

The development and introduction of a national e-learning programme to support the dissemination of NEWS2

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ABSTRACT

Early detection, timeliness and competence of clinical response are a triad of determinants of clinical outcome in people with acute illness. In 2012, the Royal College of Physicians published the National Early Warning Score (NEWS) with the aim of standardising the response to, assessment of and monitoring of acutely ill patients. This was subsequently updated in December 2017 to become NEWS2. Alongside the development of NEWS/NEWS2, it was clear that a supportive educational package was going to be essential for dissemination, learning and national adoption of NEWS/NEWS2 across all healthcare settings. Another driver for the early development of an e-learning package to accompany the launch of NEWS in 2012 was the opportunity that it provided not only to standardise the early warning system across the NHS but also to use that standardised process to facilitate better and more consistent education and training across the entire healthcare system; building on the concept of NEWS providing a common language.

KEYWORDS: NEWS, NEWS2, e-learning, dissemination

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Background

Early detection, timeliness and competence of clinical response are a triad of determinants of clinical outcome in people with acute illness. In 2012, the Royal College of Physicians (RCP) published the National Early Warning Score (NEWS) with the aim of standardising the response to, assessment of and monitoring of acutely ill patients.¹ This was subsequently updated in December 2017 to become NEWS2.² Alongside the development of NEWS/NEWS2, it was clear that a supportive educational package was going to be essential for dissemination, learning and national adoption of NEWS/NEWS2 across all healthcare settings. Another driver for the early development of an e-learning package to

accompany the launch of NEWS in 2012 was the opportunity that it provided not only to standardise the early warning system across the NHS but also to use that standardised process to facilitate better and more consistent education and training across the entire healthcare system; building on the concept of NEWS providing a common language.

Objectives

To develop a national standardised, freely accessible web-based e-learning programme to support the dissemination and learning for all NHS staff in the use of the NEWS/NEWS2 observation charts and scoring system, it had to be accessible through all web browsers and without any barriers to registration and/or requirement to hold an existing NHS staff account. The programme also needed to be available to NHS hospitals in distributable formats, as well as through the NHS electronic staff record / Oracle Learning Management (ESR/OLM) system, for local hosting and provision within existing educational ecosystems. We also recognised that successful completion of a series of interactive patient case assessments would be required to contextualise the application of NEWS in clinical settings and for a learner to receive a formal competency certificate accredited with one RCP continuing professional development point.

Methods

A small multi-professional subgroup of experts from the original NEWS development group was commissioned to design and develop the NEWS and, subsequently, NEWS2 e-learning programme (NEWS Educational Sub-Group: Royal College of Physicians, National Outreach Forum, Royal College of Nursing, OCB Media and NHS Training for Innovation).

The e-learning module was developed through iterative instructional design and collaboration between the multi-professional subgroup, educational technologists and end users. To promote user engagement, the module was developed as a series of discrete, self-contained sections, allowing individual learning outcomes to be met in 5–10 minutes.

The first iteration of the module, released in 2012, coincided with the national launch of NEWS. This first iteration focused solely on acute care in the hospital setting and was modified through two annual updates in response to a series of learner feedback and usage studies, with interactive patient cases introduced in version 3 for 2015. Version 6 in 2016 saw the e-learning provision

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expanded to five discrete modules covering acute hospital, ambulance, community/care homes, mental health and primary care. Subsequent to the release of NEWS2 in December 2017, the first 'NEWS2' modules were created in 2018 with the latest edition, version 8, released in September 2022 to correspond with the programme's 10-year anniversary.² Version 8 is the third full redevelopment of the NEWS2 e-learning programme, with particular focus on mobile device usage and accessibility, as well as a fully reimagined user interface and availability in an xAPI format.

The primary structure of the e-learning module follows.

- > **Overview:** A brief introductory section reviews what NEWS2 is designed to do, and the evidence base underpinning the rationale for a national early warning score. The relevance and benefits of NEWS2 are described and exemptions for certain patient types are flagged.
- > **Measure:** This section explores the six physiological parameters that form the basis of NEWS2 (Fig 1a). A key element here is not only describing the physiological parameters but also providing details on how these should be measured, supported by NHS observation skills videos. These are mapped to and supported by additional guidance from the RCP with respect to their role in NEWS2 scoring.
- > **Record:** This part shows the scoring of the six physiological parameters using the NEWS2 scorecard according to the magnitude of physiological disturbance from the normal healthy range and plotting it on the NEWS2 observation chart (Fig 1b).^{3,4} A key element in the training here is emphasising the importance but rare occurrence of a very high single score (red score) due to an extreme variation in a single physiological parameter. There is also detailed information on the reasons for two different oxygen saturation (SpO₂) scales, and how and when SpO₂ scale 2 should be used for patients with known hypercapnic respiratory failure.
- > **Calculate:** This section explains the use of the NEWS2 observation chart to calculate the aggregate NEWS2 score, reporting of incomplete parameters and further guidance on the response to red scores.
- > **Identify:** This part shows how to understand the NEWS2 trigger thresholds and how they should be used to inform the associated clinical responses and escalation/de-escalation of care.⁵ The importance of the NEWS2 threshold score of 5 is also emphasised, alongside an introduction and reinforcement of the 'think sepsis' message, which is linked to a NEWS2 score of 5 or more.
- > **Case studies:** This section is a key part of the training module and provides a series of interactive case scenarios for exemplar patients (Fig 1c), specific to the NEWS2 module type (acute hospital, ambulance, community/care homes, mental health and primary care). Learners are required to score the observations provided, as they would in the clinical setting and calculate the aggregate NEWS2 score, determine the corresponding clinical response and to also determine if sepsis needs to be considered.

