Change Presentation:

Improving Patient Outcomes with the use of the National Early Warning Score Tool

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Introduction

Timely detection of and response to acute illness/ deterioration is critical for patient safety and improving patient outcomes (William, 2022).

The U. S does not have one standardized early warning screening tool to detect patient deterioration, nor are hospitals mandated to use such risk screening tools (Williams, 2022).

Hospitals in the U.S should consider mandating the use of **The National Early Warning Score (NEWS)** as it is widely considered to be one of the most sensitive and efficient risk screening tools to detect patient deterioration (Williams, 2022).

Timely detection of and response to acute illness/ deterioration is critical for patient safety and improving patient outcomes. To detect subtle changes in a patient's condition, it is helpful to use a standardized method that assigns scores to variations in vital signs, such as temperature and pulse rate. These scores can then provide an accurate indication of the patient's condition, whether their health is deteriorating, and if interventions must be provided.The National Early Warning Score (NEWS) is a great example of such a tool. It was developed by the Royal College of Physicians in 2012 and it widely considered to be one of the most sensitive and efficient risk screening tools to detect patient deterioration (Williams, 2022).

Of significance, in the United States, the use of early warning scores is not mandated and there is not one particular early warning score tool that has been standardized for use (Williams, 2022). Examples of different types of early warning scores used in the U.S include the Systemic Inflammatory Response System (SIRS), the Modified Early Warning System (MEWS), and the Rapid Response System (RRS) just to name a few. However, many of these are not as validated as the NEWS or are modified by individual hospital systems (Williams, 2022). Additionally, there are other confusing variations in these tools. For example, in one hospital a high score on their early warning score system may indicate a healthier/more stable patient, whereas in other hospitals a high score indicates a deteriorating patient. Some hospitals even use different warning score tools between floors and this can lead to miscommunication of

illness severity, especially when staff work across different floors or hospitals and this can have potentially dangerous consequences on patients (Williams, 2022). Therefore, mandating the use of a standardized early warning score system, such as the NEWS, would help prevent failure to rescue, improve patient prioritization, and enhance communication by providing a clear, consistent "common language" for healthcare teams to assess and discuss patient status (Williams, 2022). This, in turn, would result in greater patient safety and improved patient outcomes (Williams, 2022).

Because of the potential for a standardized tool such as the NEWS to improve patient safety and overall outcomes, it is incredibly significant for nursing practice and directly relates to several of the core competencies outlined by the Quality and Safety Education for Nurses Institute (QSEN). The NEWS tool is especially connected to the core competency of safety. Safety is defined as “minimizing the risk of harm to patients and providers through both system effectiveness and individual performance” (QSEN Institute, 2022). Specifically, the QSEN Institute encourages nurses to use national patient safety resources and discuss their value for implementation in local practice settings (QSEN Institute, 2022). Nurses are also expected to use technology and standardized practices to support patient safety and to be vigilant with monitoring their status (QSEN Institute, 2022). Therefore, the NEWS tool is a perfect example of a system to support nurses with the QSEN competency of safety. The NEWS tool also gives a score based on unique patient vitals and is even adaptable for use with patients who have chronic respiratory conditions, which makes the tool a good example of the QSEN competency of patient centered care. Additionally, the NEWS tool is very relevant to the QSEN competency of teamwork and collaboration as it functions as a “common language” which enhances communication and shared decision making between interprofessional teams (QSEN Institute, 2022). Lastly, the use of NEWS is directly relevant to the QSEN competency of informatics. Nurses must be able to effectively apply technology tools to support safe care processes and improve communication between colleagues so that they can respond appropriately to clinical alerts and the NEWS system is a tool that would easily support nurses in this manner (QSEN Institute, 2022).

The following slides are a review of recent literature highlighting the effectiveness of the NEWS tool at alerting nurses to deteriorating patients and why it should be considered to be mandated as the early warning screening tool used in the United States.

Introduction

NEWS would help prevent failure to rescue, improve patient prioritization, and enhance communication by providing a clear and consistent "common language" for healthcare teams to assess and discuss patient status (Williams, 2022).

Therefore, use of the NEWS would result in greater patient safety and improved patient outcomes (Williams, 2022).

Use of a tool such as NEWS is directly related to the QSEN competencies of Safety, Teamwork & Collaboration, Patient Centered Care, and Informatics.

Timely detection of and response to acute illness/ deterioration is critical for patient safety and improving patient outcomes. To detect subtle changes in a patient's condition, it is helpful to use a standardized method that assigns scores to variations in vital signs, such as temperature and pulse rate. These scores can then provide an accurate indication of the patient's condition, whether their health is deteriorating, and if interventions must be provided.The National Early Warning Score (NEWS) is a great example of such a tool. It was developed by the Royal College of Physicians in 2012 and it widely considered to be one of the most sensitive and efficient risk screening tools to detect patient deterioration (Williams, 2022).

