



Children's Hospital Colorado

Prevalence of Pre-operative Infant Naso-Alveolar Molding for Cleft Lip/Palate & Billing Practices: Analysis of National Database

Anna D. Lee BA BS¹; Molly Murphy BS¹; Catherine Alder BS¹; Jasmine Chaij BA BS¹; Antonio Porras PhD¹; Jason Yu DMD MD¹; Brooke French MD¹; Kristen Lowe DDS¹; Phuong D Nguyen MD¹; David Mathes MD¹; David Khechoyan MD¹

¹ Children's Hospital Colorado, Department of Pediatric Plastic Surgery

Affiliated with University of Colorado Anschutz Medical Campus

BACKGROUND

- Naso-alveolar molding (NAM) is a pre-operative adjunctive neonatal therapy for cleft lip and palate offered by 39% of all US cleft treatment teams
- The goals of NAM are to minimize the width of the cleft and improve nasal aesthetics before primary cleft lip repair to improve surgical outcomes
- Previous literature from a three-center study reported 47% of cleft patients receiving NAM device

PURPOSE

- Determine the national prevalence of pre-operative NAM and examine the heterogeneity of NAM billing practices

METHODS

- Retrospective study using TriNetX, a national deidentified aggregate database (110+ million patients, 80 healthcare organizations)
- Patients were identified through Current Procedural Terminology (CPT) and Current Dental Terminology (D) codes
- Inclusion criteria: patients under 12 months of age who underwent unilateral (CPT: 40700) or bilateral (CPT: 40701, 40702) cleft lip repair from Jan 1, 2000 to Nov 3, 2023
- NAM (CPT-21079, CPT-21080, D-5931, D-5932, D-5936) patients were categorized by the year of their initial cleft lip repair
- Logarithmic interpolation analysis and descriptive analysis was performed using PRISM and TriNetX

RESULTS

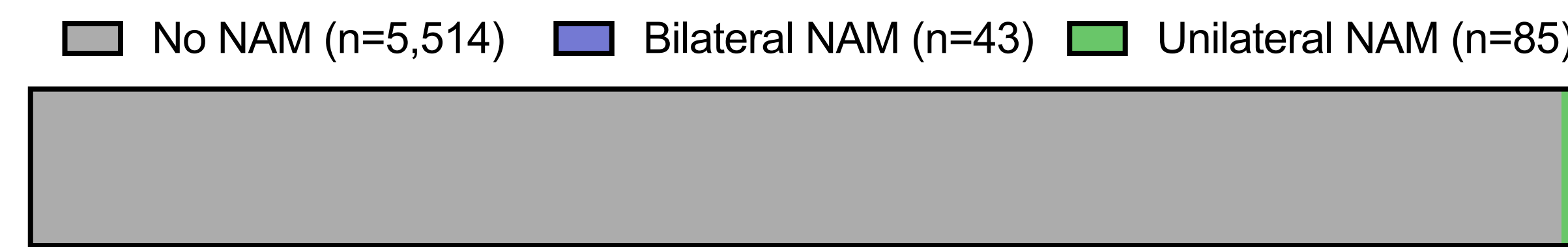


Figure 1. Patient population of interest.

