ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 12 | December - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SURGICAL AUDIT OF THE DEPT. OF SURGERY IN A TERTIARY CARE CENTRE: INCIDENCE OF SSI AND OTHER COMPLICATIONS WITH IMPLEMENTATION OF WHO SURGICAL SAFETY CHECKLIST

General Surgery

Dr Shalabh Gupta Professor & Head, Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Delhi-NCR, India.

Dr Harsh Aryan Junior Resident, Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Delhi-NCR, India.

Dr Shraiya Tiwari Assistant Professor, Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Delhi-NCR, India

Dr Santosh Kumar Sahni Junior Resident, Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Delhi-NCR, India.

Dr Pavani Boddupalli Junior Resident, Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, Delhi-NCR, India.

ABSTRACT

Background: Surgical audits play a vital role in enhancing patient outcomes through standardized evaluation of clinical practices. The WHO Surgical Safety Checklist (SSC) has been globally endorsed to reduce surgical morbidity and mortality. **Methods:** This hospital-based observational study was conducted in the Department of General Surgery at Santosh Medical College and Hospital, Ghaziabad, from April 2024 to April 2025. A total of 433 patients undergoing major elective surgeries under regional or general anesthesia were included through random sampling. Emergency surgeries, minor procedures, and those under local anesthesia were excluded to ensure uniformity. Preoperative data collection included patient demographics, medical history, clinical examination, and relevant investigations. The WHO checklist was uniformly applied across all three operative phases-Sign In, Time Out, and Sign Out-covering key aspects such as patient identity, surgical site verification, anesthesia safety, equipment availability, and team communication. **Results:** Among 433 surgical cases, most patients were middle-aged males. Laparoscopic surgery and general anesthesia were predominant. WHO checklist compliance was 100%. Most procedures lasted 1–2 hours with minimal blood loss. SSI and mortality rates were 9.47% and 1.15%, respectively-both within acceptable international standards. **Conclusion:** WHO SSC implementation correlates with significant reductions in postoperative complications. A structured audit framework enhances surgical quality and patient safety in resource-limited settings.

KEYWORDS

Audit, Surgical audit, WHO Surgical Safety checklist, SSI, postoperative complications, patient safety

INTRODUCTION

Surgical procedures carry inherent risks, with postoperative complications such as infections, hemorrhage, and anesthesia-related events contributing significantly to global morbidity. In low- and middle-income countries (LMICs), limited adherence to standardized protocols further increases these risks. To improve surgical safety, the WHO introduced the Surgical Safety Checklist (SSC) in 2008, outlining 19 essential steps at three perioperative stages. It aims to enhance communication, verify critical details, and reduce preventable errors.

Studies, including Haynes et al. (2009), confirm the SSC's effectiveness in reducing complications and mortality. However, challenges like staff resistance, inadequate training, and high workloads hinder consistent implementation, especially in resource-limited settings.

Surgical audits play a crucial role in assessing outcomes and identifying gaps in SSC compliance. They support quality improvement by highlighting systemic issues and enabling data-driven decisions. This study audits surgical outcomes in our tertiary care center, focusing on complication rates-particularly surgical site infections.

By evaluating SSC implementation, this research aims to enhance surgical safety, promote team-based practices, and recommend strategies for better integration of the checklist into routine workflows. Continuous auditing and protocol standardization remain key to ensuring safer, high-quality surgical care.

Methodology

This hospital-based observational study was conducted in the Department of General Surgery at Santosh Medical College and Hospital, Ghaziabad, from April 2024 to April 2025. A total of 433 patients undergoing major elective surgeries under regional or general anaesthesia were included through random sampling. Emergency surgeries, minor procedures, and those under local anaesthesia were excluded to ensure uniformity. Preoperative data collection included patient demographics, medical history, clinical examination, and relevant investigations. The WHO checklist was uniformly applied across all three operative phases-Sign In, Time Out, and Sign Out-covering key aspects such as patient identity, surgical site verification, anaesthesia safety, equipment availability, and team communication.

RESULTS

This study of 433 surgical patients revealed key findings across demographics, procedure types, safety compliance, and outcomes. Most patients were aged 31–60 years (65.9%), with a male predominance (65.2%). Laparoscopic surgeries accounted for 56.8% of cases, while open procedures comprised 40.9%[Table 1.0]. General anaesthesia was used in 76% of cases.[Chart.1.0] WHO Surgical Safety Checklist implementation was universal, with 100% adherence to critical safety steps such as patient identity verification, site confirmation, sterility checks, and informed consent. Most surgeries lasted 1–2 hours (77%), and blood loss remained under 500 mL in all cases, with nearly 80% losing less than 100 mL. Intraoperative instrument and sponge counts were fully accurate, and specimen labelling was performed in 87.1% of cases where applicable. The surgical site infection (SSI) rate was 9.47%,[Table2.0] and the mortality rate was 1.15%, both aligning with international standards for general surgery.

