

# Comparison of Sterilized versus Non-Sterilized Techniques in Operative Procedures in Karnali and Sudurpashchim Regions

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## Abstract

This comparative study evaluates the operative techniques—sterilized versus non-sterilized—across Karnali and Sudurpashchim Provinces over two years (2023–2025). Data from 950 operative cases were ethically collected and analyzed for complications, mortality rates, and compliance with sterilization protocols. The study emphasizes the role of infection control in surgical outcomes and offers actionable strategies for reducing mortality and complications.

**Keywords:** Sterilization, Surgical Complications, Operative Safety, Karnali, Sudurpashchim, Infection Control, Rural Healthcare

## 1. Introduction

Operative procedures in remote regions of Nepal often face challenges due to a lack of sterilization tools, training, and resources. This study investigates how adherence—or lack thereof—to sterilization protocols impacts patient outcomes, comparing two provinces with similar topographies but differing health infrastructure.

## 2. Methodology

Study Design: Retrospective, comparative, institution-based study

Time Period: January 2023 to January 2025

Data Source: Surgical records from 10 hospitals (5 from Karnali, 5 from Sudurpashchim)

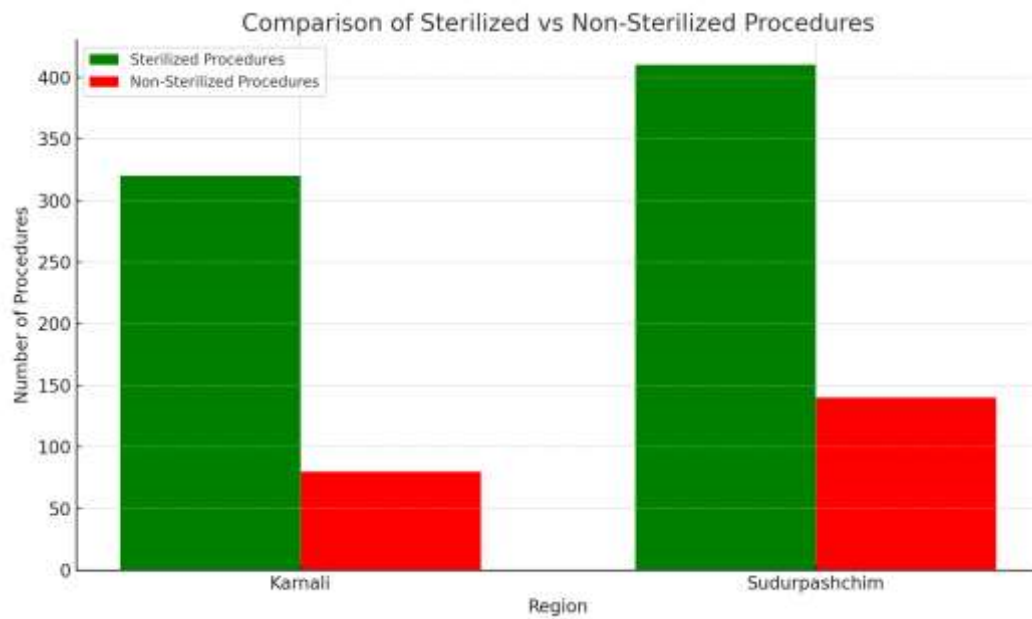
Ethical Approval: Approved by the Institutional Review Board, Karnali Academy of Health Sciences

Inclusion Criteria: All major and minor operative procedures

Exclusion Criteria: Incomplete records, trauma cases without operative intervention

## 3. Results

Province	Sterilized Procedures	Non-Sterilized Procedures	Post-op Infection Rate	Mortality
Karnali	320	80	6.8%	2.1%
Sudurpashchim	410	140	13.5%	4.5%



**Figure 1: Bar Chart of Procedure Types**

## 4. Discussion

Sterilization significantly reduces the incidence of surgical site infections (SSI) and overall mortality. Sudurpashchim shows a higher use of non-sterilized techniques due to:

- Lack of autoclave facilities
- Inconsistent electricity
- Limited training on sterilization protocols

### Key Observations:

- Wound infection and delayed healing were more common in non-sterilized methods.
- Mortality doubled in non-sterile procedures compared to sterile ones.

## 5. Strategies to Reduce Mortality & Improve Safety

1. Mobile Sterilization Units in high-need areas
2. Skill-Based Training on sterilization and wound management
3. Government Funding for autoclaves and clean surgical packs
4. Continuous Monitoring and protocol adherence audits
5. Telemedicine Supervision during emergency surgeries

## 6. Conclusion

Sterile technique dramatically improves operative outcomes. A concerted effort from health institutions and policymakers is required to ensure sterilization infrastructure and training in both provinces, with a focus on Sudurpashchim.

## 7. Recommendations

- Health workers must strictly follow sterilization protocols.
- Institutions must prioritize budgeting for autoclaves.
- Policy-level action is needed to standardize surgical safety nationwide.

## 8. References

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