

Analyzing the Contributions of Nurses and Pharmacists to Patient Safety Standards in Operating Rooms: Challenges and Best Practices

Sami Hamed Alshammari¹, Awad saad al balawi², Khalid Meshen Saleh Albaliwi³, Naif Ali Dhabyan Albalawi⁴, Alhanouf salem jazi alhawiti⁵, Assaf Salem Alharbi⁶, Khalid Saud Alotaibi⁷, Alhanouf eid rashed alotaibi⁸, shaker sulaiman alharbi⁹, Khaled saad saud alnomasi¹⁰, Ibrahim Tawelaa Mohammad Alhawiti¹¹, Salem Osaimer H. Al Mutairi¹²

1. *Operation technician, the Northern Borders Health Cluster*
2. *Nursing technician, Tabuk health cluster*
3. *Nursing specialist, Tabuk health cluster*
4. *Nursing technician, Tabuk health cluster*
5. *Pharmacist, Tabuk health cluster*
6. *Pharmacist, Ministry of Health*
7. *Nursing Specialist, Nafi General Hospital*
8. *Riyadh specialist Dental Center, Pharma D*
9. *Pharmacist , Ministry of Health Branch*
10. *Pharmacy technician, Ministry of Health Branch*
11. *Nursing technician, Tabuk health cluster*
12. *Nursing specialist, General Administration of Nursing affairs in moh*

Introduction

Due to the inherent complexity and high danger of surgical environments, patient safety in operating rooms is a major problem. Despite their critical roles in upholding safety standards, nurses and pharmacists sometimes receive little credit because of the emphasis on surgeons and anesthesiologists. Through medication management, communication among the surgical team, and vital sign monitoring, nurses make sure patients receive the best care possible (AORN, 2019). Their attention to detail has a direct effect on patient outcomes because research indicates that good nurse interventions can lower surgical complications such medication mistakes and infections (Wong et al., 2020). Additionally, it has been demonstrated that the use of standardized nursing practice guidelines improves surgical outcomes and patient safety (Weiser et al., 2016).

However, pharmacists play a vital role in monitoring medication therapy, making sure the right dosages are given, and averting negative drug interactions (Bates et al., 2014). Particularly for elderly patients who might be taking several drugs, their participation in preoperative medication management is crucial to reducing the hazards associated with polypharmacy (Kehlet & Wilmore, 2008). In order to help the surgical team make educated decisions about anesthesia and postoperative pain management, pharmacists also give them vital pharmacological knowledge and support (Kuo et al., 2021).

Despite these crucial functions, problems nevertheless exist. Insufficient staffing, high stress levels, and poor team communication can all impair nurses' and pharmacists' contributions (Pettker et al., 2018). Furthermore, even if integrating cutting-edge technology in operating rooms has advantages, it can also create new complications, such as the possibility of misunderstanding and mistakes due to dependency on technological devices (Huang et al., 2019).

Recognizing and tackling these difficulties is crucial for enhancing patient safety. With an emphasis on the difficulties they encounter and the best practices that can

strengthen their responsibilities in this crucial environment, this study attempts to examine the contributions made by nurses and pharmacists to patient safety standards in operating rooms.

Aims and Objectives

To examine how nurses and pharmacists contribute to operating room patient safety standards, emphasizing the difficulties they encounter and the best practices that can strengthen their positions in this crucial environment.

Literature Review

Nurses' Contributions to Patient Safety

Because of their constant presence and hands-on patient care, nurses are essential to maintaining patient safety in operating rooms. In order to prevent errors and provide prompt interventions, they are in charge of managing drugs, keeping an eye on vital signs, and promoting communication within the surgical team (AORN, 2019). According to research, good nursing practices can improve overall patient outcomes by drastically lowering surgical complications such as infections and medication errors (Wong et al., 2020). Additionally, it has been demonstrated that standardizing nursing procedures improves surgical results and patient safety (Weiser et al., 2016).

Nurses act as watchful patient advocates in the hectic and frequently stressful operating room setting. Their education prepares them. Nurses are watchful patient advocates in the fast-paced, frequently high-stress setting of the operation room. Because of their training, they can quickly respond to possible consequences by identifying minute changes in a patient's health. Nursing assessments, for example, have been demonstrated in trials to identify early indicators of infection or hemodynamic instability, allowing for prompt interventions that can avert significant adverse events (Henneman et al., 2017). Because there is very little room for error in surgical settings, this proactive approach is essential.

