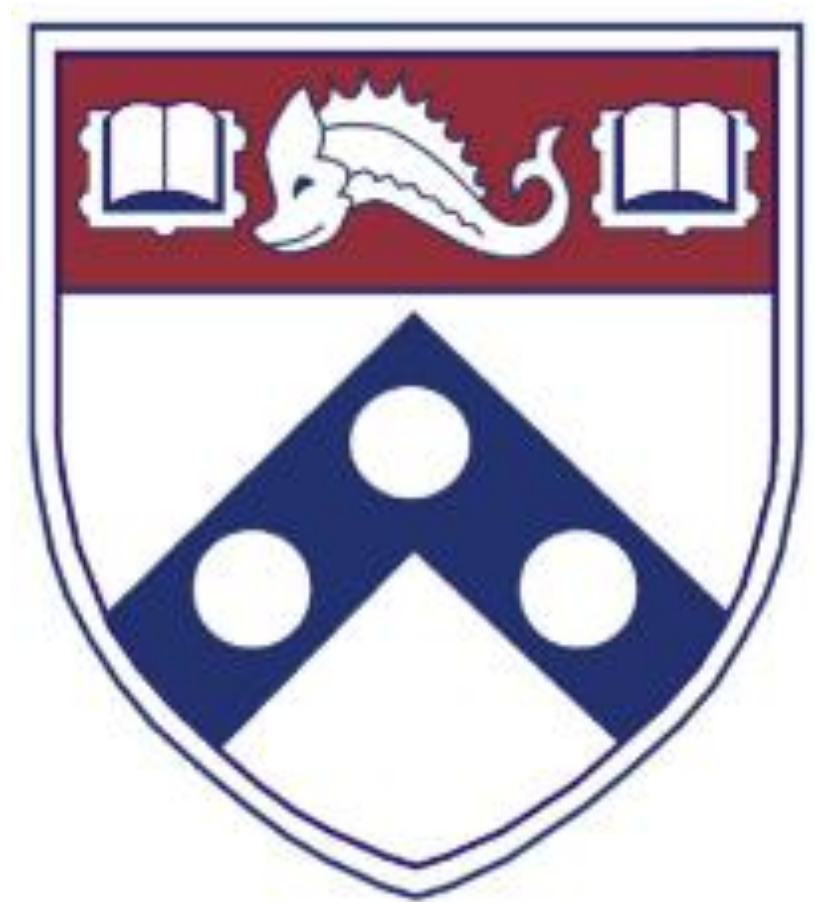
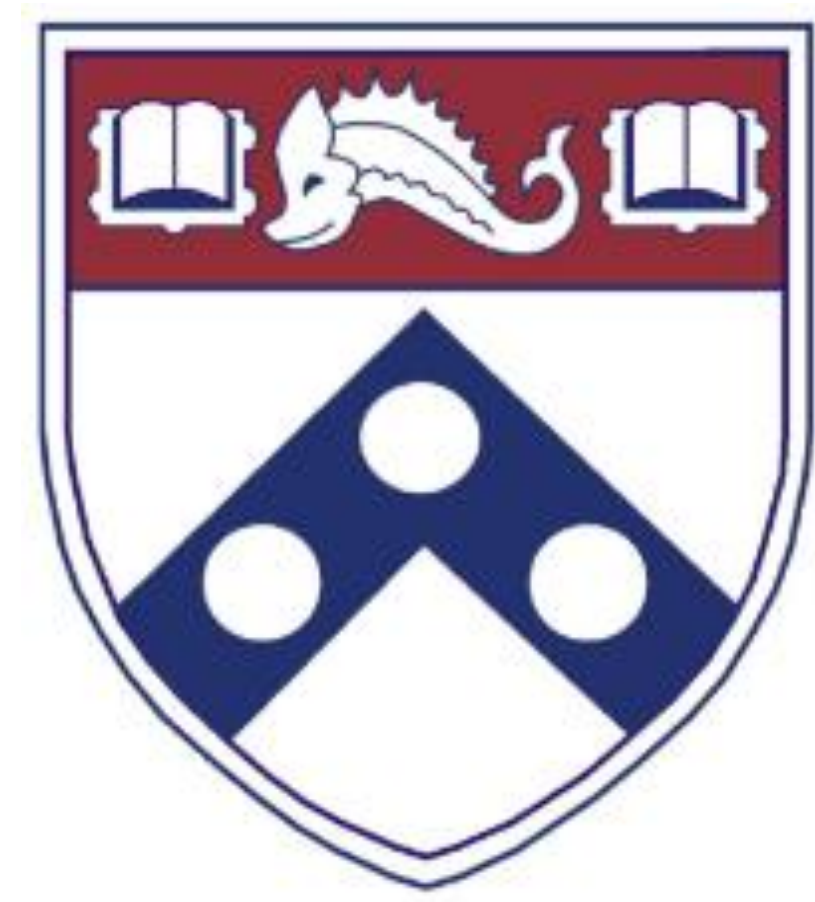




