



# Prevalence of Staged versus Single-Stage Operations for Bilateral Cleft Lip Repair: Analysis of a National Database

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## INTRODUCTION

### Background:

- Cleft lip results from impaired embryological fusion of the median nasal and maxillary prominences.<sup>1</sup>
- Bilateral cleft lip deformities present limited tissue available for reconstruction makes it difficult to achieve aesthetic results.
- There is not a currently standardized surgical approach for bilateral cleft lip reparation.<sup>2</sup>

### Aim:

- To analyze the prevalence of staged and single operation approaches to bilateral cleft lip repair, compare the outcomes of each, and propose rationale for the variation in technique seen.

## METHODS

### Study Design

- This is a retrospective observational cohort study using data obtained from TriNetX of pediatric subjects aged 0 to 12 months who were found to have either single-staged or staged operation for bilateral cleft repair.

### Data Collection

- Data consisted of bilateral cleft lip repairs completed between January 1, 2000 and October 9, 2023.

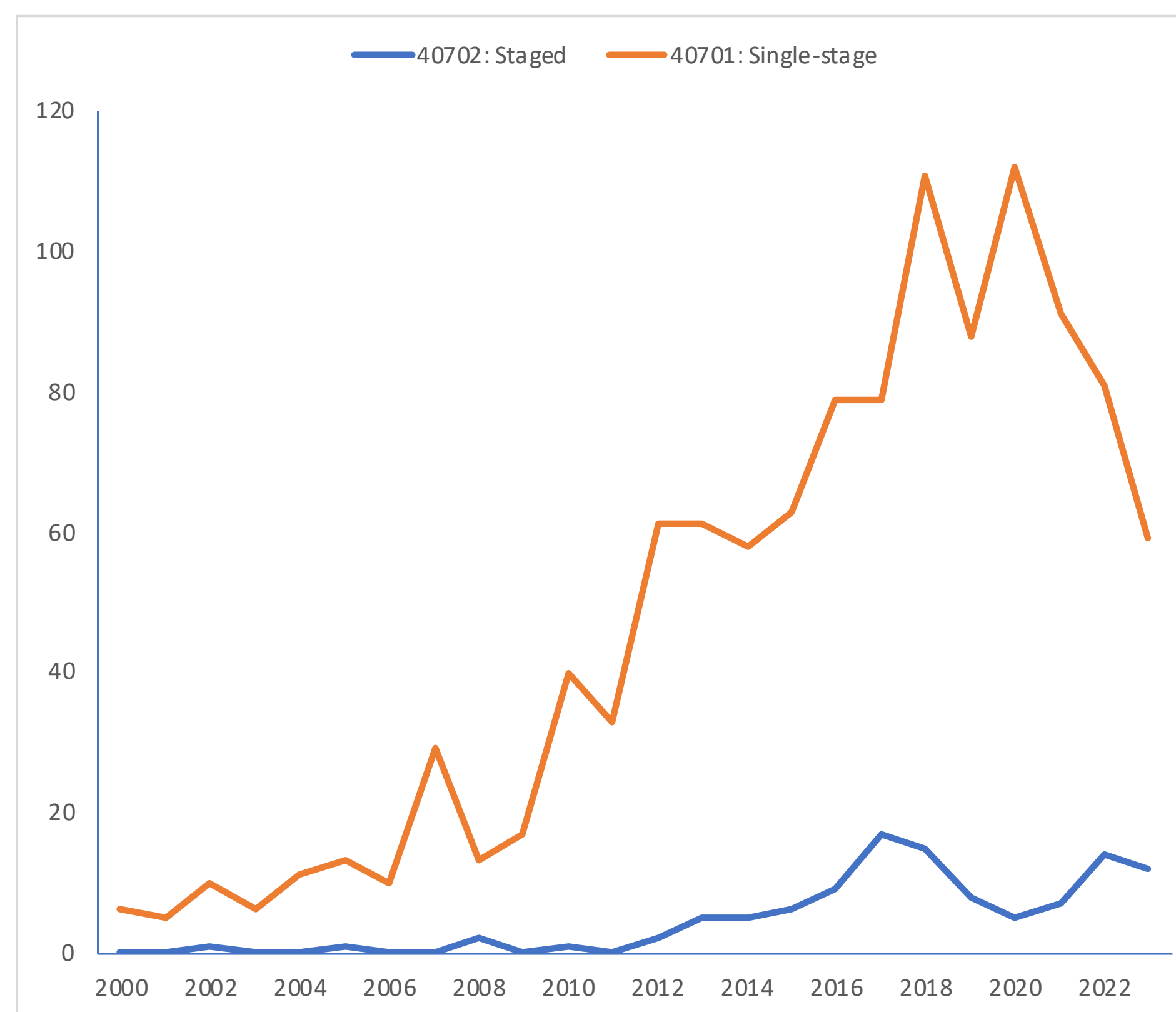
### Statistical Analysis

- Summary statistics of the two groups of interest were completed through Microsoft Excel.
- Linear regression analysis was conducted using GraphPad PRISM Software.

