

## Introduction

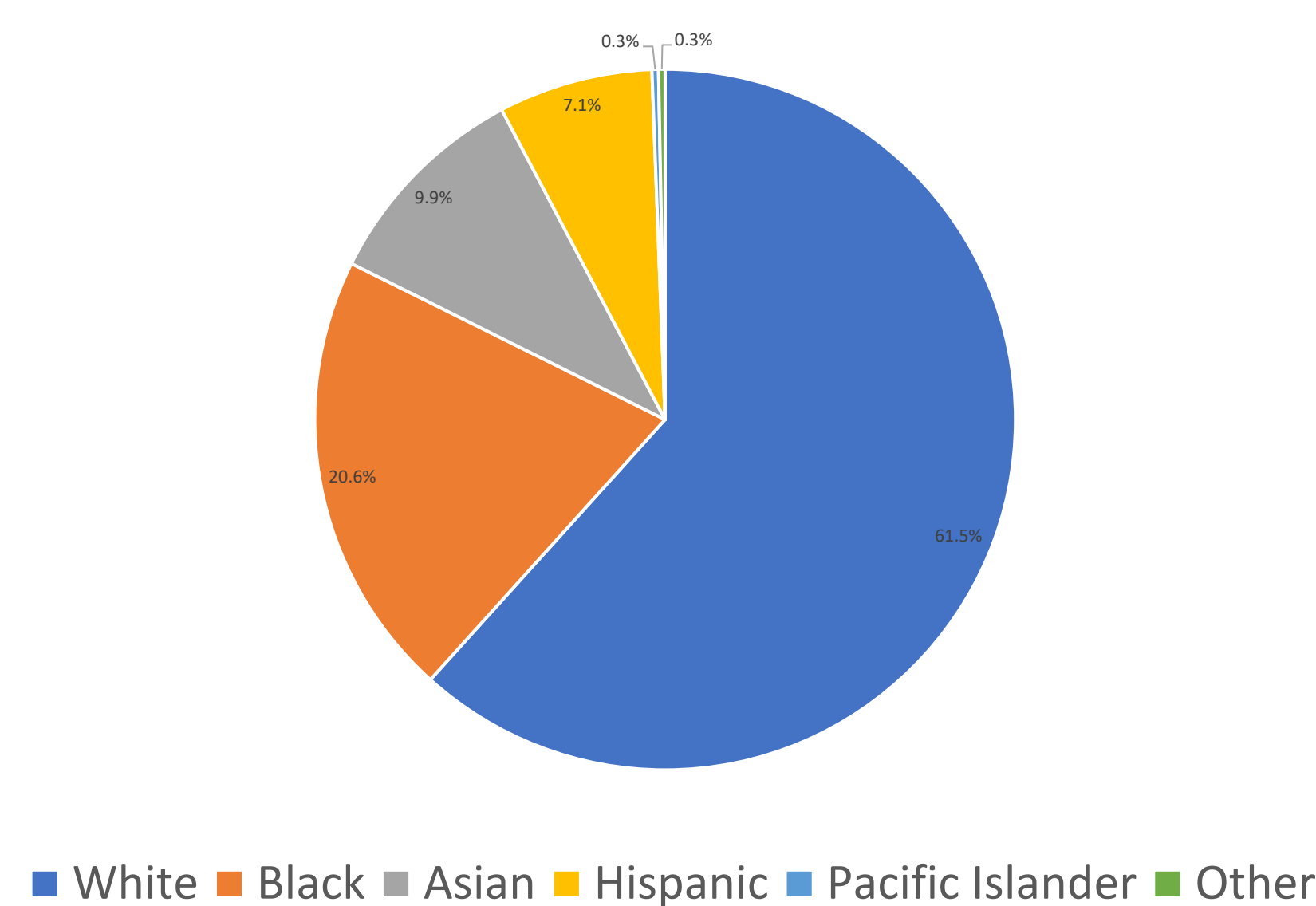
- Youth with craniofacial conditions are at risk for psychosocial difficulties, including learning issues, anxiety, and social stigmatization (Kapp-Simon, 2017; Bous et al., 2020). Select studies have documented psychosocial challenges among parents and caregivers of affected youth (Habersaat et al., 2018).
- Use of a validated psychosocial risk screening instrument during team visits can improve risk identification and increase access to psychosocial consultation (Crerand et al., 2022).
- The Psychosocial Assessment Tool–Craniofacial Version (PAT–CV) assesses risk across multiple domains (e.g., social support, craniofacial-specific problems, & resources) (Crerand et al., 2022).
  - Patients may fall into 3 risk categories—universal, targeted, or clinical.
- A QI project was initiated to pilot administration of the PAT-CV in a grant-funded, interdisciplinary craniofacial clinic.

## Methods

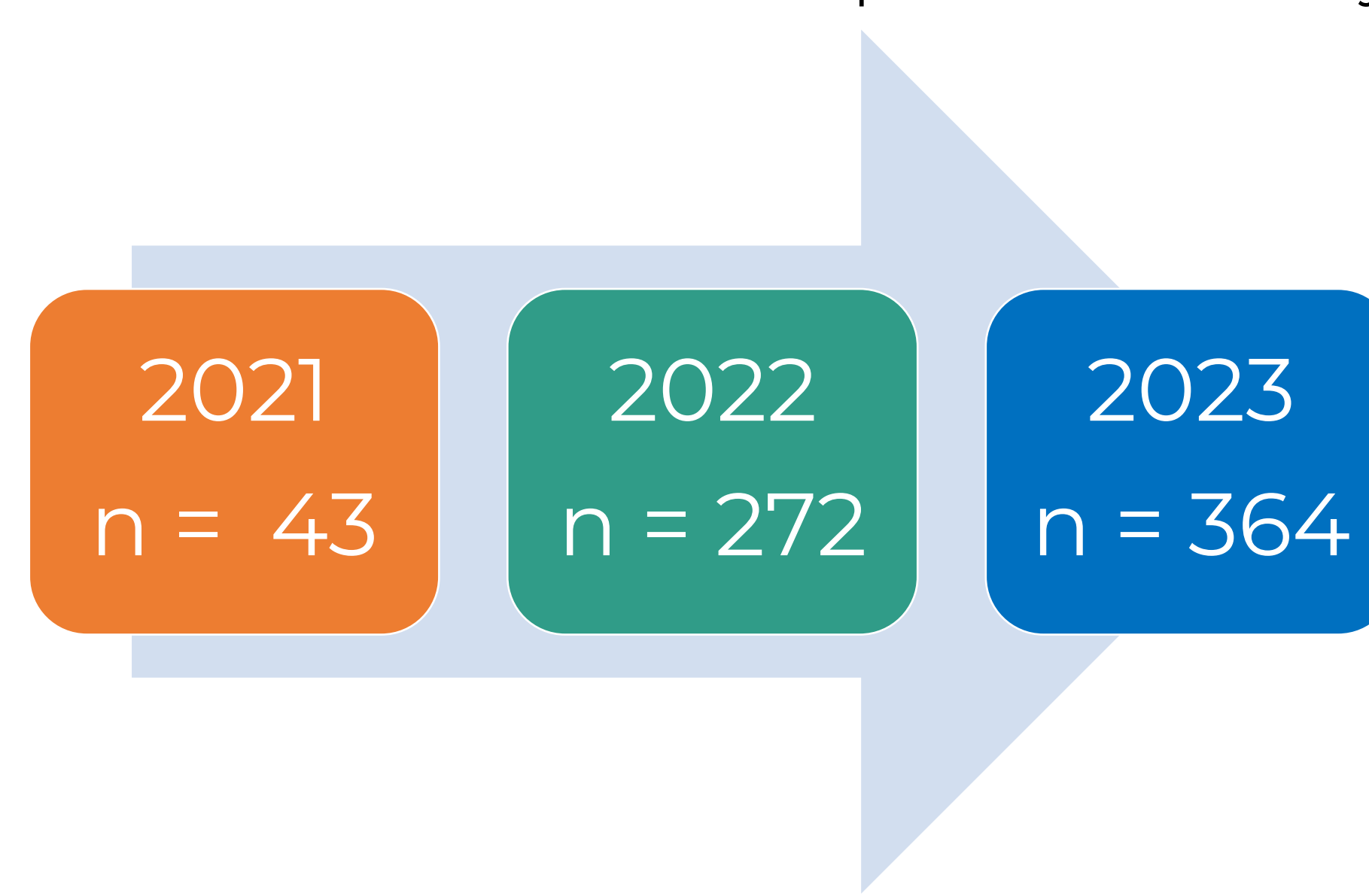
- Parents of patients 18 and younger were administered the paper version of the PAT–CV.
- Changes were made to PAT–CV processes, including:
  - Administration in 100% of clinics (versus 50%)
  - Introduction of the PAT–CV at check-in with script
  - Implementation of phone calls between 3-6 months after completion by the clinic social worker to ensure access to recommended services and supports

## Results

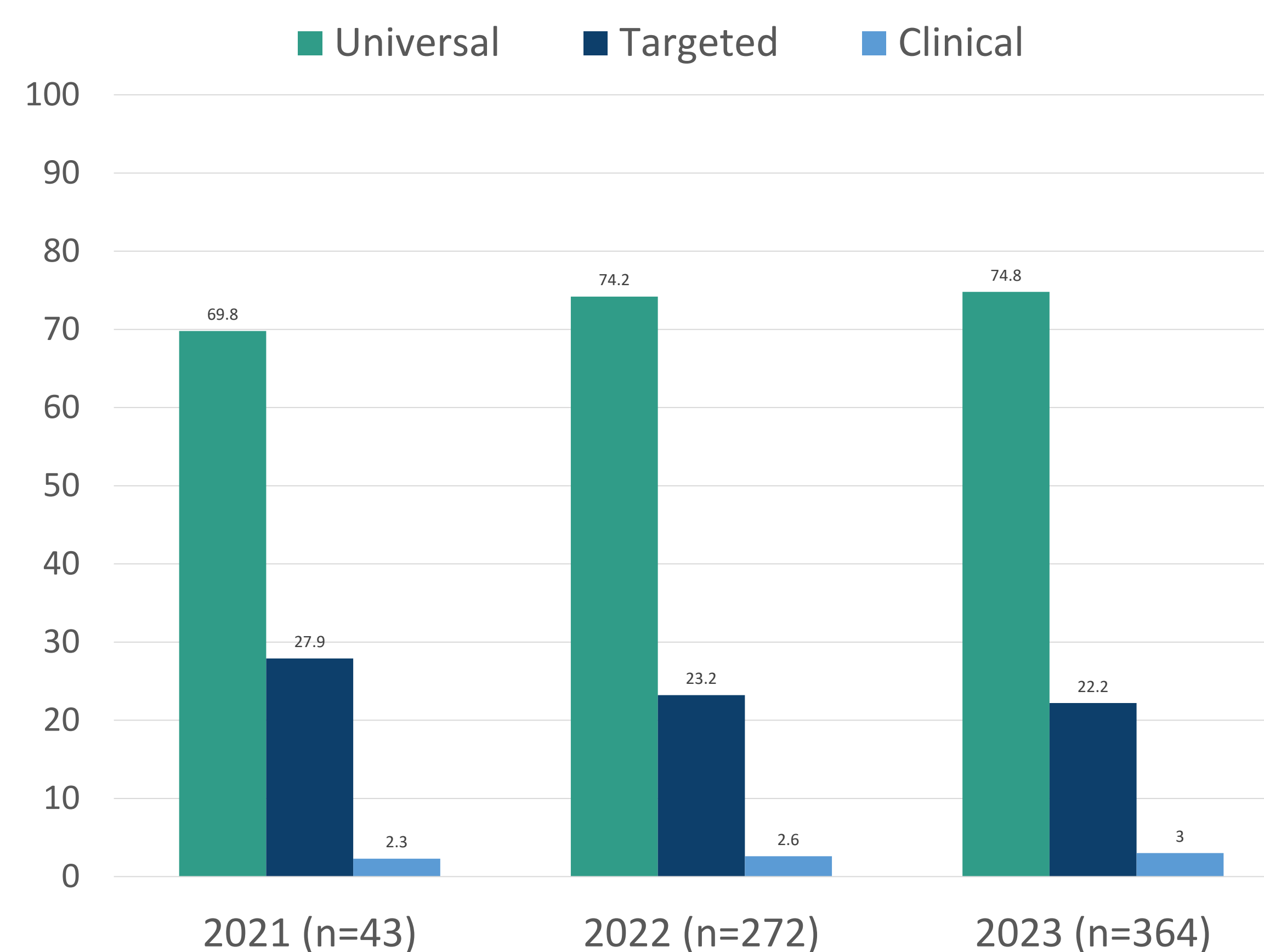
Patient Demographics



Number of families with completed PAT–CV by year



Percent of Patients per Risk Category by Year



- Data collection began in 2020; however, these data (n = 45) are excluded from comparison because of the onset of the COVID-19 pandemic.
- Youth demographics (as reported by parents):
  - 52.4% male
  - 42.4% combined cleft lip and cleft palate
- Between 2021 and 2023, percent of families that fell in the targeted or clinical risk categories ranged from 25.2% to 30.2%.

