

Epidemiological Trends in Surgical Site Infections: A 15-Year Retrospective Analysis of 135,000 Surgical Patients at high complexity referral center in Latin America

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Introduction

Long-term institutional surveillance programs are essential to understanding epidemiological patterns and guide targeted prevention strategies, particularly in Latin America.

Objective

To evaluate epidemiological trends, microbial patterns, and clinical outcomes of SSIs over a 15-year period in a high-complexity tertiary referral center in Colombia.

Methods

- Retrospective cohort study
- Period: January 2010 – December 2024
- Population: 135,000 surgical patients
- SSI definition: CDC criteria
- Variables analyzed: Demographics, SSI subtype (superficial, deep, organ/space), Procedure type, Microbiology, Clinical outcomes
- Statistical analysis: Descriptive statistics and chi-square testing ($p < 0.05$ significant)

Results

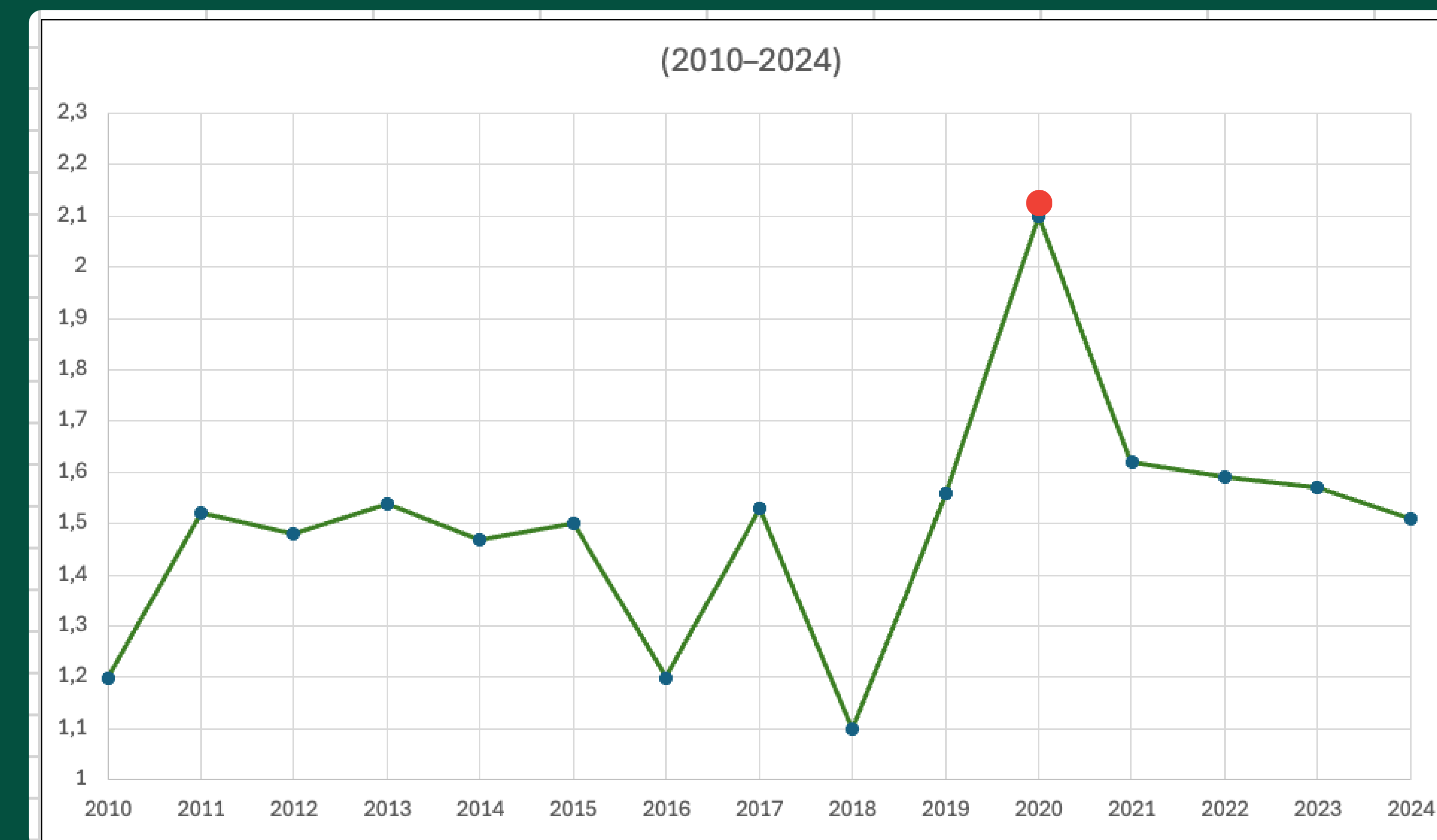
Overall SSI Burden

- 2,040 SSIs
- Overall prevalence: 1.51%

Demographics

- Male predominance: 61.2%. OR 1.58 (95% CI 1.44–1.73; $p < 0.001$)
- Most affected age group: 45–60 years (27%)

