Factors associated with early surgical complications of sleeve gastrectomy: a ten-year review of national data from the United Kingdom

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IFSO – Thursday 5th September 2024

I have no potential conflict of interest to report.

Background

Most common bariatric procedure worldwide

Complications from staple line include bleeding/leak

Studies have highlighted the possible benefit of staple line reinforcement

But no clear consensus on the use of staple line reinforcement in reducing bleeding/leak rates

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ORIGINAL CONTRIBUTIONS

Staple Line Reinforcement During Laparoscopic Sleeve Gastrectomy: Systematic Review and Network Meta-analysis of Randomized Controlled Trials

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Comparison of laparoscopic sleeve gastrectomy leak rates in five staple-line reinforcement options: a systematic review

Michel Gagner[1,2,3] · Paul Kemmeter[4]

Objectives

1. **Primary:** Evaluate the efficacy of Staple Line Reinforcement (SLR) in reducing the incidence of bleeding or leak in Laparoscopic Sleeve Gastrectomy (LSG)

2. **Secondary:** Explore trends over time in the use of reinforcement

Methods

UK NBSR Data: 10 years (2012-2021)

All patients undergoing LSG (primary or conversion)

Variables of interest:

- Patient demographics: Sex, Age, BMI, ASA
- Existing medical conditions
- Staple line reinforcement type
- Complication type – bleeding or leak
- Management of complication - Clavien-Dindo classification
- ITU admission/length of stay
- Mortality

Results

Total n= 23,192
SLR: n= 14,231 (61.4%)

Sex

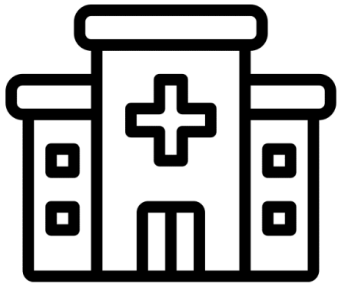
76.5%

Median Age

46 years (36 – 53)

Body Mass Index (BMI)

44 kg/m² (40 – 50)