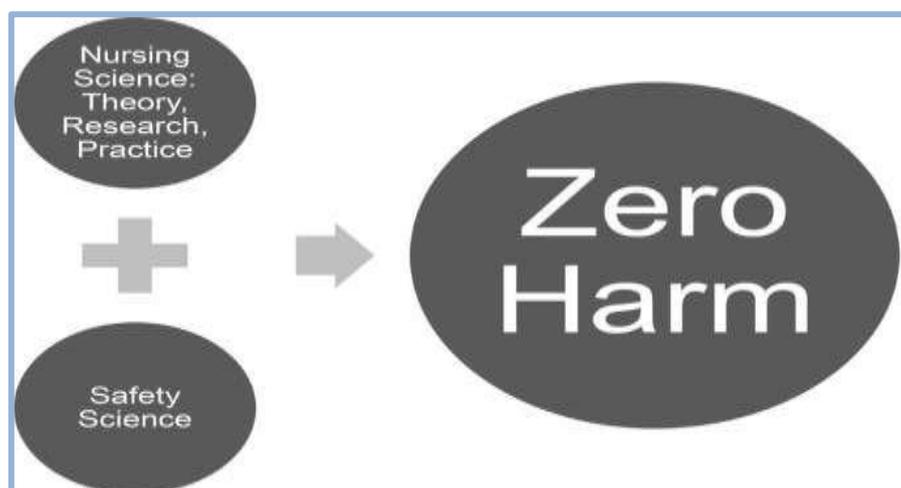


Fig.1: Safety science and nursing science: zero damage is achieved through nursing theory, research, and practice

It is also impossible to overestimate the significance of nurse staffing numbers. Insufficient personnel might result in more work and a greater chance of mistakes. Nurse-to-patient ratios and patient safety outcomes have been shown to be directly correlated in studies, with larger ratios being linked to worse linked to decreased adverse event rates (Phillips et al., 2021). Overworked nurses are less able to appropriately monitor patients, which might result in missed important signals or delayed medicine administration.

In order to guarantee that patient care is coordinated and that any possible problems are immediately resolved, nurses must also be able to interact effectively with other medical experts (Pettker et al., 2018). A cooperative atmosphere where all team members are aware of the patient's condition and any modifications to their treatment plan is fostered by effective communication. Because miscommunication can result in serious hazards, this cooperation is especially crucial during surgical handoffs and after care.

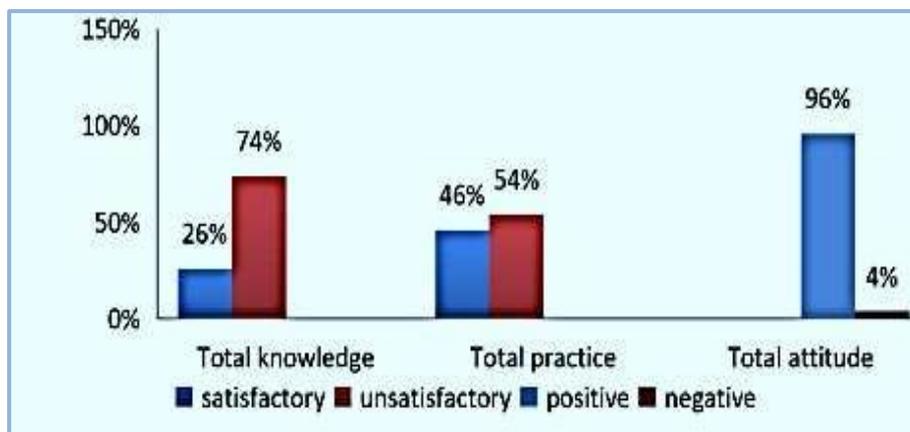


Figure (2): Frequency distribution of nurses' proficiency in operating room patient safety .

Another crucial component of nursing that enhances patient safety is the application of evidence-based procedures. By following Nurses can standardize care procedures by following defined rules and protocols, which lowers variability and lowers the possibility of mistakes (Weiser et al., 2016). The quality of care given in operating rooms is further improved by nurses who receive ongoing education and training in these procedures, which guarantees that they stay knowledgeable about the most recent safetyprocedures.

To sum up, nurses play a critical role in ensuring patient safety throughout surgeries. Together, their varied responsibilities—from providing direct patient care to communicating effectively and adhering to safety procedures—help to enhance patient outcomes. Nurses will be better equipped to fulfill their crucial role as patient advocates in the operating room if staffing issues are resolved and an environment of open communication and ongoing education is promoted.

