NEWS2 and the older person

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ABSTRACT

The National Early Warning Score (NEWS), published in 2012, made no specific adjustments for older people. The updated NEWS2 (2017) incorporated new confusion as a category for consciousness. In this article, we consider the role of NEWS2 in detection of acute clinical deterioration in older people and how the score may be used to inform care, highlighting the additional aspects, such as care escalation decisions, that may ensue. We consider the evidence of NEWS and NEWS2 in assessment of the older person in different settings, including the potential benefits and limitations for care home residents. We suggest that NEWS2 may need adaptation for older people in future iterations, and that it should be used in conjunction with other clinical assessments, such as the Clinical Frailty Scale and the four 'A's test (4AT) for delirium.

Introduction

The National Early Warning Score (NEWS) was introduced in the UK in 2012. An update to it (NEWS2) in 2017 incorporated the addition of 'new confusion' including disorientation and/or agitation. NEWS2 utilises the routinely collected (in hospital settings) physiological measurements of temperature, pulse, systolic blood pressure, respiratory rate, oxygen saturation, and level of consciousness or new confusion. NEWS2 aims to achieve the system-wide standardisation on the assessment and response to acutely unwell patients. NEWS2 is endorsed by NHS England and NHS Improvement and is now used across UK hospitals.

Herein, we give specific consideration to the role of NEWS2 in older people in hospital and in out-of-hospital settings, and considerations for future updates and research.

NEWS2 in older people in hospital

The original version of NEWS was recommended to improve the assessment of acute illness, detection of clinical deterioration and initiation of timely clinical response.[1] Specific consideration was given to particular patient groups, such as pregnancy and those with chronic obstructive airways disease, with emphasis on the importance of clinical judgement alongside NEWS. However, there were no specific recommendations for the use of NEWS in older people. Insufficient evidence was available to apply weighting to the NEWS score to account for age.[2] In the NEWS2 report, specific consideration was given to sepsis, the risk of harm with promoted oxygen therapy in hypercapnic respiratory failure and the potential unreliability of score in spinal cord injury.[3]

The original research paper that informed the development of the NEWS by Prytherch *et al*, though there was no specified age restriction, included 35,585 patient episodes with a mean age of 67.7 and median age of 72.6 years.[4] Two recent evaluations, one in COVID-19 included patients up to a maximum age of 85 years, the other in sepsis included patients with median age of 72.6 years (upper interquartile range (IQR) 79).[5,6] Patients in the oldest old population have limited representation in this evidence base. Study of performance of the NEWS2 specifically in older people

Key points

The evidence base for the National Early Warning Score (NEWS2) is not based on studies focusing on older adult populations, especially those living in community settings.

The value of NEWS2 is likely to be dependent on the population to which it is applied, and it may be less applicable to older adults living frailty and multimorbidity. 'A smaller piece of the decision-making jigsaw'.

The inherent value of NEWS2 is standardisation but further iterations might helpfully recognise the use of NEWS2 alongside other scoring systems relevant to the older person, such as Clinical Frailty Scale and the four 'A's test (4AT). Specific mention of age should be provided and the potential impact on physiological parameters.

Further research is required to evaluate the performance of NEWS2 in oldest old people and in newer community models of care.

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is important, as the physiological and vital sign changes seen in response to acute illness may differ for older adults, as well as their acute care preferences.[7]

NEWS2 is integral to the early detection of acute deterioration and timely intervention in working-age adults. NEWS2 may help to identify older adults earlier in their acute deterioration trajectory, providing additional opportunity for their acute care preferences to be taken into account.

Assessment tools utilised in assessment for acute deterioration in the older adult

Use of NEWS2 is widely encouraged across multiple health settings, offering a standardised approach and a common language for sharing information about deterioration between primary, emergency and hospital services, and care homes.[3] However, concern about rising demands on healthcare has led to the community implementation of multiple interventions and tools, most notably in care homes, to respond to acute deterioration in older people. These include 'soft signs' and the 'situation, background, assessment and recommendation' (SBAR) tool.[8] The 'soft signs' tool prompts care home staff to be vigilant to markers of functional decline, such as reduced mobility, that could indicate acute illness. SBAR is a communication tool, widely used in the hospital setting, providing a structure to improve communication between care home staff and healthcare professionals. There are also composite tools, such as RESTORE2 (which combines NEWS2, SBAR and soft signs) and Stop and Watch (a structured approach to soft signs).[8] Most of these interventions have been transferred directly from secondary to primary care / care homes, often without modification to account for differences in presentation of illness, physiology or patients' priorities for care.[9] Few have been evaluated in community settings, and a number of questions remain unanswered. In particular, more data are needed on the impact of these interventions on populations (such as people living with dementia) and on community staff workload and service utilisation. Future work could usefully identify the 'active' ingredients in composite tools.