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National Early Warning Score (NEWS) Tool

The tool is based on 6 physiologic standards typically measured in hospitals:

-Pulse rate **-Oxygen saturation**

-Blood pressure **-Temperature**

-Respiratory rate **-Level of consciousness**

Chart 1: The NEWS scoring system

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

Chart 2: NEWS thresholds and triggers

NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

* Response by a clinician or team with competence in the assessment and treatment of acutely ill patients and in recognising when the escalation of care to a critical care team is appropriate.

**The response team must also include staff with critical care skills, including airway management.

(World Patients Alliance, 2024)

*SpO2 Scale 2 is only used for patients with chronic hypercapnic respiratory failure

The 6 physiological parameters that the NEWS measures are respiratory rate, blood oxygen saturation, systolic blood pressure, pulse rate, level of consciousness, and temperature (World Patients Alliance, 2024). The system also takes into account whether or not the patient is on oxygen or if the patient has chronic hypercapnic respiratory failure (World Patients Alliance, 2024). If the patient has chronic respiratory failure, the healthcare provider should use SPO2 scale 2. Each of the parameters is given a score of 0, 1, 2, or 3 and then these are added together for a total score (World Patients Alliance, 2024). A total score of 0-4 is considered low clinical risk, a score of three in any one parameter is considered low to medium risk, scores of 5 to 6 are urgent and require response from the care team, and a score of 7 or greater is considered very high risk and requires emergency response from the care team including critical care staff (World Patients Alliance, 2024).

Article 1 : Comparison of Early Warning Scoring Systems for Hospitalized Patients With and Without Infection at Risk for In-Hospital Mortality and Transfer to the Intensive Care Unit

Objective: Compare the performance of early warning score systems for identifying hospitalized patients at risk for death and ICU transfer (Liu et al., 2020).

Participants: Retrospective study including 1,487, 263 hospitalized adult patients across 28 hospitals in California and Illinois (Liu et al., 2020).

Methods: Area Under the Receiver Operating Characteristic Curve (AUC) to measure tool efficiency in predicting ICU transfer/death. The following risk assessment tools were analyzed: NEWS, MEWS, BTF, qSOFA, and SIRS (Liu et al., 2020).

Findings: NEWS was the most effective at predicting hospital mortality and ICU transfer. NEWS and MEWS out perform infection-specific tools like SIRS in detecting clinical deterioration, even in infected patients. NEWS reduces clinical workload by identifying high-risk patients more efficiently than SIRS or qSOFA (Liu et al., 2020).

QSEN Competencies:

Safety: Early identification of high-risk patients improves patient safety by prompting earlier interventions.

Informatics: Use of electronic health record data for calculating risk scores enhances patient prioritization and health outcomes.

The objective of this study was to compare the performance of various early warning score systems in identifying hospitalized patients at risk for death and/or transfer to the ICU (Liu et al., 2020). The authors performed a retrospective study and collected data from 21 hospitals in California and 7 hospitals in Illinois between 2006 and 2018 (Liu et al., 2020).The study included 773,477 hospitalized adult patients in California with a mean age of 65.1 years old and 713,786 hospitalized adult patients in Illinois with a mean age of 61.3 years old (Liu et al., 2020). The 5 commonly used risk assessment tools they analyzed were the National Early Warning Score (NEWS), Modified Early Warning Score (MEWS), Between the Flags (BTF), Quick Sequential Sepsis-Related Organ Failure Assessment (qSOFA), and Systemic Inflammatory Response Syndrome (SIRS) (Liu et al., 2020). All of these tools use points-based risk scores that trigger early warning systems indicating patient deterioration (Liu et al., 2020). The authors gathered patient vital sign data and other information from electronic medical records and put that information in each of the 5 tools mentioned with the goal of finding the highest score a patient reached during their time in the hospital (Liu et al., 2020). The study then assessed the efficiency of these tools in detecting clinical deterioration and predicting ICU transfer or death, using the Area Under the Receiver Operating Characteristic Curve (AUC) to measure their ability to distinguish between patients who would experience an adverse outcome and those who would not (Liu et al., 2020). Overall, results of the study found that

the NEWS risk score was more effective at predicting hospital mortality and ICU transfer than the other tools, both for the overall group of hospitalized patients and for subgroups of patients with suspected infections (Liu et al., 2020). The study also suggests that general risk scores like NEWS and MEWS are actually better at detecting clinical deterioration than infection-specific tools like SIRS, even for patients with infections (Liu et al., 2020). Importantly, results of the study also suggest that the NEWS can reduce clinical workload by identifying high-risk patients more efficiently than SIRS or qSOFA, meaning fewer patients need to be screened (Liu et al., 2020). For example, using a NEWS threshold score of ≥6 would have flagged 200,325 fewer patients than a SIRS score of ≥2, while still identifying a similar number of patients who would die (Liu et al., 2020).