In addition to the e-learning programme, a separate, freely available NEWS2 calculation app was released in 2018 and made available through Apple's App Store (<https://apps.apple.com/gb/app/news-calculator/id1442944026>) and Google Play store (<https://play.google.com/store/apps/details?id=com.ocbmedia.apps.news>).^{6,7}

a Observations

b Recording observations exercise

In this observations chart the scores for respiration rate have been recorded.

Using the observations below, record the SpO₂ scale 1 scores on the chart by clicking on the correct boxes.

You must record the observations on the chart in the order of the times shown below.

Time	SpO ₂	Score
09:00	97	0
13:00	96	0
17:00	95	1
21:00	94	1

c Case study 1

Case 1 is an emergency admission to AMU (Acute Medical Unit). The patient is a 61 year old known hypercapnic respiratory failure (type 2) on high flow oxygen.

The observations shown to the right are reported.

Respiratory rate	8	3
Oxygen saturations	97%	3
Supplemental oxygen	15 L/min	2
Systolic blood pressure	170	0
Pulse	128	2
Consciousness	V	3
Temperature	37.1°C	0

Calculate total score: 13

Using the NEWS2 scorecard, record the scores for each individual parameter by using the slider, then click submit.

Fig 1. Screenshots from the elearning module from OCB Media. a) The measure section. b) The record section. c) The case studies section.

As of September 2022, the NEWS2 calculation app has been installed on over 20,000 iOS and Android devices.

The e-learning has been historically distributed through a dedicated, standalone learning management system based upon a bespoke iteration of the Health Education Learning Management (HELM) platform and a corresponding website to support distribution and raise awareness of the programme.^{8,9}

The final iterations were publicised widely by the sub-group members and their constituent professional bodies and organisations to encourage uptake.

Results

Following its launch in 2012, the NEWS2 education programme has been widely adopted across the NHS with over 400,000 healthcare professionals having accessed the freely available online training at the main NEWS2 website (<https://news.ocbmedia.com>), with the rate of update and usage increasing dramatically following the release of the enhanced version in November 2018 as well as during the COVID-19 pandemic, after which usage returned to the expected steady state.⁹

Considering that the NEWS2 e-learning programme is now, through its various incarnations, over 10 years old indicates that not only has the programme been widely adopted, potentially to the point of saturation, but also that it is now being regularly delivered to staff on a 1–2-year rotational basis, similar to that seen for the Core Skills Training Framework (CTSF) update cycles (Fig 2).

This finding is further supported by the module completion rate (determined as all content viewed and all case studies passed) that shows a gradual increase starting from November 2020, 2 years since the updated NEWS2 version launch, rising from a historical rate of 77% to 85% as of October 2022, suggesting that previously trained staff are now undertaking the NEWS2 e-learning for the second (refresher) time. Equally, it could be the case that the value of NEWS2 is becoming increasingly apparent and, as such, there is an increased drive by NHS trusts to become NEWS2 compliant. It could, therefore, be surmised that the NEWS2 e-learning programme has now, in part, become embedded as a standard training programme with the NHS alongside the CTSF statutory and mandatory training requirements. Nevertheless, further analysis looking into this is currently being undertaken and a new report detailing the respective performance of ‘new’ versus ‘established’ learners will follow in due course.

With respect to completion rates, even prior to the proposed repeat learning pattern that is now being seen and the associated increase in completion rates, it is also worth considering that, historically, the NEWS2 e-learning modules have never been mandated for use within the NHS. As such, a high completion rate of 85% for a voluntary module is quite exceptional and reflects both the need for NEWS2 and associated training in practice, as well as the high production values aligned to the continuous support and development of the online resources.