Role of NEWS2 in older people in the community

Care homes

NEWS2 is advocated for use in care homes and is being widely adopted, despite limited evidence in this setting.[8,10] The theory underpinning NEWS2 in care homes is that it may support staff to make decisions about escalating their concerns, act as a 'common language' for communication about resident deterioration between care homes and healthcare staff, and facilitate the delivery of care that is tailored to the individual.[3] However, there are characteristics of the care home population that may challenge these assertions. Care home residents experience acute illness as the oldest old people in our society, living with frailty and complex multimorbidity, and often in the final years of life.[11] NEWS2 may over-medicalise expected deterioration at the end of life, and adversely influence the palliative care ethos in care homes, resulting in unintended consequences.[10,12] Physiological measurements required to calculate NEWS2 are not routinely measured in care homes and may present challenges for care home staff.[10]

The ability of NEWS2 to predict adverse health outcomes (such as death or critical care admission) is well-evidenced for hospitalised adults overall but there is a paucity of evidence about scores for care home residents specifically. One study showed that the majority of care home residents do not have elevated NEWS measurements, but higher scores are observed when care home staff are concerned about a resident's acute illness.[9] Data from an unpublished study show that higher NEWS2 measurements for residents on emergency presentation to hospital are associated with an increased risk of adverse health outcomes.[13] This suggests that NEWS2 may support decision making for hospitalised care home residents. However, further research is required to explore the impact of NEWS2 use in care homes on resident health and wellbeing, staff workload and health service utilisation.

Own residence, implications for virtual wards

The role of NEWS2 in the emerging models of virtual wards (VWs) and acute hospital at home remains to be clarified. VWs deliver care at home or in the care home that is additional to that provided by traditional general practice and, in its most intense form, delivers acute hospital-level interventions (acute hospital at home).[14] Many older patients with frailty treated through a hospital-at-home model have chosen, with their families and carers, to have their acute medical care outside a traditional hospital setting, even if, or particularly when, there is a deterioration. As such, the recognition of deterioration through any scoring system would not prompt a change in location of care or care team. This contrasts sharply with in-hospital use where a rising NEWS2 should prompt urgent medical assessment and consideration of transfer to a critical care setting.

That being said, recognition of deterioration remains fundamental in hospital at home and should lead to a change in treatment strategy, either to an intensification of treatment at home (eg delivery of oxygen, change in antibiotics or fluid regimen) or recognition of progression to end-of-life care despite an initial pragmatic curative intent of treatment, with assessment of physiological variables and delirium assessment that comprise NEWS2 collected accurately in real time.

VW models, where there is remote care rather than daily in-person visiting, have additional challenges around physiological monitoring; for example, how data are collected, the surveillance model for detection and response to deterioration. While single physiological measures have been self-collected in the home environment (eg pulse oximetry in COVID-19 VWs), complete physiological parameters for NEWS2 have not been well validated in VWs where patients and/or their carers are responsible for collecting and uploading some or all of the data. The monitoring regimen and response to deterioration in VWs needs planning and personalisation for the older adult with frailty and, particularly, for patients with COPD. Considerations include who does the observations, how the observations are monitored, the observation frequency, and how thresholds for parameters are set and alerts. Planned responses are required for instances where device uploading is interrupted due to device failure, device removal or, rarely, sudden death.

NEWS2 in delirium

The addition of new confusion to NEWS2 has been welcome given the knowledge of the mortality associated with delirium.[15]

To support clinicians in delivering consistent best practice, supplementary guidance was published in 2020 around assessment of new confusion. Key messages included use of the single question in delirium (SQiD) and the four 'A's test (4AT), assume confusion is new until confirmation otherwise and when to resume a normal score.[16] A recent study by Vardy *et al* including 13,908 consecutive acute hospital admissions showed that NEWS2 had low sensitivity and high specificity for delirium detection.[17] It should be noted that the population was aged 65 years and over and, hence, the performance in younger people, who may also develop delirium, may differ. One of the tenets of NEWS and NEWS2 is use of routine observations and, given that delirium assessment is variably implemented, this is not the case for new confusion, which may hinder performance in terms of this parameter. To counter this, the recommendation to use the SQiD was added in the supplementary guidance. However, even if applied to full effect, a recent study in hospitalised cancer patients showed the SQiD to have specificity of 87% and sensitivity 44%.[18] It may also be due to lack of accommodation in NEWS2 to score a person as both alert and confused within the current assessment of consciousness or new confusion framework. The 'triple assessment' of clinical frailty scale, NEWS2 and 4AT may be beneficial in older people.[19]

Conclusion and discussion

NEWS2 is intended to be an adjunct to medical decision making in acute illness, and its value is likely to be dependent on the population to which it is applied.[20,21] In older people, there are two additional considerations. The first is whether the NEWS2 accurately reflects acute clinical deterioration in the oldest old and/or most frail living with complex multimorbidity. Across the age spectrum, there are known scenarios in which NEWS2 may not correlate with illness severity; for example, acute stroke. The second is the role that NEWS2 plays in decision making. There are a number of important factors in the decision-making process that may assume increased importance in older people, including advanced care plans / preferences and carer/family perspective, which may mean that NEWS2 plays a more minor role in the medical decision. NEWS2 undoubtedly has a role in the assessment of the older person but is more likely to constitute a smaller 'piece of the jigsaw' in clinical decision making. ∎

Funding

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