

Introduction

- Timing of microsurgical breast reconstruction remains **clinically unresolved** despite widespread use.
- Immediate reconstruction offers **psychosocial and aesthetic advantages**, yet concerns persist regarding **perioperative morbidity**.
- Prior studies limited by **selection bias, small samples, and inadequate adjustment**.
- Knowledge gap:** Lack of **national, causally balanced comparisons**.

Methods

Design:

- Retrospective cohort, **ACS-NSQIP (2012–2022)**

Population:

- n = 20,415 free-flap reconstructions
 - Immediate: 10,362
 - Delayed: 10,053

Analytical Strategy:

- Propensity score modeling → **Inverse Probability of Treatment Weighting (IPTW)**
- Balance threshold: **SMD < 0.1 achieved for all covariates**

Outcomes:

- Primary: Any 30-day complication
- Secondary:
 - Readmission
 - Reoperation
 - SSI
 - Systemic complications

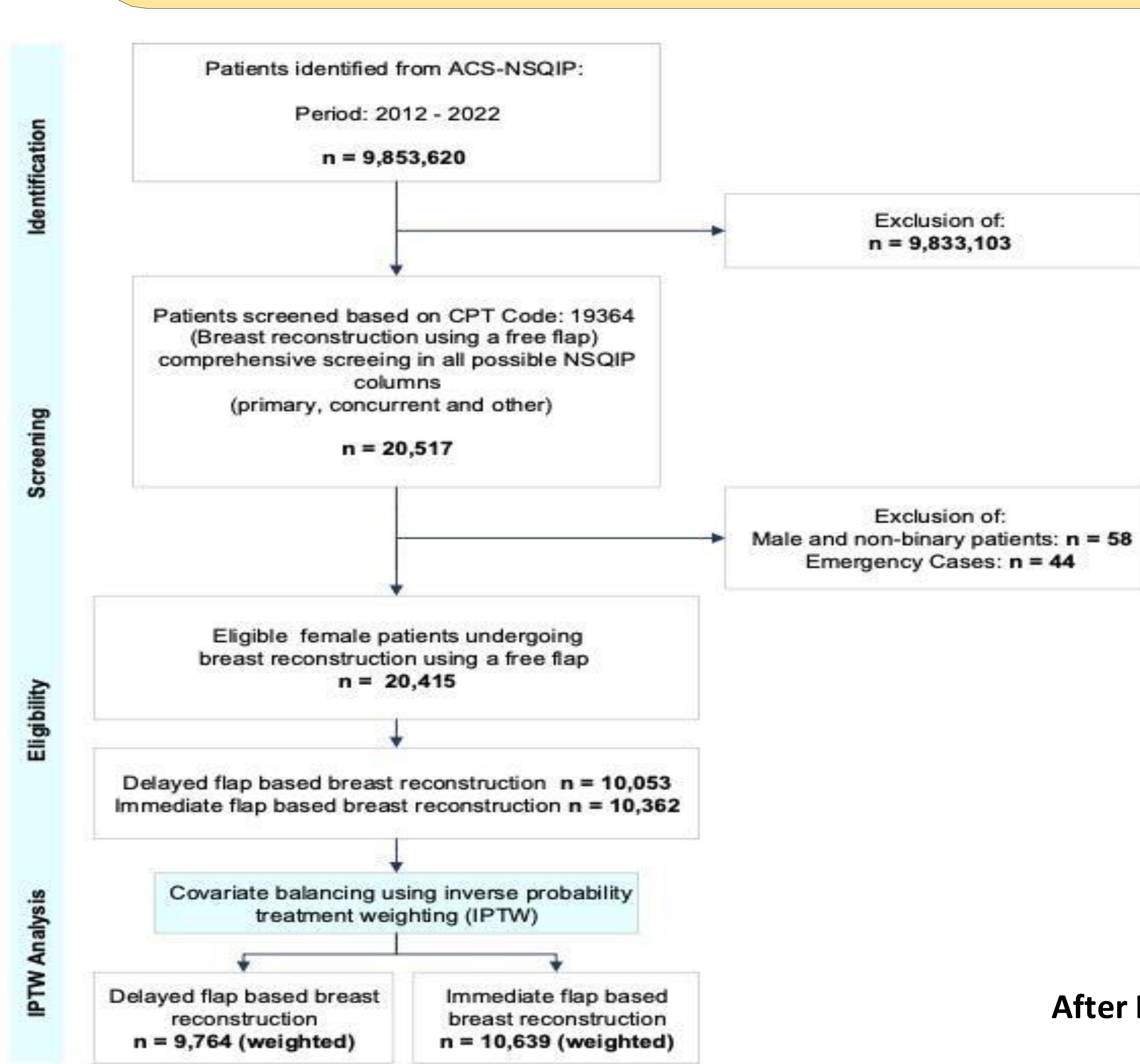
Statistical Framework:

- IPTW-weighted logistic regression
- Reporting: **ORs + absolute risk differences (TRESS-aligned)**

Study Objective:

To evaluate whether reconstruction timing (immediate vs delayed) is associated with 30-day postoperative outcomes using causal inference methods (IPTW).