## Conclusion

- Percent of patients in the targeted and clinical risk categories (> 25%) highlights the importance of psychosocial risk assessment in the cleft and craniofacial populations.
- Collaboration among multiple team members is required to administer screening measures in a fast-paced clinic setting.
- Personalized follow-up via phone calls can potentially help reduce barriers to accessing care and increase likelihood of receiving psychosocial services.
- Next steps:
  - Determine success of connecting with families via follow-up phone calls (% families reached).
  - Examine rates of referral for mental health and neurodevelopmental assessment services (e.g., outpatient psychotherapy, psychiatric medication management, neuropsychological testing).
  - Electronic administration of the PAT–CV to help reduce staff burden.

# Barriers to obtaining orthodontic care for patients with orofacial clefts: A Pediatric Health Information System (PHIS) Database Study



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## Introduction

- Orofacial clefting (OFC) is a common birth defect, with healthcare costs 6-10 times higher than for unaffected children.
- Patients need long-term interdisciplinary care, at minimum including surgery, speech-language pathology, and orthodontics.
- Significant financial and non-financial barriers exist, especially for minorities and those with government-based insurance.
- The Affordable Care Act (ACA, 2010) aimed to expand Medicaid access, but state variations and optional expansion have limited their effectiveness. Currently, 40 states have chosen to expand.
- Separately, 32 states have mandates to provide care for at-risk children, with 18 states specifically targeting OFC and craniofacial disorders.
- Florida's non-Medicaid expansion status poses additional challenges despite state mandates guaranteeing OFC care.

## Objectives

- To assess barriers to OFC care in Florida and nationally, using the age of alveolar bone grafting (ABG) as a marker.

## Materials and Methods

- Database:** Pediatric Health Information System (PHIS), queried using ICD 9/10 codes for patients <18 years with cleft palate who underwent ABG.
- Data Range:** 2010-2019 (pre-COVID-19 data).
- Variables:**
  - Age at ABG.
  - Medicaid expansion status and implementation date by state
  - Funding source: government, private, or other insurance.
- Statistical Analysis:**
  - Software: Microsoft Excel for descriptive analysis, SAS for statistical analysis.
  - Tests Used: Mann-Whitney U, Kruskal Wallis, Dwass-Steel-Critchlow-Fligner test, and Bonferroni adjustment.
  - Significance Level:  $p < 0.05$ .
  - Multivariate Analysis: Linear regression with race and ethnicity as covariates.

## Results

Figure 1: Medicaid Expansion Implementation by State

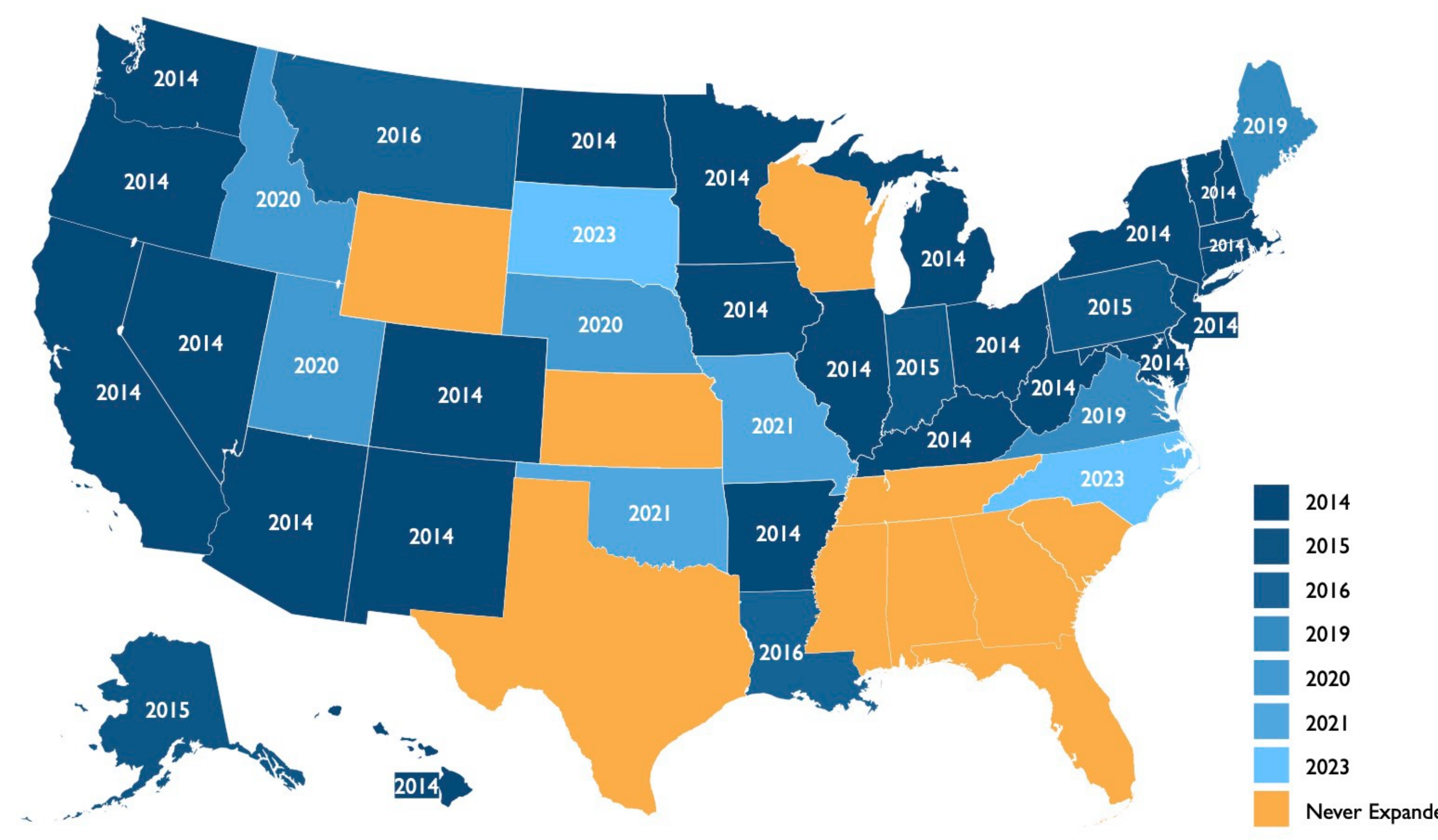


Figure 2: Patient Demographics and ABG Age

	n (%)	Age of ABG (SD) (years)	p-value*
Total Patients	1182 (100)	10.3 (±3.2)	
Gender			0.243
Male	670 (57)	10.3 (±3.0)	
Female	512 (43)	10.3 (±3.4)	
Race			0.070
White	673 (57)	10.4 (±3.4)	
Asian/Pacific Islander	228 (19)	9.8 (±2.7)	
Other	166 (14)	10.3 (±2.7)	
Black	60 (5)	10.8 (±3.8)	
Unknown	41 (3)	10.8 (±3.1)	
American Indian	8 (1)	9.2 (±1.4)	
Ethnicity			<.001
Not Hispanic or Latino	866 (73)	10.2 (±3.1)	
Hispanic or Latino	196 (17)	10.8 (±3.2)	
Unknown	120 (10)	9.9 (±3.8)	
Source of Payment			0.005
Government Funding	441 (37)	10.6 (±3.3)	
Private Funding	661 (56)	10.1 (±3.2)	
Other Funding	80 (7)	10.6 (±3.0)	
Florida, Source of Payment			
Government Funding	32 (100)	10.8 (±4.0)	
Private Funding	16 (50)	11.6 (±4.5)	
Other Funding	12 (38)	10.1 (±3.1)	

Group	Type of payment	n (%)	Age of ABG (SD)
Government	In-State Medicaid (managed care)	223 (19)	10.5 (±3.1)
	In-State Medicaid (other)	132 (11)	8.6 (±3.7)
	Out-of-State Medicaid (all)	41 (3)	10.1 (±2.4)
	Other Government	28 (2)	10.5 (±3.2)
	Medicare	3 (0)	10.7 (±1.0)
Private	CHIP	14 (1)	13.3 (±3.9)
	Commercial PPO	267 (23)	9.6 (±2.8)
	Commercial Other	220 (19)	10.5 (±3.3)
	Commercial HMO	174 (15)	10.0 (±3.4)
Other	TRICARE	37 (3)	10.0 (±2.5)
	Unknown	21 (2)	11.3 (±3.4)
	Other Payor	16 (1)	11.2 (±3.3)
	Self Pay	5 (0)	10.8 (±2.1)
Charity	1 (0)	6.8 (±0.0)	

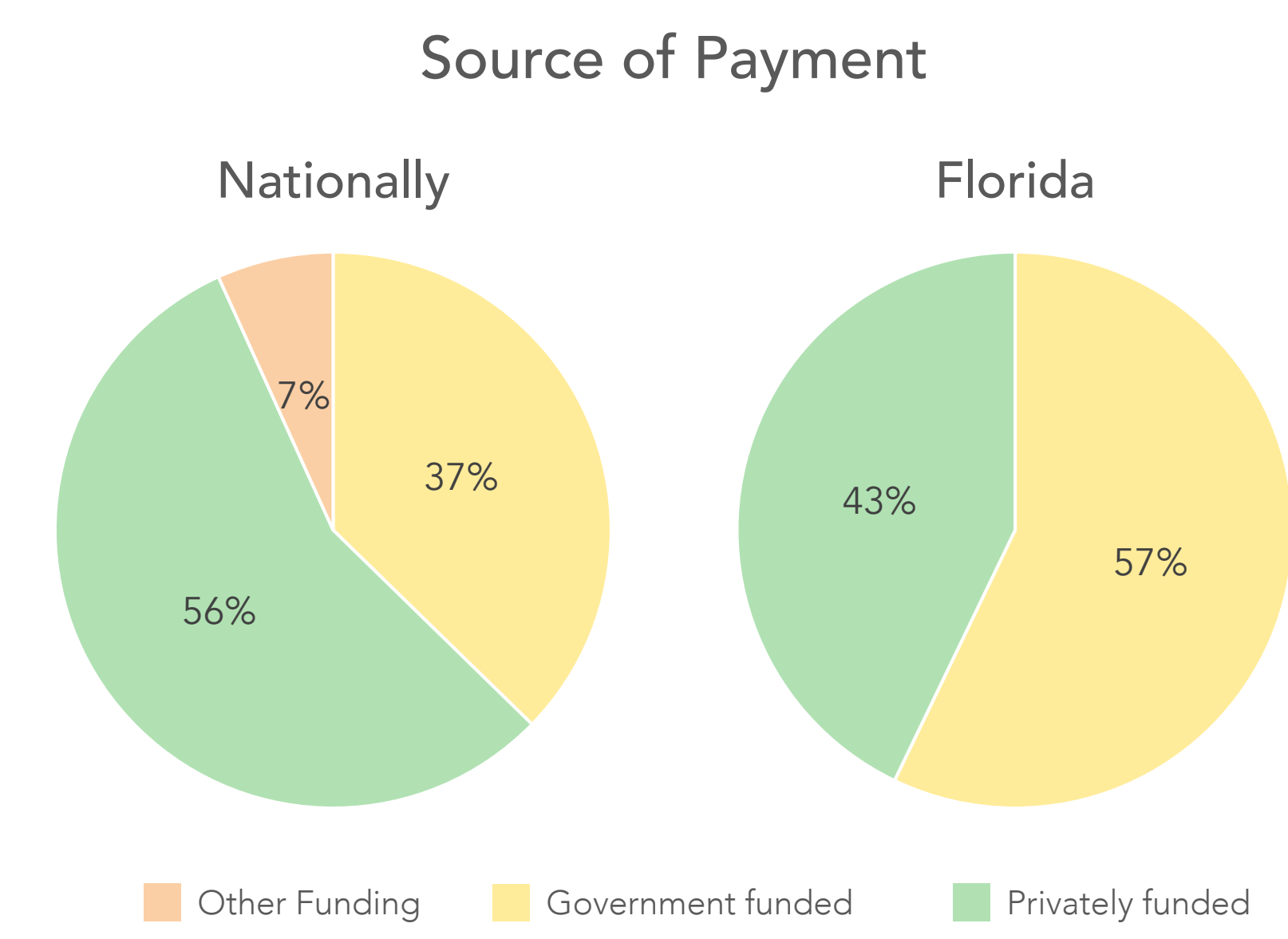


Figure 3: ABG Age by Medicaid Expansion Status and Source of Funding

	Total		Government Funding		Private Funding	
	n (%)	Age (SD)	n (%)	Age (SD)	n (%)	Age (SD)
Total Patients	1102 (100)		441 (100)		661 (100)	
ABG in a non-expansion state	283 (26)	10.7 (±3.1)	140 (32)	11.0 (±3.2)	143 (22)	10.3 (±3.0)
ABG in an expansion state	819 (74)	10.2 (±3.2)	301 (68)	10.4 (±3.3)	518 (78)	10.0 (±3.2)
Pre-expansion*	354 (43)	9.9 (±3.4)	121 (40)	9.8 (±3.1)	233 (45)	9.8 (±3.6)
Post-expansion*	465 (57)	10.4 (±3.1)	180 (60)	10.8 (±3.4)	285 (55)	10.1 (±2.9)

