Medical Students Preventing Medical Errors:
A Student-Led Approach to Patient Safety in Preclinical Curriculum

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Introduction

- Preventable medical errors are currently the third leading cause of death in the United States following heart disease and cancer.[1]
- The healthcare system has several components which act non-linearly, such as hospitals, pharmacies, and clinics. There are often different ways for things to go wrong, which is exactly what has been seen in recent studies.[2]
- In general settings, research has shown that approximately 10% – 12% of all hospitalized patients experience some form of injury resulting from mistakes, with 50% of these considered to be preventable errors.[3]
- Adverse drug events cause over 700,000 ER visits and 100,000 hospitalizations. These occur in about 5% of all hospitalization, making them some of the common preventable errors that can occur in a health care setting.[4]
- Formal education on patient safety and preventable medical errors is often not implemented in the pre-clinical years of medical education and medical students do not learn it until their third year of medical school.

Description of Study
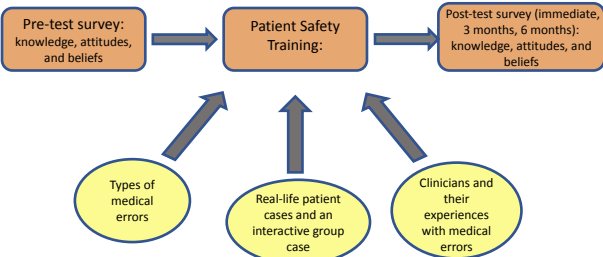
Results

- 16/33 (48%) participants completed both the pre-test and post-test surveys. The participants consisted of 6 males and 10 females.
- *Race/ethnicity*: 4 were white, 1 was African American, 6 were Hispanic, and 5 were Asian

Table 1. Data from selected knowledge-based questions

Subject of Question	Correct on Pre-test (N=33)	Correct on Immediate post test (N=25)	Post-test 3 mo (N=19)	Post-test 6 mo (N=16)
Third leading cause of death in the US	31 (93.9%)	24 (96%)	18 (94.7%)	15 (93.8%)
Common type of error	12 (36.4%)	16 (64%)	11 (57.9%)	9 (56.3%)
Effects of bad communication	31 (93.9%)	25 (100%)	19 (100%)	16 (100%)
Morbidity and mortality due to patient harm	19 (57.6%)	23 (92%)	15 (78.9%)	13 (81.3%)
Hospital-acquired infections	15 (45.5%)	18 (72%)	9 (47.4%)	6 (37.5%)
Preventable medical mistakes	31 (93.9%)	25 (100%)	18 (94.7%)	16 (100%)
Types of medical mistakes	26 (78.8%)	24 (96%)	18(94.7%)	15 (93.8%)
Average % correct	**71.4%**	**88.6%** (p= 0.145)	**81.2%** (p=0.372)	**68.4%** (p=0.847)

Table 2. Data from selected perception-based questions

Subject of Question	Pre-test (N=33)	Immediate (N=25)	Post-test 3 mo (N=19)	Post-test 6 mo (N=16)
Patient safety can have large impact on health outcomes	32 (97%)	25 (100%)	18 (94.7%)	15 (98.3%)
Well-versed in different aspects of patient safety	5 (15.2%)	20 (80%)	12 (63.2%)	12 (75%)
Plan to incorporate patient safety techniques	32 (97%)	25 (100%)	18 (94.7%)	16 (100%)

Conclusions

1. Improvement in patient safety knowledge amongst students immediately after training is promising. Students exhibited more knowledge on patient safety topics immediately after training (88.6%) than they had prior to patient safety training (71.4%, p = 0.145). Results from the 3-month and 6-month follow-up highlight the need for long-term training and can be further assessed in future studies.
2. There was an increase in number of students who considered themselves to be well-versed about patient safety immediately after the training session (80%) compared to before the training session (15.2%, p=0.08). The decline, both 3-months (63.5%, p=0.41) and 6-months (75%, p=0.29) after training emphasizes the need for continued training.
3. The high percentage of students who believed that patient safety can have an impact on health outcomes and in the students' decision to incorporate patient safety techniques in the future demonstrates the impact of the training on students' attitudes and beliefs
4. The lack of statistically significant findings in the knowledge-based questions could be attributed to small sample size and will likely improve with further trainings.
5. Continued training sessions will solidify knowledge about patient safety in preclinical years and potentially in clerkship years, and will allow for students to gain confidence in their knowledge of patient safety and medical errors. This has potential to lower patient morbidity and mortality, and reduce institutional and governmental costs.

References

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