Results



Final weighted cohort (n=20,415) with balanced baseline characteristics.

Conclusions

Clinical Meaning

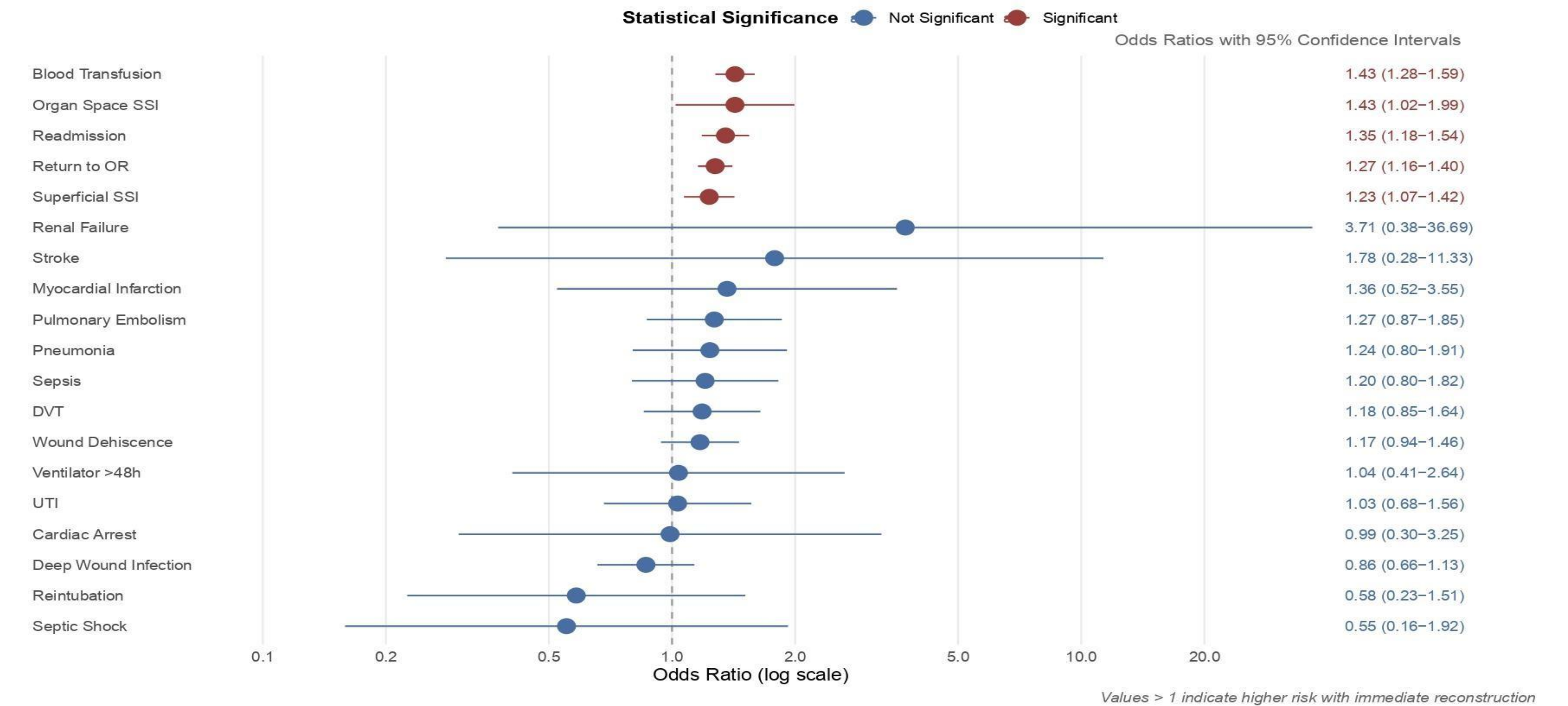
- Immediate reconstruction → **modest increase in early healthcare utilization**
- No increase in life-threatening complications**
- Absolute differences are **small but consistent**

Decision Framework

- Timing should be **preference-sensitive**, not dogmatic
- Balance:
 - Immediate → psychosocial benefit
 - Delayed → slightly lower early utilization burden

Results

- Readmission:** 6.4% vs 5.1% OR 1.35 (1.18–1.54)
- Return to OR:** OR 1.27 (1.16–1.40)
- Blood transfusion:** OR 1.43 (1.28–1.59)
- SSI (selective increase):** Superficial SSI: OR 1.23, Organ/space SSI: OR 1.43
- Major systemic events:** Rare (<2%), **no difference**



After IPTW, differences cluster in healthcare utilization and infection domains; systemic complications remain comparable.

Limitations

- 30-day outcomes only
- No oncologic granularity (e.g., radiation)
- Residual confounding possible
- No flap subtype differentiation

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Human Subjects

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