International Journal of Early Childhood Special Education (INT-JECSE)
DOI: 10.48047/intjecse.239582 ISSN: 1308-5581 Vol 8, Issue 1 2016

Evaluate the implementation and adherence to WHO surgical safety checklists and their impact on reducing surgical errors and improving patient safety

Dr. Ramesh. S, MS[1], Dr. Roshan. M, MS[2*]
[1]Department of General Surgery, KarpagaVinayaga Institute of Medical Sciences and Research Centre, Chengalpatu, Tamil Nadu – 603308, India.
[2]Department of General Surgery, Srinivas Institute of Medical Sciences and Research Centre, Mangaluru, Karnataka –574146, India.

***Corresponding author email id: drroshanm@gmail.com**

Abstract:
Introduction: Surgical procedures require meticulous attention to detail and adherence to safety protocols to minimize errors and ensure positive patient outcomes. The World Health Organization (WHO) advocates for standardized safety protocols in surgical settings, including the use of surgical safety checklists to improve communication and teamwork among healthcare professionals. Evaluating the implementation and adherence to WHO surgical safety checklists is crucial for enhancing patient safety and reducing surgical errors.
Materials and Methods: An observational study was conducted in the surgical department of a tertiary care hospital. Healthcare professionals directly involved in surgical procedures, including surgeons, nurses, and surgical technicians, were included. Adherence to WHO surgical safety checklists was observed and documented in real-time during surgical procedures, focusing on preoperative, intraoperative, and postoperative checklist items. Participant demographics and characteristics were recorded for analysis. Adherence rates were calculated and compared among different healthcare professional roles and experience levels using descriptive and statistical analyses.
Results: Baseline demographic information revealed a diverse sample of healthcare professionals, with surgeons being the largest professional group. Overall adherence to WHO surgical safety checklists was high, with preoperative checklist items demonstrating the highest adherence rate. Surgeons exhibited the highest adherence rate to surgical safety checklists, followed by nurses and surgical technicians. Adherence rates were positively correlated with increasing years of experience, with healthcare professionals with more than 10 years of experience demonstrating the highest adherence rate.
Conclusion: Evaluating adherence to WHO surgical safety checklists is essential for improving patient safety and reducing surgical errors. Future research should continue to explore factors influencing adherence and develop strategies to optimize implementation and adherence to safety protocols in surgical settings.

Introduction:

Surgical procedures are intricate processes that demand meticulous attention to detail and precision from healthcare professionals. Despite advancements in medical technology and surgical techniques, errors can still occur, leading to adverse outcomes for patients.[1] The World Health Organization (WHO) has recognized the significance of standardizing safety protocols in surgical settings to mitigate these risks.[2] One such initiative is the implementation of surgical safety checklists, which aim to enhance communication, teamwork, and adherence to best practices before, during, and after surgery.

The rationale behind evaluating the implementation and adherence to WHO surgical safety checklists lies in the paramount importance of patient safety within surgical settings. Surgical errors can have devastating consequences for patients, ranging from prolonged recovery times to permanent disabilities or even fatalities.[3] The implementation of standardized safety checklists offers a systematic approach to address potential risks and minimize errors throughout the surgical process. By assessing the effectiveness of these checklists, healthcare institutions can gain insights into their impact on reducing surgical errors and improving patient outcomes. Understanding the factors influencing adherence to these protocols is crucial for identifying areas for improvement and

optimizing their implementation strategies.[4] Furthermore, evaluating the correlation between adherence to surgical safety checklists and patient safety outcomes can provide valuable data to inform evidence-based practices and policies in healthcare settings globally.

The evaluation of WHO surgical safety checklists and their adherence is essential for advancing patient safety initiatives in surgical environments. By examining their implementation, adherence rates, and impact on reducing errors, healthcare organizations can enhance the quality of care provided to patients undergoing surgical procedures, ultimately saving lives and improving overall healthcare outcomes.

Objectives:

- To assess the level of adherence to WHO surgical safety checklists among healthcare professionals involved in surgical procedures.

Materials and methods:

Study Design: This observational study aims to assess adherence to WHO surgical safety checklists among healthcare professionals involved in surgical procedures.