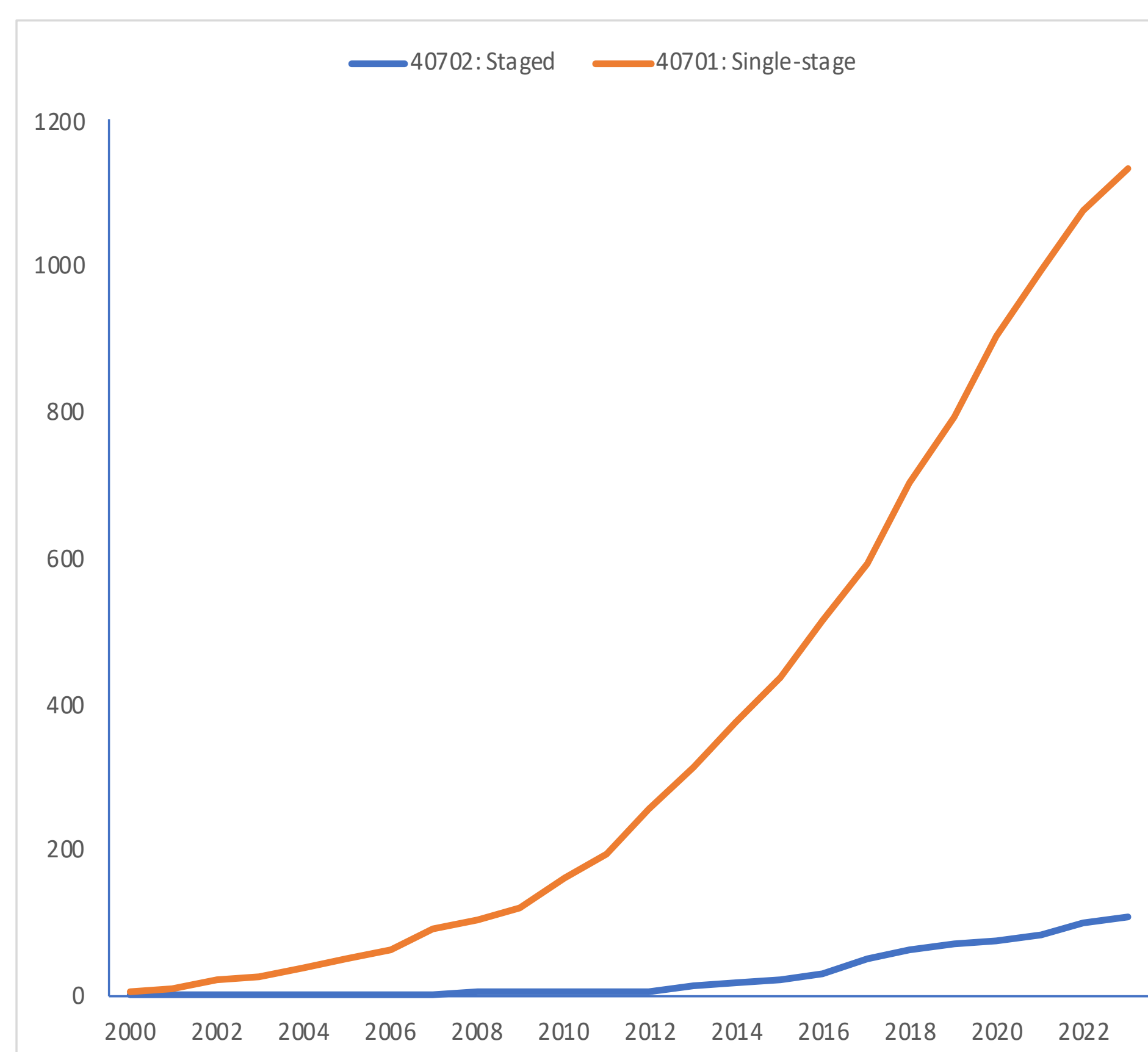
## DISCLOSURES

None.

