BRIEF COMMUNICATION

Utility of the National Early Warning Score (NEWS) in the Management of Patients in a Primary Care Setting in Ghana

STEPHEN TETTEH ENGMANN*, SHARON WILLIS†

ABSTRACT

The National Early Warning Score (NEWS) was developed to assist in the early identification of critically ill patients by monitoring key physiological parameters. This brief communication highlights the utility of the NEWS system in the management of patients at Manna Mission Hospital, an urban primary care facility in Ghana. The article discusses the events leading to the adoption of NEWS at the facility and examines its application in in-patient care to ensure early intervention. Additionally, it addresses the use of the tool to support referral decisions to higher levels of care, which is particularly relevant to health services delivery in Ghana and other low- to middle-income countries.

Keywords: Clinical decision-making, practice improvement, primary care

The National Early Warning Score (NEWS) was created as a systematic method of identifying seriously unwell patients while they are being treated in hospitals[1]. Its use has been recommended in acute care settings, with proven effectiveness for predicting the severe outcomes of in-patients[2,3]. The NEWS system consists of seven physiological parameters evaluated by the user: respiratory rate, oxygen saturation, need for supplemental oxygen, heart rate, systolic blood pressure, body temperature, and level of consciousness[3]. Based on these physiological measures, patients can be grouped into three risk categories, namely low, medium, and high risk[3]. The NEWS is a tool for clinical decision-making, furnishing clinically useful patient assessment information in a succinct and abbreviated format[4]. It provides decision support for health care providers and is neither a hindrance nor a replacement for expert clinical judgment[4].

A revised form of NEWS (NEWS2) was released by the Royal College of Physicians in the year 2017[5]. NEWS2 is a revised version that emphasizes new-onset confusion and recognizes various oxygen saturation levels for individuals with respiratory disease as part of their typical calculated score[6]. According to the National Early Warning Score Development and Implementation Group (NEWSDIG) report, NEWS should be used in conjunction with tried-and-true existing procedures rather than as a replacement for all other assessment systems[1]. Based on NEWS2, the Royal College of Physicians recommends four clinical alert thresholds that must be met for a clinician to assess the situation and decide how quickly a clinical response is needed[4]. An aggregated score of 1-4 is low and should trigger an evaluation by a qualified registered nurse, who should determine whether an intensification of clinical treatment is necessary. If a single red score of 3 is recorded in any of the parameters on the NEWS2 chart, a clinician with expertise in the assessment of acute illness should review the patient immediately[4]. A score of 5-6 is medium and should necessitate a physician doing an urgent review to determine whether care must be escalated to a team with critical care expertise. A high score of 7 or more should result in a patient receiving an emergency assessment by a critical care team and being transferred to a facility with greater levels of care[4]. Due to its usability and its validity, which has been supported by research, the NEWS is a standard early warning system in the United Kingdom and is being used increasingly more internationally[7].

*Family Medicine Unit, Manna Mission Hospital, Accra, Ghana
†Oklahoma Wesleyan University, Doctor of Nursing Practice Graduate Program, USA
Address for correspondence
Dr Stephen Tetteh Engmann
P. O. Box TN 1032, Teshie-Nungua Estates, Accra, Ghana
E-mail: stephenengmann@gmail.com

UTILITY OF THE NEWS IN A RESOURCE-LIMITED PRIMARY CARE SETTING

The NEWS system is currently being utilized at a primary care hospital in Accra, Ghana, as part of patient management. The hospital is a 49-bed medical hospital that provides general practice and family medicine, general surgery, obstetrics and gynecology, and pediatric services at the primary and secondary levels of care. The NEWS was adopted after several educational sessions were presented by a Doctor of Nursing Practice (DNP) graduate student from Oklahoma Wesleyan University as part of her quality improvement project. The project aimed to help improve health care providers' ability to identify imminent signs of a clinically deteriorating patient and provide prompt intervention. Training in the use of the NEWS helped to improve their ability to rapidly identify a declining patient. In addition to training on the use of NEWS, the health care providers were educated on how to implement a rapid response system at the facility. Over 30 health care providers were trained as members of the rapid response team who would be available to swiftly respond to the bedside of patients needing urgent care based on the score of the NEWS system.

The NEWS is calculated for patients on admission to the male ward, female ward, and recovery ward. Following the recommendations of the Royal College of Physicians, the NEWS is not to be used in children <16 years of age or in pregnant women, because they can have alterations in their physiological response to acute illness[4]. A single score is calculated by nurses on duty for every patient during each working shift. The score is recorded on an observation sheet which allows for various actions to be taken as recommended by the Royal College of Physicians, based on the score. Currently, the aggregation of the score is done manually. Plans to integrate the NEWS into the existing electronic health record and to automate the aggregation are being pursued. Digital measurement and application of artificial intelligence (AI) creates prospects for more precise measurement and triggering of response[7]. The main limitations of the use of the NEWS are that the measurement is time-consuming, labor-intensive, and prone to error on calculation, especially when done manually[8]. These are the main drawbacks that have been observed in this primary care facility since the NEWS2 chart was adopted. Since the measurement also requires trained professionals, periodic training is required for new employees (nurses and clinicians) who join the health care facility.

