

# Active or Resolved COVID Infection and Risk of Post-Operative Respiratory Complications in Palatoplasty

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TriNetX



Children's Hospital  
of The King's Daughters

## Introduction

- Respiratory complications are a well-established feature of COVID and are especially less understudied in the pediatric population
- Early research regarding perioperative COVID-19 infection in pediatric procedures and post-operative outcomes showed:
  - Emergent: minimal complications
  - Elective: procedural delays but scarce data regarding outcomes
- Cleft palate + palatoplasty are associated with airway complications and co-morbidities

**Hypothesis:** History of COVID-19 infection increases the risk of post-palatoplasty respiratory complications.

## Methods

TriNetX US Collaborative Network, involving 68 healthcare organizations (age 0-5 yrs)

### Cohort 1:

- Palatoplasty **AND** prior COVID-19 infection

### Cohort 2:

- Palatoplasty

**Primary Outcome** = post-op respiratory complications

- Respiratory failure
- Pulmonary insufficiency
- Ventilator dependence/ICU admission

### Analysis:

Measures of association  
Propensity Score Match

## Data + Results

Table 1. Baseline demographics

	n	Age	M:F (%)
Cohort 1	1,580	0.73 ± 0.8	53 : 47
Cohort 2	3,184	0.66 ± 0.8	52 : 48
P-Value		<0.05	0.83

Table 2. PRIMARY OUTCOMES

	Outcome	Risk
Cohort 1	166	10.5%
Cohort 2	227	7.1%
Risk difference: 3.4% (p< 0.01)		

PSM for  
**Cardiopulmonary  
Abnormalities**

	Outcome	Risk
Cohort 1	65	4.1%
Cohort 2	56	3.5%
Risk difference: 0.6% (p = 0.41)		

PSM for  
**Age**

	Outcome	Risk
Cohort 1	166	10.5%
Cohort 2	128	8.1%
Risk difference: 1.7% (p = 0.97)		

	ICU Ventilation Re-intubation	Risk
Cohort 1	138	8.8%
Cohort 2	118	7.3%
Risk difference: 1.5% (p = 0.19)		

## Conclusion

### 1. Older age as possible protective factor

- If patient has a history of COVID, consider **delaying procedure** until patient is older

### 2. Pre-existing cardiopulmonary conditions are stronger risk factor > COVID

- Additionally, ICU admission > general respiratory outcomes
- If patient has a history of COVID **and** a pre-existing cardiopulmonary abnormality, consider **immediate post-operative ICU admission for monitoring**

## Discussion

### ❖ Limitations + Considerations:

- Unable to manually confirm accuracy of ICD and CPT code assignment
- Unable to determine COVID-19 severity, presentation, or timing of symptoms and testing

### ❖ Continued Research

- Other potential protective +/- risk factors
  - Prematurity, socioeconomic factors, other viral/bacterial infections
- Stratification of abnormalities and degree of impact
  - ASD, VSD, pulmonary hypoplasia
- Single-center/regional analyses via manual retrospective chart review

## References

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