

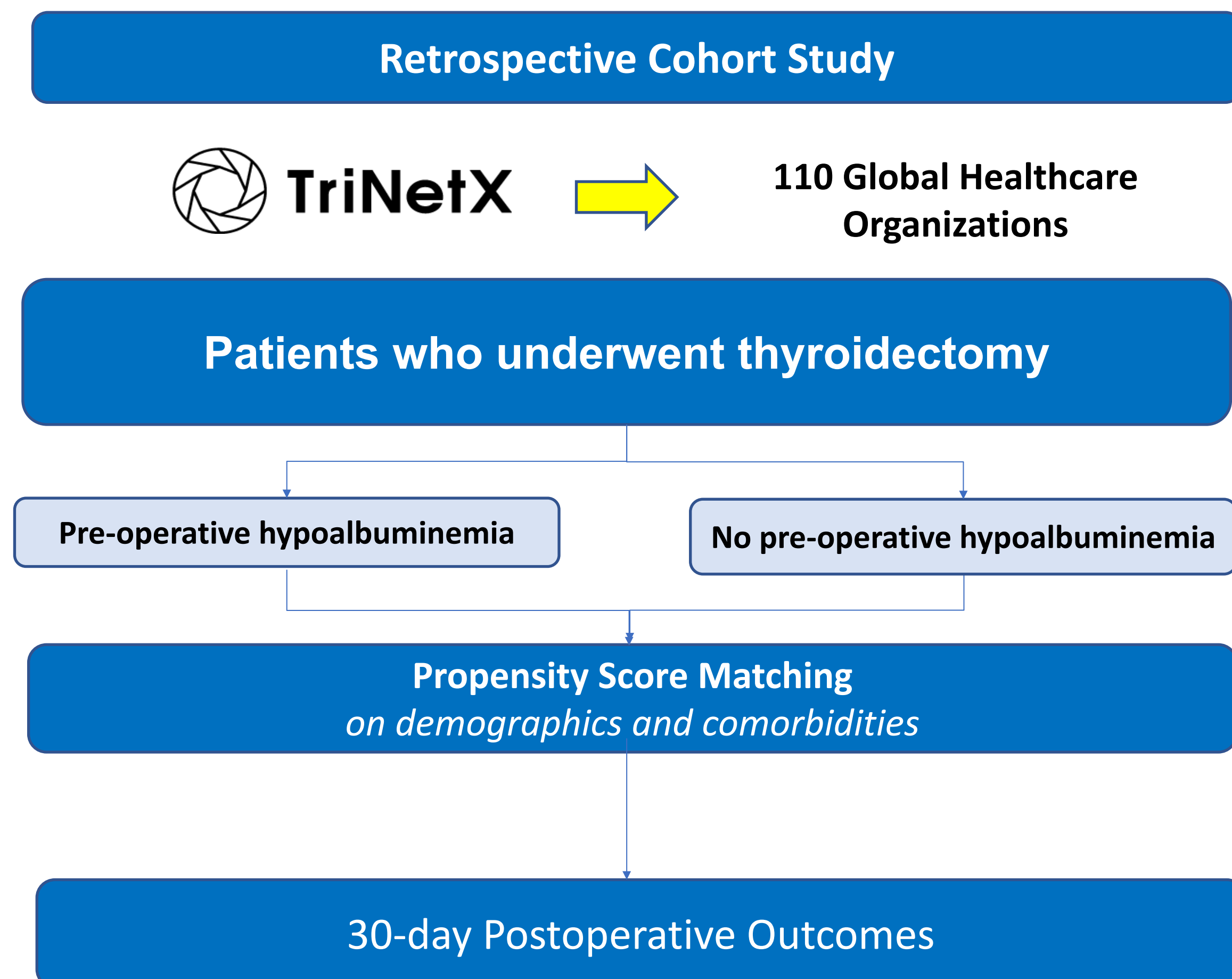
# Pre-operative serum albumin as a predictor of outcomes after Thyroidectomy

