



The Lifecycle of Orofacial Cleft Operations

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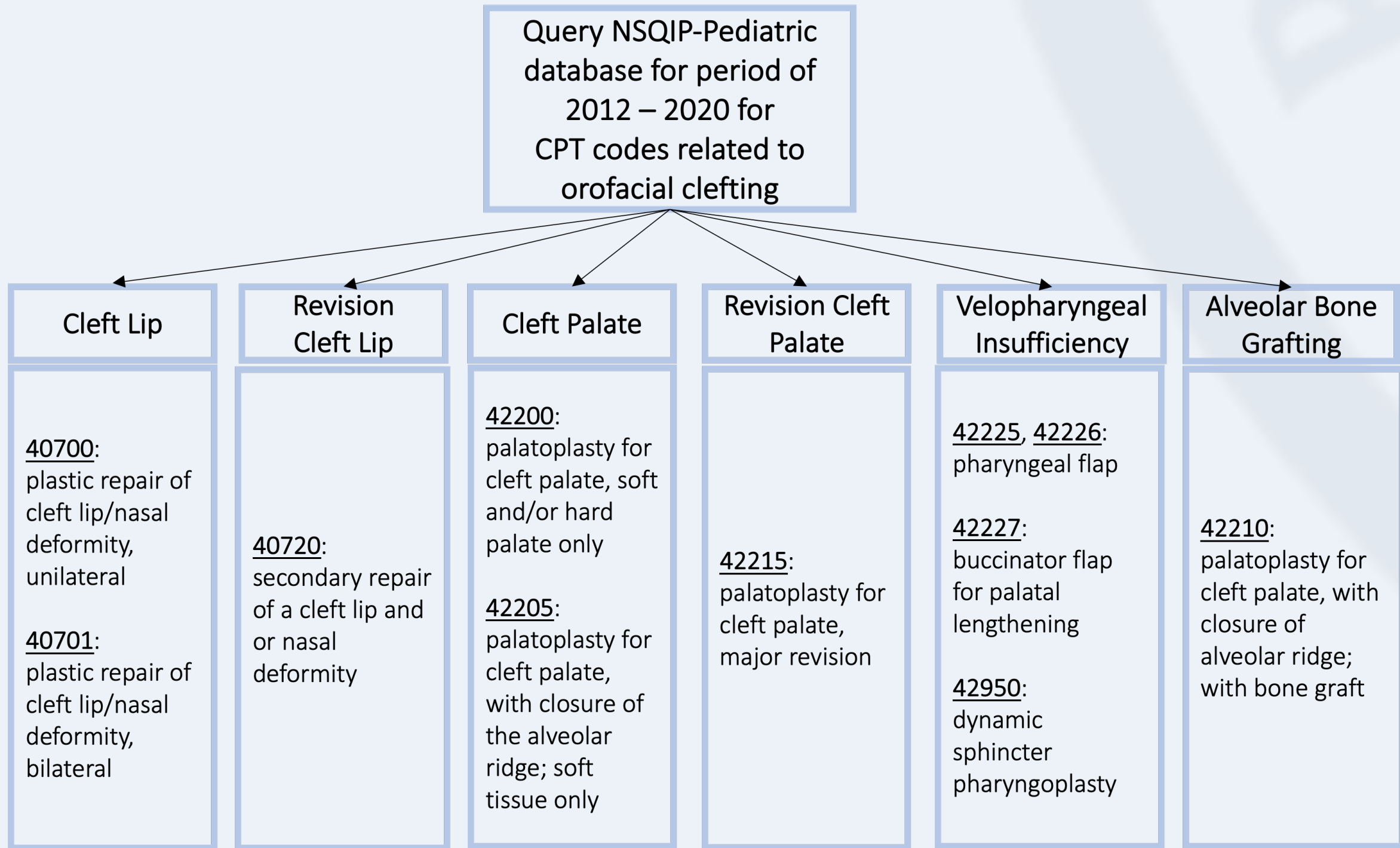
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Introduction