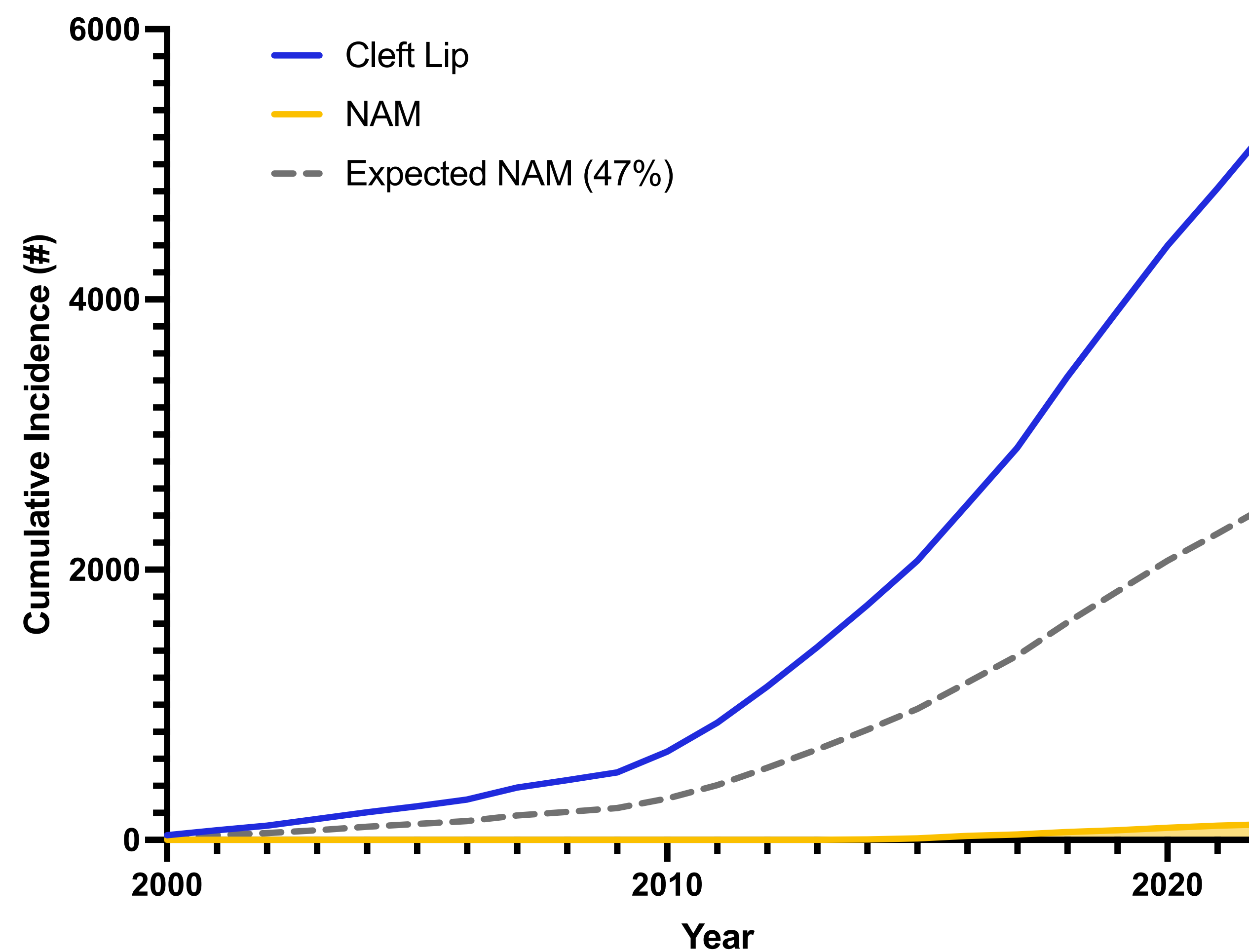


Figure 2. Cumulative incidence of patients undergoing cleft lip repair and NAM device.