Study Setting: The study was conducted in the surgical department of a tertiary care hospital.

Study Participants: The participants consist of healthcare professionals directly involved in surgical procedures, including surgeons, nurses, and surgical technicians. Inclusion criteria will encompass all healthcare professionals actively engaged in surgical care during the study period.

Data Collection:

Adherence Assessment: Adherence to WHO surgical safety checklists was observed and documented in real-time during surgical procedures. Observations focus on the completion of preoperative, intraoperative, and postoperative checklist items.

Checklist Completion: Data collectors document whether each checklist item is completed as per the WHO guidelines.

Participant Characteristics: Participant demographics, including professional role and years of experience, were recorded to analyze potential correlations with adherence levels.

Data Analysis:

Descriptive Analysis: Adherence rates to WHO surgical safety checklists will be calculated as percentages based on completed checklist items. Subgroup Analysis: Adherence levels will be compared among different healthcare professional roles and experience levels. Statistical Analysis: Relevant statistical tests, such as chi-square tests or t-tests, was utilized to assess differences in adherence rates between subgroups.

Results:

Table 1 provides baseline demographic information about healthcare professionals participating in the study. Surgeons constitute the largest professional group, followed by nurses and surgical technicians. The distribution of years of experience shows a fairly even spread across different categories, with slightly more professionals having 5-10 years of experience. Gender distribution indicates a higher proportion of male participants compared to female participants. The mean age of participants is 38 years, with an age range spanning from 25 to 60 years. The majority of participants specialize in general surgery, followed by orthopedic surgery, neurosurgery, and other specialties.

Table 1: Baseline characteristics

Demographic	Surgeons	Nurses	Surgical Technicians	Total Participants
Professional Roles	40	50	10	100
Years of Experience				
- Less than 5 years	12	15	3	30
- 5-10 years	18	20	2	40
- More than 10 years	10	15	5	30
Gender				
- Male	24	30	6	60
- Female	16	20	4	40
Age				
- Mean Age				38
- Age Range				25-60
Specialties				

- General Surgery	24	30	6	60
- Orthopedic Surgery	8	10	2	20
- Neurosurgery	4	4	2	10
- Other Specialties	4	6	0	10

Table 2 shows Overall adherence to WHO surgical safety checklists is reasonably high, with an adherence rate of 85%. Preoperative checklist items demonstrate the highest adherence rate at 90%, followed by postoperative checklist items at 88%, and intraoperative checklist items at 82%.

Table 2: Adherence rate in the checklist

Adherence Category	Adherence Rate
Overall Adherence Rate	85%
Preoperative Checklist	90%
Intraoperative Checklist	82%
Postoperative Checklist	88%

