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Clinical Decision Support Systems for Operating Room Nurses: A Rapid Review

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Abstract. This rapid review delves into Clinical Decision Support Systems (CDSS) for Operating Room Nurses (ORN). Analyzing three studies over 20 years, it highlights limited impact on ORN decision-making. The findings suggest that CDSS positively influence some aspects of care, ORN perceive them as supplementary rather than pivotal to their decision-making processes. Our review highlights the importance of understanding ORN' decision-making for customizing CDSS effectively.

Keywords. Clinical decision support system, operating room nurses, rapid review

1. Introduction

In the fast-paced and high-stakes environment of the operating room, surgical teams rely on a multitude of information sources to guide their decision-making process. Clinical decision support system (CDSS) systems integrated into the electronic health record (EHR) have emerged as a promising tool to enhance decision-making. CDSS, broadly defined as computer-generated clinical knowledge and patient-related information intelligently filtered and presented at the right moments, is continually evolving to optimize workflows and patient outcomes in this specialized setting.

Existing reviews have primarily focused on medical decision-making. Operating room nurses (ORN), as integral decision-makers in surgical care, face unique challenges, such as recognizing surgical complications, adhering to specific surgical protocols, and coordinating with the surgical team. Dunn Lopez et al. conducted an integrative review of CDSS for hospital bedside nurses, finding that such systems generally have positive effects on outcomes, although there is a shortage of research compared to CDSS targeting medical decision-making [1].

The need for specific research focusing on CDSS for ORN has become apparent. To address this gap, we conducted a rapid review of studies related to CDSS tailored to decision-making processes of ORN.

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2. Methods

We performed a rapid review, applying the process and methods of a systematic review in a streamlined and accelerated way. We limited the search to two databases, MEDLINE and CINHAL using keywords: “clinical decision support system” AND “operating room nurses” and their related terms. We included any peer-reviewed research paper describing any sort for CDSS for ORN, published in the last 20 years in French or in English. One researcher screened the title and abstract and the full-text was appraised by two researchers and discussed before inclusion.

3. Results

The search strategy yielded 153 results, from which 30 were duplicates. We completed a full-text evaluation of eight papers, from which three were retained. All the studies were conducted in the United States before 2015). Two studies were quasi-experimental studies [2,3], and one was a qualitative research [4]. The three CDSS specifically designed for ORN within a hospital setting, and their focal point encompassed perioperative peripheral nerve damages [2], in addition to two general CDSS, namely Ligthyear [3] and Cerner [4]. In these studies, it was found that nurses' decision-making isn't significantly influenced by CDSS. Nurses using the Cerner system assess patient needs with CDSS but still take full responsibility for care decisions, seeing technology as assistants due to limited personalized support. [4]. Despite perceiving technology as subordinate, there was a notable increase in documentation of interventions for nerve injuries and a positive attitude towards basic CDSS [2]. However, one study did not show a significant difference in decision quality between control and experimental groups [3].

4. Conclusions

Our rapid review of CDSS tailored for ORN underscore the crucial necessity of initially focusing on the decision-making processes of ORN to better tailor CDSS for their specific needs in surgical settings. Based on the findings, future research directions should focus on the development and evaluation of more personalized and adaptive CDSS that align closely with the unique decision-making processes and workflow of ORNs.

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