration (for example, critical care outreach team) compared with any other response strategy to deterioration or no specific response strategy to deterioration.

We included a total of 126 studies from these focused searches.

We also included:

- 8 relevant studies from a total of 39 identified by topic experts
- 1 study from an NIHR signal
- 55 studies identified in previous surveillance reviews

- 4 studies identified in comments received during consultation on the 2020 surveillance review

From all sources, we considered 194 studies to be relevant to the guideline.

See appendix A for details of all evidence considered, and references.

Ongoing research

We checked for relevant ongoing research; of the ongoing studies identified, 2 studies were assessed as having the potential to change recommendations. Therefore, we plan to regularly check whether these studies have published results and evaluate the impact of the results on current recommendations as quickly as possible. These studies are:

- Use of early warning scales in the prehospital scope as a diagnostic and prognostic tool
- Safer and more efficient vital signs monitoring: an observational study

Intelligence gathered during surveillance

Views of topic experts

We considered the views of topic experts who were recruited to the NICE Centre for Guidelines Expert Advisers Panel to represent their specialty. For this surveillance review, topic experts completed a questionnaire about developments in evidence, policy and services related to the guideline.

We sent questionnaires to 11 topic experts and received 6 responses. Responding topic experts included a matron, a medical director, and consultants in the following areas: acute medicine, surgery, emergency medicine, intensive care medicine, and anaesthesia. Five out of 6 responding topic experts considered that recommendations in this guideline need to be updated.

Key points highlighted in topic expert feedback included:

- Need to review evidence on identifying patients whose clinical condition is deteriorating/at risk of deterioration and choice of physiological track and trigger system. Topic experts noted local variations in components of early warning scores, that guidance should include confusion and supplemental oxygen, and the need for standardisation in track and trigger score. Topic expert feedback also highlighted the need for investigation of the use of track and trigger scoring in emergency department patients and recognition of subgroups where track and trigger systems may be less reliable (for example, pregnant patients or spinal cord injury patients). One topic expert noted issues with outcome metrics for early warning systems, stating that a review of outcome measures of a successful early warning score is needed. A focused search was performed in this surveillance review to identify any new relevant evidence on the use of early warning scores/track and trigger systems.

- Potential issues with monitoring people with cognitive impairment to reflect clinical risk. No evidence was identified on this topic in this surveillance review.

- Need to integrate track and trigger tools with wider information and correct presentation and use of that information. No evidence was identified on this topic in this surveillance review.

- Publication of the 2019 Healthcare Safety Investigation Branch (HSIB) report on recognising and responding to critically unwell patients, noting patients continue to suffer harm because of failure to recognise and respond in a timely manner. Focused searches for evidence on recognition of and response to patient deterioration were performed in this surveillance review. This HSIB report was also included in the summary of evidence.

- Need to review evidence on electronic alert/warning systems (including comparison of electronic and paper only systems). A focused search was performed to identify evidence on this topic.

- Acute kidney injury recognition should be part of the assessment of acutely ill people in hospital. Two relevant studies were identified in this surveillance review on the use of automated electronic alerts for acute kidney injury and modelling for prediction of acute kidney injury. NICE has produced a quality standard on acute kidney injury and a guideline on acute kidney injury: prevention, detection and management, both of which are included in the NICE Pathway on acutely ill patients in hospital.

- Need to consider evidence on response strategies. A focused search was performed in this surveillance review to identify any new relevant evidence in this area.

- Whether there was an issue with the definition of adult in the guidance and whether this should be 18 years and over or 16 years and over. The adult age definition is not explicitly defined in the scope or guideline.

Implementation of the guideline

No relevant information was identified.

Other sources of information

No relevant information was identified.

Views of stakeholders

Stakeholders are consulted on all surveillance reviews except if the whole guideline will be updated and replaced. Because this surveillance proposal was to not update the guideline, we consulted with stakeholders.

Overall, 11 stakeholders commented.

Six stakeholders agreed with the decision not to update the guideline. These included 5 professional bodies and 1 patient organisation.

Five stakeholders disagreed with the decision not to update the guideline. These included NHS England, 2 professional bodies, 1 NHS foundation trust, and 1 commercial organisation.

Key areas raised in disagreement with the proposal not to update received during stakeholder consultation included the following.

Need for the guideline to be updated to support the use of the NEWS2 tool

One stakeholder (NHS England) commented that this guideline should be updated to indicate support for the NEWS2 tool, for reasons including alignment of the guideline with the standardisation of NEWS2 that is occurring at a national level, that such standardisation is important to patient safety, and the availability of research evidence to support NEWS/NEWS2.