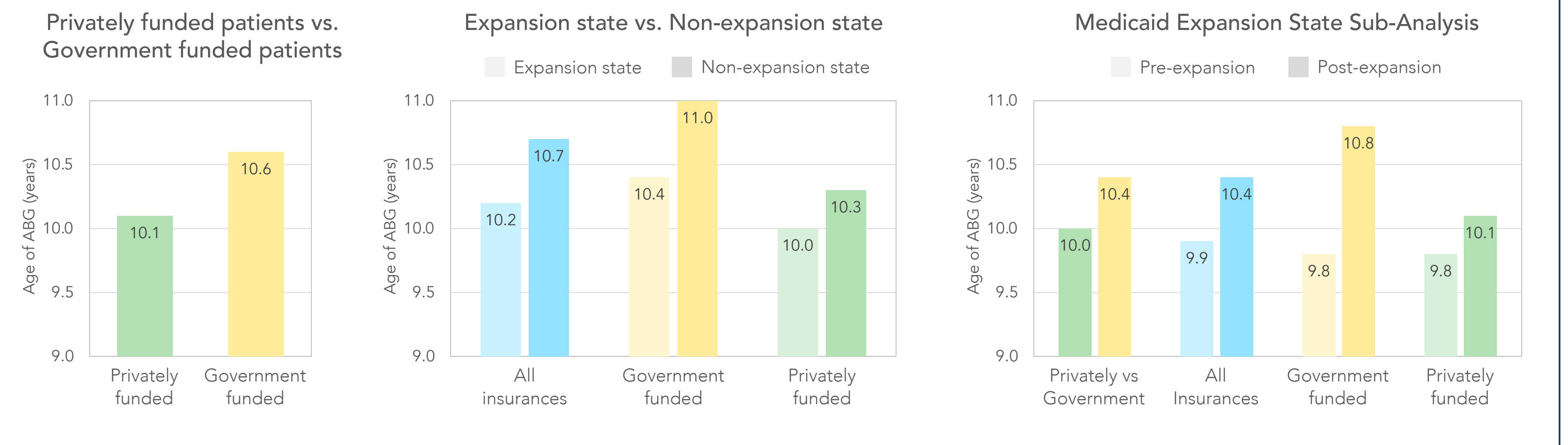
  

A. Privately funded patients vs. B. Government funded patients	n	Age of ABG (years)		Difference (months)	p-value	
		A vs. B	univariate†		multivariate‡	
A. Expansion state vs. B. Non-expansion state						
All insurances	1102	10.2 vs. 10.7	6.0	0.003	0.023	
Government funded patients only	441	10.4 vs. 11.0	7.2	0.045	0.109	
Privately funded patients only	661	10.0 vs. 10.3	3.6	0.078	0.188	

A. Privately funded patients vs. B. Government funded patients	n	Age of ABG (years)	Difference (months)	p-value
A. Pre vs. B. Post-expansion, all insurances	819	9.9 vs. 10.4	6.0	0.002
A. Pre vs. B. Post-expansion, government funded patients only	301	9.8 vs. 10.8	12.0	0.008
A. Pre vs. B. Post-expansion, privately funded patients only	518	9.8 vs. 10.1	3.6	0.025

ABG, Alveolar Bone Graft; SD, Standard Deviation  
\*Pre-expansion and post-expansion sub-categories expressed as percentage of expansion state category  
†Mann-Whitney U tests used for univariate analysis  
‡Linear regression model with Race and Ethnicity as covariates used for multivariate analysis



## Conclusion

- Patients with OFC face significant barriers to oral care despite federal and state interventions.
- Medicaid expansion is linked to later ages of ABG; however, it is important to consider in the broader context of expanding healthcare access
- Expanded coverage improves preventive care, timely diagnosis, and comprehensive OFC management and long-term benefits cannot be underestimated
- Florida shows that even with mandates, limited resources impede care delivery, reflecting common challenges in other states.

# Publication Trends and Surgeon Perceptions: A Comprehensive Analysis of Gender Disparities in Craniofacial Surgery

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## Introduction

- Women consistently face underrepresentation in various aspects of craniofacial surgery, including the number of surgeons, faculty positions, leadership roles, and conference representation.
- Academic productivity (often measured via publication records), is a critical for career advancement and previous studies have shown female plastic surgeons consistently have fewer publications.
- Recent years have seen significant progress in DEI within medicine, surgery as a whole, and the plastic surgery, emphasizing the need for frequent and comprehensive updates in research to capture the changing landscape.
- While disparities exist, younger cohorts in craniofacial surgery show a more equitable distribution of leadership roles, signaling some advancements in DEI.

## Objectives

- Examine the academic productivity, gauged by publication counts, of academic craniofacial surgeons in 2022. This will create a baseline to measure the impact of ongoing DEI initiatives.
- Directly assess craniofacial surgeons' perception concerning DEI, barriers obstructing progress, and suggestions for improvement.

## Materials and Methods

- A dataset of 193 craniofacial surgeons and fellows in the United States and Canada were compiled using the websites of accredited plastic surgery training programs.
- Data collected for each surgeon included gender, total publications, first-author publications, senior-author publications in 2022, and fellow or program director status.
- A 19-question survey was distributed to craniomaxillofacial surgeons through ACPA's list service.
- The survey collected data on participants' demographics, practice details, leadership roles, and research funding sources.
- Optional free-response questions explored participants' perceptions of Diversity, Equity, and Inclusion in craniofacial surgery and their suggestions for improvement.