Hence, results of this study clearly relate to the QSEN competencies of Safety and Informatics. The NEWS tool helps to identify patients at risk for deterioration which prompts nurses to intervene earlier, thus reducing preventable adverse events such as delayed transfers to the ICU. Using early warning tools like NEWS helps to ensure that patients who are more likely to experience a serious clinical outcome are more closely monitored and this improves overall patient safety. Additionally, in the study, the researchers used electronic health record data to calculate risk scores for patients and this demonstrates how the use of informatics can be used to improve patient prioritization and overall health outcomes.

Article 2: A Systematic Review of Early Warning Systems' Effects on Nurses' Clinical Performance and Adverse Events Among Deteriorating Ward Patients

Objective: Determine the ability of EWSs to improve nurse's clinical performance and prevent adverse events among deteriorating ward patients. This was done because data has not specifically shown that these systems directly enhance clinical performance and adverse event prevention yet (Lee et al., 2020).

Participants: In order to test this, the researchers in this article perused 888 reports using the PubMed, CINAHL, EMBASE, and Cochrane Library databases. They searched publications from January 1st, 1997, to April 12th, 2017 (Lee et al., 2020).

Methods: This study reviewed many different types of studies (randomized controlled trials, controlled clinical trials, non-RCTs, and controlled before-and-after studies) as long as they fit under the criteria that they the researchers were looking for. This criteria included involving ward nurses and patients, comparing EWSs VS no EWSs/single vital sign monitoring, addressing EWS effects on clinical performance, and adverse effects (Lee et al., 2020).

Findings: Researchers found 5 studies that fulfilled their inclusion criteria. These studies showed an improvement in clinical performance when EWSs were implemented. The EWSs implemented were NEWS, MEWS, and SEWS. The mean number of measured vital signs increased when EWSs were implemented. There was also an increase in RRT (rapid response team) notification. The adverse events that were being studied (cardiac arrest, unplanned ICU admission, and in-hospital mortality) also saw a reduction after EWSs were implemented. The researchers also noted that the effectiveness of EWSs also depend on factors like staff training on the screening tools and available resources to respond to clinical deterioration (Lee et al., 2020).

QSEN Competency:

Safety: This study shows that utilization of EWSs contribute positively to clinical performance by increasing vital sign recording and decreasing adverse clinical outcomes such as unplanned ICU admission and in-hospital mortality.

- The objective of this study was to determine the ability of EQSs to improve the nurse's clinical performance and prevent adverse events among deteriorating ward patients. This was done because data has not specifically shown that these systems directly enhance clinical performance and adverse event prevention yet (Lee et al., 2020).

- In order to test this, the researchers in this article perused 888 reports using the PubMed, CINAHL, EMBASE, and Cochrane Library databases. They searched publications from January 1st, 1997, to April 12th, 2017 (Lee et al., 2020).
- The outcome measures that were being analyzed were the clinical performance of nurses, specifically vital sign monitoring and rapid response team notification, and patient adverse events (in-hospital mortality, cardiac arrest, and unplanned ICU admission) (Lee et al., 2020).
- Findings: Researchers in this study found 5 studies that fulfilled their inclusion criteria. The findings showed that the implementation of early warning systems helped improve the clinical performance of nurses.
- This study used many different types of studies (Randomized controlled trials, controlled clinical trials, non-RCTs, and controlled before-and-after studies) as long they fit under the criteria that the researchers were looking for. This criteria included involving ward

- nurses and patients, comparing EWSs vs no EWSs/single vital sign monitoring, addressing EWS effects on clinical performance, and adverse effects.

Article 3: Implementation of an Electronic National Early Warning System to Decrease Clinical Deterioration in Hospitalized Patients at a Tertiary Medical Center

Objective: Test if an electronic version of national early warning systems also helped to reduce the incidence of unexpected clinical deterioration (Wu et al., 2021).

Participants: In order to do this, the study collected data from a total of 39,161 patients in Taichung Veterans General Hospital, located in Taiwan (Wu et al., 2021). To be included, patients had to be hospitalized in ordinary wards (equivalent to Medical Surgical units) and be over 20 years old. Patients that were not included were those who were hospitalized for less than one day, patients who were directly admitted to the ICU, and patient who were intubated before being admitted to the hospital (Wu et al., 2021).