152 Hospitals
258 Consultant Surgeons

ASA Grade

III: 34.9%

II: 55.7%

Existing Conditions

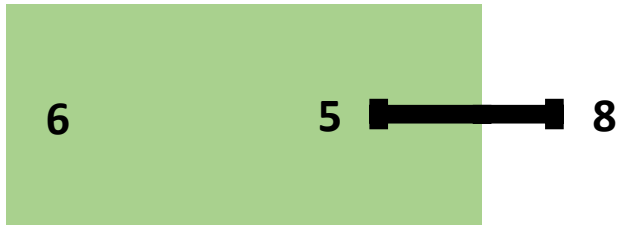
Hypertension: 31.8%

Obstructive Sleep Apnoea (OSA): 22.4%

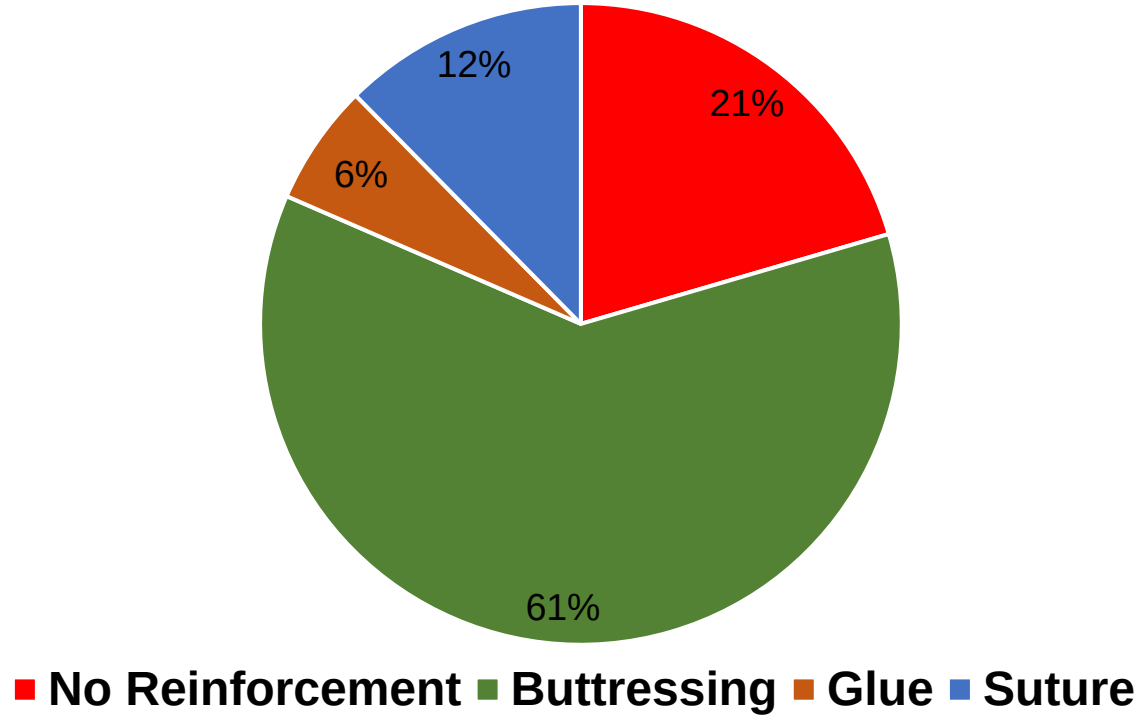
Diabetes Mellitus II: 18.7%