## Results

Figure 1: Demographics and Publication Trends of Craniofacial Surgeons in 2022

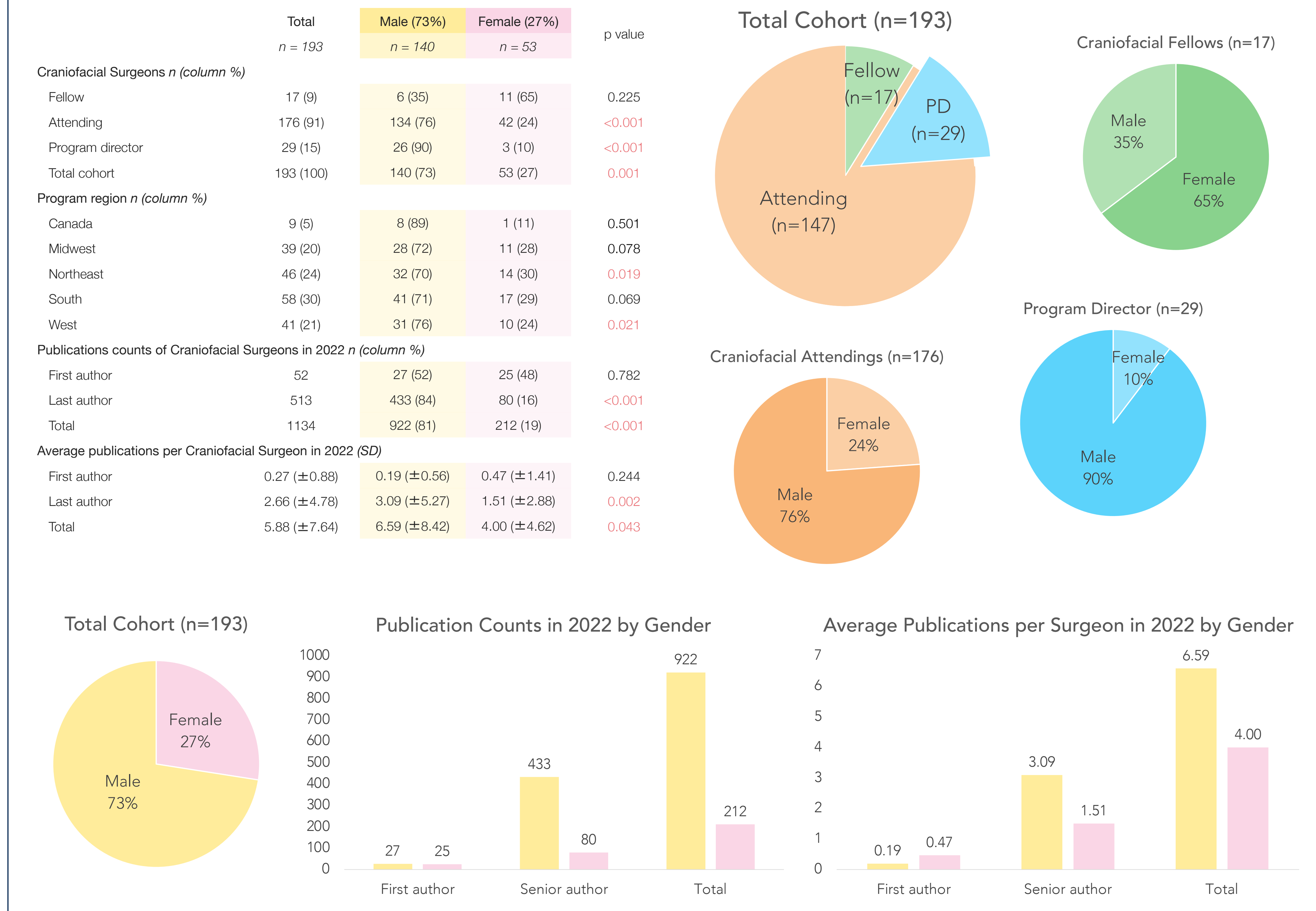


Figure 2: Academic Experience, Leadership, and Research Among Survey Respondents

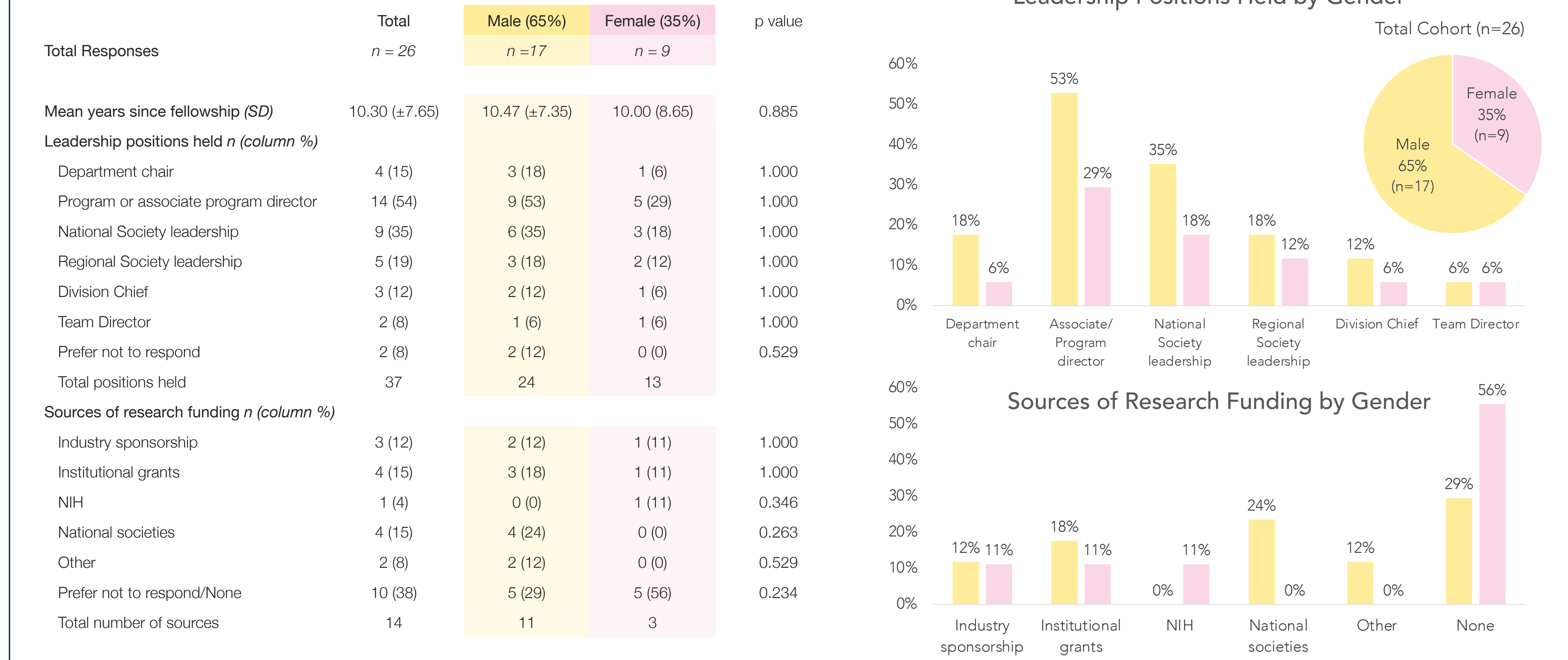
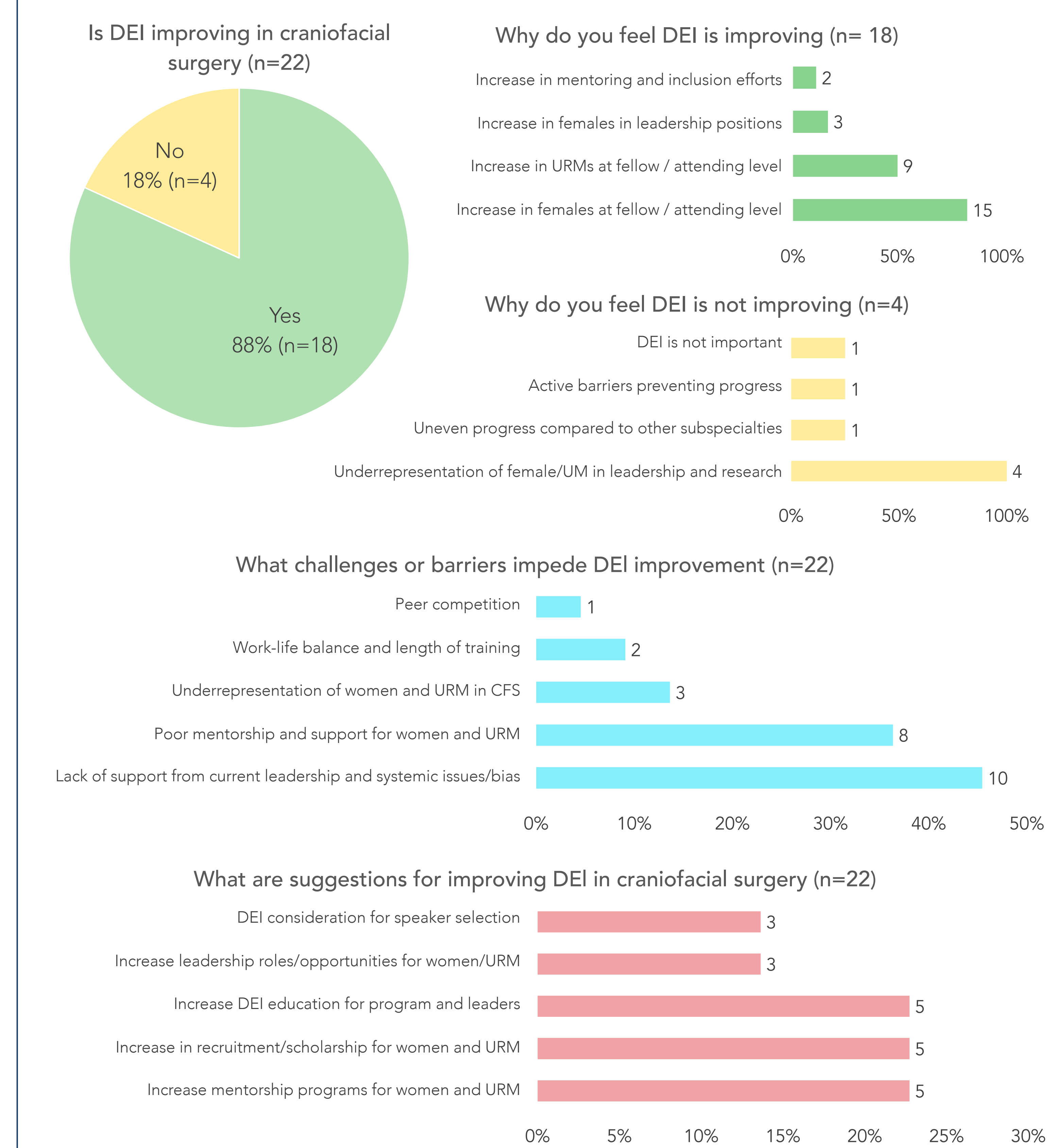


Figure 3: Perspectives on DEI in Craniofacial Surgery and Areas for Improvement



## Conclusion

- Ongoing gender disparities are evident in craniofacial surgery, particularly in academic productivity and faculty positions, but there have been notable advancements in recent years.
- Positive trends include improved gender representation in the number of surgeons, number of publications, and leadership positions of younger cohorts.
- Continuing to improve gender equity in craniofacial surgery requires sustained efforts including mentorship programs, recruitment initiatives, DEI education, and equitable representation in conferences and leadership roles.



# A Statistical Fragility Analysis of Bilateral Sagittal Split Osteotomies

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## BACKGROUND

Randomized controlled trials (RCTs) evaluating bilateral sagittal split osteotomies (BSSO), a surgical procedure performed on the lower jaw to correct certain types of mandibular deformities, contain differing results regarding its efficacy. Fragility index (FI), reverse fragility index (rFI), and fragility quotient (FQ) values represent the statistical fragility of outcomes reported in RCTs evaluating BSSO.

## METHODS

PubMed and MEDLINE were systematically searched for RCTs from January 1, 1998 to May 1, 2024 for outcome assessment of BSSO. Of 85 RCTs screened, 6 studies were included for analysis. We computed FI and rFI, denoting the quantity of outcome event reversals necessary to change the statistical significance for significant and non-significant outcomes, respectively. The FQ was determined by dividing the FI by the study sample size.

## RESULTS

**Table 1 – Characteristics of Included Studies: Year, Journal of Publication, Total Sample Size**

Author	Year	Journal	Total Sample Size
Leung et al.	2021	Int J Oral Maxillofac Surg	196
Baas et al.	2015	Int J Oral Maxillofac Surg	68
Ow et al.	2010	Int J Oral Maxillofac Surg	23
Kohnke et al.	2017	J Oral Maxillofac Surg	117
Baas et al.	2015	Int J Oral Maxillofac Surg	63
Baas et al.	2015	Int J Oral Maxillofac Surg	63

**Table 2 – Fragility data based on trial and outcome characteristics**

	Number of Outcomes	Mean Fragility Index (SD)	Mean Fragility Quotient (SD)
All RCT Outcomes	12	4.92 (2.61)	.050 (.033)
Significant Outcomes (P<0.05)	3	6.67 (3.79)	.048 (.020)
Nonsignificant Outcomes (P≥0.05)	9	4.33 (2.06)	.050 (.037)

### Fragility of Key Outcomes

- IAN Deficit
  - FI: 5, FQ: .026
- Wound Infection
  - rFI: 1, FQ: .435
- Objective and Subjective Neurosensory Deficit
  - Objective - rFI: 4, FQ: .074
  - Subjective - rFI: 7, FQ = .111

## LIMITATIONS

- Fragility indices are only appropriate for dichotomous outcomes.
- There is no specific cutoff or lower limit of the fragility index to classify a study as “fragile” or “robust.”

## CONCLUSIONS

The efficacy of BSSO from RCTs is statistically fragile, particularly the outcome regarding wound infection. We recommend combined reporting of p-values with FI and FQ metrics to aid in interpreting clinical findings evaluating BSSO. Additionally, there should be a larger analysis, including a greater sample size of RCTs, to produce a more robust FI.

## CLINICAL RELEVANCE

By determining how susceptible the results are to changes in a small number of events, clinicians can assess the reliability of the evidence supporting the efficacy and safety of BSSO procedures. This insight aids in better decision-making, risk assessment, and resource allocation, ensuring that clinical practices are grounded in solid, dependable evidence.



# Characterizing Innovation in Cleft Palate and Craniofacial Surgery



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## INTRODUCTION

The number of patent filings for surgery has increased tremendously over the past 50 years, yet trends within specific specialties remain poorly understood.

The pursuit of providing the best care for patients has driven cleft palate and craniofacial surgeons to build upon the foundations laid by their predecessors over the decades. Dr. Ralph Millard, renowned plastic surgeon, summarized this quest with the phrase, “Semper investigans, nunquam perficiens,” meaning “Always searching, never fully attaining perfection”<sup>1</sup>

## OBJECTIVES

This study aims to identify the areas and directionality of innovation within the field of cleft palate and craniofacial surgery (CPCS) through findings in intellectual property. The idea to profile innovation within this field came from Kwasnicki et al., a research article within plastic surgery.<sup>2</sup>

## METHODS

A query of the LexisNexis TotalPatent One® database was performed to analyze patents filed worldwide regarding CPCS from 1974 to 2023. The Boolean keyword search “‘cleft palate’ OR ‘craniofacial surgery’” was employed.

Patents related to CPCS were defined as CPCS surgical methods, devices, implantables, introducers and sterilization equipment based on the Cooperative Patent Classification (CPC) code. Categorical data, including patent progress and demographic information, was obtained for each relevant CPC code.

## FIGURES

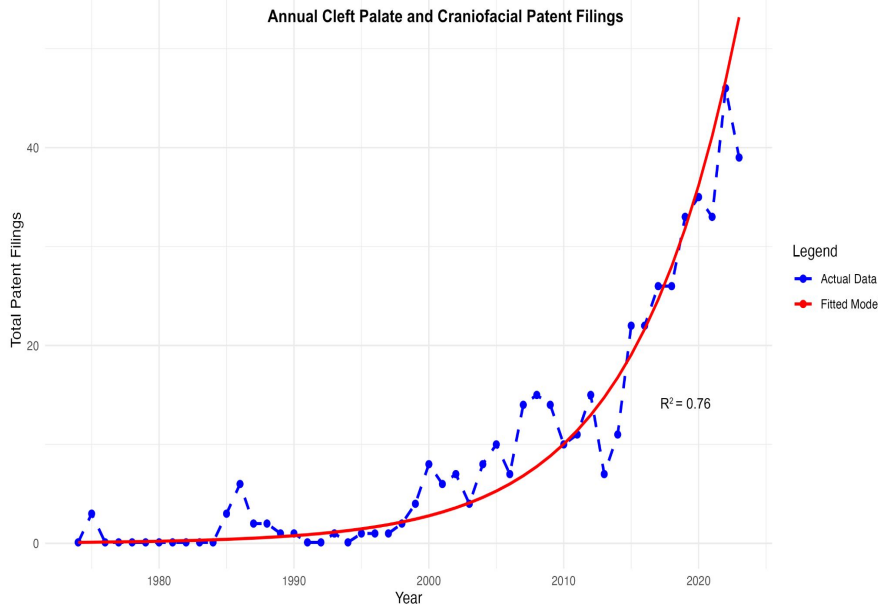


Figure 1. Annual Cleft Palate and Craniofacial Patent Filings

Patent Status Distribution

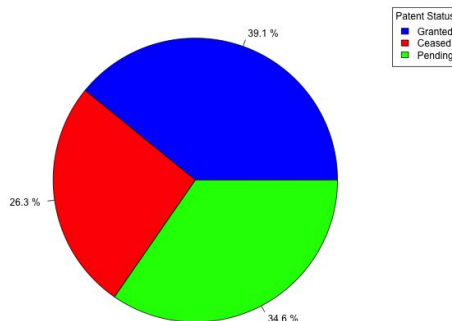


Figure 2. Patent Status Distribution

## RESULTS

A total of 468 patents related to CPCS were filed over the period of study. Of the 468 patents filed, 183 (39.1%) were granted, 123 (26.3%) were ceased, and 162 (34.6%) are pending.