Pharmacists' Contributions to Patient Safety

By overseeing drug therapy and making sure that prescriptions are administered safely, pharmacists significantly contribute to improving patient safety in the operating room. Their knowledge is especially helpful in avoiding negative drug interactions and making sure the right dosages are given (Bates et al., 2014).

This is particularly important in surgical settings since pharmaceutical errors can have disastrous results.

As a safety net for the surgical team, pharmacists are educated to critically analyze prescription orders, look for possible drug interactions, and suggest alternate treatments as needed.

Pharmacists have a crucial role in preoperative medication management in addition to drug management, especially for elderly patients who may be taking several medications. This group is This particular group is

Polypharmacy frequently puts this group at greater risk for adverse medication events (Kehlet & Wilmore, 2008). In order to ensure that patients are sufficiently prepared for their surgical operations, pharmacists can identify and reduce the risks associated with incorrect prescription usage by conducting thorough medication reviews before surgery. This proactive strategy reduces difficulties associated with medication mishandling, which not only improves patient safety but also leads to more effective surgical outcomes.

Pharmacists also give the surgical team vital support by providing recommendations and information about medications. Their knowledge can help make more educated choices about anesthesia and the treatment of postoperative pain (Kuo et al., 2021). For example, pharmacists can provide guidance on analgesic selection, guaranteeing that pain management techniques are safe and effective, especially for patients.

Individuals are taking several drugs or who have complicated medical histories. This cooperative approach fosters a culture of safety in the operating room and improves the overall quality of care.

By making sure that all medications are tracked down and properly handled during the surgical procedure, pharmacists' participation in medication reconciliation procedures further improves safety. In order to avoid mistakes during care transitions, medication reconciliation entails a comprehensive evaluation of a patient's medication history (Tam et al., 2015). Pharmacists contribute to continuity of treatment and lower the risk of adverse drug events by confirming that a patient's prescriptions are appropriately recorded and that any necessary modifications are made before surgery.

1-Services for Pharmacists to Promote Patient Safety

Several strategies to enhance patient safety outcomes by expanding the pharmacist's current roles and responsibilities were emphasized in the articles. For instance, community pharmacists have long offered patients communication and counseling regarding potentially harmful drug combinations. Reducing adverse events, hospital readmissions, and even mortality risk may be achieved by increasing medication reconciliation by the community pharmacist after hospital release. In a similar vein, increasing pharmacist responsibilities might help combat the opioid crisis. According to one study, hospital pharmacists are taking the lead in hospital opioid stewardship initiatives. Opioid use and the negative pharmacological effects that go along with it may be decreased by expanding the number of pharmacist-led pain management programs and opioid stewardship initiatives. Regarding how and when pharmacists are consulted in the patient care workflow, this is another way that pharmacist roles are changing. Examples of innovative approaches to using pharmacist experience and integrating that expertise into care processes were featured in a number of PSNet articles. To ensure prompt access to pharmaceuticals, reduce prescription misuse,

minimize adverse events, and reduce medication errors, one institution, for instance, established a pharmacist-led prior authorization drug request program. In addition to medicine expenses, the program saved money by preventing costs associated with possible adverse events that pharmacists were able to stop. To reduce medication errors, another institution included pharmacists in the creation and evaluation of medication orders in the discharge procedure. As a result, fewer medication issues were found during the discharge medication reconciliation.

2-Using Pharmacists to Help With Technology Limitations

Pharmacists have had to learn how to deal with the constraints of technology in order to handle new patient safety threats, even as some technology has allowed them to take on more responsibilities and enhanced elements of medication safety. Examples of how pharmacists work with technology to ensure safe and optimal operation were highlighted in a number of 2019 PSNet articles. Automated dispensing cabinets, for instance, facilitate effective nursing reaction to change orders in hospital patient care areas, however they are prone to mistakes. To guarantee that the right meds are given, pharmacists must examine and approve prescriptions before nurses can obtain them. As electronic health records proliferate, pharmacist reviews can now be completed remotely, reducing workload.

To sum up, pharmacists play a variety of vital roles in ensuring patient safety in the operating room. Patient safety and results are greatly improved by their proactive preoperative care, knowledge of medication management, and cooperation with surgical teams. More thorough integration of pharmacists into surgical teams can assist solve the challenges of medication management in high-stakes situations as healthcare continues to change, ultimately resulting in safer surgical procedures.



