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# Developing Team NEMO

## Implementation of Early Detection of Cerebral Palsy at UCLA

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# Disclosure

- I have nothing to disclose



# Background

- International guidelines for early detection and intervention for CP (Novak, 2017 and Morgan, 2021)
  - Diagnosis of CP prior to 2 years using a series of assessments and care pathways
  - “High-risk for CP” at 3-4 months, prior to confirmed diagnosis
  - Parent empowerment = proven and critical element of these guidelines



# Background

- Translating the research evidence of guidelines into clinical practice → standard of care
- Knowledge-to-action cycle (Graham, 2006)
  - Details an effective approach, with stages and elements, in achieving sustainable transfer of research knowledge into clinical practice



# Knowledge to Action Framework – CP Foundation

- Phase 1

- Standardization of the neurological examination; routine use of the Hammersmith Infant Neurological Exam (HINE) in all NICU HRIF clinics at Nationwide Children’s Hospital (Maitre, 2016)

- Phase 2

- Implementation of early detection guidelines at Nationwide Children’s Hospital HRIF (Byrne, 2017)

- Phase 3

- Cycle 1: Multisite implementation and adoption of the guidelines across the CPF Early Detection Network of 5 US sites, including UCLA (Maitre, 2020)



# Objective - UCLA site

- To implement the guidelines for early diagnosis and intervention for cerebral palsy in the UCLA NICU/HRIF clinic aiming to decrease the age of CP diagnosis to under 12 months



# Methods

- Team NEMO (Neurodevelopmental and Early Movements Observation) was formed to facilitate the implementation
- Preparation phase – 3 months
  - Site visits
  - SWOT (strengths, weaknesses, opportunities, and threats) and SIPOC (Suppliers, Inputs, Process, Outputs, Customer) analyses done
  - Developed process flows to implement a pathway to diagnosis, counseling and referral to interventions
  - Training in implementation science and clinical tools was provided by CPF



# Clinical Setting

- NICU and HRIF Clinic in Westwood, CA



- NICU and HRIF Clinic in Santa Monica, CA





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# Population

- Infants who qualify for HRIF based on CCS criteria identified during their NICU stay
- Infants who did not qualify for HRIF but had an abnormal GMA in the NICU



# Training

- Equip HRIF Staff with the Appropriate Tools

GMA

- Physical Therapists
- Occupational Therapists
- MDs (Neo and DBP)

HINE

- Physical Therapists
- Occupational Therapists
- MDs (Neo and DBP)

TIMP

- Physical Therapists
- Occupational Therapists



# Process Flow

## Before

Appointment is made through scheduling center before NICU discharge

### Visit 1

Age Range: 6-9 mo  
Personnel: PT/OT, Dietician, Neo team  
Testing: BSID, Neuro Exam

### Visit 2

Age Range: 12-16 mo  
Personnel: PT/OT, Dietician, Neo team  
Testing: BSID, Neuro Exam

### Visit 3

Age Range: 22-26 mo  
Personnel: PT/OT, Dietician, Neo team  
Testing: BSID, MCHAT, Neuro Exam