The United States is the authority with the highest number of patent filings (160; 34.1%). The category with the most patent filings was CPC A61L: Methods or Apparatus for Material Sterilization (227; 48.5%). Nevertheless, the category with the most patents granted was CPC A61B: Diagnostic Surgical Devices (87; 47.5%).

**There was a general exponential (monotonic) growth in the number of patent filings per year (Exponential  $R^2 = 0.762$ ;  $r_s = 0.910$ ,  $p = 0.001$ ), with 2022 having the greatest number of filings (46; 9.83%).**

## CONCLUSION

This study shows growth in patent filings and the diverse, evolving landscape of innovation within CPCS, corroborating the conclusions of recent literature.<sup>3</sup> It also emphasizes the need for continued analysis on which patent codes are obtaining more or less filings to inform future advancements in the field.

## LIMITATIONS

Although comprehensive, there remains the possibility that the LexisNexis TotalPatent® database does not contain all CPCS patents filed to all patent registries worldwide.

## REFERENCES

1. Millard D. *Cleft Craft: The Evolution of Its Surgery—Volume I: The Unilateral Deformity*. Lippincott Williams & Wilkins; Philadelphia, PA, USA: 1976.
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3. Aycart MA, Caterson EJ. Advances in Cleft Lip and Palate Surgery. *Medicina (Kaunas)*. 2023 Nov 1;59(11):1932. doi: 10.3390/medicina59111932. PMID: 38003981; PMCID: PMC10672985.

# GROW22q: A Referral Initiative to Expand a 22q Clinic

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## Background / Description

- Patients with 22q11.2 deletion syndrome have a wide array of medical conditions and require yearly screening with close followup.<sup>1-3</sup>
- Their care should be provided by an interdisciplinary team of subspecialists who are experienced with the condition.<sup>1-3</sup>
- International care guidelines exist to help teams optimize care involving multiple organ systems.<sup>1-2</sup>

## Aim

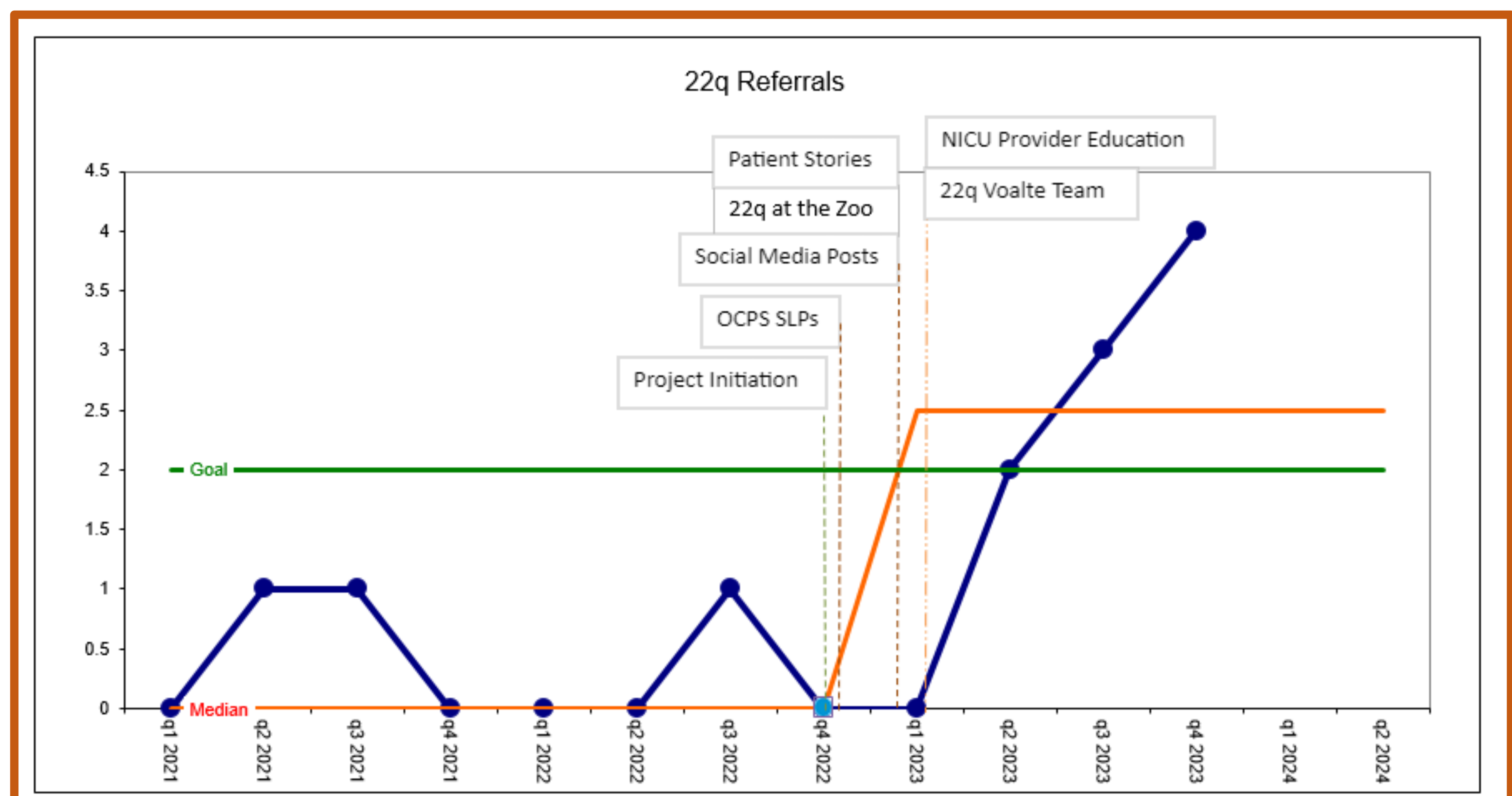
Increase referrals of patients with 22q11.2 deletion syndrome to our craniofacial clinic from < 1 per quarter to 2 per quarter starting January 1, 2023, and to sustain through December 31, 2024.

## Design / Strategy

Our team sought to increase the number of 22q patients referred to our clinic through improving education and awareness in the community and improving accessibility to our clinic.

- Marketing
- Key stakeholder engagement
- Clinic coordination
- EMR tools

## Run Chart

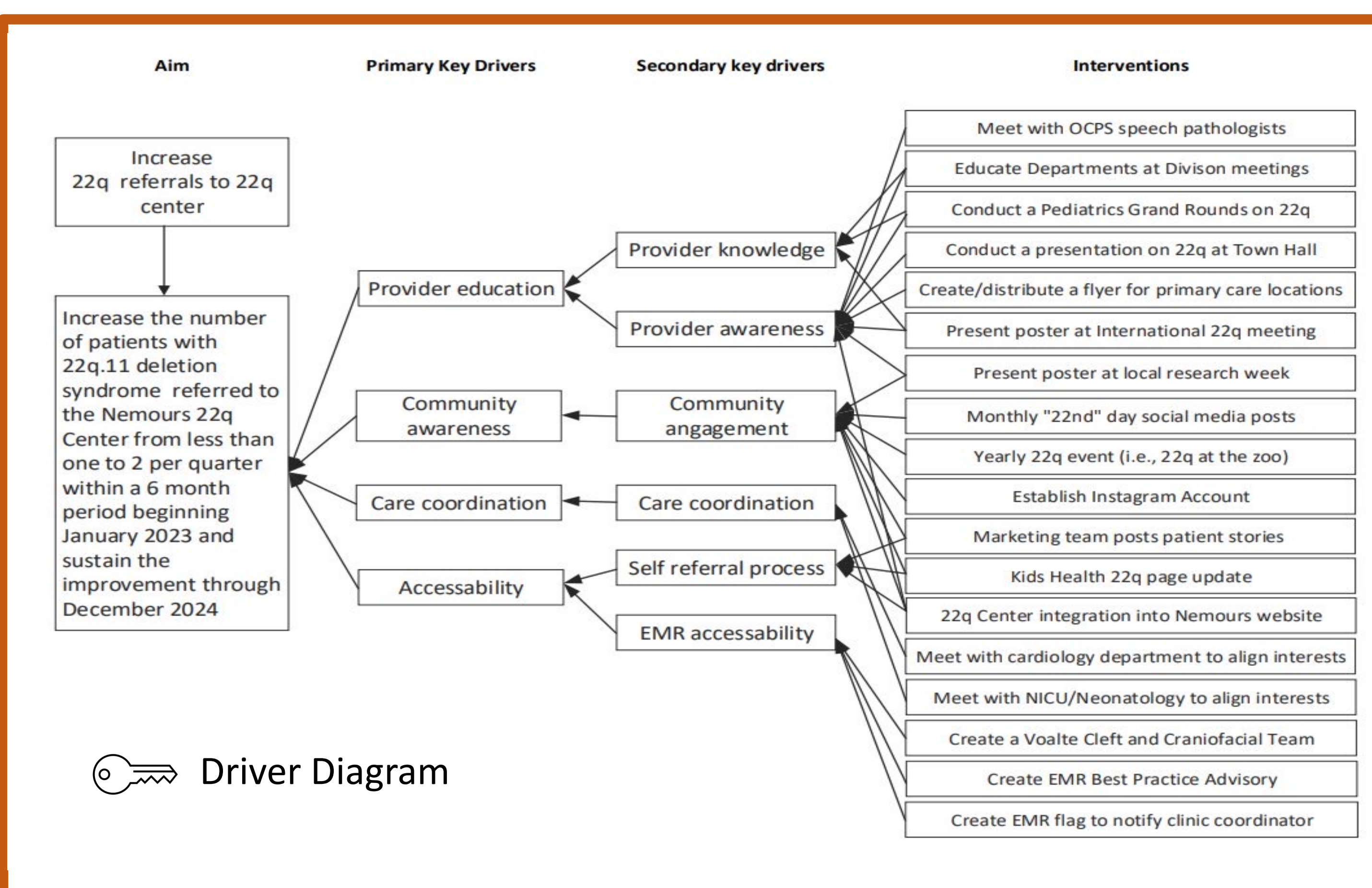


Total patients scheduled since project initiation

15

Number of no-shows to clinic

0



## Challenges/Barriers

- Low "n"
- Provider turnover
- Anticipate future access challenges
- Ensuring team is easily accessible and clear plan is in place for consults prior to education sessions
- With little improvement following our community engagement bundle, and following feedback received by providers, our team focused on our accessibility and education

## Lessons Learned

- Our **Education and Accessibility Bundle** seemed to yield the biggest improvement in referrals
- Education sessions for physicians at division meetings (NICU, cardiology, genetics, etc.) reach a large amount of referring physicians
- Caring for children with 22q11.2 deletion syndrome in a multidisciplinary clinic ensures proper completion of screening per guidelines

## Measures

- Outcome Measures:
  - Number of patients referred to the clinic per quarter
- Process Measures:
  - Number of patients that received Best Practice Alert in EMR
  - Number of patients with new diagnosis of 22q11 Deletion Syndrome in EMR
- Balancing Measures:
  - Number of no-shows for referrals
  - Number of available timeslots in craniofacial clinic

## Next Steps

- Pool data quarterly
- Continual conversations, education, marketing
- Additional team clinic time beyond critical mass
- Improve academic presence at national/international meetings

## References

- McDonald-McGinn DM, Sullivan KE, Marino B et al. 22q11.2 deletion syndrome. Nat Rev Dis Primers. 2015 Nov 19;1:15071.
- Bassett AS, McDonald-McGinn DM, Devriendt K et al. Practical guidelines for managing patients with 22q11.2 deletion syndrome. J Pediatr. 2011 Aug;159(2):332-9.e1
- Hickey SE, Kellogg B, O'Brien M, Hall C et al. Impact of Interdisciplinary Team Care for Children With 22q11.2 Deletion Syndrome. Cleft Palate Craniofac J. 2020 Dec;57(12):1362-1369.

