

# Comparative Outcomes of Autologous vs Alloplastic Ear Reconstruction: A Multi-Institutional Analysis with 10-Year Follow Up

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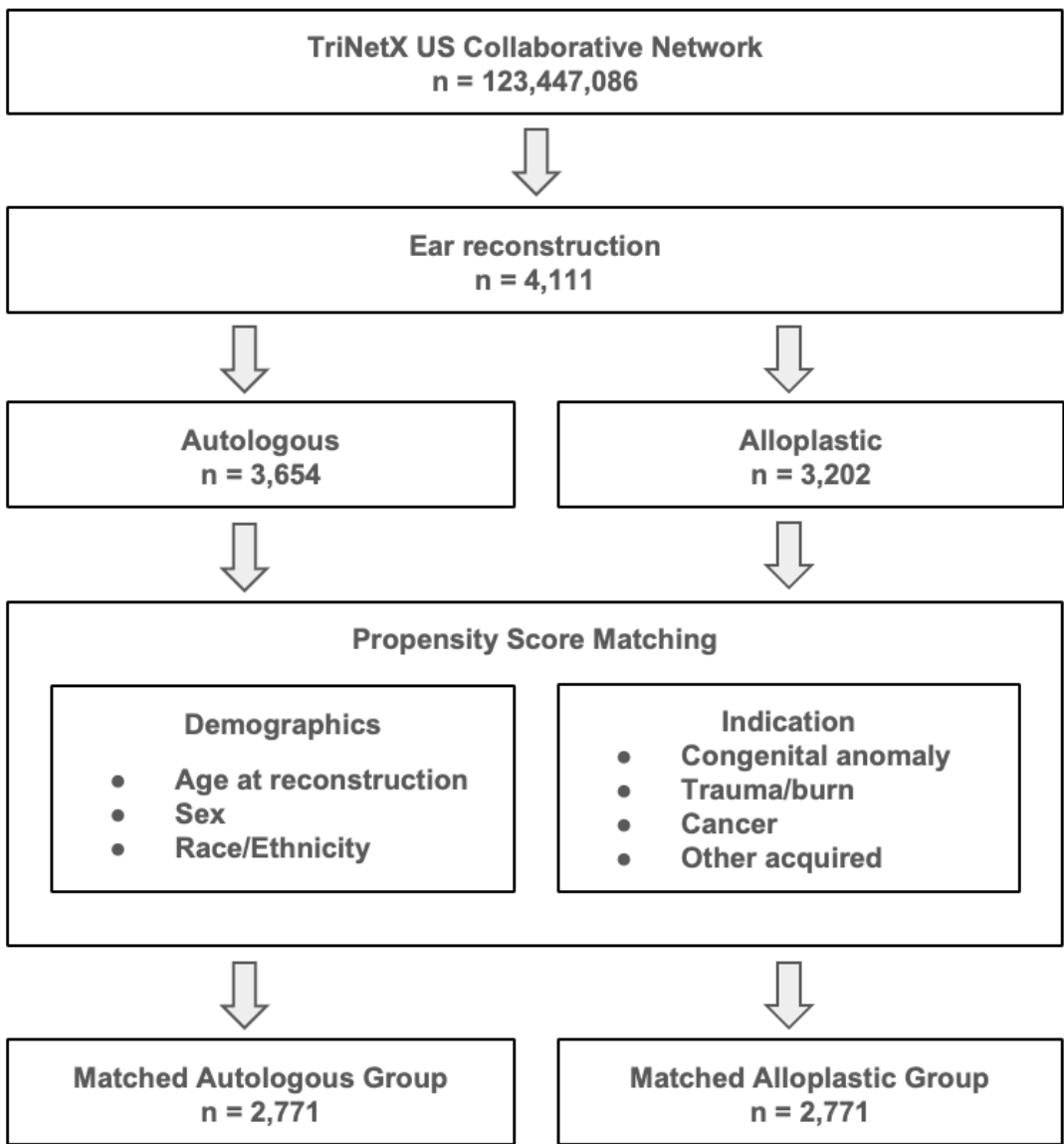
## Introduction

- Ear reconstruction is a technically challenging procedure requiring good aesthetic outcomes and low complication rates.
- Autologous costal cartilage is durable with lower infection risk but has donor-site morbidity risks.
- Alloplastic frameworks may offer more predictable aesthetics but have historically raised concern for infection/extrusion.

## Objective

- This is the first multi-institutional study to evaluate the use of autologous vs alloplastic frameworks for ear reconstruction with up to 10 years of follow-up.