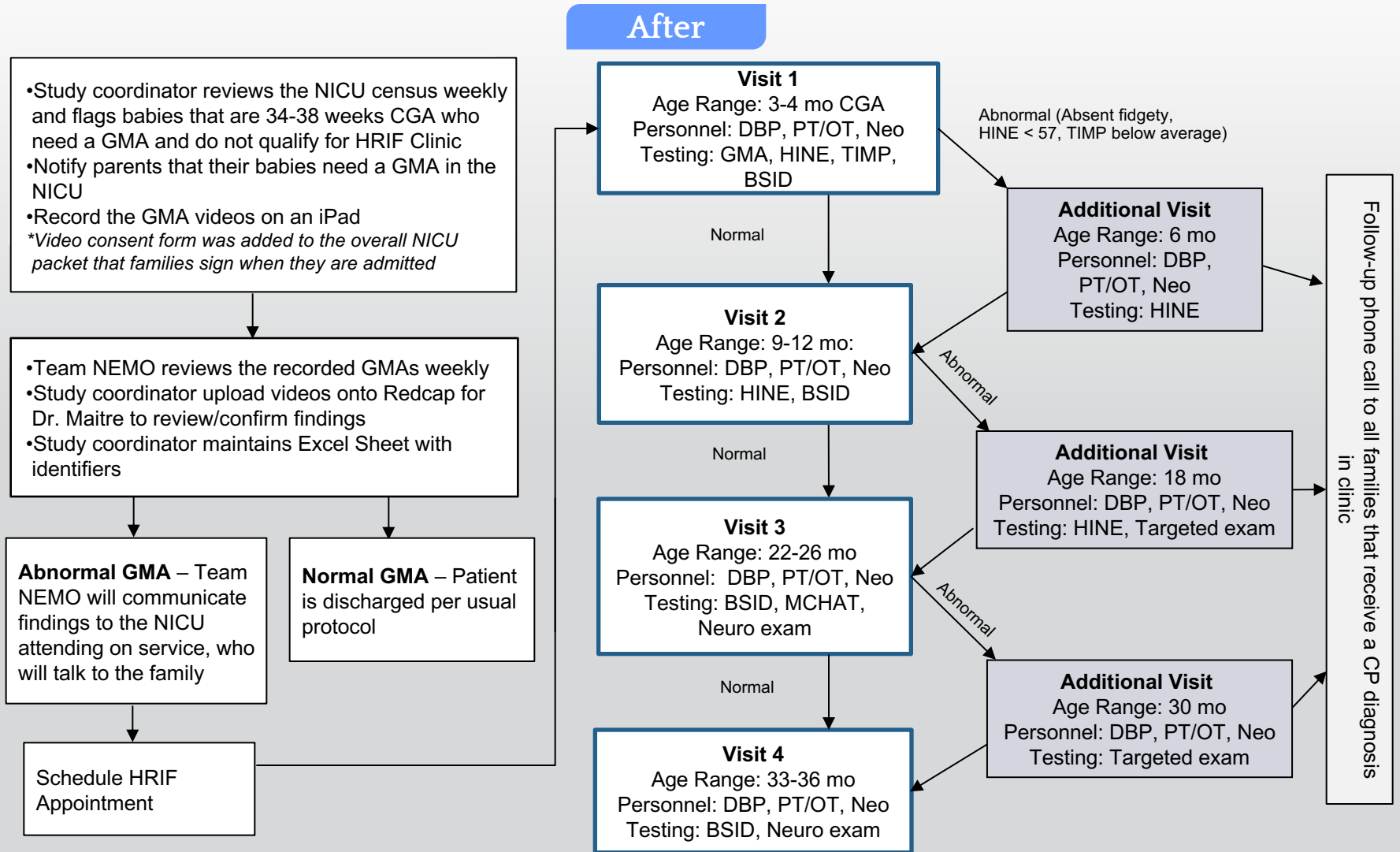
### Visit 4

Age Range: 33-36 mo  
Personnel: PT/OT, Dietician, Neo team  
Testing: BSID, Neuro Exam