## Changes Made



### Community Engagement Bundle

- "Patient Stories" shared with families and on social media
- Team attendance at "22q at the Zoo" event
- Social Media posts



### Education and Accessibility Bundle

- Education of SLPs at OPCS
- NICU providers educated at division meeting
- "22q Team" created on hospital's secure messaging system



**NEMOURS**  
CHILDREN'S HEALTH

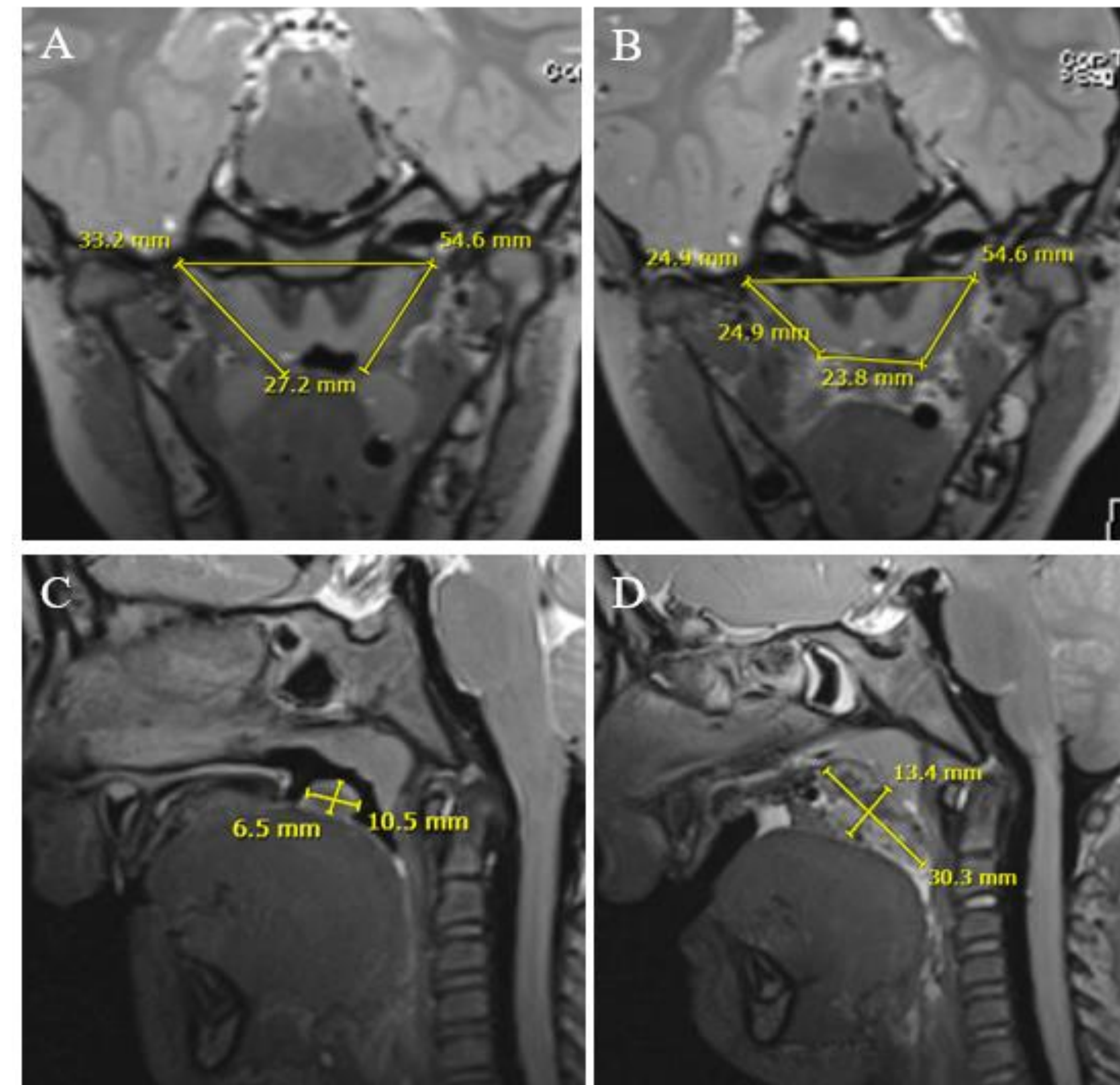
## Background

Cleft palate repair aims to reconstruct the levator veli palatini (LVP) muscle and establish proper velopharyngeal closure. Although morphology and function of the LVP have been studied, there is no consensus on the quantitative characterization of successful cleft palate repair procedures and further, to date, no studies have directly evaluated or measured the cleft morphology and defect immediately pre- and post-palatoplasty via intraoperative magnetic resonance imaging (MRI).

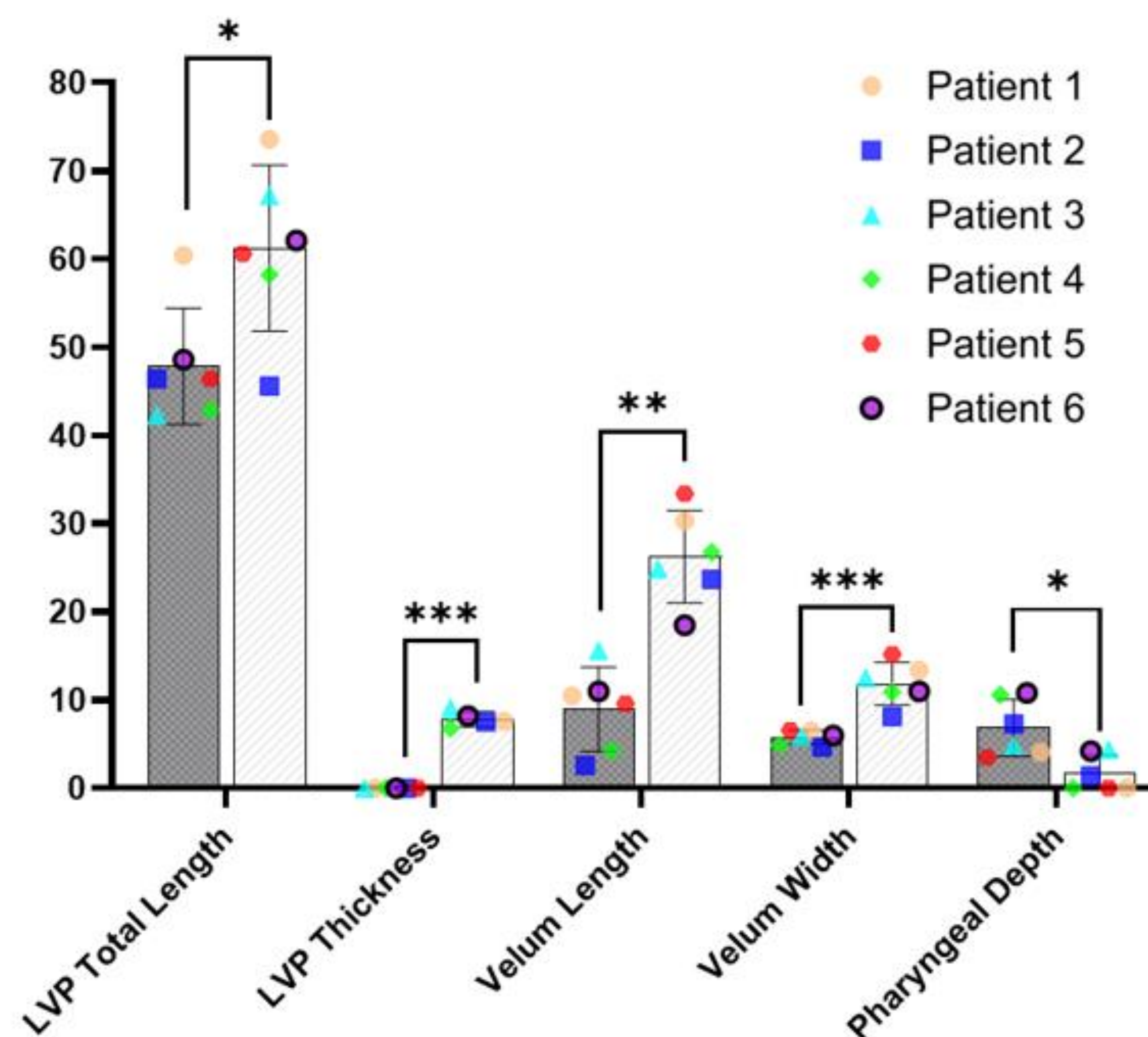
## Methods

- In this study, we compare the immediate pre- and post-palatoplasty anatomy of the LVP in six patients between the ages of 11 and 51 months via intraoperative MRI.
- Measurements of LVP length and thickness were obtained using the oblique coronal plane and measurements of velar length, velar thickness, and velopharyngeal gap were obtained using the sagittal plane.
- Paired sample T-test was used to assess for statistical significance between immediate pre- and post-palatoplasty.

## Results



**Figure 1.** Pre-operative (A) and post-operative (B) oblique coronal images of patient 1 displaying measurements of LVP length. Pre-operative (C) and post-operative (D) sagittal images of patient 1 displaying measurements of velum length and thickness



**Figure 2.** Pre-operative (dark grey) averages were compared to post-operative (white) averages with standard deviations for LVP length, LVP thickness, velum thickness, velum width, and pharyngeal depth (n=6). Statistical significance is labeled above the bar graph (\* <0.05, \*\* <0.01, \*\*\* <0.001)

## Results

- Mean LVP length increased from 47.8mm to 61.2mm (p=0.010)
- Mean LVP thickness at the central palate was reconstructed to 7.8mm (p<0.001).
- Mean velar length increased from 8.9mm to 26.3mm (p=0.002)
- Mean velar width increased from 5.8mm to 11.9mm (p<0.001)
- Mean velopharyngeal gap decreased from 6.9mm to 1.7mm (p=0.013)

## Conclusions

Results indicate that MRI quantification provides a valuable evaluation of the pre-operative LVP anatomy. Early post-surgical results indicate no evidence of fistula formation or velopharyngeal insufficiency.

**This study reports the first use of intraoperative MRI measurements in a cohort of patients to objectively assess cleft palate pre-operative anatomy and surgical repair results.**

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## INTRODUCTION

- Children with microtia and atresia require coordinated subspecialty care for optimal outcomes.
- Interdisciplinary care for patients with craniofacial differences, especially cleft palate, is the current standard.
- Children with microtia often receive isolated care.
- We aim to present our recommended comprehensive model to routinely address the needs of microtia and atresia patients through coordinated interdisciplinary care.
- We aim to enhance attendees' knowledge of the complex needs of patients with microtia, how these needs should be routinely addressed through coordinated interdisciplinary care.



Figure 3. Our NICEAR team.

## METHODS

- We modeled an interdisciplinary clinic for patients with microtia after craniofacial centers nationwide.
- Disciplines include plastic surgery, otolaryngology, audiology, speech pathology, genetics, developmental pediatrics, behavioral health, social work, ophthalmology, and 3D photography.
- Team discussions facilitate review of microtia grade, surgical options, ear anatomy, and degree of hearing loss relative to language development.
- The first 5 years focus on the importance of hearing augmentation as a crucial step for speech and language development. A CT scan is performed at age 5 to determine whether the patient is a candidate for hearing restoration surgery.
- Reconstructive choice guides timing, type, and placement of hearing devices to optimize access to sound from an early age.
- Genetic counseling and social, educational events facilitate dynamic learning experiences.
- Social work, behavioral assessments, and psychological evaluations address patients' coping abilities, reinforcing holistic care.
- For many patients, this integrated care approach aids in uncovering coexisting conditions which may previously have been undiagnosed under isolated care.