Prophylactic Mesh Reinforcement Reduces Donor Site Hernia/Bulge Risk in Abdominal-Based Autologous Breast Reconstruction (ABABR)

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INTRODUCTION

- Abdominal donor-site bulge and hernia remain clinically significant complications following abdominally based autologous breast reconstruction (ababr) with rates up to 33%, contributing to patient morbidity and dissatisfaction.¹
- Despite increasing use of prophylactic mesh, heterogenous complications, inconsistent outcomes, and variability in mesh type and placement technique limit definitive conclusions regarding its effectiveness.¹⁻³
- This study evaluates the impact of prophylactic mesh placement on abdominal donor-site outcomes to guide evidence-based practices.

METHODS

- A retrospective analysis was performed for patients undergoing ababr from Jan 2014- Dec 2024.
- Closure methods were stratified into primary closure and retrorectus mesh placement.
- Primary outcomes included hernia or bulge. Secondary outcomes included seroma, hematoma, surgical site infection (SSI) and delayed wound healing.
- Multivariate logistic regression models adjusted for age, BMI, smoking status, diabetes, and flap type.
- Stratified analyses by obesity class were performed separately.

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RESULTS

Primary outcome: Hernia/Bulge

- Cumulative Hernia/Bulge Rate Mesh: 1.4% vs. Primary Closure 3.0% (p=0.027).
- Relative Risk Reduction (RRR): 52%.
- Number Needed to Treat: 65.
- Time-to-event analysis confirmed benefit (log rank: p=0.022).

Secondary outcomes:

- No significant differences in seroma, hematoma, SSI, and delayed wound healing.
- Hospital Length of Stay, p=0.300.
- Operative Time, p=0.120.