- Patient Graduation
- Connect patients to services as needed



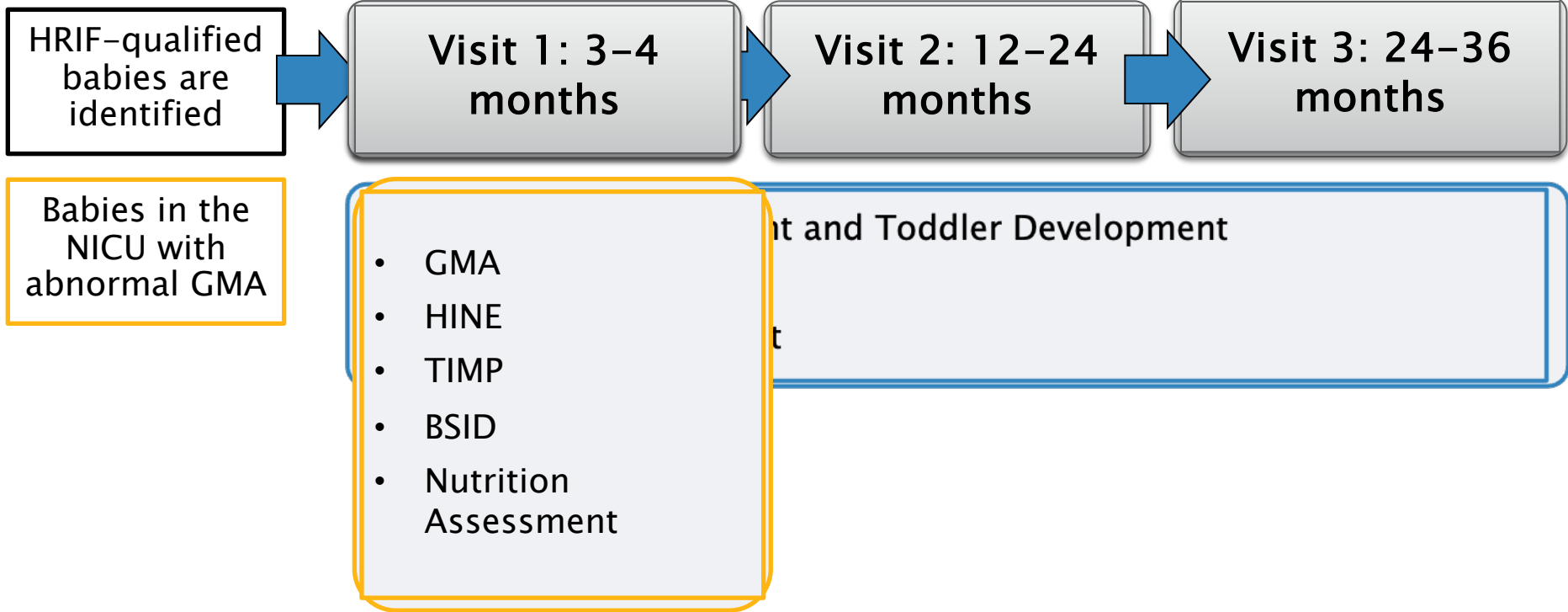
# Process Flow



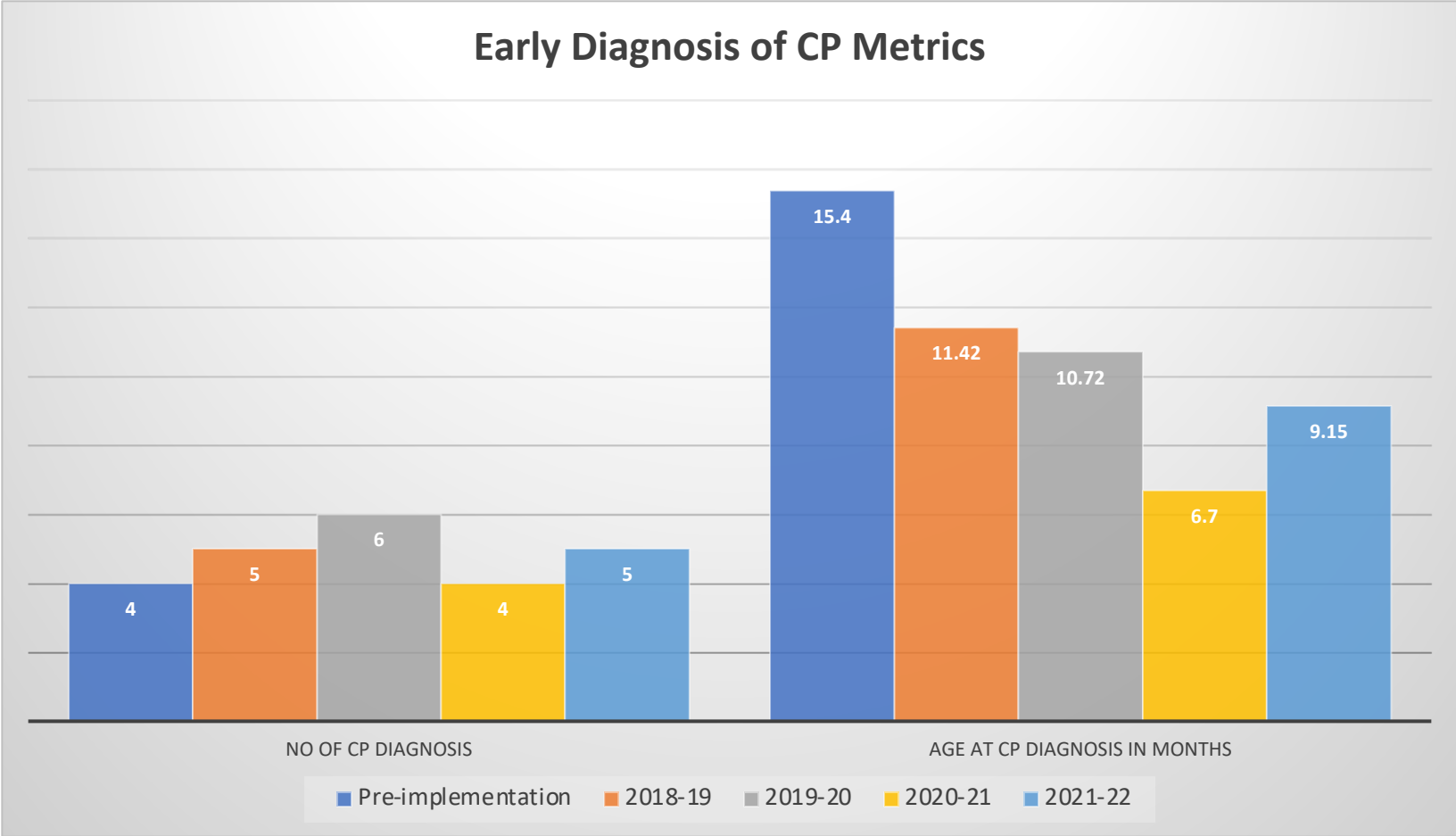
# Restructuring the HRIF Clinic Timeline