Figure 4. Nemours Children's Hospital in Orlando, Florida.

## RESULTS

- Of n=76 patients with microtia evaluated at the interdisciplinary clinic, all were identified with conductive hearing loss secondary to atresia and were fitted with bone conduction hearing devices.
- Microtia reconstruction surgeries (n=6) were completed with both autologous (n=2) and allogeneic cartilage (n=4).
- Among patients with concerns for autism who were referred to behavioral health (n=11; 14.5%), a minority had a pre-existing diagnosis (n=5; 6.6%).
- As shown in Figure 2, n=10 referrals were provided for genetics. However, 9 patients with consults to genetics prior to coming to our clinic and another 10 consults placed by us are still waiting for evaluation. Only a small subset of patients identified as syndromic (n=6) and were already being followed by genetics prior to screening at the interdisciplinary clinic.
- A standardized screening tool for soft palate dysfunction has been implemented as part of our patients' evaluation with speech pathology (Figure 6). Hypernasality indicative of VPI was detected in n=3 out of 15 patients evaluated.

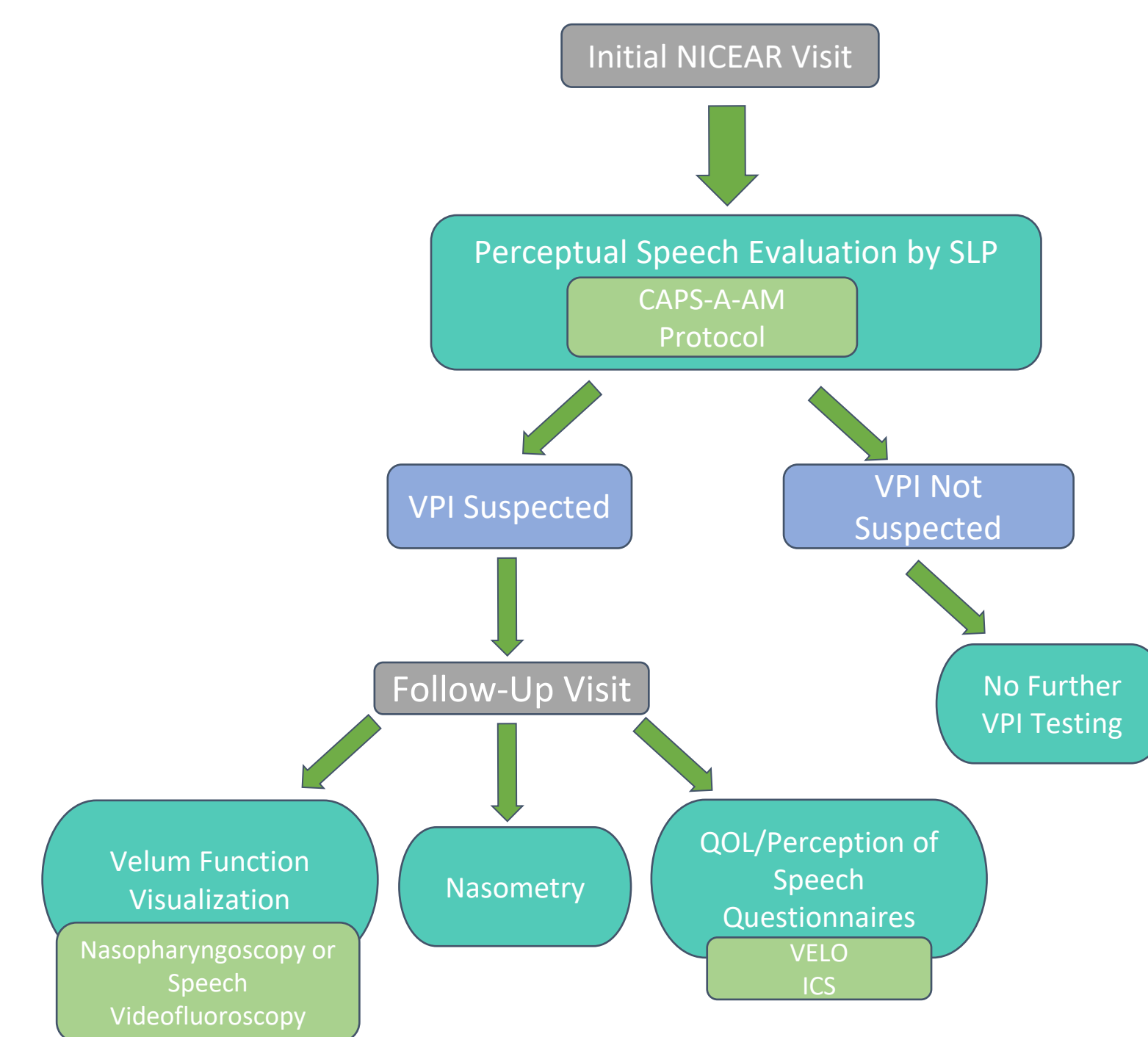


Figure 6. Screening algorithm at NICEAR to evaluate for VPI. At the patient's initial visit, a certified bilingual speech-language pathologist (SLP) screens both English- and Spanish-speaking patients using the Cleft Audit Protocol for Speech-Augmented-Americleft Modification (CAPS-A-AM). This is a validated method for velopharyngeal evaluation that is often used in patients with cleft palate. When indicated, techniques are used to visualize and quantify soft palate dysfunction through measures of velopharyngeal closure and nasal air emission. Since VPI can impact the intelligibility, confidence, and quality of life (QOL) of our patients, we assess perception of speech and emotional impact on our patients and caregivers using the Intelligibility in Context Scale (ICS) and Velopharyngeal Insufficiency Effect on Life Outcomes (VELO) questionnaires.

## RESULTS

### Patients Evaluated at the Interdisciplinary Clinic

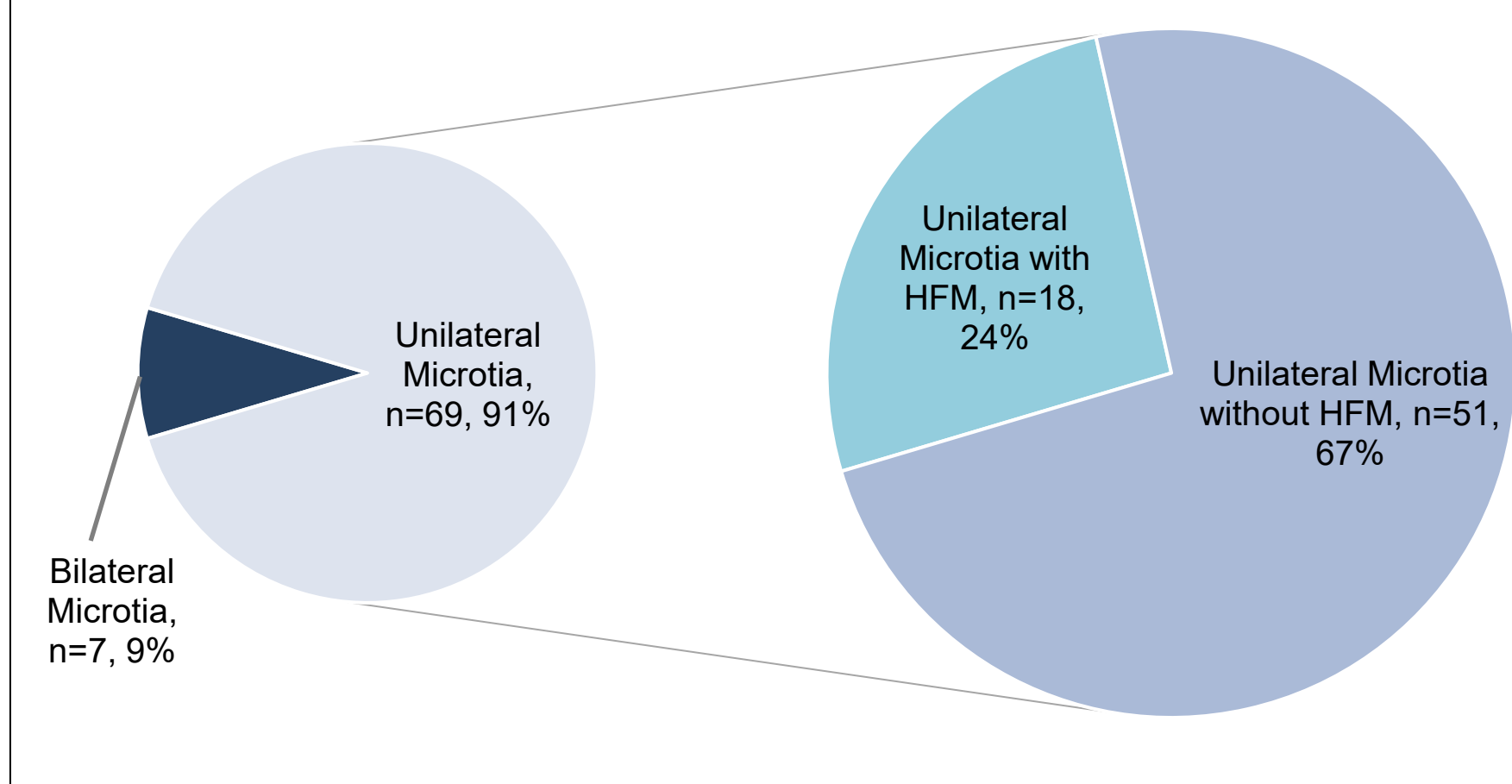


Figure 1. Distribution of unilateral versus bilateral microtia at our clinic. At the Nemours Interdisciplinary Center for Ear Reconstruction (NICEAR), we have evaluated n=76 patients with microtia since January 2023. The majority of patients (n=69) presented with unilateral microtia, of which n=18 have hemifacial microsomia (HFM).