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## Introduction

- Thyroidectomy is one of the most common procedures performed with very low mortality rates.
- Complications of thyroidectomy have been reported to be associated with the extent of resection, surgeon expertise, institutional case volume, advanced patient age, and comorbidities such as hypertension and diabetes.
- Studies have suggested malnutrition, as measured by serum albumin, as a predictor of poor surgical outcomes in neurosurgical, plastic and reconstructive, and gastrointestinal surgeries.
- Albumin is considered a negative acute-phase protein that typically decreases during injury and inflammatory conditions. However, little is known about the significance of pre-operative hypoalbuminemia.
- Objective:** To leverage a large healthcare research database to determine adverse 30-day post-operative outcomes associated with pre-operative hypoalbuminemia in patients who underwent thyroidectomy.

## Methods and Materials



## Results

2113 patients were identified in each cohort.

Characteristics	Hypoalbuminemia (Cohort 1), n (%)	Non- hypoalbuminemia (Cohort 2), n (%)	Standard Difference
Age at Index	53.9± 15.6 years	53.6± 15.4 years	
Female	1535 (72.65%)	1566 (74.11%)	0.033
Not Hispanic or Latino	1459 (69.05%)	1453 (68.77%)	0.006
White	1338 (63.32%)	1340 (63.42%)	0.002
Black or African American	459 (21.72%)	475 (22.48%)	0.018
Unknown Ethnicity	330 (15.62%)	311 (14.72%)	0.025
Hispanic or Latino	324 (15.33%)	349 (16.52%)	0.032
Unknown Race	237 (11.22%)	210 (9.94%)	0.042
Asian	64 (3.03%)	71 (3.36%)	0.019
American Indian or Alaska Native	12 (0.57%)	14 (0.66%)	0.012
Native Hawaiian or Other Pacific Islander	10 (0.47%)	10 (0.47%)	0.000

Table 1. Baseline demographics.

Outcomes	Hypoalbuminemia, (Cohort 1), n (%)	Non-Hypoalbuminemia (Cohort 2), n (%)	Odds Ratio (95% CI)	p-value
Mortality	24 (1.136%)	≤10 (0.473%)	2.416 (1.153-5.056)	0.0159*
Pneumonia	48 (2.272%)	17 (0.805%)	2.866 (1.643-5.00)	<b>.0001</b>
Acute Renal Failure	73 (3.455%)	30 (1.42%)	2.485 (1.617-3.817)	<b>&lt;.0001</b>
DVT/PE	48 (2.272%)	30 (1.42%)	1.614 (1.019-2.557)	<b>0.0397</b>
Sepsis	30 (1.42%)	13 (0.615%)	2.327 (1.21-4.473)	<b>0.0092</b>
Surgical Site Infection (SSI)	29 (1.372%)	≤10 (0.473%)	2.926 (1.423-6.02)	0.0022*
Tracheostomy	21 (0.994%)	≤10 (0.473%)	2.111 (0.992-4.494)	0.0474*
Respiratory Dependence	23 (1.088%)	≤10 (0.473%)	2.314 (1.099-4.874)	0.0231*

Table 2. Post-operative outcomes  
 Bolded values are significant  
 \*Asterisk indicates an n-value of n≤10

## Conclusions

- Patients undergoing thyroidectomy with pre-operative hypoalbuminemia have higher rates of postoperative complications compared to patients without pre-operative hypoalbuminemia including:
  - Pneumonia
  - Acute Renal Failure
  - Venous Thromboembolism
  - Sepsis
- Overall rates of complications are low, but these complications can significantly impact morbidity.
- These findings may not be specific to thyroidectomy, but an understanding of the impact of pre-operative hypoalbuminemia as a surrogate marker for surgical complications may help guide expectations and optimal management of thyroidectomy patients.
- While not routinely assessed, pre-operative albumin levels could be used as prognostic indicators of malnutrition and risk of adverse postoperative outcomes and be a target of preoperative intervention.

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