Cardiovascular Disease: 4.4%

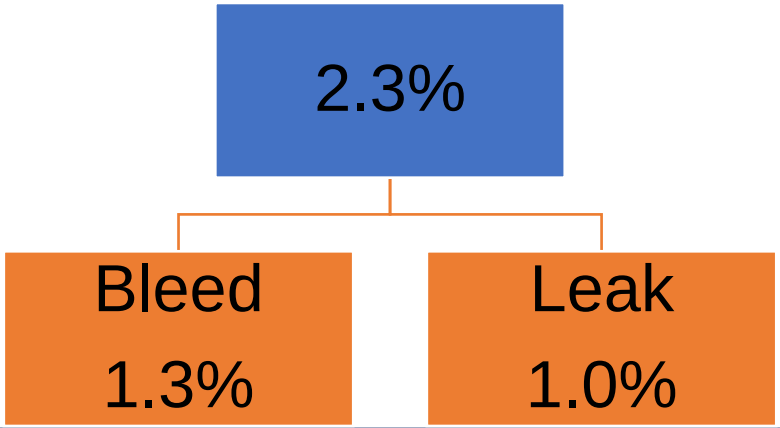
Median Number of Cartridges



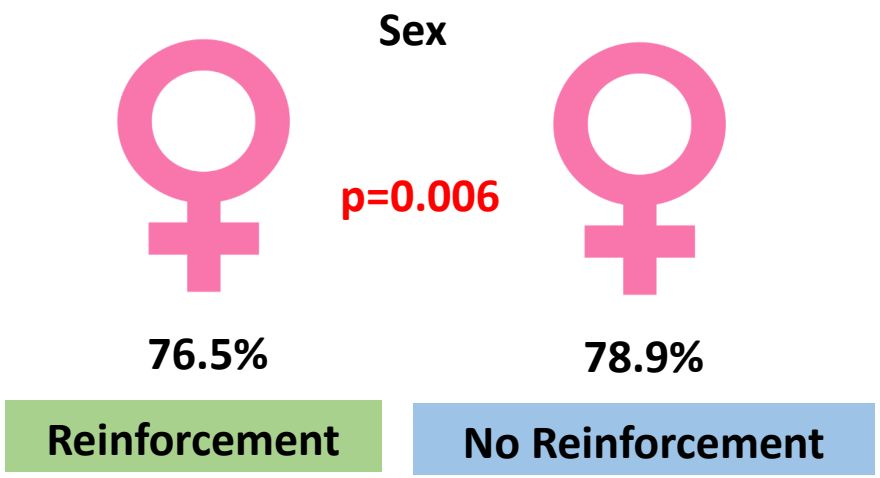
Reinforcement Type

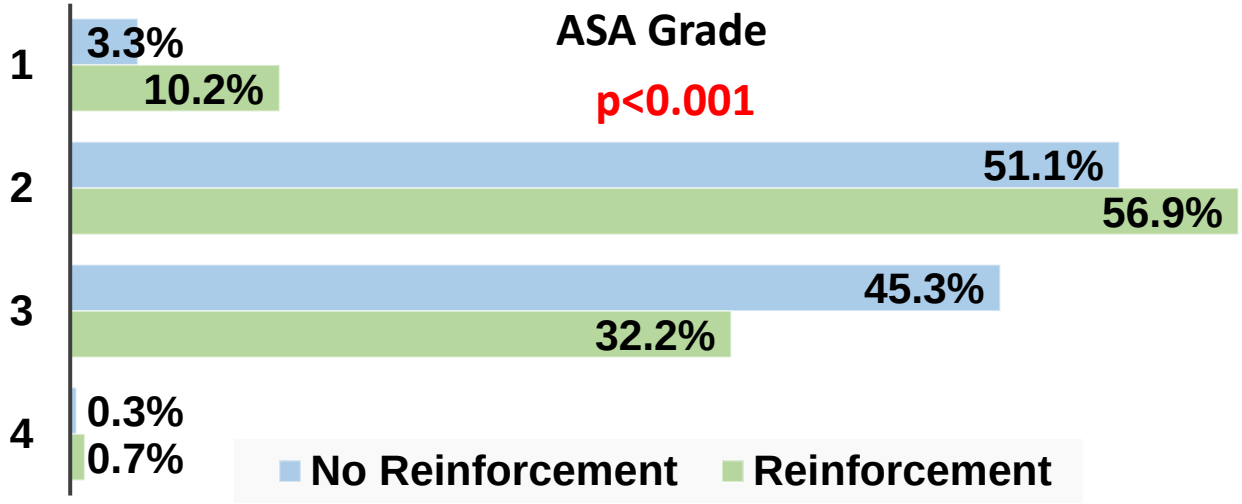


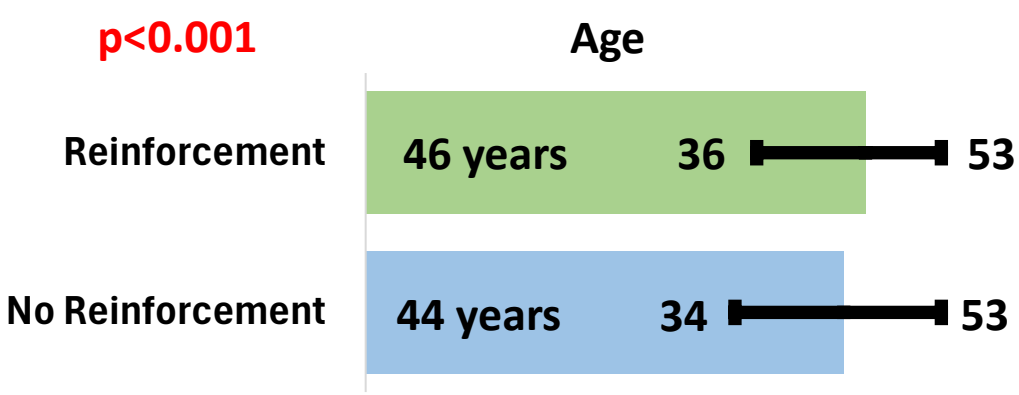