Fig.3: Pharmacists' Contributions to Patient Safety

It serves as a crucial backup in these systems. Similar to this, computerized provider order entry (CPOE) modules, which include automatic notifications for possible errors, are designed to lessen the need for pharmacist review. For more thorough error prevention, pharmacist error checking is still essential, although prescribing errors that are "rule-based" are better suited for CPOE detection. Additionally, because CPOE systems may restrict their capacity to directly alter requested prescriptions, CPOE might add to pharmacists' burden. To guarantee a safe and effective system, it is

important to evaluate the suitability of CPOE, fully comprehend any limitations, and have suitable workarounds for pharmacists in place before implementing it.

In a blame-free setting, people can confess mistakes or near-misses without worrying about criticism or punishment. In clinical treatment, this kind of feedback mechanism is crucial for guaranteeing patient safety (Ghobashi, et al., 2014), and learning from mistakes can help prevent them in the future. (Elamin, et al., 2009) Pharmacists play a vital part in the reporting process, including giving providers pertinent feedback, and their specialized knowledge base can help improve drug mistake rates. This could lead to better prescribing procedures, increased collaboration, and an increase in the pharmacist's self-esteem and confidence within the care team.

The Role of Pharmacists in Feedback and Error Reporting

A sign of a culture that:

Top Techniques for Improving Patient Safety

Several best practices that emphasize staffing assistance, communication, standardization, and technology integration can be used to improve patient safety in operating rooms.

1. Creating Explicit Communication Guidelines

Good communication amongst all team members is one of the pillars of patient safety. In the high-stakes setting of the operating room, it is crucial that everyone understands their duties and responsibilities, which can be achieved by establishing clear communication procedures (Pettker et al., 2018). Structured communication can be facilitated by methods like the SBAR (Situation, Background, Assessment, Recommendation) framework, which makes it simpler for team members to communicate crucial information in a concise manner. Frequent team debriefings and briefings prior to and during surgeries can help improve responsibility and clarity by enabling team members to address concerns and information about patient care upgrades.

2. Frequent Simulation and Training Activities

Frequent simulation exercises and training are essential for enhancing communication and teamwork abilities. Surgical teams can train how to respond to a variety of situations, including emergencies, by participating in realistic scenarios. In addition to increasing team members' acquaintance with procedures, these activities promote cooperation and confidence (Kirkman et al., 2019). Interdisciplinary training, in which surgeons, nurses, and pharmacists practice together, can increase coordination during actual surgeries and foster a better knowledge of each other's tasks. This planning fosters a culture of safety where all team members are encouraged to voice any concerns.

3. Putting Standardized Protocols into Practice

Reducing variability and improving safety require standardized nursing practices and medication management regimens (Weiser et al., 2016). Evidence-based procedures should serve as the foundation for protocols, which should be modified frequently to

take into account new findings and recommendations. For example, it has been demonstrated that using checklists for surgical procedures, such the WHO Surgical Safety Checklist, greatly lowers the risks of complications and death (Haynes et al., 2009). Standardizing medicine delivery procedures can also reduce the possibility of timing and dosage errors, especially under pressure.

4. Making Good Use of Technology

Technology integration can improve communication and lower the risk of errors. Examples of this include computerized physician order entry (CPOE) systems and electronic health records (EHRs) (Huang et al., 2019). These technologies can facilitate real-time access to vital data by assisting in the precise logging of pharmaceutical orders and patient information. But it is essential that Employees are properly trained to use these technology. To further protect patient care, decision support tools integrated into EHR systems can notify clinicians of any drug interactions or allergies.

5. Promoting Sufficient Staffing Levels

Promoting sufficient staffing numbers and encouraging work environments is essential to allowing nurses and pharmacists to carry out their duties in a safe and efficient manner. Higher nurse-to-patient ratios have been repeatedly linked to improved patient outcomes and lower mistake rates, according to research (Phillips et al., 2021). The danger of oversight is decreased by ensuring that staffing levels are suitable, which enables nurses to dedicate the required time to patient monitoring and care management. Furthermore, creating a positive work atmosphere that values mental health and wellbeing can reduce burnout among healthcare professionals and increase focus.

Obstacles Pharmacists and Nurses Face

Despite their vital roles, nurses and pharmacists encounter many difficulties in the operating room that may compromise patient safety. Misunderstandings and mistakes can result from poor team communication, especially in high-stress situations (Pettker et al., 2018). Any communication breakdown might have major repercussions, including medication errors or inappropriate procedures, especially surgical settings when prompt and accurate information is essential. According to studies, improving communication techniques—like putting in place organized handoff protocols—can help reduce these risks by guaranteeing that important information is communicated effectively and precisely (Bagnasco et al., 2019).