The use of the NEWS learning modules was originally dominated by use in the acute hospital and ambulance service settings. However, as the awareness of NEWS began to grow, alongside recognition of its potential utility in primary care and community care settings, there has been a progressive increase in healthcare professionals using the e-learning modules across the healthcare sector. Presently, the use of the e-learning module as a proportion of all staff-type users is 54% in acute hospitals, 6% in ambulance services, 12% in community healthcare settings, 14% in mental healthcare and 14% in primary care (Fig 3). The trend shows a growing pie, with a progressively increased size of the slices coming from outside of acute hospitals. This no doubt reflects the progressively wider use of NEWS2 across the whole healthcare sector.

In addition to the main NEWS2 website, the e-learning modules have also been made available to an increasing number of NHS hospitals, healthcare charities, higher education establishments and private healthcare organisations as standalone e-learning packages for use in local learning management systems and in the NHS ESR/OLM platform. The embedding of NEWS2 into the core curriculum of nursing and medical school education has been especially important and helps ensure that the healthcare professionals of the future are well versed in the language of acute illness and acute clinical deterioration, and the expectations

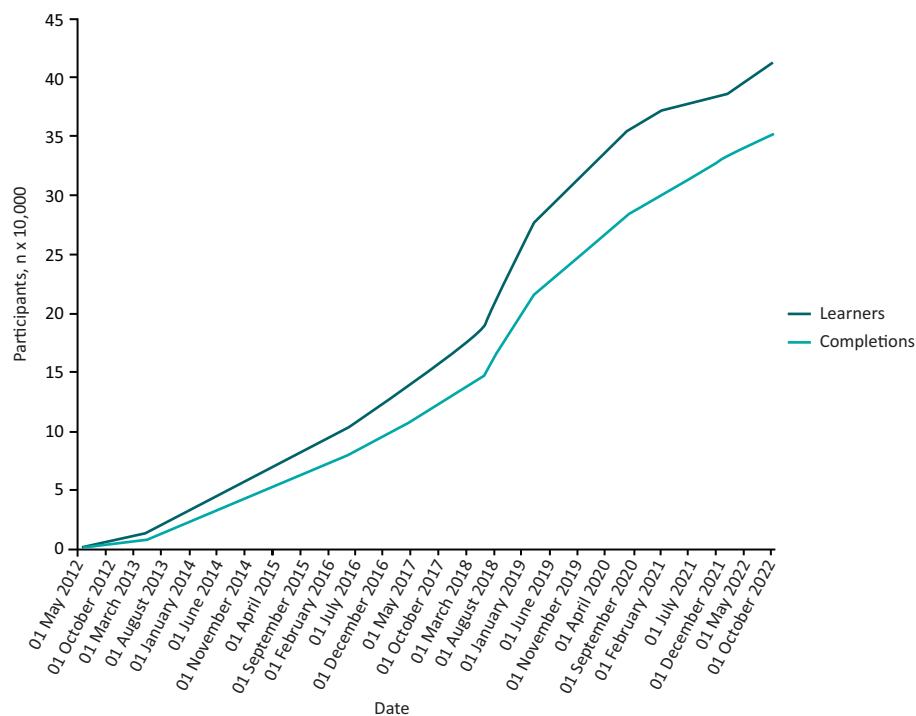


Fig 2. Historical learner and completion count of the National Early Warning Score e-learning module.

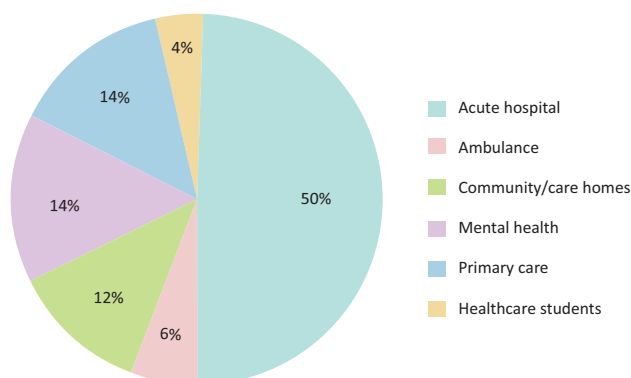


Fig 3. National Early Warning Score 2 learners by area of practice within the NHS.

around the vital sign recording and the clinical response required. Further information regarding acquisition of the NEWS2 modules for local hosting can be found here: <https://news.ocbmedia.com/organisations>

NEWS2 programme materials and e-learning modules have also been adopted for use in Malta, the Channel Islands, Kuwait, Sweden, Spain and Canada.

Conclusion

The extraordinary uptake of the NEWS2 e-learning programme reinforces the view that this initiative has strongly supported the dissemination and learning for all staff in the use of the NEWS2 observation charts and scoring system in the UK. The uptake and completion rates for the NEWS training is especially remarkable when one considers that this training was entirely voluntary throughout and was never mandated, although recently, some hospitals have begun to add the NEWS e-learning module to

their mandatory training. Key to its success is the case-based content that healthcare professionals see as directly relevant and important for their daily practice, free and easy web-based access, and instant certification of successful completion, aligned to an iterative design model. ■

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