Before Implementation

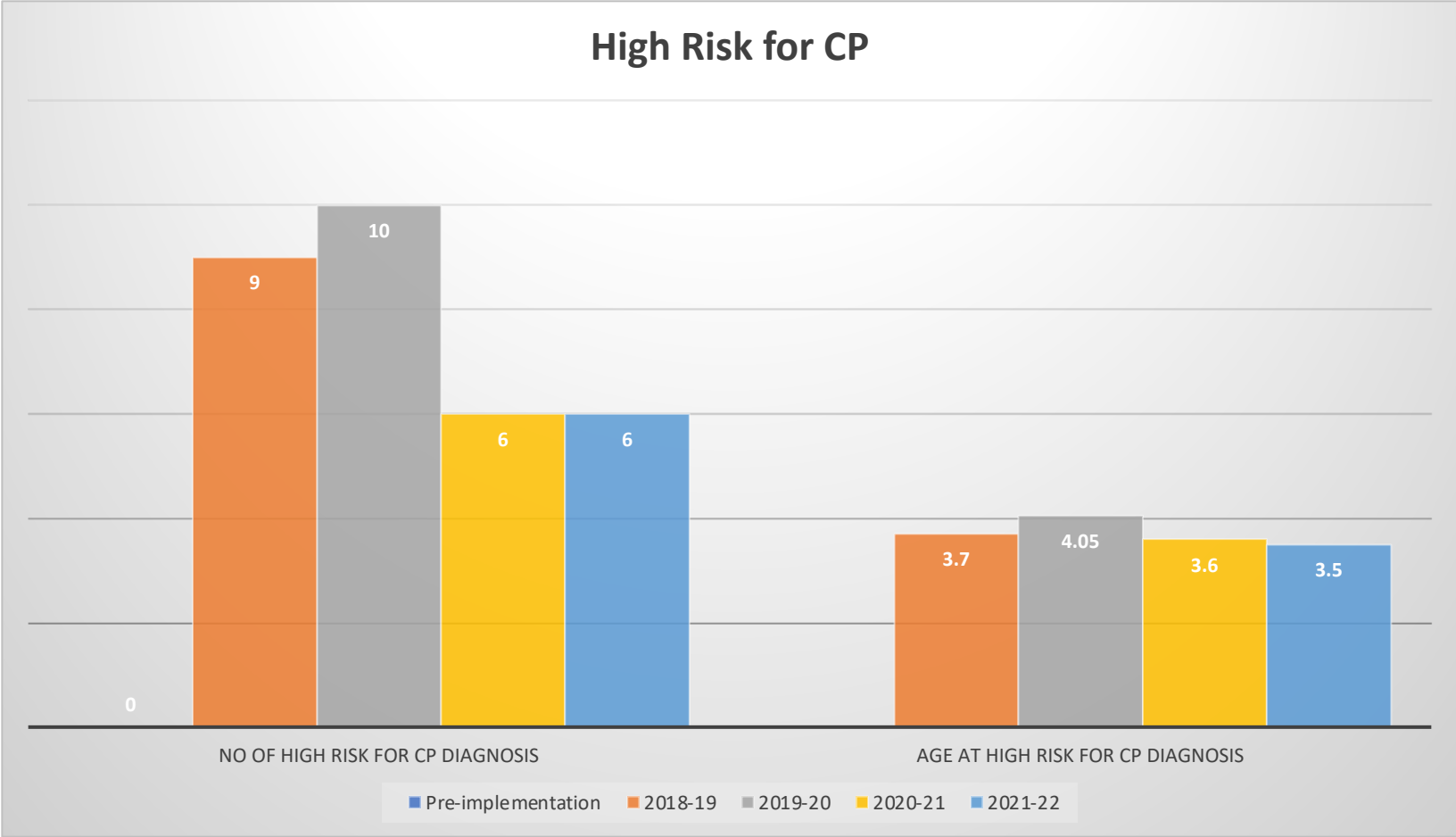
After Implementation



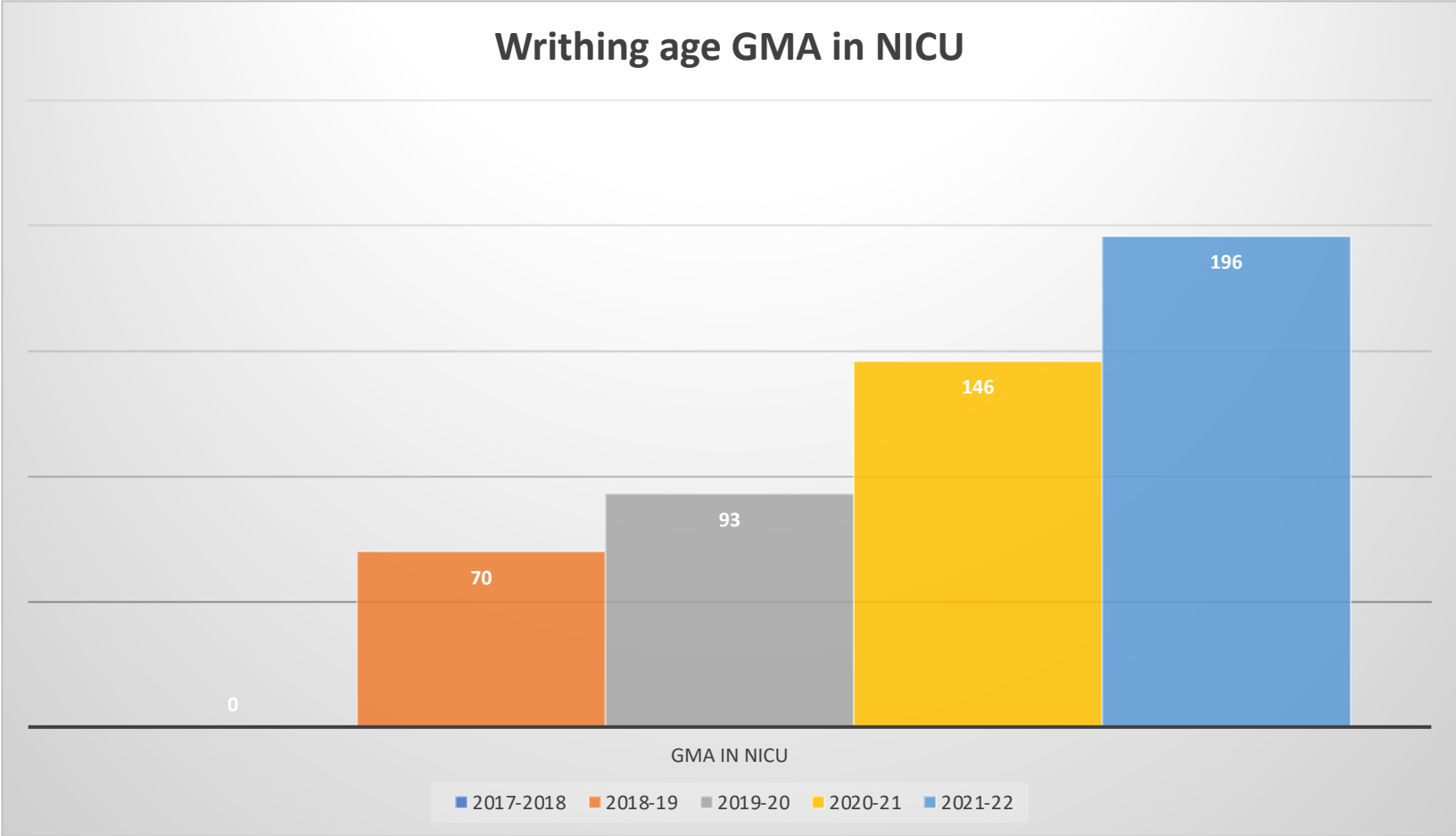
# Results



# Results



# Results





# Years 2-5 after initial implementation

- Inpatient Team NEMO consult in NICU: GMA and counseling on need for neurodevelopmental follow-up and early intervention
- Expanding implementation at other UCLA affiliated NICUs
- Improving access to early intervention services:
  - UCLA Intervention Program, Regional center
  - Building collaborative relations in the community: USC Motor Development Lab/ EI3 Collaborative



# Team NEMO In-patient consult



UCLA  Childrens Hospital

If you have any questions or concerns, please reach out to

**Clinic Coordinator:** Randi Shannahan  
**Email:** rshannahan@mednet.ucla.edu  
**Telephone:** (310) 825-0867

## NICU Follow-Up INFO SHEET

You and **[NAME]** are invited to the UCLA Hospital's NICU Follow-Up Clinic. The purpose of this clinic is to review your child's developmental progress after discharge from the NICU. We will see your baby in the NICU Follow-Up Clinic for an appointment when they are 3-4 months corrected age.