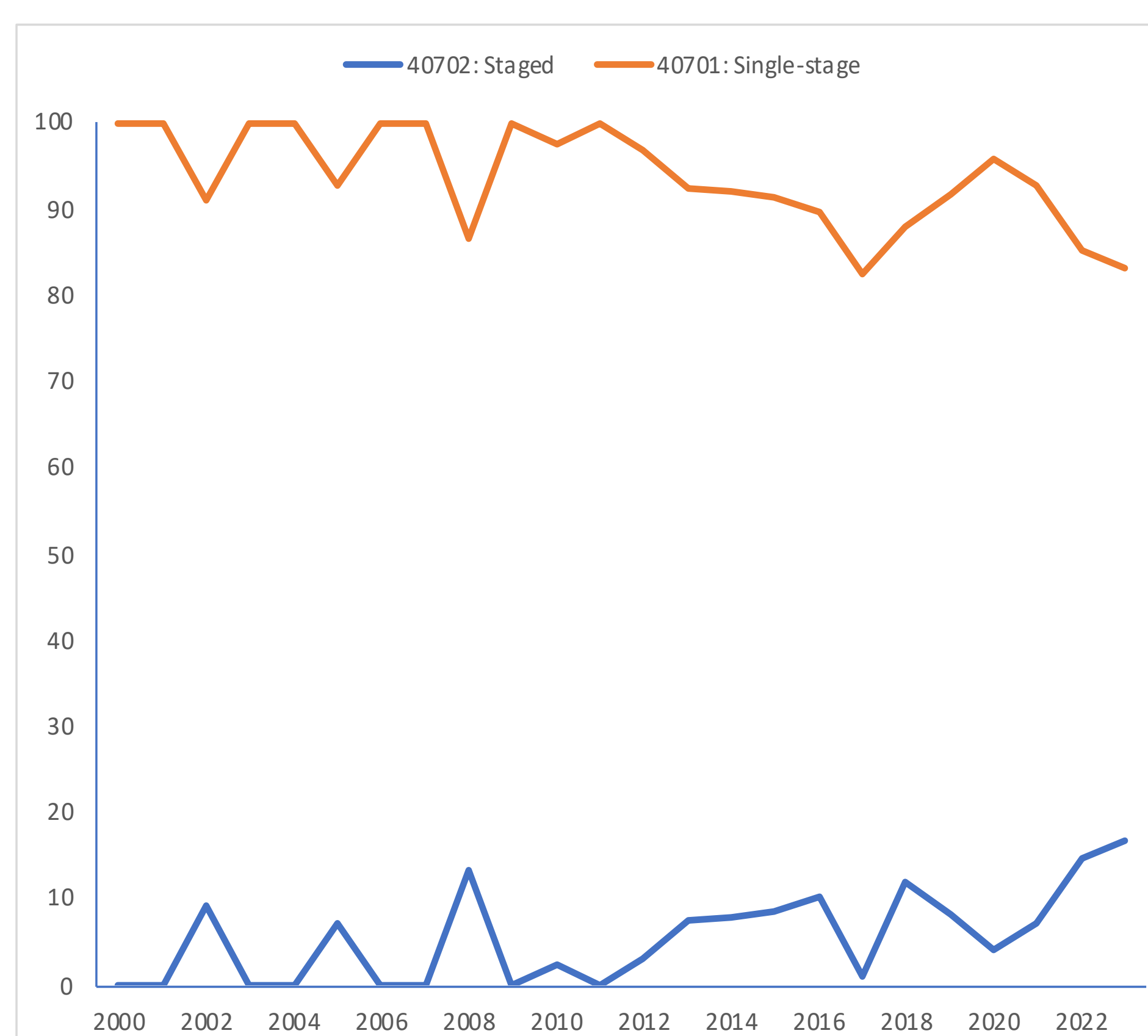
## RESULTS



**Fig. 1** Change in incidence of single-stage vs. staged bilateral cleft lip operations for every year from 2000 to 2023. Single-stage operations increased from six patients in 2000 to 81 in 2022. Staged operations increased from zero patients in 2000 to 14 in 2022.



**Fig. 2** Cumulative prevalence of single-stage vs. staged bilateral cleft lip operations from 2000 to 2023. 1,136 (91%) patients were billed for a single-stage cleft lip repair and 110 (9%) were billed for a staged bilateral cleft lip repair. Single-stage operations accounted for 98% of repairs between 2000 and 2011.



**Fig. 3** Prevalence of single-stage vs. staged bilateral cleft lip operations each year from 2000 to 2023. Single-stage operations decreased from 100% in 2000 to 83% in 2023. Staged operations increased from 0% in 2000 to 17% in 2023

## CONCLUSIONS

### Increasing Incidence of Surgical Operations

- This may be attributed to the introduction of novel surgical techniques.
- Nasoalveolar molding (NAM) reduces the size of the cleft before surgery, allowing for more esthetic results and decreasing scar tissue production in single-stage operations.<sup>3,4</sup>

### Higher Prevalence of Staged Operations

- This is contrary to the positive effects NAM has on reparation.
- Staged operations may be offered to patients with wider clefts and more prominent premaxillae, where there is higher risk of a dehiscence of a cleft lip repair or necrosis of the prolabial segment.<sup>5,6</sup>

## IMPLICATIONS

- It is possible that NAM may not be as effective in patients presenting a wider cleft and more prominent maxillae.
- Future research may look at anatomical presentation, surgeon preference, or patient outcomes to provide insight on the determination between single-stage and staged operation for bilateral cleft lip repair.

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