## Methods



## Results

| Outcome                            | Definition                                                                                                                               | Autologous Prevalence (%) | Alloplastic Prevalence (%) |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|
| Revision                           | ICD-10-PCS 09W Revision of a device in the Ear, Nose, Sinus                                                                              | 1.98%                     | 2.13%                      |
| Removal                            | ICD-10-PCS 09P Removal of a Device from the Ear, Nose, or Sinus                                                                          | 1.15%                     | 1.15%                      |
| Device/Graft-Related Complications | ICD-10-CM T85.* Infection and inflammatory reaction or complication due to internal or external prosthetic devices, implants, and grafts | 2.56%                     | 2.74%                      |
| Infection                          | ICD-10-CM T81.4 Infection following a procedure                                                                                          | 2.81%                     | 2.85%                      |
| Dehiscence                         | ICD-10-CM T81.31 Disruption of surgical wound                                                                                            | 2.02%                     | 1.73%                      |

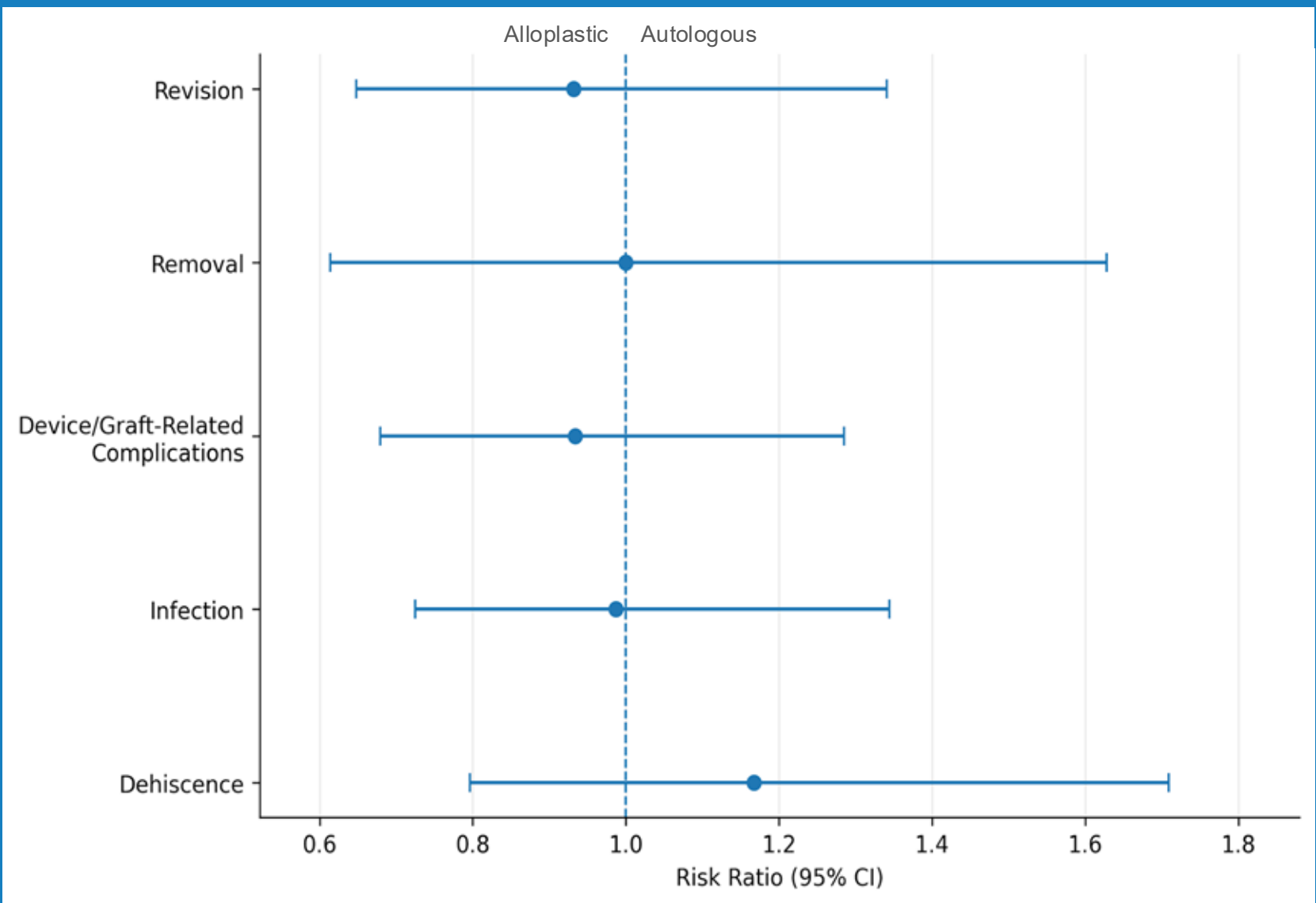


Figure 1. Risk Ratios (95% CI) for Post-Operative Outcomes at 10 Years.

## Discussion

- In this multi-institutional matched analysis, autologous and alloplastic ear reconstruction demonstrated comparable long-term rates of revision, removal, infection, dehiscence, and device/graft-related complications.
- These findings contrast with earlier smaller single-institution studies that suggested higher complication rates with alloplastic frameworks.
- More recent large-scale studies have reported <5-10% complication or revision rates.
- Outcomes may differ based on patient population (age, indications for ear reconstruction) and TrinetX query specifications (data availability; cohort identification using CPT/ICD-10 codes; propensity matching; outcome selection using ICD-10 codes),

## Conclusion

- Alloplastic frameworks may represent a safe alternative to autologous reconstruction, supporting expanded reconstructive options and shared decision-making based on patient anatomy, surgeon preference, desired outcomes, and donor-site considerations.