- Newborns with orofacial clefts are often treated at cleft/craniofacial centers where they receive the full continuum of care from a multidisciplinary team including plastic surgeons, otolaryngologists, speech language pathologists, pediatric dentists, and other specialists.
- The timeline of orofacial cleft care is well described in the literature. It frequently starts with cleft lip repair from the ages of 0 to 6 months.¹
- Newborns with a concomitant cleft palate deformity will undergo palatoplasty between 9 to 18 months of age.¹
- Following these repairs, speech assessment may reveal hypernasality due to velopharyngeal insufficiency (VPI). Procedures addressing VPI are commonly performed at 4 to 6 years.
- Finally, alveolar bone grafting, which aims to repair a defect in the alveolar process of the maxilla that often accompanies CLP, is performed between 6 to 12 years.¹
- While these advised guidelines for the timing of cleft procedures are well-known, it has not yet been described if national surgical practice reflects these recommendations.
- Purpose:** To characterize the trends in the timing of six common cleft procedures, to provide a better understanding of how contemporary surgical practice models advised guidelines. We hypothesize that the timing of orofacial operations and reoperations will cluster reliably in discrete time intervals.

Methods



Results

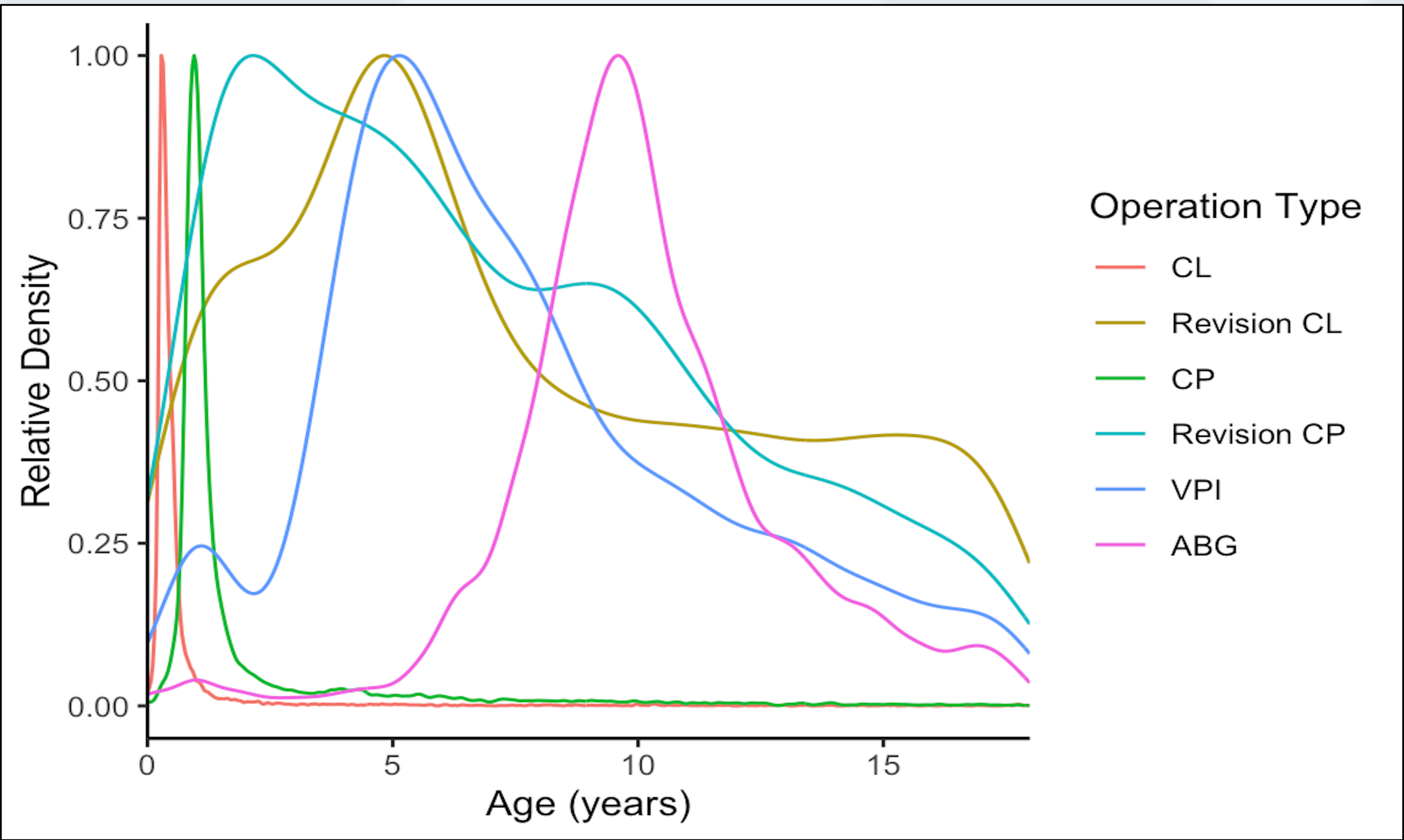


Figure 1. The Timing of Orofacial Operations for CLP Patients.

Abbreviations: CL, Cleft Lip Repair. CP, Cleft Palate Repair. VPI, Velopharyngeal Insufficiency Procedure. ABG, Alveolar Bone Grafting

Surgical Intervention	N	Age*	IQR	Advised Timing ¹	
				Age	%
Cleft Lip Repair	9374	200.99 (251.12) days	105.00 – 192.00 days	0 – 180 days	69.0
Cleft Palate Repair	13735	655.08 (694.43) days	325.00 – 561.00 days	270 – 540 days	65.1
Cleft Lip Revision	2850	7.73 (5.02) years	3.91 – 11.82 years	N/A	N/A
Cleft Palate Revision	1641	7.00 (4.63) years	3.04 – 10.16 years	N/A	N/A
VPI indication	153	8.41 (4.15) years	4.76-11.47 years	4 – 6 years	20.9
