

# An Analysis of Pre-Licensure Nursing Student Clinical Errors and Near-Misses

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## Background

There is a growing focus within healthcare organizations regarding the necessity of a promotion of a culture of safety; indeed, the Institute of Medicine decreed that an increase in the safety of healthcare was the first of six domains listed as an aim for the U.S. Healthcare System (Agency for Healthcare Research and Quality, n.d). As today's healthcare professionals, and especially nurses, progress towards a culture of safety, so too must their training. Medical errors and sentinel events remain a significant concern in the healthcare arena, despite targeted and focused initiatives and attempts at their reduction. Medication errors, according to some reports, occur at the rate of more than 1 per day per hospitalized patient (Bush, Hueckel, Robinson, Seelinger, & Molloy, 2015). Hospital staff nurses are typically the personnel responsible for the administration of the overwhelming majority of medications within the healthcare system (Bush et al., 2015) and consequently are critical elements in the process of medication administration.

Approximately one-half of new nurses with less than one year of experience who were involved in adverse patient events identified that their formal education preparation was a causal factor in their error (Saintsing, Gibson & Pennington, 2011). An examination of quality and safety measures of a current hospital based associate degree nursing (ADN) educational program provided data regarding errors committed by prelicensure students. Tracking and analysis of frequency and type of student clinical errors provides for identification of similarities and an opportunity for system evaluation and improvements.

## Methods

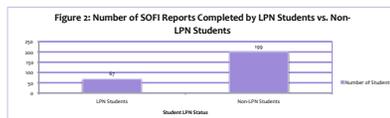
A twenty-four month retrospective comparative design was utilized in a private, non-profit 2-year associate degree nursing program in the northeastern region of the United States with an enrollment of approximately 300 students. The target population was all enrolled prelicensure nursing students between the ages of 18 and 60 who had a SOFI report filed. A convenience sample was utilized. Students who had been dismissed from the program due to either academic or clinical failures but who have had at least one SOFI filed were included in the study population. The number and types of SOFI reports generated with the previously described demographic variables was measured.

### Instrumentation

A SOFI form is completed whenever an event happens during a clinical experience that is identified by the faculty, staff nurse or student as having the potential for causing harm to a patient. The SOFI form was developed by faculty at this institution to (1) assist the student to identify and describe the event, potential patient consequences and steps that would have prevented the event, (2) identify the learner requiring remediation and the type of remediation necessary, and (3) identify and track trends that may impact on the course of teaching and learning in the curriculum. The faculty member then writes a brief description of the event and determines the category of the event. Categories include (1) 6 Rights [right patient, right dose, right time, right medication, right route, right documentation] (2) Medication, (3) IV Management, (4) Patient Safety, and (5) Miscellaneous.

## Results

A total of 266 SOFI forms were examined. The difference in the number of errors/near misses and therefore SOFI reports between semesters one and two ( $M=0.4$ ,  $SD=.49$ ) as compared with semesters three and four ( $M=0.6$ ,  $SD=.49$ ) of the program was statistically significant at an alpha level of 0.05. The number of LPN students completing SOFI forms ( $M=.25$ ,  $SD=.43$ ) compared to those that had no healthcare experience ( $M=.75$ ,  $SD=.43$ ) was also statistically significant at an alpha level of 0.05. Students aged 30 years or older were associated with 64.3% of the SOFI forms ( $M=.64$ ,  $SD=.48$ ), demonstrating a statistical significance at an alpha level of 0.05. The difference in SOFI reports constructed during the 24-month curriculum ( $M=.63$ ,  $SD=.49$ ) and the 18-month curriculum ( $M=.63$ ,  $SD=.49$ ) was statistically significant at an alpha level of 0.05.



## Objectives

The specific aims of the study were to:

1. Assess the number and types of the clinical errors and near misses (termed Student Opportunities for Improvement, or SOFIs) of pre-licensure associate degree nursing (ADN) students from July 30<sup>th</sup> 2012 through July 30<sup>th</sup> 2016.
2. Compare SOFIs generated from July 30<sup>th</sup> 2012 through July 30<sup>th</sup> 2016 from ADN students by academic semester, student previous healthcare experience, and pre-licensure nursing student age.
3. Compare the number and types of SOFI reports generated from when the academic program was a 24-month program to when the academic program was changed to an 18-month program.

Research Question:

What were the number and types of SOFI reports that have been generated from July 30<sup>th</sup> 2012 through July 30<sup>th</sup> 2016?

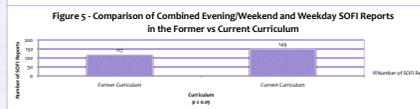
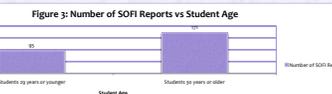
## Conclusions

This analysis indicates a potential deficit in students' assimilation and application of nursing principles. The findings of this particular research study highlight the necessity of classroom and clinical instruction regarding safe, appropriate care and techniques for error management. The impact of national safety patient programs on nursing curricula need to be assessed, and potentially need stronger implementation efforts. Since the publication of *To Err is Human* (IOM, 1999), there has been considerable time, attention and effort invested in the training and preparation of those who might be associated with medical errors.

While errors are often considered to be part of the learning process of pre-licensure students, the challenge associated with nursing education is building an educational foundation and the promotion of an appropriate culture wherein students can learn from their mistakes and near-misses while the errors/near-misses are caught before they reach the patient. A broader and increased knowledge base regarding the clinical errors and near-misses that are conducted by pre-licensure RN students can only assist faculty with regard to the more thorough preparation of these future providers.

## Acknowledgments

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## Recommendations

While it is understood that nursing school is a learning process in and of itself and students will make mistakes, there are still areas requiring close attention and potential curricular gaps that are leading to the conduction of nursing students' clinical errors and near-misses.

Wide-spread utilization of a reporting system would provide for the opportunity for examination of trends in student errors/near-misses to be studied on a more extensive scale than at the individual program level, and would allow for a broader, systems-focused examination of appropriate faculty and curricular interventions to decrease the number of student clinical errors and/or near-misses (Disch & Barnsteiner, 2014).

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