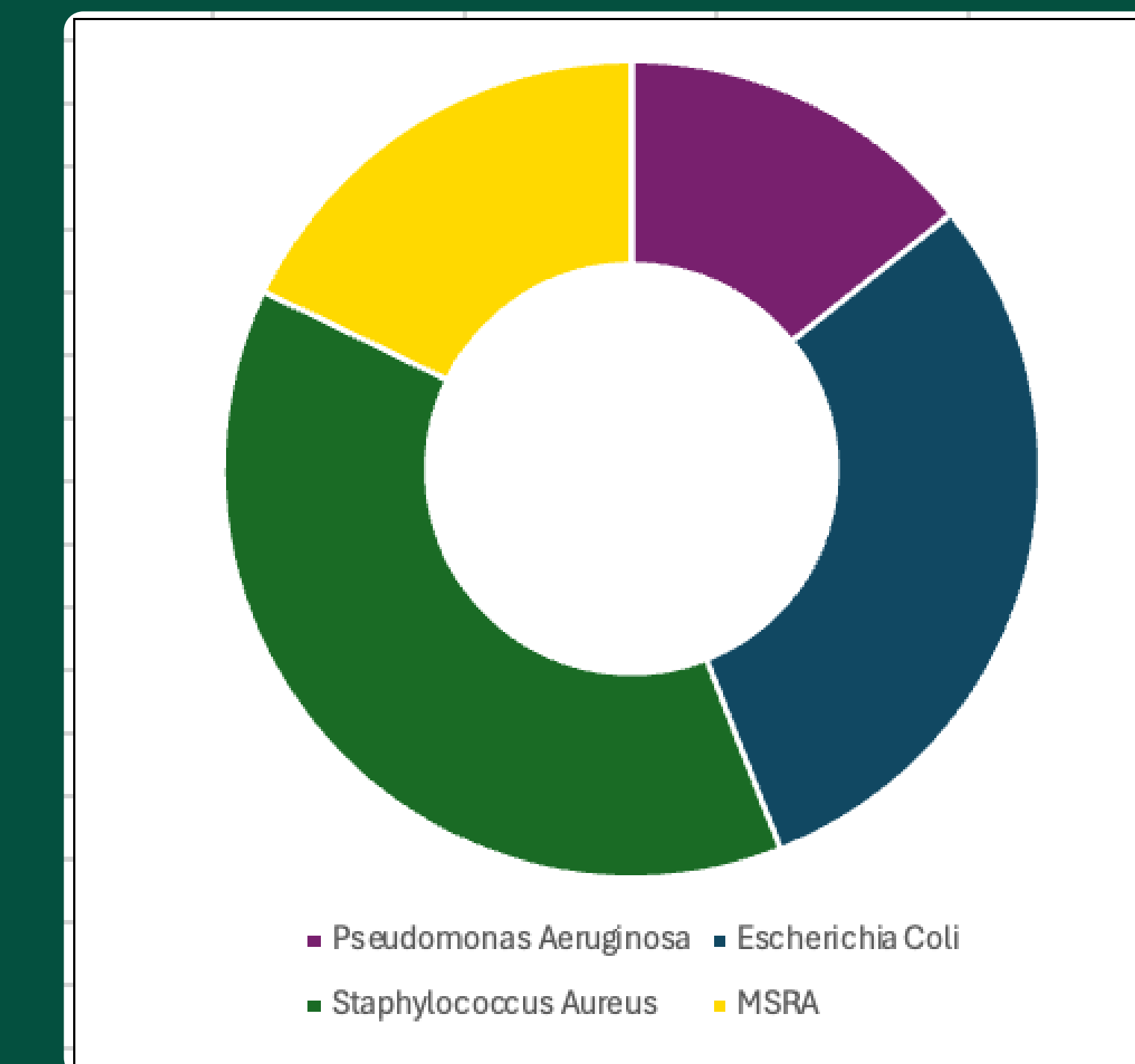
Temporal Trend



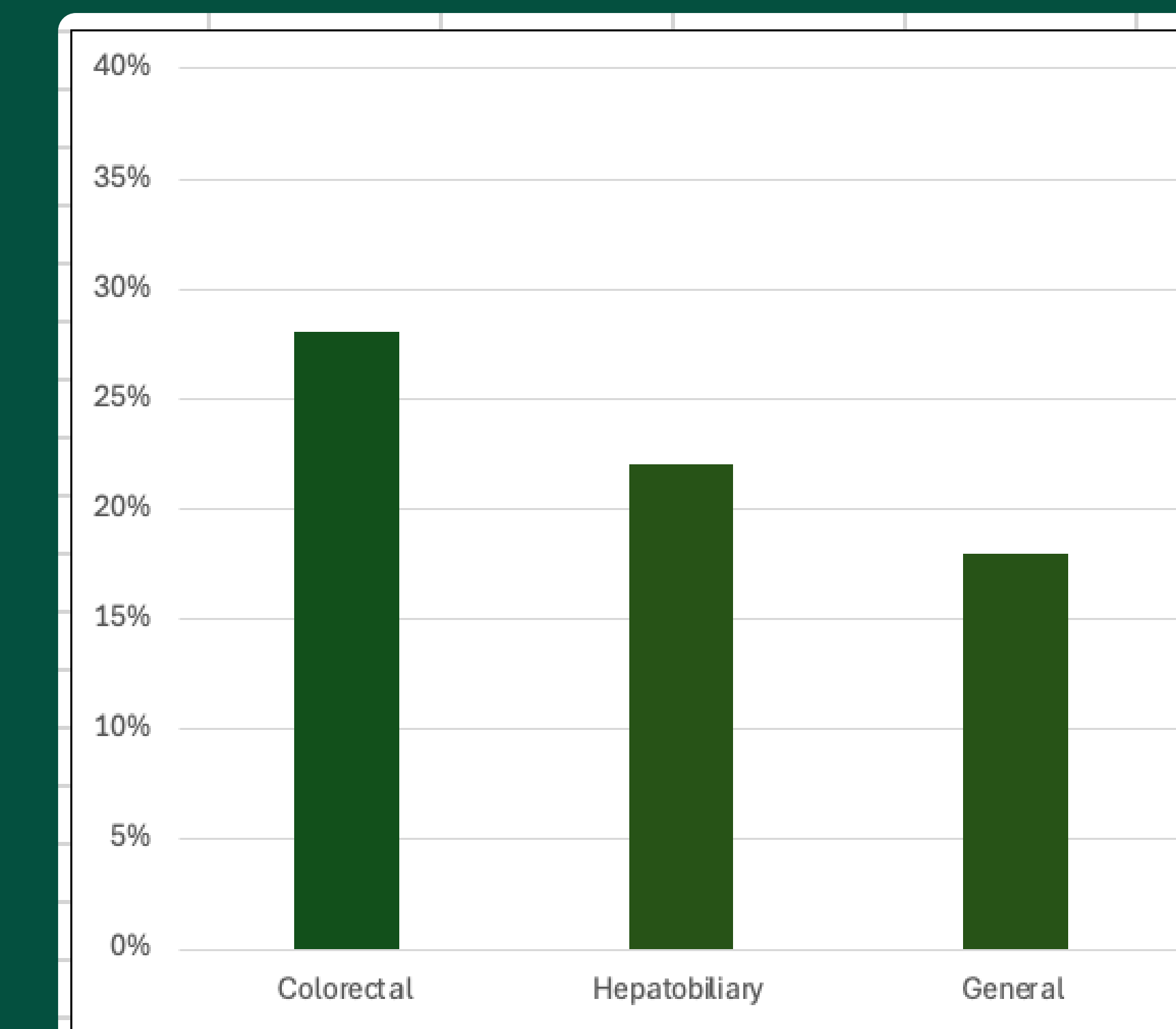
Clinical Impact

- Readmission: 68%
- LOS >7 days: 52%
- Reoperation: 21%
- Mortality directly attributable to SSI: 0.01%

Microbiology



Procedure Types Most Associated



KEY MESSAGES

- Long-term surveillance sustains low SSI rates.
- Pandemic disruptions increased infection risk.
- *Staphylococcus aureus* and Gram-negative bacteria predominate.
- Prevention strategies should be procedure-specific and risk-adjusted.

Conclusion:

Over 15 years, sustained surveillance maintained a low SSI rate (1.51%) in a high-complexity center. The 2020 increase suggests system-level vulnerability, and identified high-risk groups support the implementation of risk-adjusted prevention strategies.