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### The Effect of Nurse-to-Patient Ratio on Medication Errors

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# The Effects of Nurse-to-Patient Ratio on Medication Errors in the Intensive Care Unit

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## PICO Question

What is the effect of a nurse-to-patient ratio of 1:2 compared to a nurse-to-patient ratio of 1:3 on the number of medication errors in the Intensive Care Unit?



## Introduction

This review of literature aims to find evidence for a nurse-to-patient ratio of 1:2 and the effect it has on reducing medication errors in the intensive care unit (ICU). The review of literature was conducted to explore factors that contribute to medication errors and the benefits of a 1:2 nurse-to-patient ratio versus a 1:3 nurse-to-patient ratio in the ICU. The evidence can help inform staffing decisions makers about safe nurse-to-patient ratios in the ICU and the effect this ratio has on reducing medication errors. A secondary aim is to assess the potential benefit of a 1:2 nurse-to-patient ratio on additional patient safety outcomes.

## Objective

The aim of this literature review was to determine the effects of a smaller nurse-to-patient ratio of 1:2 versus 1:3 on the number of medication errors in the Intensive Care Unit.

## Key Words:

- Nurse-to-patient ratio
- Medication Errors
- Intensive Care Units

## Methodology

The authors conducted a review of literature using PubMed, ProQuest, and Google Scholar databases. A Boolean Strategy was used with "AND" and "OR".

### Article Selection Criteria:

- Peer-reviewed
- Published within the last 5 years
- Higher levels of evidence

Three peer-reviewed articles were selected based on the inclusion criteria for this student project. This literature review selected higher levels of evidence including meta-analysis and systematic reviews.

## Results/Findings

The results from all three articles suggest that a lower nurse-to-patient ratios is associated with a lower incidence of medication errors in the ICU. Specifically, a ratio of one nurse to two patients was shown to be linked to the lowest rate of medication errors.

- A nurse-to-patient ratio of 1:3 was 13 times more likely to make a medication error compared to a 1:1 nurse-to-patient ratio (Tassew et al., 2022).
- Nurses interruptions during medication administration were three times more likely to make an error than those not interrupted (Tsegaye et al., 2020).

1:2  
vs.  
1:3



## Conclusion

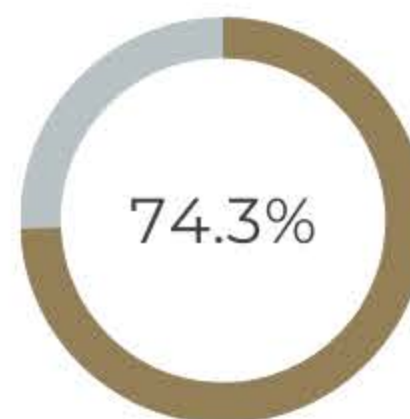
The results of the study conclude that decreasing the nurse-to-patient ratio is not only recommended but it is essential to the safety and future of clients. This research is relevant to the nursing profession because it affects nurses every single day. The longer that this problem is ignored the more medication errors will occur. The research must be utilized to decrease medication errors in every unit and specifically in the intensive care unit. Ultimately the goal is to have a 1:1 nurse-to-patient ratio, however, with the goal of creating and maintaining this change a 1:2 ratio is the beginning of solving this issue. Discovering protocols, educating nurses, and creating a safe environment are all interventions that require increased research in this field of study. Medication errors must decrease, and this can start with addressing the need for smaller nurse-to-patient ratios.

## References



## Analysis of Results

All three articles supported the authors' PICO question that lowering nurse-to-patient ratios can have a positive effect on reducing medication errors. The literature review highlighted the importance of staffing levels to improve patient safety in the ICU. Hospitals and healthcare providers should consider nurse staffing ratios as an important factor in the prevention of medication errors and in improving patient outcomes in the ICU.



74.3% of nurses reported at least one medication administration error in the last six months (Tsegaye et al., 2020).

7.6%

The research shows that with a nurse-patient ratio of 1.9 the errors are a significantly smaller percentage (Hermanspann et al., 2019).