Methods: This clinical research group identified two groups for testing. The first group was the Adverse Effect group, which contained patients who received CPR, had been transferred to the ICU after unexpected deterioration, and those who had died. The other group, the control group, consisted of those who did not have an adverse effect. It also included patients who had scheduled ICU admissions after surgery or cardiac catheterization (Wu et al., 2021).

Findings: Results showed that after implementing eNEWS, the overall adverse event rate decreased significantly. Before, the overall adverse event rate was 6.06% (Wu et al., 2021). After the implementation of eNEWS, adverse event rate dropped to 5.51%. The study also highlighted that these adverse events decreased in all age groups, specifically highlighting older patients, ranging from age 60-79. In this age group, there was also a notable decrease in adverse events (Wu et al., 2021). In terms of disease process, the study highlighted that adverse events decreased in patients with cardiovascular and gastroenterological disorders, but increased in patients who were dealing with respiratory disorders (Wu et al., 2021).

QSEN Competencies:

Safety: This study shows that the implementation of Early Warning Systems, no matter how they are implemented, can help improve overall patient outcomes.

Informatics: This study shows the importance of informatics in healthcare and how data can be streamlined in a way that is helpful for both the patient and healthcare workers alike.

- This objective of this study was to test if electronic versions of national early warning systems also helped to reduce the incidence of unexpected clinical deterioration (Wu et al., 2021).

- In order to do this, the study collected data from a total of 39,161 patients in Taichung Veterans General Hospital, located in Taiwan (Wu et al., 2021). To be included, patients had to be hospitalized in ordinary wards (equivalent to Medical Surgical units) and be over 20 years old. Patients that were not included were those who were hospitalized for less than one day, patients who were directly admitted to the ICU, and patient who were intubated before being admitted to the hospital (Wu et al., 2021).

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- The eNEWS that this research group monitored temperature, respiratory rate, heart rate, blood pressure, oxygenation, and consciousness (Wu et al., 2021). These values were uploaded to the EMR in real time, and if the values were not updated at the scheduled time, the latest values were used to calculate the NEWS score. The score was calculated hourly, using a program that was built by the research group (Wu et al., 2021).

- During testing, the clinical group monitored the scores and would notify the physicians in charge if the eNEWS scores either increased more than 4 points, or was above 7. These physicians were notified at 7 am and 5 pm daily. The group also encouraged nurses to monitor these scores during their shifts, and were charged with alerting the physicians for the same changes.

- Results showed that after implementing eNEWS, the overall adverse event rate decreased significantly. Before, the overall adverse event rate was 6.06%. After the implementation of eNEWS, adverse event rate dropped to 5.51% (Wu et al., 2021). The study also highlighted that these adverse events decreased in all age groups, specifically highlighting older patients, ranging from age 60-79. In this age group, there was also a notable decrease in adverse events (Wu et al., 2021). In terms of disease process, the study highlighted that adverse events decreased in patients with cardiovascular and gastroenterological disorders, but increased in patients who were dealing with respiratory disorders.

- The importance of this article is in the fact that it proves that NEWS improve patient outcomes once again. This research study implemented NEWS in a way that made it easy for healthcare professionals to monitor, while providing structure and training. So, this study was able to improve patient outcomes while not adding to the already copious amounts of work that healthcare professionals have to do. With these results, it is safe to conclude that NEWS is an effective way to increase patient outcomes, while preventing foreseeable patient harm.

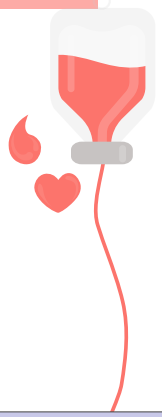
Article 4: National Early Warning Score 2 (NEWS2) to identify inpatient COVID-19 deterioration: a retrospective analysis

Objective: To test if NEWS2, a modified NEWS system, was an effective tool to use in the early detection of deterioration in Covid-19 patients (Baker et al., 2021).

Participants: The study monitored 296 patients for the occurrence of serious events (Baker et al., 2021). These events were outlined by the study as initiation of respiratory support, admission to intensive care, initiation of end-of-life care, or in-hospital death. This study took place in the UK at Newcastle upon Tyne Hospitals, in Northeast England (Baker et al., 2021).

Methods: The NEWS2 collected heart rate, blood pressure, oxygen saturation, respiratory rate, temperature, and consciousness level from admission until the occurrence of a serious clinical event. If no events occurred, data was collected up until discharge or after 28 days(Baker et al., 2021). The data was also collected in real time in their records system. Observations that were recorded within 5 minutes of a previous recording were excluded to remove potential clinical care errors (Baker et al., 2021). In order to use comparative analysis, NEWS2, qSOFA, and MEWS scores were calculated from the clinical values that were input into the recording system (Baker et al., 2021). Patients who were admitted prior to the onset of COVID-19 symptoms were excluded from the analysis.