Other indication	1488	6.85 (4.65) years	2.81-10.11 years	N/A	N/A
VPI Procedures*	3026	7.58 (3.98) years	4.77 – 9.95 years	4 – 6 years	27.7
Alveolar Bone Grafting	5481	10.23 (2.63) years	8.68 – 11.50 years	6 – 12 years	75.8

Table 1. The Age at Operation of Common Surgical Interventions in patients with CLP

*indicates Z-score outlier exclusion (absolute Z score greater than or equal to 3.29 were excluded)

Conclusions

- Timely surgical intervention for patients with cleft lip and/or palate is critically important to achieve optimal functional, aesthetic, and psychosocial outcomes
- Our findings demonstrate that most lip and palate repairs cluster reliably around their advised age periods. However, their average ages at time of operation were delayed when compared to recommended timing.
- Alveolar bone grafting took place primarily within the advised age guidelines, with the mean age also falling within this time period.
- Only VPI procedures were found to happen predominantly after the recommended timing guidelines.
- Palatoplasty occurred at a mean age of 21.48±22.77 months, with 65.1% of procedures occurring within the advised age period. This mean age falls past the later end of recommended timing, which is between 9 to 18 months, and is also delayed when compared to major cleft centers. This delay in timing may be attributed to less protocol driven care in community settings, delay in referrals, and/or international adoption
- VPI procedures had the least number of patients undergoing their procedures within the recommended timeline, at 20.9% and 27.7% for CP re-repair and VPI procedures, respectively. This may be largely attributable to a failure to obtain a valid speech assessment at these earlier ages, which is a necessary indication for surgical intervention.
- These findings highlight the importance of early referral to ACPA accredited teams at multi-disciplinary centers.

References

- Kirschner RE, LaRossa D. Cleft lip and palate. *Otolaryngol Clin North Am.* Dec 2000;33(6):1191-215, v-vi. doi:10.1016/s0030-6665(05)70277-2

Acknowledgments

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