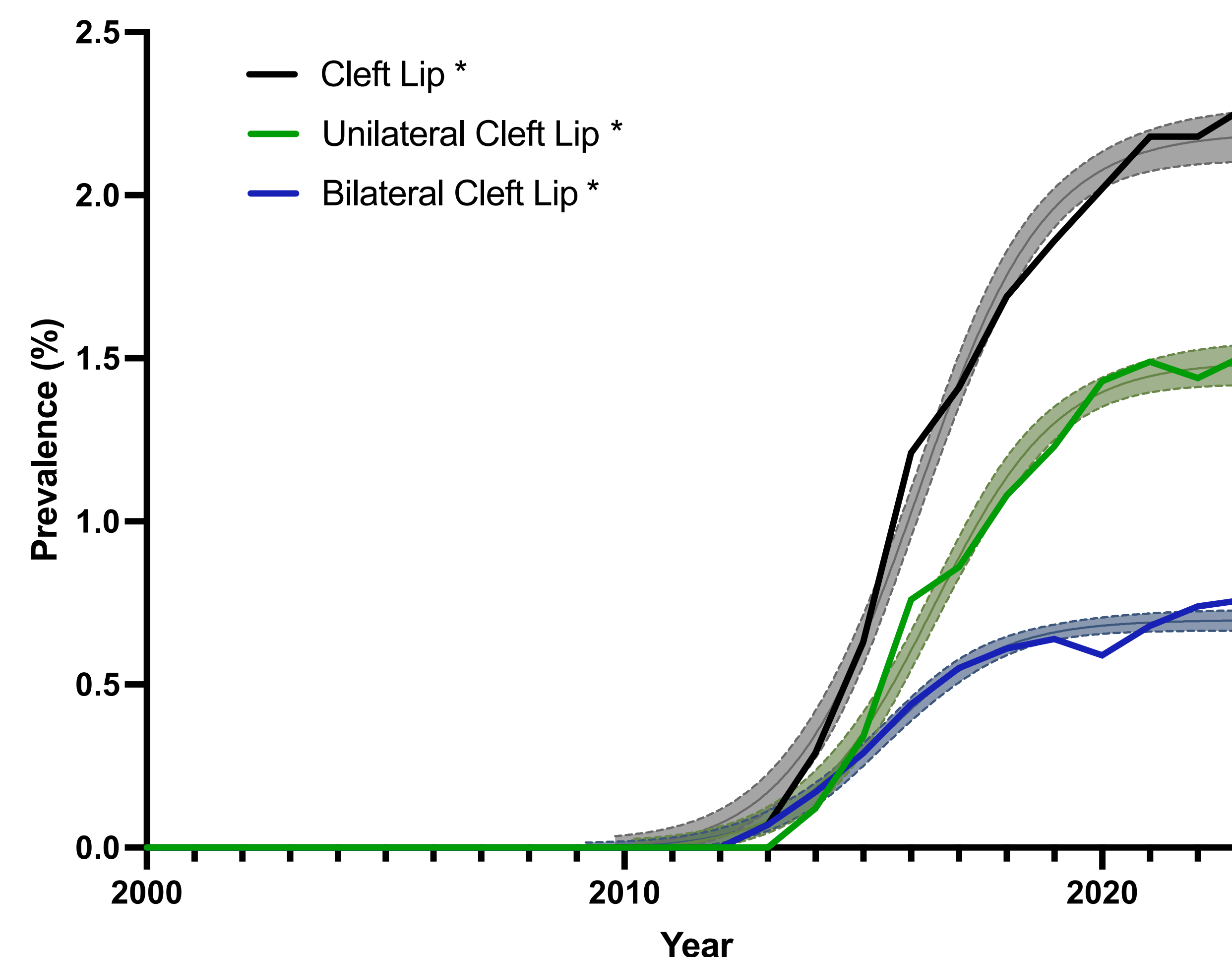


Figure 3. Prevalence of patients undergoing NAM device. * indicated p < 0.05 for logarithmic interpolation analysis

CONCLUSIONS

- This study found only 2.3% of all identified cleft lip/palate patients have been billed with pre-operative NAM based on established medical or dental billing codes, which is significantly lower than expected if 39% of US cleft teams offer this treatment
- This suggests possible inconsistencies in billing practices existing among NAM providers or incomplete capture of patients who paid out-of-pocket

IMPLICATIONS

- Understanding NAM billing practices is crucial for improving reimbursement rates and increasing patient access to this service
- This research may provide providers the data to advocate for more homogenous NAM billing to improve reimbursement rates and patient accessibility