Findings: The results from this study indicated that NEWS2 monitoring was a successful method in catching the deterioration of patients, even though there was a high false-positive rate (Baker et al., 2021). But, this was not seen as something that was bad because it would be better to monitor someone for deterioration if they didn't need it, then it would be for someone to deteriorate in the hospital without anyone noticing the warning signs and preventing it.



QSEN Competency:

Patient Centered Care: This article was a good example of patient centered care. Findings in this study resulted in NEWS2 having a high false-positive rate. To the researchers, this wasn't bad because of the fact that they'd rather be proactive in protecting patients from deteriorating.

- The objective of this article was to test if NEWS2, a modified NEWS system, was an effective tool to use in the early detection of deterioration in Covid-19 patients (Baker et al., 2021).

- The study achieved this by monitoring 296 patients for the occurrence of serious events (Baker et al., 2021). These events were outlined by the study as initiation of respiratory support, admission to intensive care, initiation of end-of-life care, or in-hospital death. This study took place in the UK at Newcastle upon Tyne Hospitals, in Northeast England(Baker et al., 2021).

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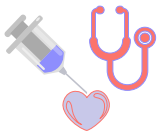
- In order to use comparative analysis, NEWS2, qSOFA, and MEWS

- scores were calculated from the clinical values that were input into the recording system. Patients who were admitted prior to the onset of COVID-19 symptoms were excluded from the analysis (Baker et al., 2021).
- For this study, the main use of the early warning score system was to identity patients who were deteriorating before the occurrence of a serious event so that interventions would be able to take place to prevent those events from happening.
- The results from this study indicated that NEWS2 monitoring was a successful method in catching the deterioration of patients, even though the was a high false-positive rate (Baker et al., 2021). But, this was not seen as something that was bad because it would be better to monitor someone for deterioration if they didn't need it, then it would be for someone to deteriorate in the hospital without anyone noticing the warning signs and preventing it.

Article 5: Nurses' Experiences and Perceptions of two Early Warning Score Systems to Identify Patient Deterioration—A Focus Group Study

Objective: Explore RNs experiences with and perceptions of the National Early Warning Score (NEWS) and Individual Early Warning Score (I-EWS) for identifying patient deterioration (Langkjaer et al., 2021).



Participants: 45 RNs from medical surgical departments and the ED across 6 different hospitals in Denmark (Langkjaer et al., 2021).

Methods: This was a qualitative study that audio-recorded 6 different focus groups and used NVivo software to transcribe and code the audio into themes (Langkjaer et al., 2021).

Findings: RNs support the use of EWS tools and found them helpful for identifying deterioration and facilitating appropriate care. They also stated EWSs helped improve communication and collaboration between RNs and physicians, creating a common language. The scoring systems were also used to prioritize patients that should be seen by the physician first. RNs did feel like the tools were rigid at times and wanted to modify EWS when they felt the escalation protocol didn't align with their observations. Importantly, RNs also noted that clinical assessments and observations should be equally valued alongside EWS scores to detect patient deterioration (Langkjaer et al., 2021).

QSEN Competency:

Teamwork & Collaboration: This study shows that using EWSs improve communication and collaboration between healthcare providers by creating a common language and helping to prioritize patient acuity.

The authors of this article performed a qualitative study with the goal of understanding RN's experiences with and perceptions of the National Early Warning Score (NEWS) and the Individual Early Warning Score (I-EWS) in identifying patient deterioration (Langkjaer et al., 2021). 45 RNs across six different hospitals in Denmark were interviewed and divided into six focus groups (Langkjaer et al., 2021). The selected RNs worked on medical-surgical units or in the emergency department (Langkjaer et al., 2021). Three focus groups were at hospitals using I-EWS, two at hospitals using NEWS, and one at a hospital that switched back to NEWS after using I-EWS (Langkjaer et al., 2021). The focus group interviews lasted about an hour and were audio-recorded (Langkjaer et al., 2021). The discussions followed a topic guide with broad questions such as "What are your immediate impressions of NEWS/I-EWS?" "How do you use the tools in your nursing practice?" and "How have these tools affected your collaboration with physicians?" followed by more specific questions (Langkjaer et al., 2021). The authors then transcribed the interviews and coded them into themes using NVivo software (Langkjaer et al., 2021). Transcripts of the focus groups revealed several common themes where overall teh RNs found the early warning tools to be helpful for identifying deterioration and facilitating appropriate care (Langkjaer et al., 2021). RNs also agreed that the early warning tools helped improve communication and collaboration between RNs and physicians by creating a "common language" for the team (Langkjaer et al., 2021). Additionally, the tools were found useful for prioritizing patients, ensuring that those with higher scores were seen first by physicians (Langkjaer et al., 2021). A downfall to the tools that nurses noted was that they often felt rigid and inflexible at times and they wanted to adjust or personalize the scoring systems when the escalation protocol or cut-off values did not

match their physical observations (Langkjaer et al., 2021). Lastly, the nurses also stressed that physical assessments were just as important as EWSs for detecting deterioration; they felt that relying solely on EWS would be insufficient and that combining it with physical assessments was essential for patient safety (Langkjaer et al., 2021).