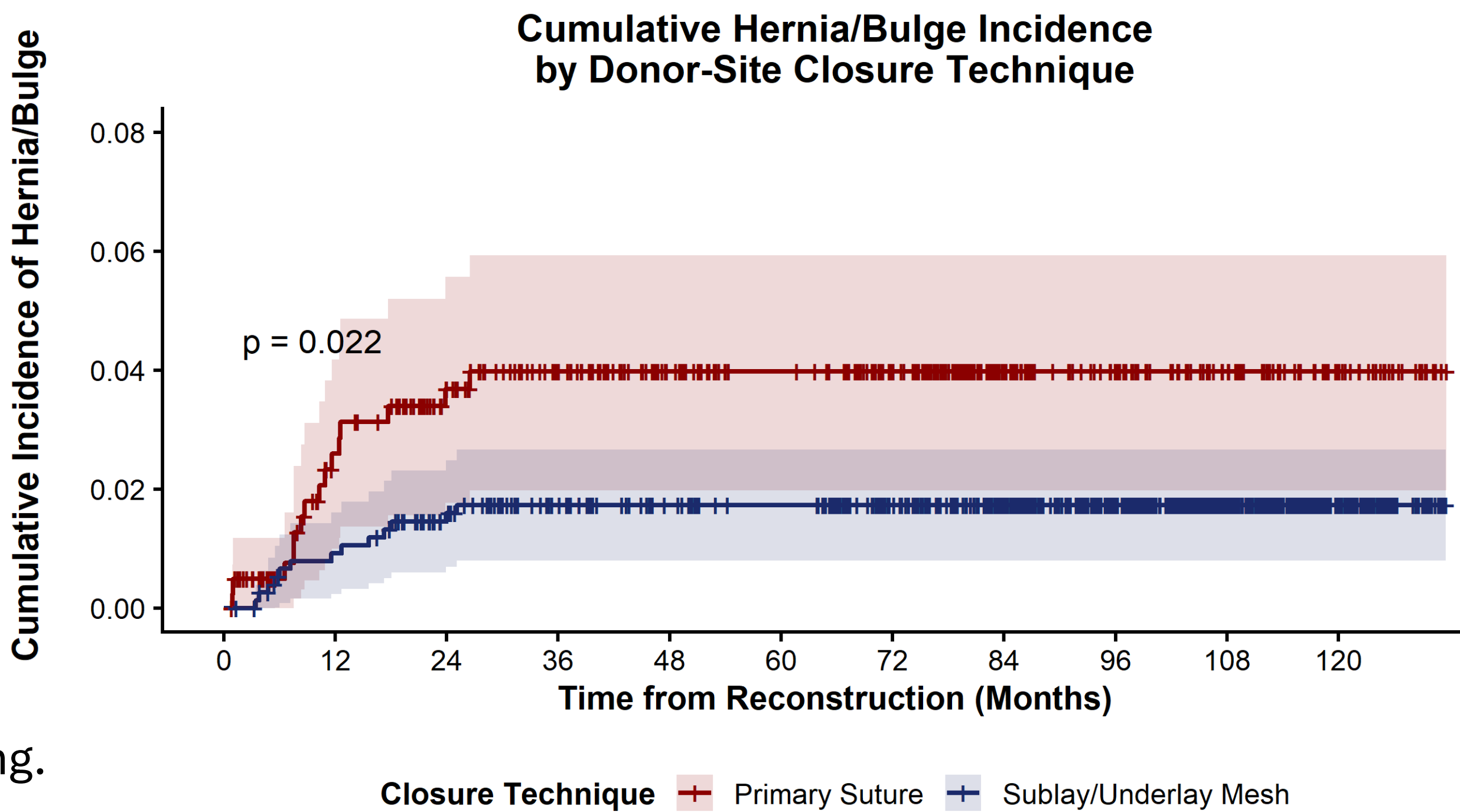


FIGURE Cumulative incidence of donor-site hernia or bulge by closure technique

TABLE. Baseline Patient and Breast Reconstruction Characteristics (Patient Level)

Characteristic	Overall N = 1163 ¹	Primary Closure N = 442 ¹	Mesh ³ N = 721 ¹	p-value ²
Age, years	52.3 (10.2)	52.2 (9.9)	52.4 (10.4)	0.7
BMI, kg/m ²	29.8 (5.8)	29.6 (5.5)	30.0 (6.0)	0.2
Diabetes Mellitus	117 (10.1%)	40 (9.0%)	77 (10.7%)	0.4
Smoking (Current)	53 (4.6%)	18 (4.1%)	35 (4.9%)	0.8
Reconstruction Laterality				0.3
Unilateral	413 (35.5%)	165 (37.3%)	248 (34.4%)	
Bilateral	750 (64.5%)	277 (62.7%)	473 (65.6%)	
Flap Type				<0.001*
TRAM	676 (58.1%)	75 (17.0%)	601 (83.4%)	
DIEP	487 (41.9%)	367 (83.0%)	120 (16.6%)	

¹Mean (SD); n (%); ²Welch Two Sample t-test; Pearson's Chi-squared test; ³ Retrorectus mesh; *p < 0.05

RESULTS

BMI Subgroup

- Greatest benefit in BMI 25- 29.9 kg/m²
- Overweight NNT: 33 (RRR:87%)
- Obese Class I NNT: 36 (RRR: 63%)