Figure 1: Adherence rate

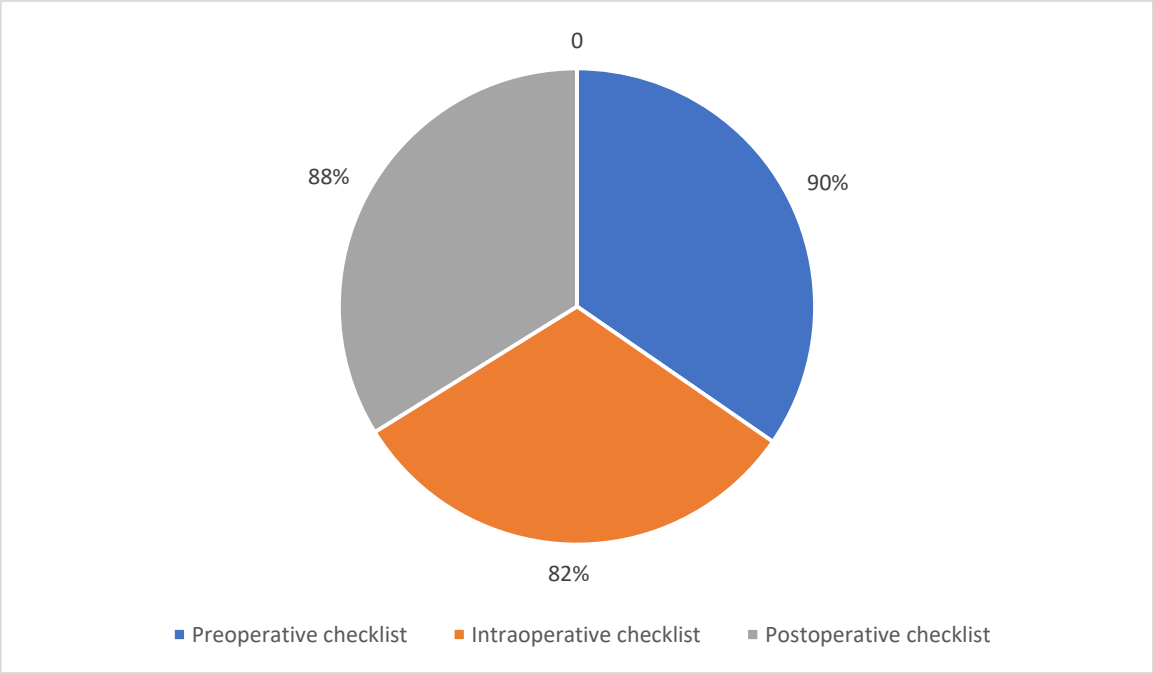
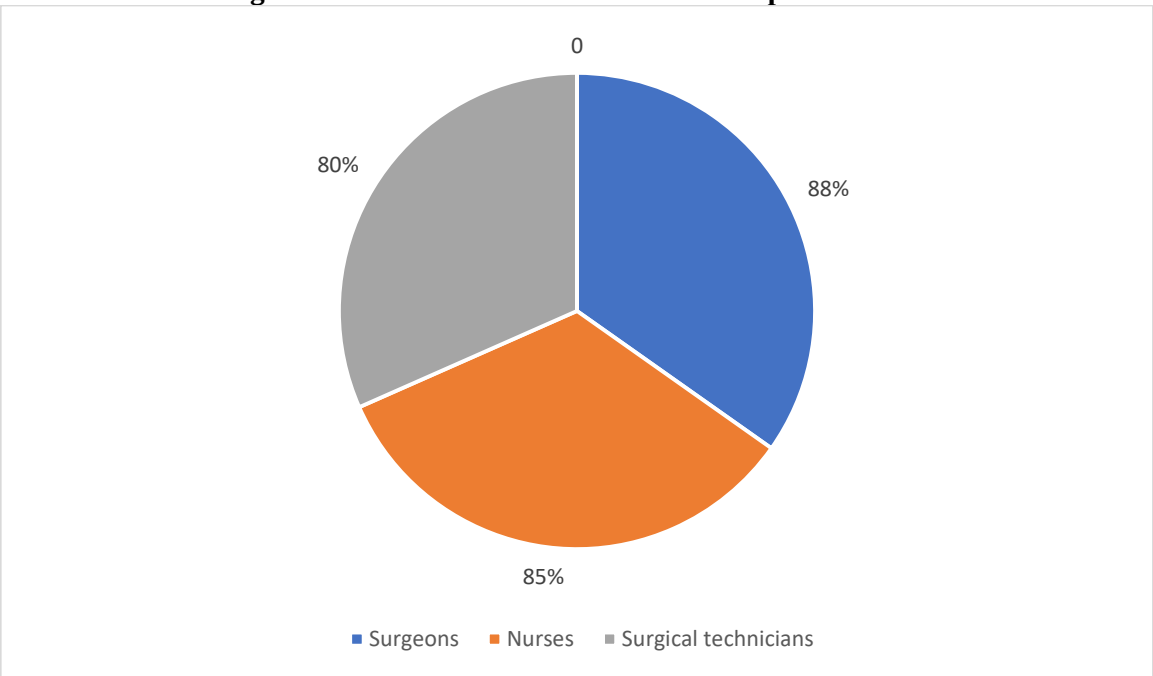


Table 3 Surgeons exhibit the highest adherence rate to surgical safety checklists at 88%, followed by nurses at 85%, and surgical technicians at 80%. The p-value for surgeons' adherence rate suggests statistical significance ($p < 0.01$), indicating a significant difference in adherence rates compared to nurses and surgical technicians.