Results of this study demonstrate a clear connection to the QSEN competency of Teamwork and Collaboration. As clearly stated by the RNs in this study, the use of EWSs such as NEWS and I-EWS helped to improve communication and collaboration between the nurses and physicians caring for a patient. The tools helped to create a common language where scores could be easily interpreted by all of those involved in the patient's care. In turn, this facilitated an environment of open communication and shared-decision making that allowed for improved patient care (QSEN Institute, 2022).

Case Study: Using an Early Warning Score for Nurse Shift Patient Handover: Before-and-after Study

Nursing concern: Effective patient handovers between nurses are essential for providing quality care. However, patient handovers pose a risk to patient safety if important information is left out or not emphasized well enough. Therefore, the use of a tool like NEWS could be used to share details about patient stability during handovers and help nurses clearly share which patients are most at risk for deterioration (Hwang & Kim, 2022).

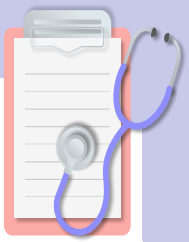
Overview: This was a before-and-after study that aimed to examine the impact of NEWS on shift patient handovers on both nurse and patient outcomes. It was conducted in a hospital in South Korea on three med-surg wards and included 89 nurses and analyzed a random sample of 188 patient medical records before and 200 records after the implementation of the NEWS tool (Hwang & Kim, 2022).

This case study highlights the nursing concern of quality patient handovers during shift changes (Hwang & Kim, 2022). It is well known that effective patient handovers between nurses is crucial for ensuring safe and reliable care (Hwang & Kim, 2022). At the same time, however, nursing handovers also pose a risk to patient safety when important information is left out or not emphasized well enough (Hwang & Kim, 2022). To address this concern, the selected study aimed to examine the impact of implementing the National Early Warning Score (NEWS) during shift handovers would have on nurse and patient outcomes (Hwang & Kim, 2022). The study was conducted in three general med-surg floors in a hospital in South Korea (Hwang & Kim, 2022). The researchers used a before-and-after study design where they analyzed 188 patient medical records before NEWS was implemented and 200 patient records after it was implemented (Hwang & Kim, 2022). The researchers involved 89 nurses who worked on the selected wards and gave them training on the NEWS system focusing on how the scores are calculated, how to respond to scores, and how to discuss it during patient handovers (Hwang & Kim, 2022). Outcomes were measured from analyzing the patient medical records as well as Likert scale questionnaires given to the nurses before and after the implementation of the NEWS tool (Hwang & Kim, 2022). Results of the case study showed that there were significant improvements in the areas of handover quality, teamwork, and safety climate (Hwang & Kim, 2022). The nurses were also found to have recorded vital signs and clinical concerns more frequently (Hwang & Kim, 2022). Adverse events occurred in four of the

pre-intervention patients and one of the post-intervention patients (Hwang & Kim, 2022). However, this was not enough to data to show a statistically significant change in the occurrence of adverse patient events due to NEWS implementation (Hwang & Kim, 2022). Overall though, results of the case study showed that nurses valued the NEWS system and felt that it helped to foster clearer communication, more teamwork, and a better understanding of patient priority, which reinforced their focus on patient safety (Hwang & Kim, 2022).

Importantly, the authors of the study noted that there are many factors that influence how effective the NEWS is on both nurse and patient outcomes (Hwang & Kim, 2022). Such factors include amount of education received on NEWS, support from rapid response teams and physicians, overall nurse workloads, familiarity of nurses with their patients, and level of clinical experience (Hwang & Kim, 2022). Further research should be done on how these factors in addition to NEWS can affect patient outcomes (Hwang & Kim, 2022).

Case Study: Using an Early Warning Score for Nurse Shift Patient Handover: Before-and-after Study



Findings:
-After implementation of the NEWS tool, scores for handover quality, teamwork, safety climate, and frequency of vital sign recordings significantly increased.

-Adverse events occurred in four of the pre-intervention patients and one of the post intervention patients. However, this was not enough to data to show a statistically significant change in the occurrence of adverse patient events.