### Appointment

**Date:** Tuesday – **[MONTH]** **[DAY]**, 2022

**Time:** 1:00 PM

**Location:** 200 Medical Plaza  
Suite 265 (2<sup>nd</sup> Floor)  
Children's Health Center

**Duration:** Please plan for **1.5 to 2 hours**

### What to Expect



Video of General Movements



Neurologic Assessment



Physical Therapy Assessment



Developmental/Psychology Assessment



Nutrition Assessment

### Regional Center

Regional Centers offer a wide array of services for California residents to monitor developmental growth. Please contact your regional center for an in-home assessment and to receive services for your baby.

**Your Regional Center:** Westside Regional Center

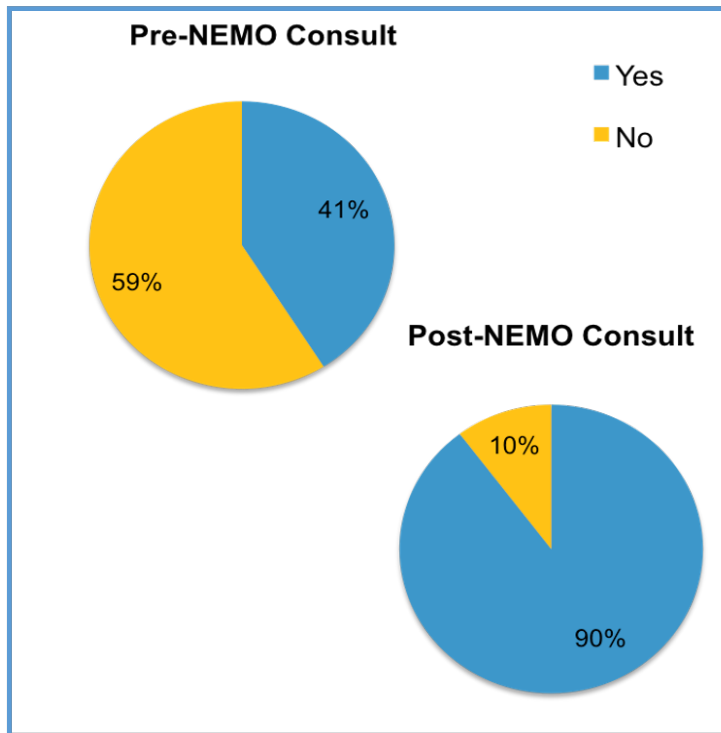
**Address:** 5901 Green Valley Circle, Suite 320  
Culver City, CA 90230

**Phone Number:** 310-258-4000

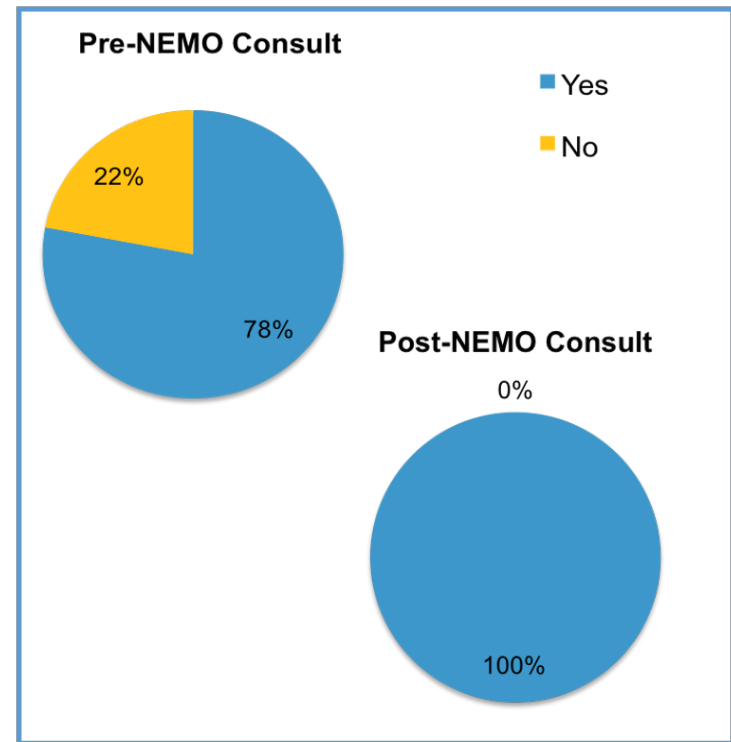
**Website:** <https://westsiderc.org>

This can take up to 6-8 weeks to schedule. Please call as soon as possible.