## INTERDISCIPLINARY CLINIC

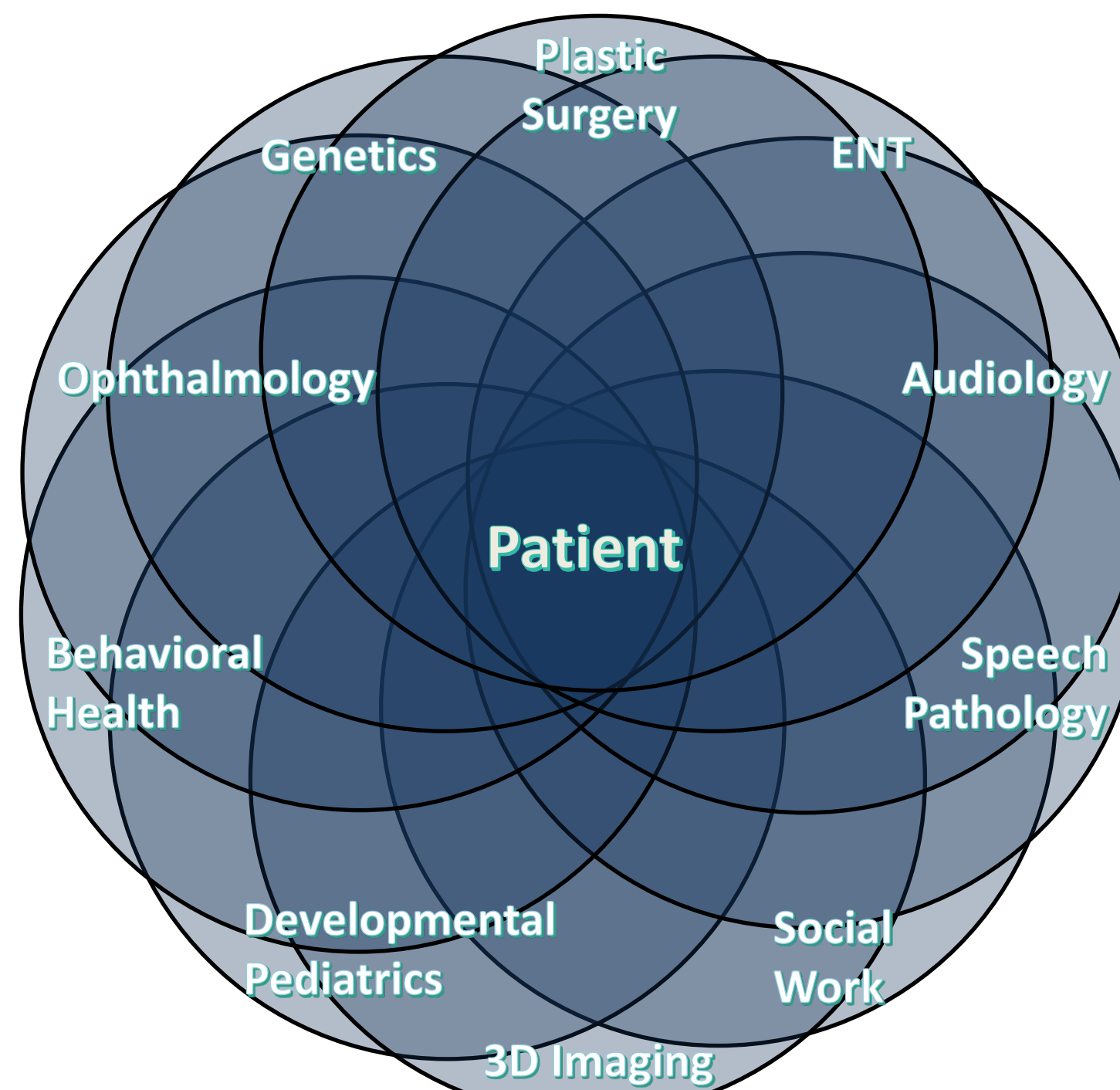
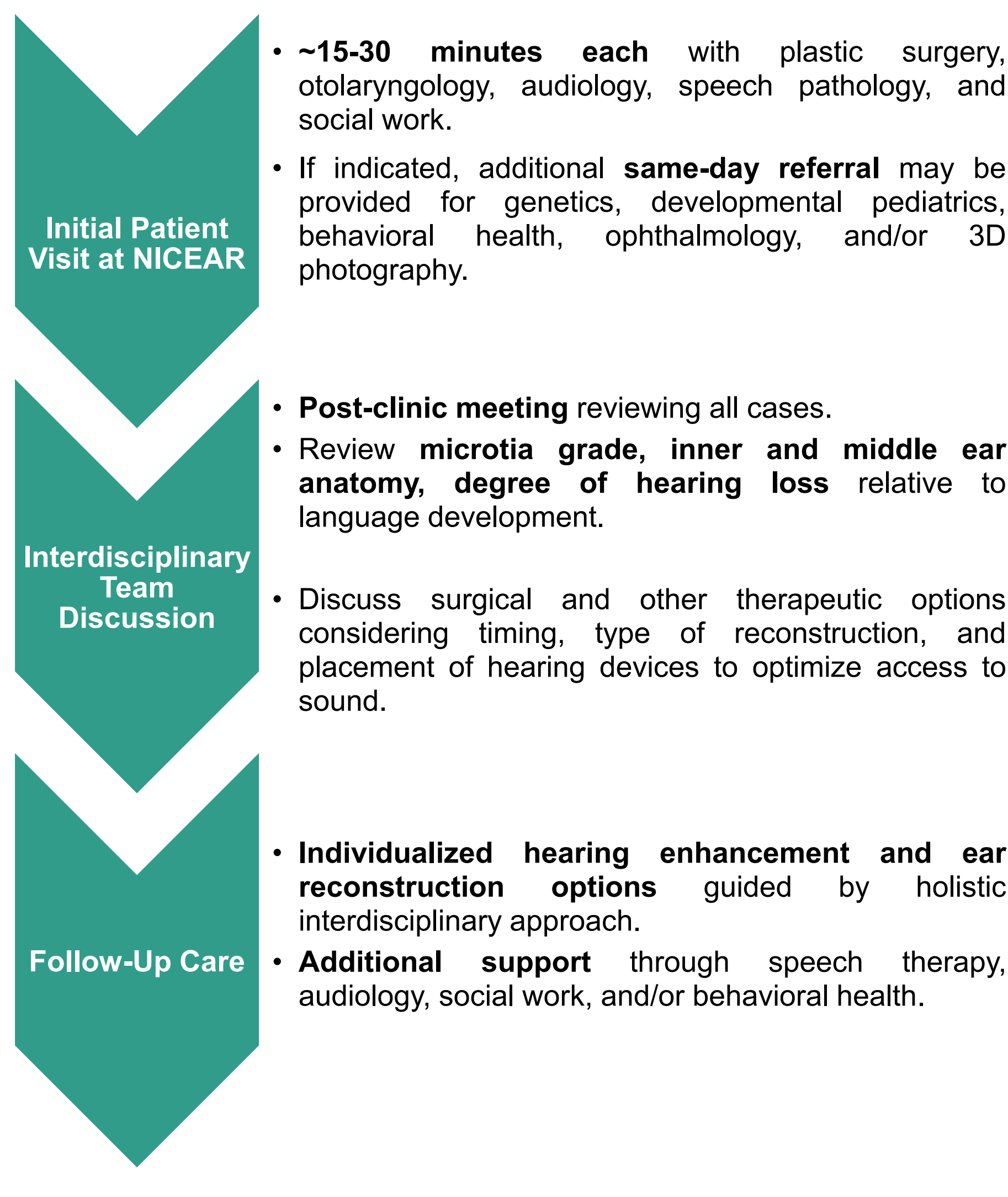


Figure 5. Interdisciplinary care is necessary for addressing our patient's complex needs. We implement this form of care at our NICEAR clinic, dedicated to providing a holistic approach in caring for our patients with microtia and atresia and providing support to the patients and families.

### NICEAR Clinic Flow



## CONCLUSIONS

- A holistic approach that treats the patient rather than the disease is critical in patients diagnosed with microtia and atresia.
- Delivering care in the setting of an interdisciplinary team helps reveal trends, highlight new concerns, and select individualized reconstructive options, allowing for overall patient restoration.
- Incorporation of social events within our center allows for kids to meet other children living with the same condition and for their parents to form a support network.
- Our educational events allow parents to learn more about microtia and atresia as well as what our Ear Hub can offer.
- Interdisciplinary care of patients with microtia provides reassurance and education for the family, while standardizing precisely planned, coordinated intervention throughout the child's life.
- This allows for focus on critical developmental periods including speech and binaural hearing, allowing patients to achieve their full developmental potential and addressing needs beyond plastic surgery and otolaryngology care.



### Services and Referrals Provided to Patients Through the Interdisciplinary Clinic

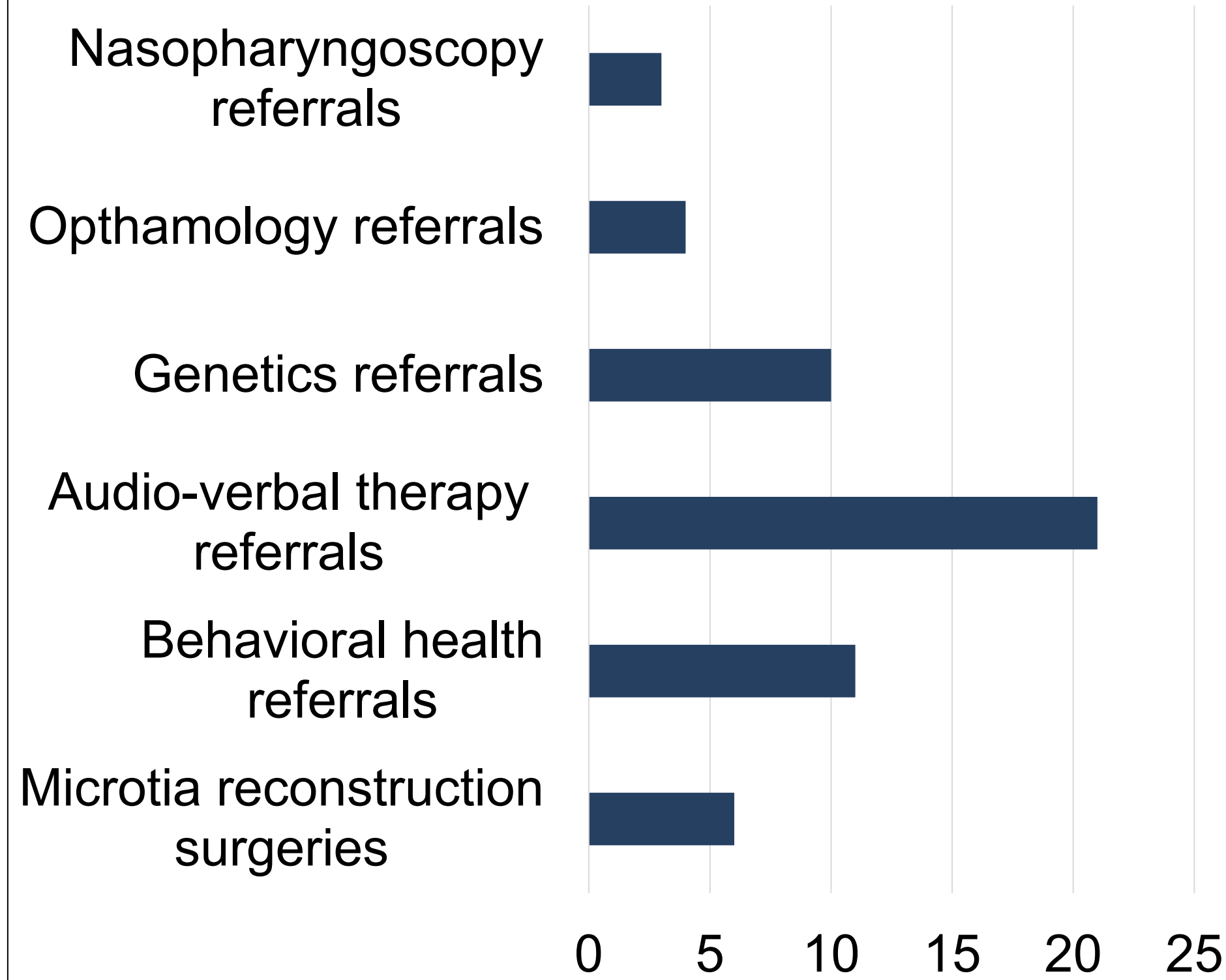


Figure 2. Services and referrals provided to patients through the NICEAR clinic. At each visit, patients see the core members of the interdisciplinary team—plastic surgery, otolaryngology, audiology, speech-language pathology, and social work. As these assessments occur during the visit, referrals may also be provided to other same-day services, and microtia reconstruction surgeries may be planned as a part of follow-up care when deemed appropriate following careful patient selection.

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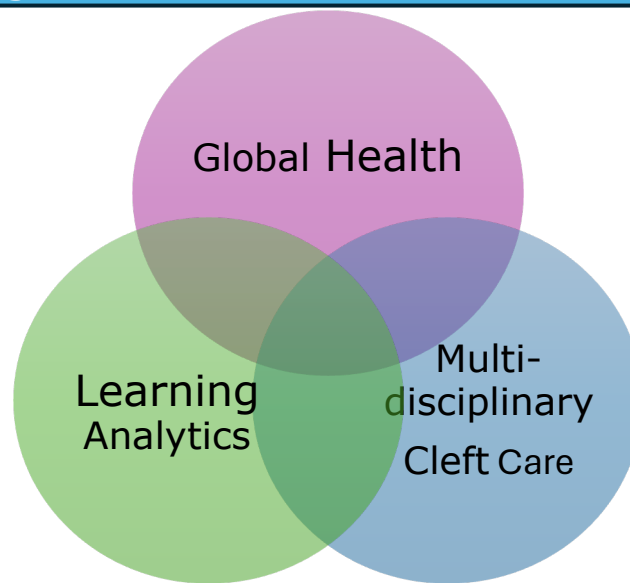
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# THE INTERSECTIONALITY OF GLOBAL HEALTH, LEARNING ANALYTICS, AND MULTIDISCIPLINARY CLEFT CARE



Michelle Gross  
AdventHealth Sharing Smiles



## Takeaways for Global Health Leaders Working in the Cleft Field:

- 1) Universal standards are difficult to achieve but we must continue to strive to make standards universally accessible and relevant.
- 2) Globalization means ever-changing iterative models that require adaptability and continued research to keep our finger on the pulse of what is happening in the field.
- 3) Outcomes can only be improved when they are measured.
- 4) Partnership is both inevitable and necessary for the sustainability of global cleft projects.

## Key References

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