Patient Safety: A Case Report on the Role of Nursing Students in the Use of Diagnostic Tools

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ABSTRACT

Objective: To examine the use of educational tools and methods in training nursing students in patient safety in a clinical environment

Background: Incident analysis is a learning tool that treats errors as opportunities to identify vulnerabilities, draw conclusions, and improve processes to prevent future failures. Effective learning requires an open mind and a willingness to learn from incidents, focusing on improvement rather than blame. Organizations can encourage open dialogue and collaboration by fostering a culture of trust and transparency. This approach transforms setbacks into valuable lessons, enabling teams to address systemic issues, enhance safety, and boost efficiency. Continuous reflection and adaptation ensure that the organization evolves and strengthens, making it more resilient to future challenges while fostering innovation and growth

Design: This report examines a case study where nursing students used tools such as the Ishikawa diagram and the 5M model to analyze an incident and present their findings to their peers.

Methods: Structured meetings and appropriate tools guided students through analyzing the event, considering the causes and emotional aspects, and making decisions.

Results: Students provided diverse perspectives, demonstrating openness and honesty despite initial tension. The case study fostered a constructive dialogue about patient safety.

Conclusions: The report combines educational concepts with an approach to fostering a constructive organizational culture, integrating tools from risk management and treatment safety. It emphasizes the importance of embedding patient safety education within nursing academia and clinical practice.

Keywords: patient safety, safety treatment safety, nursing education, students

INTRODUCTION

Safety care in nursing is a central aspect of preventing damage and ensuring the well-being of patients, their families, and healthcare teams. It relies on various methods, protocols, and interventions to maintain a safe environment and provide high-quality care. The International Council of Nurses (ICN) believes that improving patient safety involves multiple activities, including training, practice, and instruction in subjects including environmental safety and risk management, infection control, safe medication use, safe clinical practice, and maintaining a safe care environment.[1]

Providing safe care is the responsibility of nurses in any therapeutic environment where patients are at risk of being exposed to events related to nursing duties, such as mistakes in administering medications, falls, pressure sores, etc..[2,3] Digital transformation in the healthcare field can contribute to efficient and patient-centered care. Similarly, incorporating advanced technologies, such as electronic health records (EHRs), and telephone

health services, into the health services advances the levels of safety and quality of care. At the same time, it is essential to emphasize the fact that while engaged in a digital revolution in nursing practice, we must not forget potential challenges related to data privacy and information security and must make all efforts to ensure that the advantages of digital transformation do not become a disadvantage for patients.[4]

The importance of providing nurses with the skills for optimal use of computerized technologies during their nursing studies should not be underestimated, and such efforts should continue throughout the subsequent training of the nurses in the workplace. Many countries have developed procedures and guidelines for maintaining patient safety, and these guidelines should be incorporated into the nursing curriculum. Including relevant content, both as theoretical information and clinical experiences, will ensure that graduates of nursing study programs start their nursing careers with an awareness of safety and quality care.[5-7]

The Case

During clinical training in a surgical department, a nursing student pricked themselves with a needle while attempting to take a blood glucose test. Unable to continue the process without inputting the patient's details, the student entered the details of a non-diabetic patient to generate test results. The student later reported this to the instructor, unaware of the seriousness of their actions.

During a further conversation with the instructor, it became apparent that the students failed to understand the seriousness of their actions and stated so in a very naïve way. The student also claimed that the instructor in a prior department had authorized the students to take glucose stick tests in the patient's name, so that was not the first time of this kind of behavior.

It should be noted that the students were in their second year of study and had completed one nursing rotation in an internal medicine ward. The incident under discussion occurred towards the end of a practical rotation in a surgical department.

The incident precipitated a disciplinary debate among faculty members. While some recommended disciplinary action, others viewed the incident as a teaching opportunity, where, after discussions, the student should present the topic to the class.

Several meetings were held with the students after which, the students expressed regret and acknowledged the severity of their actions and voiced concern that their studies would be terminated as a result. The decision was then taken to use this incident to educate students about patient safety and ethical decision-making.

There followed a series of meetings during which the case was analyzed comprehensively by the Ishikawa diagram and the 5M model. [8]

The 5M model evaluates factors across five dimensions—Man, Machine, Method, Material, and Mother Nature (environment)—which proved instrumental in identifying the event's root causes and contributing elements.

Man: The students actions were influenced by a lack of understanding of patient safety protocols and unclear guidance in previous rotations. Emotional factors, including stress and inexperience, also played a role.

Machine: Using the diagnostic tool required input of patient data for operation. The lack of a safeguard against unauthorized entries enabled the student's error.

Method: Inconsistent instruction across clinical rotations created ambiguity in the correct processes for performing blood glucose tests.

Material: The needle stick incident highlighted deficiencies in proper protective equipment handling or lack of training in avoiding such occurrences.

Environment -: High-pressure clinical settings and insufficient supervision contributed to the student's flawed decision-making under stress.

This structured approach illuminated both immediate and systemic issues that influenced the incident and thereby directed the development of corrective measures analysis using the 5M model highlighting the multifactorial nature of patient safety incidents. While the students' immediate actions were the most visible contributing factor (Man), system issues such as inadequate training protocols (Method) and insufficient safeguards in diagnostic tools (Machines) played equally significant roles. The constructive approach taken by the faculty in addressing the incident aligns with the principles of fostering a culture that emphasizes learning over punishment. By dissecting the incident through the 5M model, educators and students gained a clearer understanding of how different elements interact to compromise patient safety.