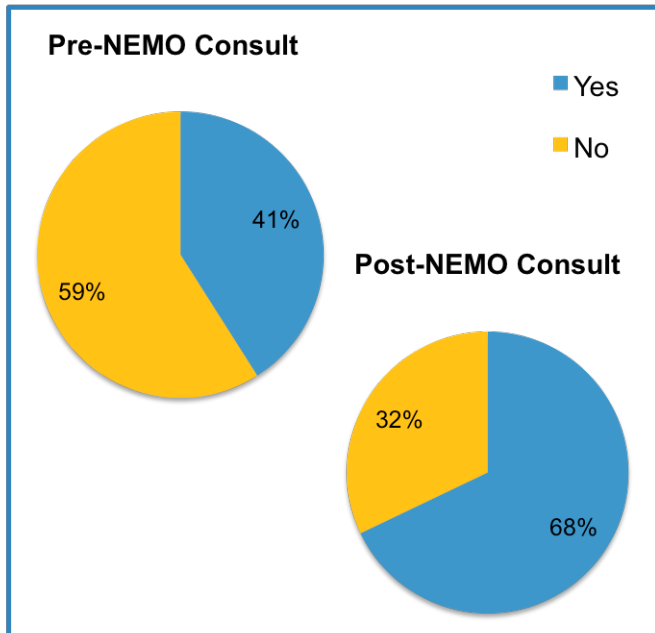
**Question 1 – Do you know why this appointment was especially made for your baby?**



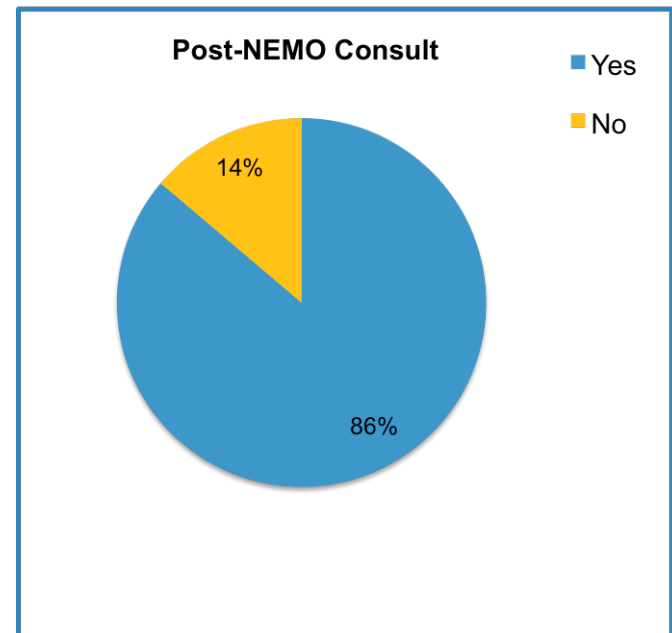
**Question 2 – Did anyone explain to you what the High Risk Infant Follow-Up Clinic is?**



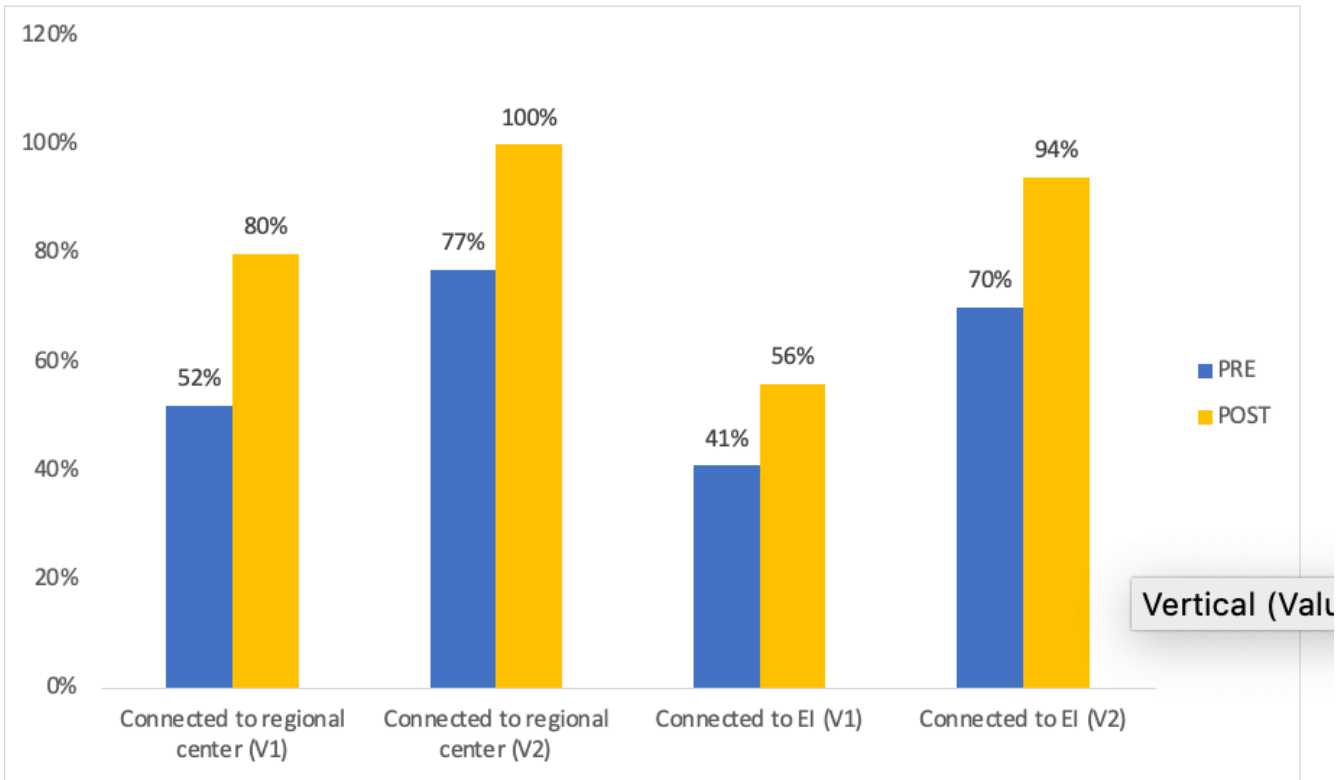
**Question 3 – Do you know how long the appointment lasts for?**