REFERENCES

- Barillas I, Dec W, Warren SM, Cutting CB, Grayson BH. Nasoalveolar Molding Improves Long-Term Nasal Symmetry in Complete Unilateral Cleft Lip-Cleft Palate Patients. *Plastic and Reconstructive Surgery*. 2009;123:1002-1006.
- Berkowitz S. Gingivoperiosteoplasty as Well as Early Palatal Cleft Closure Is Unproductive. *Journal of Craniofacial Surgery*. 2009;20:1747-1758.
- Bradbury ET, Hewison J. Early Parental Adjustment to Visible Congenital Disfigurement. *Child Care and Health Development*. 1994;20:251-266.
- Sischo L, Chan JW, Stein M, Smith C, van Aalst J, Broder HL. Nasoalveolar molding: prevalence of cleft centers offering NAM and who seeks it. *Cleft Palate Craniofacial Journal*. 2012 May;49(3):270-5.

DISCLOSURES

No conflicts to disclose

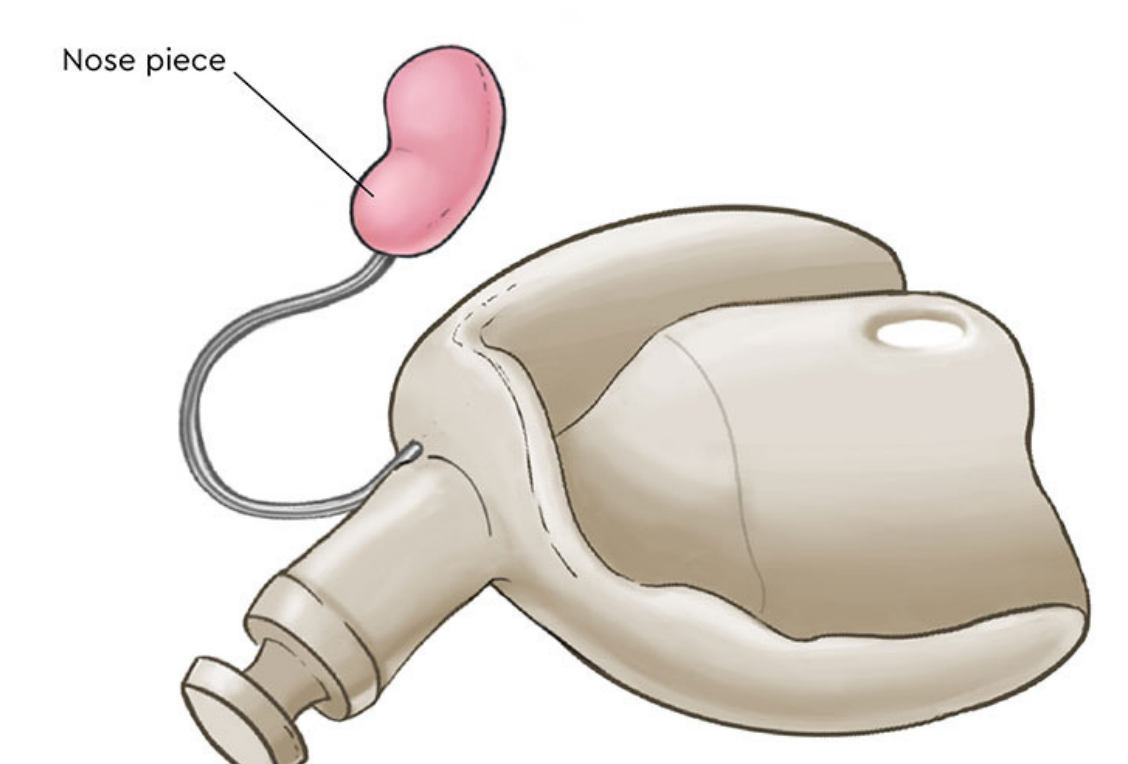


Figure courtesy of Children's Hospital Colorado