The case emphasizes the importance of integrating comprehensive tools such as the 5M model into nursing education to develop a deeper understanding of patient safety.

Treatment Safety

Impact on the Student. Mistakes can deeply affect nursing students, leading to shame, diminished confidence, and fear of academic consequences. However, analyzing errors helps students develop clinical judgment, learn to manage pressure, and recover from setbacks.

Incident Analysis. The Ishikawa diagram and 5M model were employed to identify contributing factors and evaluate the decision-making process. Emotional and ethical considerations were discussed, emphasizing the importance of accuracy, and of reporting and learning from mistakes.

Organizational Culture. Institutions that encourage open reporting, accountability, and empowerment enable students to learn constructively from adverse events, thereby shaping their professional development.

Ethical consideration

A mistake or near-mistake in educating nursing students often leads to discussing responsibility, ethics, and professional liability. Students learn the importance of reporting mistakes and how to handle them ethically.

The experience of making mistakes emphasizes the importance of patient safety. Students gain insight into the systems in place to prevent errors and their role in maintaining these systems. The conduct of the management in analyzing an unusual event of this nature is of utmost importance. If the organization encourages reporting, taking responsibility, reviewing, and growing from the event and reinforces empowerment, the student can experience a learning process that will affect their subsequent professional life.

DISCUSSION

This case highlights an incident involving harm to patient safety and the ethical dilemmas thereby posed for a second-year nursing student. Despite the students' previously positive record, the incident reveals gaps in understanding patient safety protocols. In our investigation with the students, it became clear that the clinical instructor had allowed them to take blood sugar tests for themselves on behalf of patients, and the students had not received training on patient safety related to these issues in the previous department where they had been. More Than that some days the students are not white the instructor because he is not working so they are guided by other nurses.

Faculty members adopted a constructive approach, viewing the incident as an opportunity for education rather than punishment. Class discussions fostered empathy, with most students recognizing the value of learning from mistakes. Notably, some expressed frustration, advocating stricter consequences for the students

It was interesting to see the students' reactions during the class discussion. Most students noted that learning from this event was a good opportunity. The students also noted the importance of careful instruction before experimenting with new technologies. One student stated, "There are many things we don't learn and don't know, and when we get to experiment, we are afraid to move." The students expressed empathy and appreciation for the students who presented the topic to the class. On the other hand, a few students were angry about how the management handled the issue and thought that the student should be punished. "He should have failed the rotation and be suspended for a year."

The faculty staff conducts respectful investigations to learn from failures, particularly in clinical practice, thus ingraining the investigation process into our organizational culture. Additionally, as part of the professional socialization process, we treat students as a nursing team and nurture an organizational culture that perceives mistakes as learning opportunities, prioritizes education, emphasizes the benefits of extracting lessons from failures, and minimizes judgment and blame after setbacks.

CONCLUSIONS

This case study integrates educational concepts with risk management strategies to establish a patient safety culture in nursing education. It underscores the importance of embedding safety education in nursing curricula, providing pre-clinical lectures on patient safety, ethics, and new technologies, and sharing lessons learned with clinical preceptors to prevent similar We conclude that addressing adverse events constructively can enable nursing programs to empower students, prioritize patient safety, and develop into competent professional incidents

REFERENCES

1. International Council of Nurses. 2012 Patient Safety. Accessed August 19, 2024, https://www.icn.ch/membership/specialist-affiliates/nursing-policy/icn-strategic-priorities/patient-safety
2. Lee SE, Vincent C, Dahinten VS, Scott LD, Park CG, Dunn Lopez K. Effects of Individual Nurse and Hospital Characteristics on Patient Adverse Events and Quality of Care: A Multilevel Analysis. Journal of Nursing Scholarship. Jul 2018;50(4):432-440. doi:10.53555/eijmhs.v6i3.201
3. Tchouaket E, Dubois C-A, D'Amour D. The economic burden of nurse-sensitive adverse events in 22 medical-surgical units: retrospective and matching analysis. Journal of Advanced Nursing. 2017;73(7):1696-1711. doi:https://doi.org/10.1111/jan.13260
4. Mulukuntla S, Pamulaparthyvenkata S. Digital Transformation in Healthcare: Assessing the Impact on Patient Care and Safety. EPH - International Journal of Medical and Health Science. 2020;6(3):27-33. doi:https://doi.org/10.53555/eijmhs.v6i3.201
5. Nursing & Midwifery Council. Ensuring patient safety, enabling professionalism. Accessed August 18 2024 https://www.nmc.org.uk/globalassets/sitedocuments/consultations/2018/ftp/ftp-consultation-info.pdf
6. Tella S, Liukka M, Jamookeeah D, Smith NJ, Partanen P, Turunen H. What do nursing students learn about patient safety? An integrative literature review. Journal of Nursing Education. Jan 1 2014;53(1):7-13. doi:10.3928/01484834-20131209-04
7. VanDenKerkhof E, Sears N, Edge DS, Tregunno D, Ginsburg L. Patient safety in practical nurses' education: A cross-sectional survey of newly registered practical nurses in Canada. Nurse Education Today. Apr 2017;51:48-56. doi:10.1016/j.nedt.2017.01.003
8. Ishikawa K, Loftus Jt. Introduction to Quality Control. 3A Corporation; 1990. 10: 0412435403.