In-Patient Care and Early Intervention

The use of the NEWS in hospitalized patients at this primary care hospital has been able to assist health care providers in triggering early interventions. The NEWS provides the evaluation of clinical severity that can be used to both initiate therapeutic interventions and evaluate how well the intervention works. Furthermore, the NEWS allows for a thorough clinical evaluation that can establish an appropriate course of action in response to a trigger. It is recommended in the literature that NEWS should not be the only metric used for risk stratification because its accuracy in predicting mortality beyond 24 hours may not be reliable and is heavily impacted by other factors[8]. Hence, other factors are also taken into consideration such as comorbidities of the patient, acute complications, medications, etc. Other indicators that have been suggested to be used in conjunction with the NEWS2 are capillary blood glucose and ketones, fluid balance, pain, and acute limb weakness[7]. In a study comparing the performance of Early Warning Scores (EWS) used in the developed world with those generated in low-resource settings, the NEWS2 with additional points for mobility impairment exhibited the highest discrimination and sensitivity[9].

Referral to Higher Levels of Care

Generally, the decision to refer a patient from primary care to higher levels of care is often not straightforward and may involve a complex process. When referring patients to acute care in primary care, the use of NEWS appears to be correlated with clinical acuity[6]. The danger of reducing clinical observations to a single score is that it might be used as a cognitive shortcut when making decisions[6]. Therefore, along with NEWS2, which may potentially result in escalation, condition-specific observations should be used[7]. In addition, the concerns of the patient, family, and physician are taken into consideration to enhance the assessment for appropriate referral decisions and facility placement.

When NEWS was determined at the point of referral, higher scores were associated with prompt clinician reviews and rapid ambulance transport[6]. The utility of the NEWS in this low-resource primary care setting has supported clinical decision-making at the point of referral to a secondary or tertiary facility when the score was higher than 7. According to Pullyblank et al, the use of NEWS2 in the community contributed to reductions in mortality among patients admitted with suspicion of sepsis without increasing admissions[10]. It is hoped that with the continuous use of the NEWS, prompt intervention, and appropriate referrals, patients

admitted to this primary care facility will achieve positive outcomes reflected by a reduction in morbidity and mortality.

CONCLUSION

The NEWS system is a valuable tool that provides monitoring support for in-patients. It will help achieve improvements in patient care and promote a culture of safety in low-resource settings at the primary care level. It is recommended that more future research could be conducted to evaluate the performance of NEWS within resource-limited settings.

Acknowledgments

The authors acknowledge the Management of the Hospital and the In-service Training Unit of the Hospital.

Funding Information

This paper was not funded.

Disclosure of Interest

The authors report no conflicts of interest.

REFERENCES

1. Jones M. NEWSDIG: The National Early Warning Score Development and Implementation Group. Clin Med (Lond). 2012;12(6):501-3.
2. Nazarko L. A good idea badly implemented? Revised National Early Warning Score 2 in community settings. Br J Community Nurs. 2019;24(6):291-4.
3. Kakehi E, Uehira R, Ohara N, Akamatsu Y, Osaka T, Sakurai S, et al. Utility of the New Early Warning Score (NEWS) in combination with the neutrophil–lymphocyte ratio for the prediction of prognosis in older patients with pneumonia. Fam Med Community Health. 2023;11(2): e002239.
4. Royal College of Physicians. National Early Warning Score (NEWS) 2: Standardising the assessment of acute-illness severity in the NHS. Vol. 17, Updated report of a working party. London: RCP; 2017. pp. 1-77.
5. Royal College of Physicians. National Early Warning Score (NEWS) | RCP London [Internet]. Royal College of Physicians. 2020 [cited 2023 Jul 7]. Available from: https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2
6. Finnikin S, Wilke V. What's behind the NEWS? National Early Warning Scores in primary care. Br J Gen Pract. 2020;70(695):272-3.
7. Welch J, Dean J, Hartin J. Using NEWS2: an essential component of reliable clinical assessment. Clin Med (Lond). 2022;22(6):509-13.
8. Holland M, Kellett J. The United Kingdom's National Early Warning Score: should everyone use it? A narrative review. Intern Emerg Med. 2023;18(2):573-83.
9. Nakitende I, Nabiryo J, Namujwiga T, Wasingya-Kasereka L, Kellett J. Do different patient populations need different early warning scores? The performance of nine different early warning scores used on acutely ill patients admitted to a low-resource hospital in sub-Saharan Africa. Clin Med (Lond). 2020;20(1):67-73.
10. Pullyblank A, Tavaré A, Little H, Redfern E, le Roux H, Inada-Kim M, et al; West of England Patient Safety Collaborative. Implementation of the National Early Warning Score in patients with suspicion of sepsis: evaluation of a system-wide quality improvement project. Br J Gen Pract. 2020;70(695):E381-8.