-Overall, the nurses found the tool to be useful and that it improved communication (Hwang & Kim, 2022).

Implications:
-NEWS can help improve shift handovers by enhancing communication between nurses on the floor through a clear, common language.

-NEWS helped the nurses focus more on patient safety by prioritizing high risk patients during handover and providing necessary interventions quickly.

-Use of NEWS increased the nurses documentation of vital signs and clinical concerns (Hwang & Kim, 2022)

This case study highlights the nursing concern of quality patient handovers during shift changes (Hwang & Kim, 2022). It is well known that effective patient handovers between nurses is crucial for ensuring safe and reliable care (Hwang & Kim, 2022). At the same time, however, nursing handovers also pose a risk to patient safety when important information is left out or not emphasized well enough (Hwang & Kim, 2022). To address this concern, the selected study aimed to examine the impact of implementing the National Early Warning Score (NEWS) during shift handovers would have on nurse and patient outcomes (Hwang & Kim, 2022). The study was conducted in three general med-surg floors in a hospital in South Korea (Hwang & Kim, 2022). The researchers used a before-and-after study design where they analyzed 188 patient medical records before NEWS was implemented and 200 patient records after it was implemented (Hwang & Kim, 2022). The researchers involved 89 nurses who worked on the selected wards and gave them training on the NEWS system focusing on how the scores are calculated, how to respond to scores, and how to discuss it during patient handovers (Hwang & Kim, 2022). Outcomes were measured from analyzing the patient medical records as well as Likert scale questionnaires given to the nurses before and after the implementation of the NEWS tool (Hwang & Kim, 2022). Results of the case study showed that there were significant improvements in the areas of handover quality, teamwork, and safety climate (Hwang & Kim, 2022). The nurses were also found to have recorded vital signs and clinical concerns more frequently (Hwang & Kim, 2022). Adverse events occurred in four of the

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Synthesis of Practice Implications

- Nurses appear to support the use of NEWS.
- Having one standardized tool improved communication and collaboration between nurses and physicians.
- eNEWS, specifically, facilitated the most effective form of integration into the hospital setting by providing healthcare workers with real time updates and easy access to patient scores.

Synthesis of Education Guidelines

- Consistent Training
- Competency Assessments
- Open Interprofessional Communication

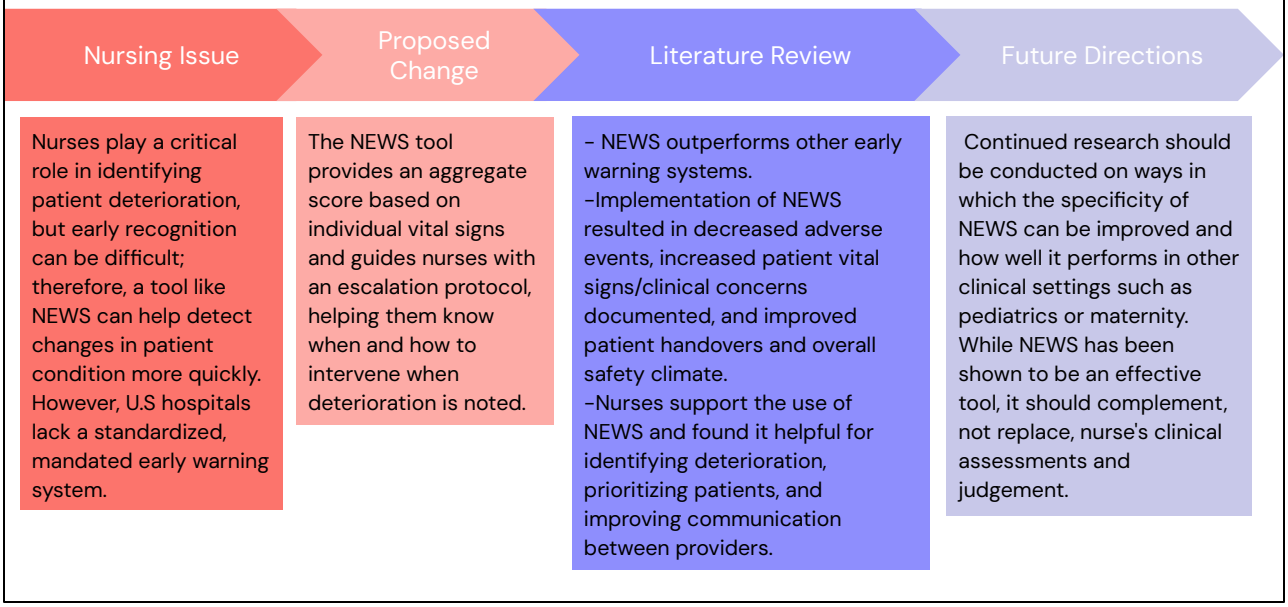
- One of the most important parts of NEWS integration into hospitals is the ability for healthcare workers to accurately use and interpret data. This requires consistent training. During the implementation of eNEWS, the research group made certain to include educational training programs that touched on “What NEWS is”, “How to read eNEWS”, and “How to respond to a NEWS score above 5 and 7” (Wu et al., 2021).
- Another important component to NEWS integration is educating and encouraging constant communication between hospital staff. Nurses and doctors have to be on the same page when it comes to their patients , in order for patients to receive correct and prompt care. In the study concerning eNEWS again, it highlighted that the system encouraged communication between disciplines, and led to more confidence for nurses to discuss treatment plans with doctors (Wu et al., 2021).