Complication Rate

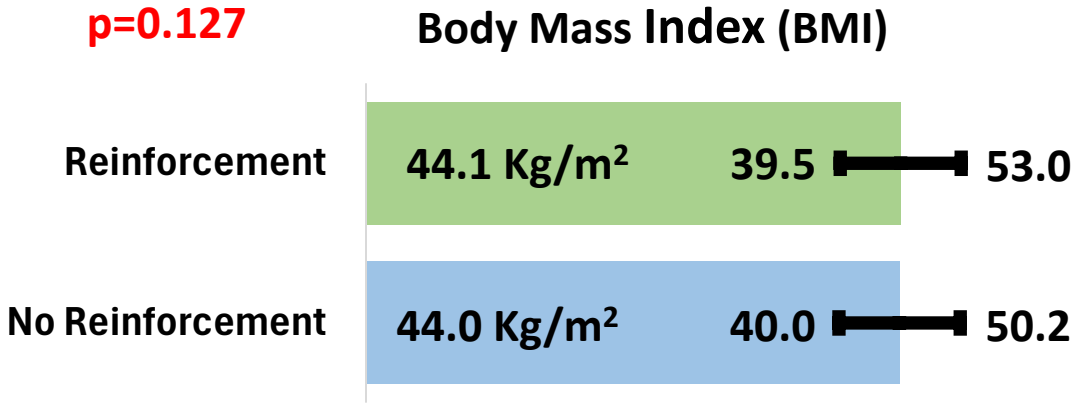


Reinforcement vs No Reinforcement









Multivariable Analysis – Outcomes & Variables

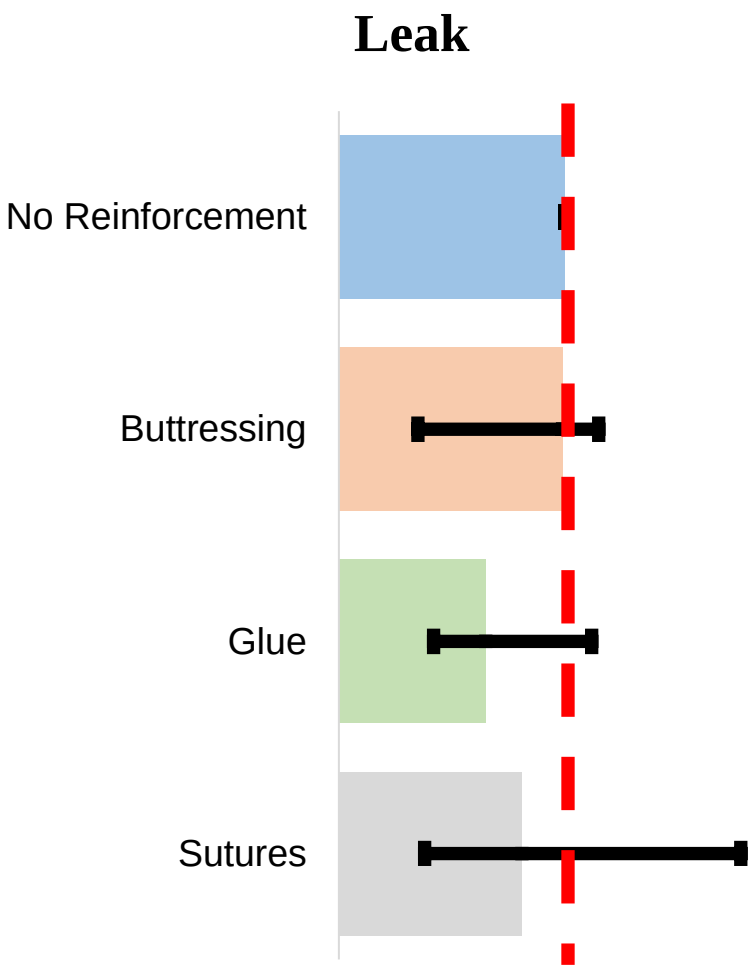
Outcomes

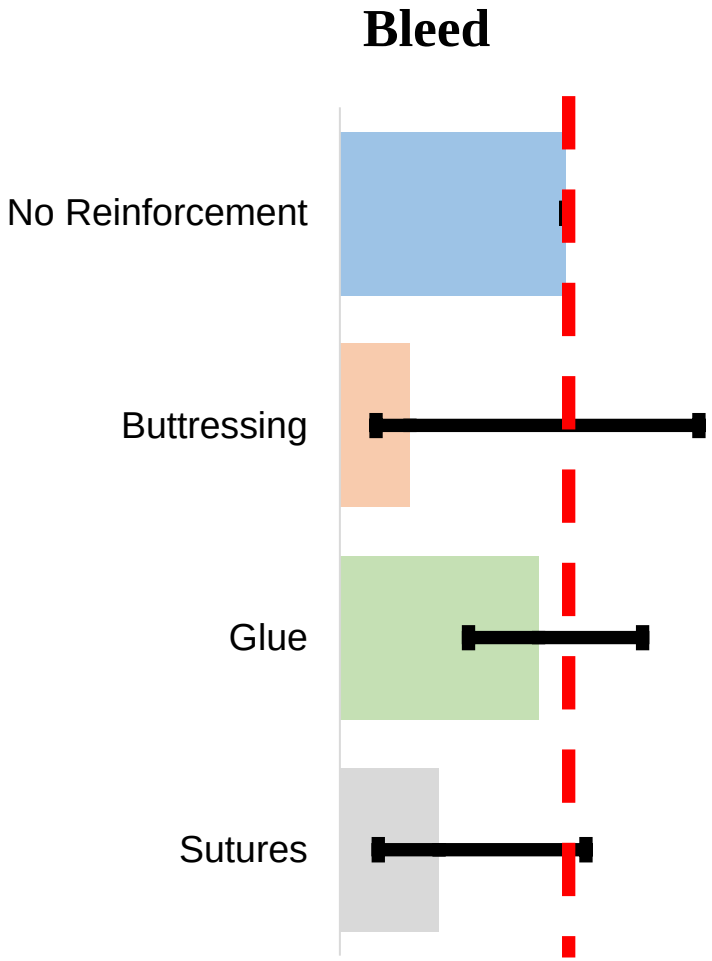