**Question 4 – Did anyone tell you about the General Movements Assessment (GMA)?**



# Impact of NEMO Consult – Connecting to EI services



# Parent Support in HRIF

Parents are screened using Perceived Stress Scale during each HRIF visit by the psychologist

Based on the parent responses, the psychologist then provides

Brief therapeutic intervention in the clinic

Psychoeducation

Referrals to UCLA or other community mental health resources for psychotherapy

Follow up phone calls a week after HRIF visit for families that receive a CP (or other) diagnosis and additional diagnoses specific resources



# Impact of Covid-19 pandemic

- HRIF clinics switched to telemedicine
  - Parents instructed to take GMA videos at home at 3-4 mo CGA and send the videos to us → lots of technical challenges
  - HINE assessments done via telemedicine (support through CPF network)
  - Challenges: connectivity issues, set-up at patient's home not always ideal for neuro developmental assessments, communicating high risk for CP/CP diagnosis via telemedicine
  - Increased patient volume in HRIF clinic due to closures/ limitations at other sites



# Impact of Covid-19 pandemic

- Inpatient NEMO consults also switched to telemedicine
  - Greatly increased show rate and parent availability
  - Parents able to join from home and seemed more relaxed in their home environment
  - Some NEMO consults done as outpatient 1-2 weeks after discharge - important touch point as many parents had questions about feeding or requested mental health support





# Lessons learned

- Change is really hard!
  - Support from leadership and funding help to get started
  - It's a team sport!!
- Sustaining change
  - Billing for services
  - Training NICU staff in taking/ requesting GMA videos from parents
  - Using MyChart to communicate with families about GMA videos
  - EMR documentation of GMA flowsheet in NICU
  - GMA consultation/ second opinion support through EDI-CPF network



# Lessons Learned

## Communication

Communicating an early diagnosis of CP/ high-risk for CP can be challenging

- Parental anxiety around GMA/ getting bad news
- Parent support during and after receiving the diagnosis is very important

## Access to Early Intervention

Improving access to early intervention

- Using the GMA to advocate for services

## Community Connections

Making connections within our health system and in the community for improved family support and early intervention



# Summary

- Team NEMO successfully implemented the guidelines, leading to a decrease in average age of cerebral palsy diagnosis to under 12 months and early identification of “high-risk for CP”
- Changes have been sustained over the 4 years since initial implementation, despite challenges due to the pandemic
- Increased awareness of need for parental support led to improvements in overall clinical care



# Future Directions

- Continue to optimize implementation in NICU and HRIF clinics
- Improve access to early intervention services for babies at high risk for CP
- Trauma informed care in the NICU - using a strength-based approach to promote positive parenting
- Increasing parent mental health support in NICU and HRIF – working synergistically with other systems of care within UCLA and in the community



# References

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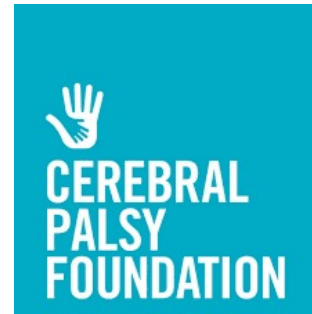
# Acknowledgements



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