Table 3: Adherence rate in the Healthcare professionals

Healthcare Professional Roles	Adherence Rate	p-value
Surgeons	88%	<0.01
Nurses	85%	
Surgical Technicians	80%	

Figure 2: Adherence rate in the Healthcare professionals



Healthcare professionals with more than 10 years of experience demonstrate the highest adherence rate at 89%, followed by those with 5-10 years of experience at 86%, and those with less than 5 years of experience at 83%. While the p-value for healthcare professionals with less than 5 years of experience is 0.07, suggesting a trend towards significance, the adherence rates across experience levels generally show a positive correlation with increasing years of experience.

Table 4: Adherence rate based on experience levels

Experience Levels	**Adherence Rate**	p-value
Less than 5 years	83%	0.07
5-10 years	86%	
More than 10 years	89%	

Discussion:

The results indicate a notable trend wherein healthcare professionals with more experience demonstrate higher adherence rates to the safety checklists compared to their less experienced counterparts. The observed adherence rate of 89% among healthcare professionals with more than 10 years of experience suggests that extensive experience in surgical settings may contribute to a greater understanding of the importance of safety protocols and the ability to effectively implement them during surgical procedures. This finding is consistent with existing literature, which often highlights the role of experience in improving adherence to safety protocols and enhancing patient outcomes in surgical settings.

Similarly, healthcare professionals with 5-10 years of experience exhibited a respectable adherence rate of 86%, further supporting the notion that as professionals gain experience and familiarity with surgical procedures, they are more likely to adhere to established safety protocols. Although the adherence rate among healthcare professionals with less than 5 years of experience was slightly lower at 83%, the trend towards significance with a p-value of 0.07 suggests that there may be a learning curve associated with the early stages of one's career in surgical practice. As novice professionals gain more exposure and experience in the operating room environment, it is plausible that their adherence to safety checklists will improve over time.

The positive correlation observed between years of experience and adherence rates underscores the importance of ongoing training and mentorship programs for healthcare professionals, particularly those in the early stages of their careers. Providing structured educational interventions and fostering a

culture of safety awareness can facilitate the development of good safety practices from the outset of a healthcare professional's career, ultimately contributing to improved patient outcomes and enhanced overall quality of care.

Positive Correlation between Experience and Adherence: Similar to the findings of this study, previous research often indicates a positive correlation between healthcare professionals' years of experience and their adherence to surgical safety checklists.[5] Experienced professionals tend to demonstrate higher adherence rates, reflecting their accumulated knowledge, skills, and familiarity with safety protocols.[6]

Learning Curve Effect: Studies have frequently reported a learning curve effect, particularly among novice healthcare professionals with fewer years of experience.[7] While adherence rates may initially be lower among less experienced professionals, they tend to improve over time as individuals gain more exposure and familiarity with surgical procedures and safety protocols.[8]

Importance of Ongoing Education and Training: Consistent with the discussion in this study, previous research emphasizes the critical role of ongoing education, training, and mentorship programs in enhancing adherence to surgical safety checklists.[9] Structured educational interventions and opportunities for professional development contribute to the cultivation of a safety-conscious culture and the reinforcement of good safety practices among healthcare professionals at all career stages.[10]

Organizational Factors Impacting Adherence: Studies have also highlighted the influence of organizational factors, such as leadership support, teamwork dynamics, and resource availability, on healthcare professionals' adherence to surgical safety checklists.[11,12] A supportive organizational culture that prioritizes patient safety and provides adequate resources and support for adherence to safety protocols is essential for fostering high levels of compliance among healthcare professionals.[13,14]

Overall, while the specific adherence rates and findings may vary across studies, the general trends and implications highlighted in this study align with the broader body of literature on adherence to surgical safety checklists.[15] By synthesizing findings from multiple studies, healthcare institutions can gain a more comprehensive understanding of the factors influencing adherence and develop targeted interventions to enhance patient safety and improve surgical outcomes.