In this surveillance review we performed a focused search to identify evidence on the use of track and trigger tools/early warning scores in the recognition of clinical deterioration. We also included 4 studies that were suggested in stakeholder consultation comments in the summary of evidence. These 4 additional studies that were included did not change the conclusion of the evidence summary. Only 4 comparative studies were identified for NEWS2. Two of these studies were performed in the UK but were in specific study populations with respiratory conditions. The other 2 studies were undertaken in Canadian hospital and Spanish prehospital settings. Therefore, the 4 NEWS2 comparative studies were mixed in terms of the populations, settings, and tested comparisons, limiting the conclusions that can be made. We concluded that further evidence is required to demonstrate superior performance of NEWS2 compared with other available tools. However, we acknowledge the value of providing a consistent message to healthcare professionals. We consider that the amendment of recommendation 1.4 that was made in April 2019 (to state that NEWS2 has been endorsed by NHS England) is supportive of the use of NEWS2 and serves to provide a consistent message to professionals.

Need for the guideline to be updated to include guidance on the use of objective monitoring of vital signs

One commercial organisation commented that the guideline should recommend that objective monitoring of vital signs be performed for reasons including that the quality of vital signs measurement (for example, respiratory rate) is key to the accuracy and effectiveness of NEWS and allowing hospitals to choose the modality most suited to their clinical environment. We did not identify evidence on this topic in the surveillance review. We examined the studies that were suggested in this stakeholder comment but did not consider them to be eligible for inclusion in the summary of evidence.

Need for the guideline to be updated to include other factors related to recognition of deterioration

Two stakeholders commented on the frequency of observations as addressed in recommendation 1.3 (that states physiological observations should be recorded at least every 12 hours unless this frequency is increased or decreased for an individual patient at a senior level, and monitoring frequency should increase if abnormal physiology is detected). Searches to identify evidence specifically on monitoring frequency were not performed in this surveillance review (based on topic expert feedback). However, one randomised controlled trial was included in the summary of evidence comparing 8-hourly with 12-hourly early warning score (EWS) measurements and did not find any significant

differences in negative clinical outcomes between groups. This was based on a single study and so overall findings were considered to support the frequency of monitoring in recommendation 1.3.

Two stakeholders commented that the guideline should include patient worry and relative concern in activating response to deterioration. No evidence was identified on this topic in this surveillance review. This point will be considered at the next surveillance review.

Need to update the section on response strategies for patients identified as having a deteriorating clinical condition

One stakeholder commented that more specific guidance is needed on response times, the nature of response and potential outcomes from response. Based on topic expert feedback, we had performed a focused search to identify evidence in this area. The evidence we identified was consistent with the guideline in that no specific configuration of response strategy can be recommended.

Need to update the section on transfer of patients from critical care areas

One stakeholder commented that recommending adverse event reporting for out of hours transfer of patients from critical care (as in recommendation 1.14) should be reconsidered. While focused searches for evidence were not performed for this section of the guideline, evidence identified on timing of discharge was considered on balance to be consistent with recommendation 1.14 to avoid transfer out of critical care to the general ward during nighttime hours.

Areas excluded from the scope of the guideline

The following areas were flagged by one stakeholder each as being areas that should be within the scope of the guideline:

- patient and relative activated rapid response. We did not identify any evidence relating to patient and relative activated critical care outreach in this surveillance review.
- guidance should be widened beyond hospitals to outside hospitals. Studies on the use of EWS in the prehospital setting have been included in the summary of evidence.

Validity of the research recommendations in the guideline

It was concluded following the 2019 exceptional surveillance review that this guideline's research recommendations on the evaluation of early warning scores/track and trigger systems should be promoted with the NIHR.

Due to the considerable period that has elapsed since the publication of this guideline (in July 2007), we decided to check in this surveillance review whether stakeholders consider that the existing research recommendations are still valid. A question was included at stakeholder consultation for this purpose.

Seven stakeholders stated that they still considered the research recommendations to be valid, 1 stakeholder disagreed, and 3 stakeholders did not provide a response. Several areas and potential research questions were noted within responses (as detailed in appendix B). As the guideline is not being updated at this time, we will note these suggestions in our guideline issues log for future consideration. We will continue to promote the existing research recommendations with the NIHR.

See appendix B for full details of stakeholders' comments and our responses.

See ensuring that published guidelines are current and accurate in developing NICE guidelines: the manual for more details on our consultation processes.

Equalities

A potential equalities issue was raised by one stakeholder during the surveillance consultation process. The stakeholder noted that health research suggested that women's signs may not be read as well as men's (for example, heart attack symptoms). In this surveillance review we have provided details in the summary of evidence where studies are reported in specific study populations to allow consideration of the recognition of deterioration in particular groups. No specific evidence comparing signs of deterioration between men and women was identified in this surveillance review.

Overall decision

After considering all evidence and other intelligence and the impact on current recommendations, we decided that no update is necessary.

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