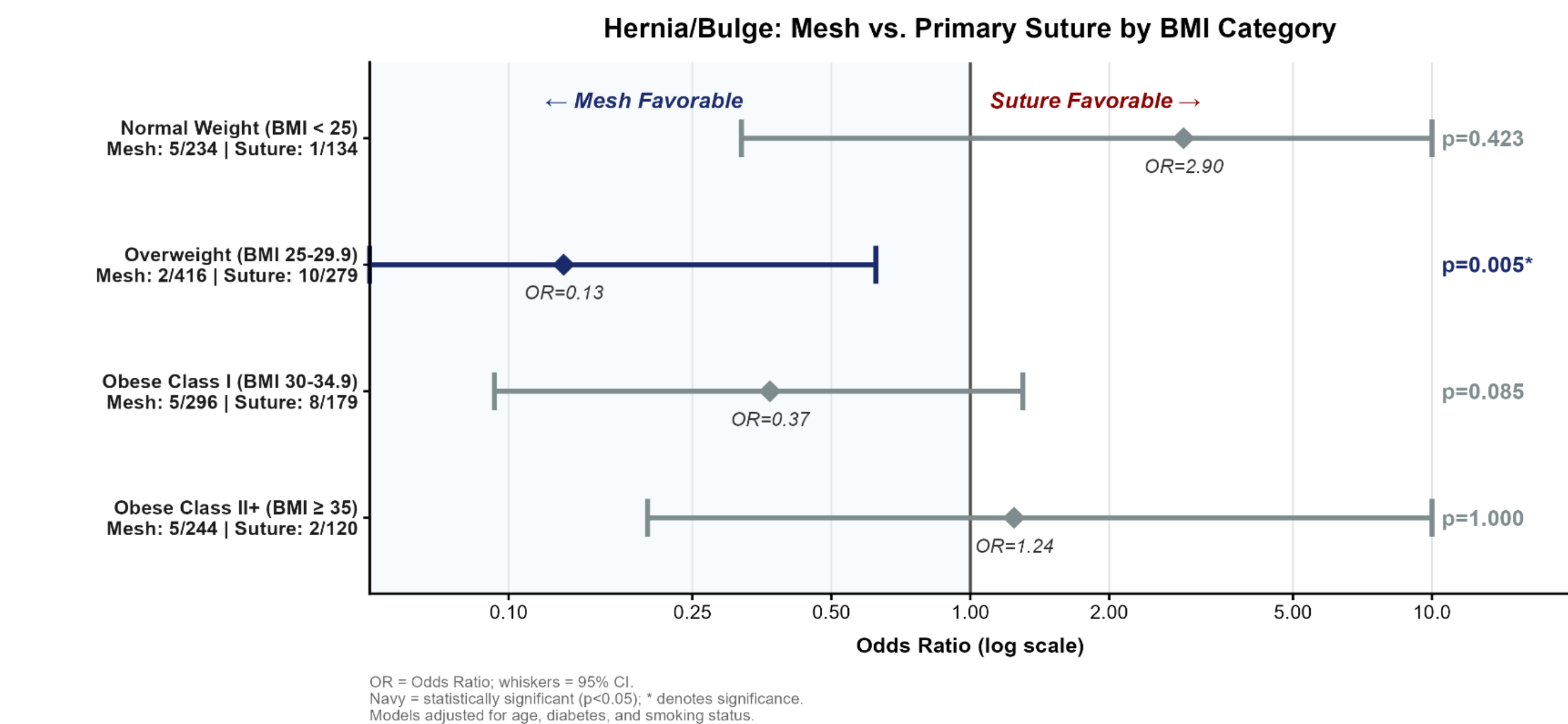


FIGURE Odds ratio for donor-site hernia or bulge by BMI category

CONCLUSIONS

- This large single-institution analysis demonstrates that retrorectus prophylactic mesh reinforcement significantly reduces donor-site hernia/bulge rates following ababr without increasing wound complications.
- A 52% relative risk reduction in hernia/bulge formation overall, with an even greater reduction in overweight patients (RRR:87%), supports the selective use of prophylactic mesh during ababr donor-site closure.
- These findings provide evidence to guide surgical decision-making and support risk-stratified approaches to abdominal wall closure in ABR.