Table 1: Types Of Surgery

Procedure Type	Number of Patients	Percentage (%)
Laparoscopic Surgery	246	56.8
Open Surgery	177	40.9
Laparoscopic to Open Conversion	10	2.3

Table 2: Incidence Of SSI

SSI Status	Number of Patients	Percentage (%)
With SSI	41	9.47
Without SSI	392	90.53
Total	433	100

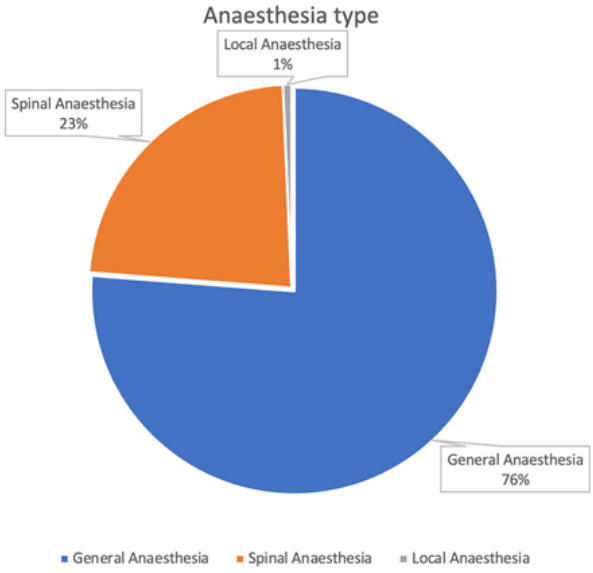

Chart1: *Type Of Anaesthesia*

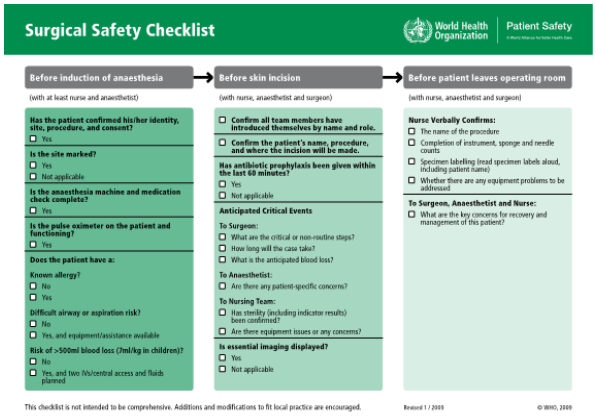

Figure 1: *WHO Surgical Safety Checklist*

DISCUSSION

Male predominance (65.2%) observed in this study aligns with several surgical audits from India and other countries, where cultural and socioeconomic factors influence healthcare-seeking behavior, except in cases of Gallstone disease. [1]

Laparoscopic procedures were predominant (56.8%), aligning with the global shift towards minimally invasive surgery, which offers faster recovery, less postoperative pain, and reduced hospital stay [2]. The conversion rate to open surgery (2.3%) reflects excellent laparoscopic expertise, as rates up to 5–10% are considered acceptable in literature. [3]

An SSI rate of 9.47% was noted, which is acceptable but emphasizes the need for continued vigilance. Factors influencing SSI include type of procedure (open vs laparoscopic), operative time, and patient comorbidities. The universal administration of prophylactic antibiotics within 60 minutes preoperatively in all cases aligns with WHO recommendations and has been shown to reduce SSI rates significantly. [4, 5]

The observed mortality rate of 1.15% is well within expected limits for general surgical procedures. Literature reports perioperative mortality rates between 0.5% to 2.0%, depending on patient comorbidities and surgery complexity [6] This low rate reflects effective perioperative management, anesthetic care, infection prevention, and surgical competence. [7, 8]

CONCLUSION

This surgical audit highlights a high level of compliance with established perioperative safety practices and confirms the implementation of WHO-recommended protocols in a tertiary care setting. It offers us a lookback on our own patient care and protocol follow-up to confirm if it is aligned with already established standards of care. The SSI and mortality rates observed were within acceptable international norms, reinforcing the quality of surgical care delivered, although ongoing training is required to maintain the same. Overall, the audit supports the effectiveness of structured surgical protocols in improving clinical efficiency, team coordination, and patient safety in routine surgical practice.

Declarations

Conflict Of Interest: None declared.

Funding: No external funding received.

Ethical Approval: Approved by the Institutional Ethics Committee.

Informed consent was obtained from all participants.

REFERENCES

[1] E A Shaffer. "Gallstone disease: Epidemiology of gallbladder stone disease". *Best Pract Res Clin Gastroen- terol*, vol. 20, no. 6, 981–96, 2006.
[2] K M Cline, V Clement, J Rock-Klotz et al. "Improving the cost, quality, and safety of perioperative care: A systematic review of the literature on implementation of the perioperative surgical home". *J Clin Anesth*, vol. 63, 109760–109760, 2020.
[3] A K Gowd, D D Bohl, K S Hamid et al. "Longer Operative Time Is Independently Associated With Surgical Site Infection and Wound Dehiscence Following Open Reduction and Internal Fixation of the Ankle". *Foot Ankle Spec*, vol. 13, no. 2, 104–115, 2020.
[4] B Allegranzi, P Bischoff, S De Jonge et al. "New WHO recommendations on preoperative measures for surgical site infection prevention: an evidence-based global perspective". *Lancet Infect Dis*, vol. 16, no. 12, 276–87, 2016.
[5] T L Hedrick, M M Anastacio and R G Sawyer. "Prevention of surgical site infections". *Expert Rev Anti Infect Ther*, vol. 4, no. 2, 223–256, 2006.
[6] R M Pearse, R P Moreno, P Bauer et al. "Mortality after surgery in Europe: a 7 day cohort study". *Lancet Lond Engl*, vol. 380, no. 9847, 1059–65, 2012.
[7] A A Gawande. "The incidence and nature of surgical adverse events in Colorado and Utah in 1992". *Surgery*, vol. 126, 66–75, 1999.
[8] A K Kable, R W Gibberd and A D Spigelman. "Adverse events in surgical patients in Australia". *International Journal of Quality in Health Care*, vol. 14, 269–76, 2002.