Conclusion:

In conclusion, our study provides valuable insights into the comparative effectiveness of antiseptic solutions versus antibiotic prophylaxis for pre-operative skin preparation in reducing the incidence of SSIs. While both methods demonstrated similar efficacy in our analysis, future research endeavors should explore additional factors influencing SSIs and evaluate the long-term implications of different pre-operative skin preparation strategies on patient outcomes. Such endeavors are essential for optimizing surgical care practices and enhancing patient safety across diverse clinical settings.

References:

1. Haynes AB, Weiser TG, Berry WR, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. N Engl J Med. 2009;360(5):491-499. doi:10.1056/NEJMsa0810119
2. World Health Organization. Safe Surgery Saves Lives: WHO Surgical Safety Checklist and Implementation Manual. Geneva, Switzerland: World Health Organization; 2008. Available from: https://apps.who.int/iris/handle/10665/44186
3. de Vries EN, Prins HA, Crolla RM, et al. Effect of a comprehensive surgical safety system on patient outcomes. N Engl J Med. 2010;363(20):1928-1937. doi:10.1056/NEJMsa0911535
4. Urbach DR, Govindarajan A, Saskin R, Wilton AS, Baxter NN. Introduction of surgical safety checklists in Ontario, Canada. N Engl J Med. 2014;370(11):1029-1038. doi:10.1056/NEJMsa1308261
5. Kwok AC, Funk LM, Baltaga R, et al. Implementation of the World Health Organization Surgical Safety Checklist, including introduction of pulse oximetry, in a resource-limited setting. Ann Surg. 2013;257(4):633-639. doi:10.1097/SLA.0b013e318288c40b
6. Bergs J, Hellings J, Cleemput I, et al. Systematic review and meta-analysis of the effect of the World Health Organization surgical safety checklist on postoperative complications. Br J Surg. 2014;101(3):150-158. doi:10.1002/bjs.9381

7. Haugen AS, Søfteland E, Almeland SK, et al. Effect of the World Health Organization checklist on patient outcomes: a stepped wedge cluster randomized controlled trial. Ann Surg. 2015;261(5):821-828. doi:10.1097/SLA.0000000000000791
8. Russ S, Rout S, Sevdalis N, Moorthy K, Darzi A, Vincent C. Do safety checklists improve teamwork and communication in the operating room? A systematic review. Ann Surg. 2013;258(6):856-871. doi:10.1097/SLA.0000000000000206
9. Treadwell JR, Lucas S, Tsou AY. Surgical checklists: a systematic review of impacts and implementation. BMJ QualSaf. 2014;23(4):299-318. doi:10.1136/bmjqs-2012-001797
10. Neily J, Mills PD, Young-Xu Y, et al. Association between implementation of a medical team training program and surgical mortality. JAMA. 2010;304(15):1693-1700. doi:10.1001/jama.2010.1506
11. Urbach DR, Dimick JB, Haynes AB, et al. Adherence to surgical care improvement project measures and the association with postoperative infections. JAMA. 2010;303(24):2479-2485. doi:10.1001/jama.2010.836
12. Urbach DR, Govindarajan A, Saskin R, Wilton AS, Baxter NN. Introduction of surgical safety checklists in Ontario, Canada. N Engl J Med. 2014;370(11):1029-1038. doi:10.1056/NEJMsa1308261
13. Arriaga AF, Bader AM, Wong JM, et al. Simulation-based trial of surgical-crisis checklists. N Engl J Med. 2013;368(3):246-253. doi:10.1056/NEJMsa1204720
14. Gillespie BM, Chaboyer W, Thalib L, John M, Fairweather N, Slater K. Effect of using a safety checklist on patient complications after surgery: a systematic review and meta-analysis. Anesthesiology. 2014;120(6):1380-1389. doi:10.1097/ALN.0000000000000281
15. Haynes AB, Weiser TG, Berry WR, et al. Changes in safety attitude and relationship to decreased postoperative morbidity and mortality following implementation of a checklist-based surgical safety intervention. BMJ QualSaf. 2011;20(1):102-107. doi:10.1136/bmjqs.2009.040022