Chapter-10

EFFECT OF TRAINING ON MODIFIED EARLY WARNING SCORE (MEWS) TO IN-HOUSE DOCTORS AT FORTIS HOSPITAL, BENGALURU

[1]Anjali K
[1]Student, IIHMR University

[2]Dr. J.P. Singh
[2]Professor, IIHMR University

DOI: https://doi.org/10.52458/978-8197040863.2024.eb.ch-10
Ch.Id:- IIHMR/NSP/EB/RHP/2024/Ch-10

INTRODUCTION

Morgan, Williams, and Wright from the United Kingdom pioneered the development and publication of the Early Warning Score (EWS). This scoring system focuses on five vital physiological parameters: heart rate, systolic blood pressure, respiratory rate, temperature, and conscious level. each parameter is assigned a range of cut points or scores with corresponding color-banded trigger points. The primary purpose of the EWS is not to predict outcomes but to identify early signs of deterioration, functioning as a track-and-trigger system (TTS). For instance, a respiration rate cut point range exceeding 25/min serves as an alerting point with a score of 2, indicating the need for intervention escalation [1].

Several modifications and standardizations have been made to the original EWS system. Arterial oxygen saturation was incorporated into the observational chart, and urine output was added to the trigger-tracker system to monitor risk-prone patients in the ward [2][3][4]. While different hospitals in the United Kingdom included urine output, pallor, sweating, and overall unwell appearance in the early warning scoring chart, these were not scored as clinical signs of deterioration. The existence of 33 unique Aggregate Weighted Track and Trigger systems (AWTTs) underscores the need for further study to enhance these systems [5]

Bedside score and track-and-trigger systems involve nurses scoring vital sign observations to calculate a total score, facilitating early recognition of patient deterioration. Used in conjunction with clinical judgment, these MEWS systems are crucial, as aberrant physiology is common among vulnerable patients.

Clinical and physiological deterioration often precede cardiopulmonary arrest, highlighting the importance of nurses' timely recognition and intervention. Failure to recognize such deterioration can have serious consequences, including cardiac arrest, ICU admission, or death, emphasizing the need for regular monitoring and ethical considerations in patient care [6] [7].

RESEARCH QUESTIONS

1. What level of understanding did in-house doctors possess regarding MEW Score calculation?
2. What effect did the training have on the ability of in-house doctors to calculate MEW Scores?

RESEARCH OBJECTIVES

1. To assess the knowledge of In-house doctors on MEW Score calculation.
2. To observe the effect of training on MEW Score calculation of in-house doctors.

RESEARCH METHODOLOGY

The research adopted an operational and analytical study design at Fortis Hospital, Bengaluru, employing structured case scenarios. These scenarios were utilized both prior to and following training, and the study spanned a three-month period from February 2018 to April 2018.

Purposive sampling was employed with the objective of evaluating the knowledge of in-house doctors regarding MEW Score calculation. Inclusion and exclusion criteria were established for sample selection, categorizing respondents based on their Doctorate hierarchy. MBBS, DNB 1st year, and MD 1st year were considered inclusion criteria, while DNB and MD-2nd, 3rd year Registrar, and consultants were excluded. A total of 97 in-house doctors meeting the inclusion criteria were included in the study population.

For data collection and analysis, a well-defined structured schedule with closed-ended questions was developed. This schedule focused on gathering healthcare providers' basic information and assessing their ability to calculate the Modified Early Warning Score through case scenarios. The survey was administered to doctors both before and after training. Raw data were entered and analyzed using Microsoft Office Excel spreadsheet, and IBM SPSS Statistics 16 was employed for statistical analysis.

RESULTS AND DISCUSSION

The Modified Early Warning Score (MEWS) serves as a valuable tool for early detection of deteriorating conditions in bedside patients, contributing to a reduction in ICU returns, hospital transfers, and code blue incidents. In our study, participants initially lacked prior knowledge of MEW Score calculation; however, they were familiar with MEWS actions, drawing from experiences gained during clinical placements. Raw data were entered and analyzed using Microsoft Office Excel spreadsheet, and IBM SPSS Statistics 16 was employed to determine the frequency of the test.

Five case scenarios (questions) were utilized to assess knowledge of MEWS, the percentage distribution of respondents' knowledge on MEWS calculation in both pre-test and post-test conditions. Notably, the correct pre-test score for questions 1 to 4 was 24%, increasing significantly to 96.5% after training. For question 5, a special case scenario, scores elevated from 4% to 20%. The mean average scores for both pre-test and post-test improved from 1 to 4.A paired t-test to compare post-test and pre-test conditions. The results revealed a significant effect, with post-test scores (Mean=4, SD=0.651) demonstrating improvement compared to pre-test scores (Mean=1, SD=1.082); t (96) =22.72, p=0.000. These findings suggest a substantial impact of the training on MEW Score calculation among in-house doctors at Fortis Hospital, Bengaluru. Consequently, the null hypothesis is rejected, confirming the effectiveness of the training.

CONCLUSION

In conclusion, the Modified Early Warning Score (MEWS) emerges as a crucial tool for the early detection of deteriorating conditions in bedside patients, contributing to a reduction in ICU returns, transfers, and code blue incidents in the hospital. The study revealed that respondents initially lacked knowledge in calculating the MEW Score, but they were familiar with MEWS actions based on their experiences from clinical placements.

REFERENCES

1. James, U. K. (2014). Monitoring Vital signs: Developing Modified Early Warning Scoring (MEWS) system for general wards in developing country. PLos One.
2. Duckitt RW, B.-T. R. (2007). Worthing physiological scoring system: derivation and validation of a physiological early-warning system for medical admissions. An observational, population-based single-center study. British Journal of Anesthesia.
3. Cuthbertson BH, B. M. (2007). Can physiological variables and early warning scoring systems allow early recognition of the deteriorating surgical patient? Critical Care Medicine.
4. Subbe CP, G. H. (2007). Reproducibility of physiological track-and-trigger warning systems for identifying at-risk patients on the ward. Intensive Care Medicine.
5. Smith GB, P. D. (2008). Review and performance evaluation of aggregate weighted 'track and trigger' systems. Resuscitation.
6. Mello MM, S. D. (2003). The New Medicine Malpractice Crisis. New England Journal of Medicine, 2281-2284.
7. Fraklin C, M. J. (1994). Developing strategies to prevent in hospital cardiac arrest: analyzing responses of physicians and nurses in the hours before the event. Critical Care Medicine, 244-247.