Inadequate staffing and heavy workloads make nursing even more difficult. Studies have indicated a direct correlation between higher patient-to-nurse ratios and significantly increased likelihoods of mistakes and unfavorable outcomes (Phillips et al., 2021). Overworked nurses are less able to adequately monitor patients and manage care, which can result in missed important signals or delayed patient needs answers. This circumstance exacerbates the cycle of stress and burnout, which lowers the standard of treatment given. Improving patient outcomes and creating a safer workplace require addressing staffing concerns.

Despite its advantages, the use of technology in operating rooms can potentially create complications that could impede efficient communication and raise the risk of mistakes (Huang et al., 2019). Automated medicine distribution systems and electronic health records (EHRs) are two examples of technologies that are intended to improve safety

and streamline procedures. But they might also make it difficult to communicate. when systems are difficult to operate or when team members lack proper training. Reliance on EHRs, for instance, may result in information overload, as important patient details can be lost in the deluge of data displayed (McGowan et al., 2020). To fully utilize these technologies' potential to improve patient safety, it is imperative that all team members are adept in their use.

The difficulty for pharmacists is making sure that their suggestions are included into the surgical process, which can be challenging in hectic settings where time is of the essence. Pharmacists frequently encounter obstacles while attempting to participate in surgical rounds or decision-making procedures, which might restrict their capacity to successfully impact patient care (Kuo et al., 2021). Furthermore, it may be difficult to promptly convey medication-related issues or recommendations due to the quick speed of surgical procedures. Overcoming these obstacles requires creating a culture that respects pharmacists' opinions and views them as crucial team members in the surgical procedure.

Even though nurses and pharmacists play a critical role in maintaining patient safety in operating rooms, they face numerous challenges that may limit their efficacy. Improving patient safety in surgical settings requires addressing issues with staffing, communication breakdowns, and technological integration. It also requires creating a collaborative atmosphere where pharmacists are involved in decision-making.

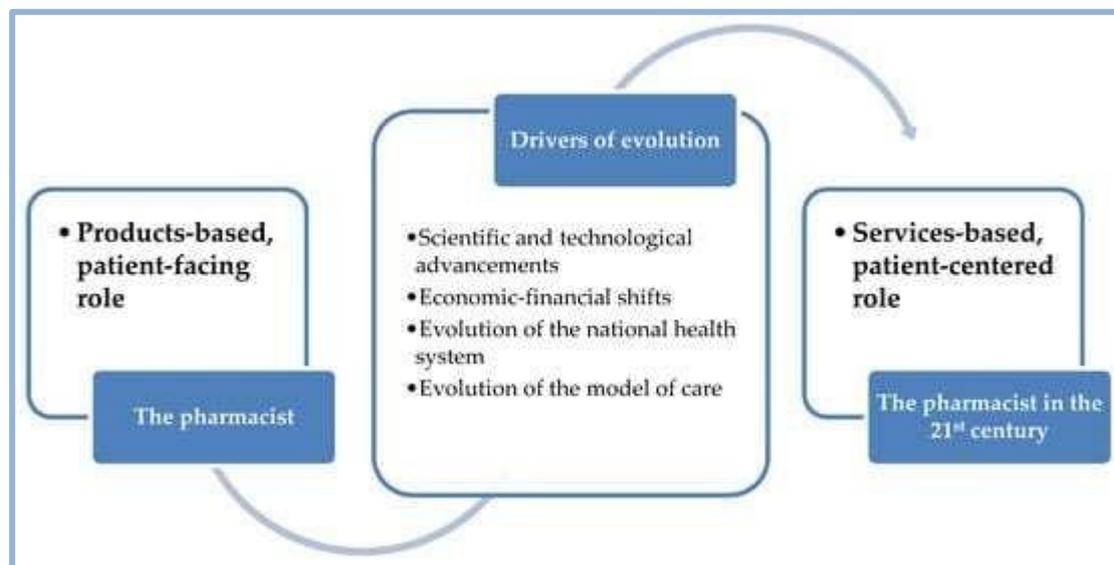


Figure 4 shows how the roles, tasks, and responsibilities of pharmacists have changed over time.

Conclusion

Improving operating room patient safety necessitates a multipronged strategy that prioritizes uniformity, communication, technology integration, and sufficient personnel. Healthcare companies may improve patient outcomes and reduce risks by putting these best practices into practice and creating a safer surgical environment. It is necessary to foster a culture of safety in which every team member is motivated to help ensure the security and well-being of their patients.

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