1. Leak
2. Bleed
3. Leak or Bleed Combined

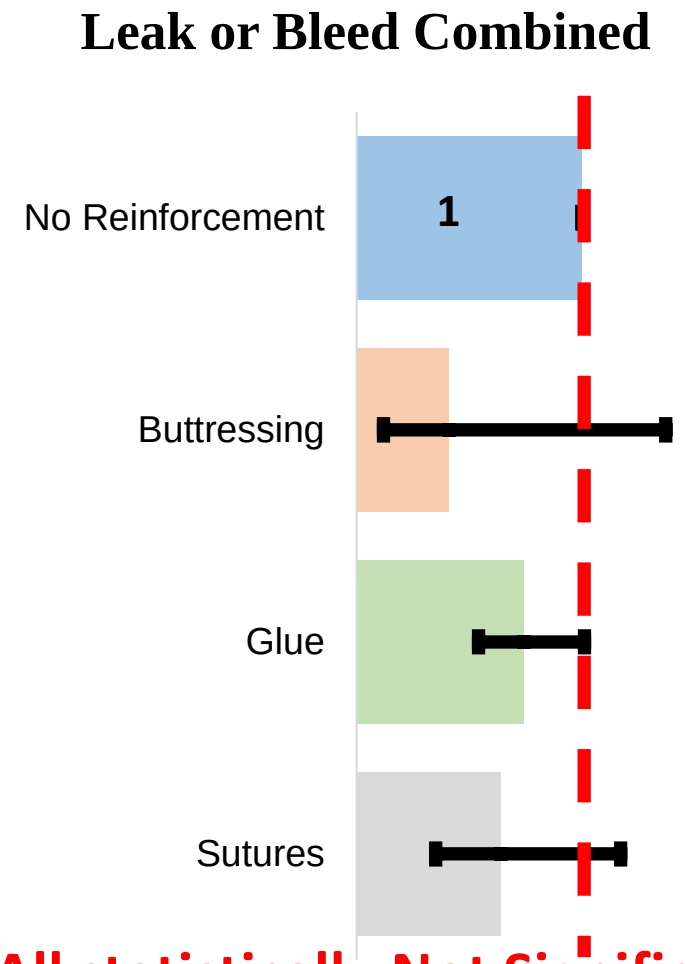
Variables

- Sex
- Age
- BMI
- ASA
- Reinforcement Type:
  - No reinforcement
  - Buttressing
  - Glue
  - Sutures

Multivariable Analysis – Results (Odds Ratio)