Priorities for Further Research

- Due to limited data, further studies should be conducted that assess how NEWS affects both patient outcomes and the nursing care process.
- Continued research should be done to continually improve the NEWS and reduce the amount of “false alarms” in patient deterioration.
- More research should be done to test the efficacy of the NEWS on different hospital units such as the ED, pediatrics, and mother/baby.

As the previously discussed articles have shown, there is still relatively little research that has been done on the NEWS tool specifically and how it affects both patient outcomes and the nursing care process. More research should be done to gather more data about how efficient the NEWS tool is at preventing adverse patient outcomes such as cardiac arrest or transfer to the ICU. At the same time, more research should be done to continue to improve the specificity of the NEWS tool so that there are less “false alarms” in patient deterioration. Having too many false alerts to patient deterioration may make nurses and physicians less likely to take the NEWS tool seriously and this inadvertently can affect patient outcomes. Lastly, most studies of the NEWS tool were conducted in a medical-surgical setting; therefore, additional studies should be conducted to assess the effectiveness of the NEWS tool in detecting patient deterioration in other units of the hospital such as the emergency department, pediatrics, and mother/baby floor.

Conclusion



Nurses play a vital role in recognizing patient deterioration and responding with appropriate interventions; however, recognizing patient deterioration early can be complex and challenging, therefore the use of an early warning screening tool such as NEWS can assist nurses with recognizing patient deterioration faster (Langkjaer et al., 2021). This is of significance because in the United States there is not one standardized early warning screening tool to detect patient deterioration, nor are hospitals mandated to use such risk screening tools (Williams, 2022). This is important to note because it is estimated that between 3% to 9% of patients experience some sort of clinical deterioration while in the hospital (Wu et al., 2021). It is also estimated that 84% of patients who experience a serious adverse event, such as cardiac arrest or unplanned admission to the ICU, had abnormal vitals signs prior to the event (Langkjaer et al., 2021). The NEWS tool could be used to detect these abnormalities in vitals as the tool assigns an aggregate score based upon the following vital signs: heart rate, systolic BP, respiratory rate, temperature, oxygen saturation, level of consciousness, and oxygen supplementation. The overall score is then paired with an escalation protocol that instructs nurses what interventions they should take and when to include the physician or activate the Rapid Response Team (World Patients Alliance, 2024).

Overall, results of the literature show that NEWS is the most effective early warning screening tool at predicting hospital mortality and ICU transfer and that it even outperforms infection specific tools like SIRS (Baker et al., 2021; Liu et al., 2020). Furthermore, studies show that with the implementation of the NEWS tool there have been significant decreases in adverse events such as cardiac arrest, unplanned ICU

admission, and in-hospital mortality (Lee et al., 2020; Wu et al., 2021). The NEWS tool has also been shown to increase the amount of vital signs/clinical concerns recorded as well as improve patient handovers and the overall safety climate of units in which it is implemented (Hwang et al., 2022; Lee at al., 2020). Importantly, it appears that nurses support the use of EWS tools like NEWS and found them helpful for identifying deterioration, prioritizing patients, and facilitating appropriate care (Langkjaer et al., 2021). They also stated EWSs helped improve communication and collaboration between RNs and physicians by creating a common language between them (Langkjaer et al., 2021). In all, this shows that the NEWS tools can assist in improving patient safety and overall outcomes.

In the future, there should be continued studies on the effectiveness of the NEWS tool at detecting deterioration in patients and reducing adverse events. Specific attention should be made to increase the specificity of the tool to decrease the amount of “false alarms” triggered and more studies should be conducted to see how NEWS performs in different clinical settings such as the ED, pediatrics, and maternity. Also important to note, is that the NEWS tool must not be over-relied on as the sole way to detect patient deterioration and should never replace thorough assessment of patients by nurses (Langkjaer et al., 2021).

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