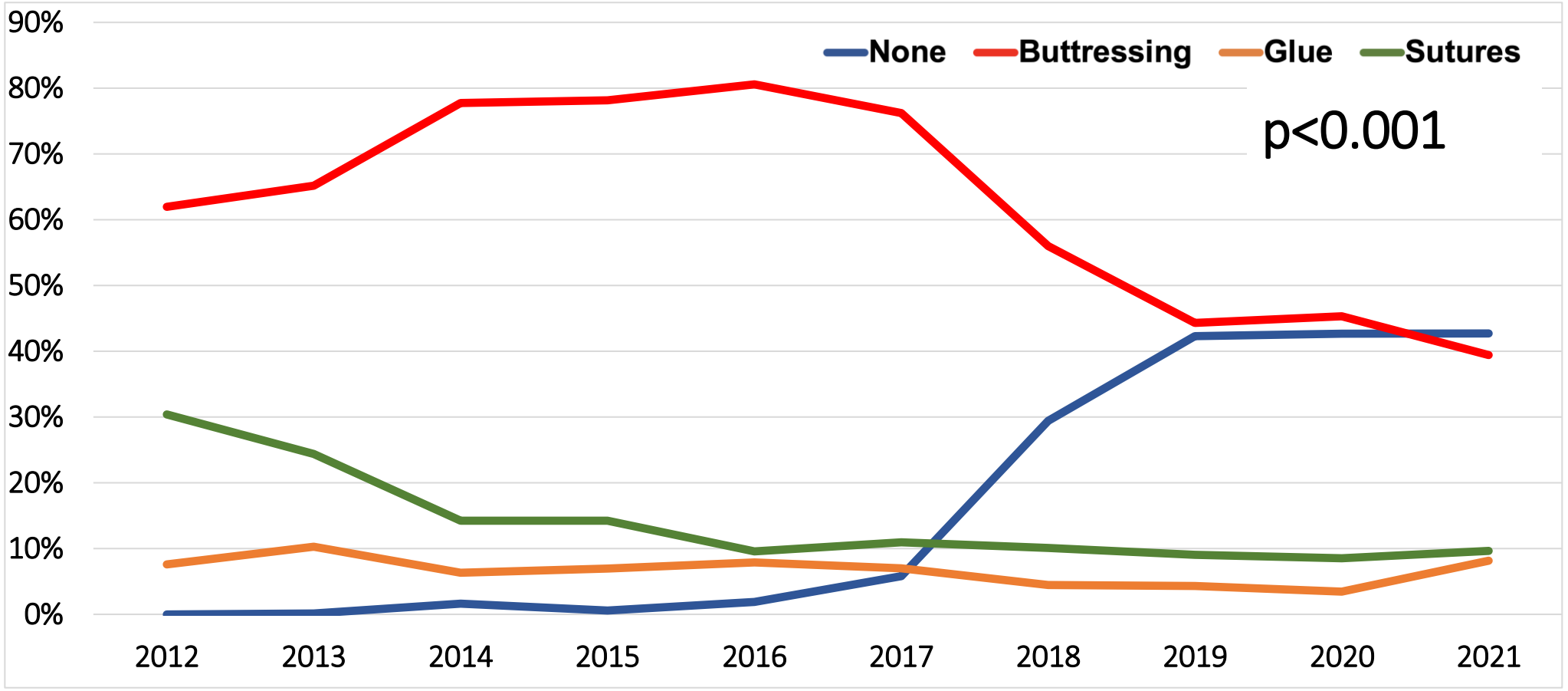






All statistically Not Significant

Secondary outcome:
Use of staple line reinforcement over time



Limitations & Confounders

Missing data which can lead to bias

Database is voluntary - have all complications been added?

No uniform use of complication scales

Variable experience of surgeons

Varying post-surgical practice - different across hospitals.

Conclusion

Decline in use of staple line reinforcement

From this analysis: no clear association in terms of bleed/leak rate with reinforcement

Could be due to improvements in equipment, intra/peri-operative care

No clear consensus on whether reinforcement should be routinely used or be used on selected patient groups

Intended Work for the Future

Linkage of NBSR to Hospital Episode Statistics (HES)

Assess return to theatre rate

Assess outcomes in terms of unit volume

Thank you

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