

Identifying Infants at High Risk for Cerebral Palsy: Implementation of a Care Pathway

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Objective

Current evidence suggests that infants at high risk for Cerebral Palsy (CP) can and should be identified very early in life. Early identification and early intervention are imperative due to high levels of neuroplasticity in the developing infant brain. Collaboration between the Divisions of OTPT and Neonatology at Cincinnati Children's resulted in a care pathway that spans the Neonatal Intensive Care Unit (NICU) and NICU Follow-Up Clinic (NFC). The implementation of this care pathway has allowed for standardization of care for these infants and their families.

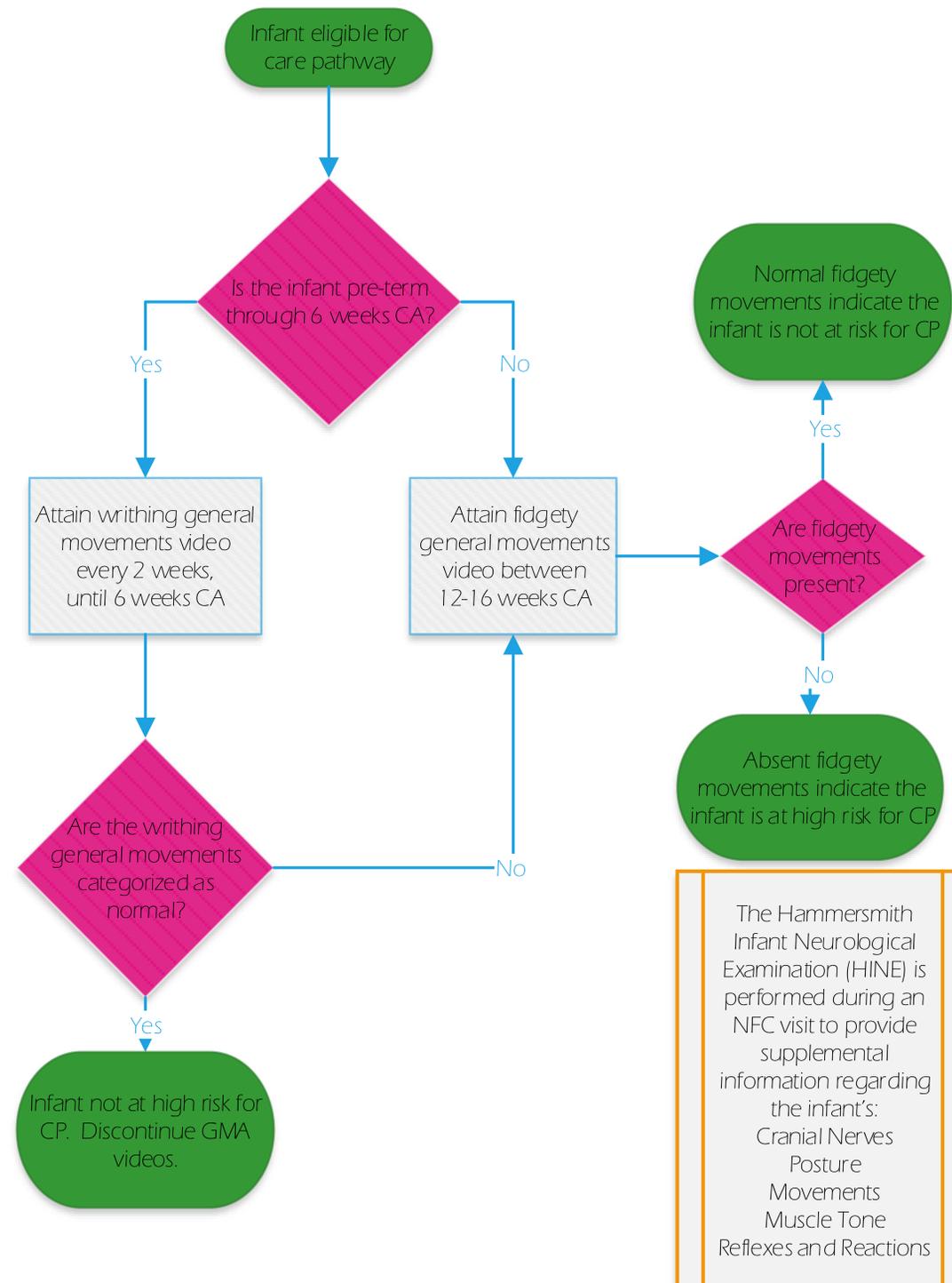
Methods

The General Movements Assessment (GMA) provides information regarding the integrity of the infant brain's central pattern generators, based on the infant's spontaneous movements. Both writhing and fidgety general movements provide valuable information and evidence suggests that a trajectory of the infant's general movements is most desirable. NICU therapists identify infants eligible for the care pathway as medical conditions are identified during their admission. The critical nature of each NICU admission prompts each therapist to consider the medical and developmental readiness of the infant prior to performing the GMA.

Qualifying diagnoses include:

- Gestational age at birth \leq 32 weeks
- Grade I-IV intraventricular hemorrhage (IVH)
- Periventricular leukomalacia (PVL)
- Hypoxic ischemic encephalopathy (HIE)
- Neonatal seizures
- Extracorporeal membrane oxygenation (ECMO)
- Tracheostomy
- Necrotizing enterocolitis (NEC)
- Congenital diaphragmatic hernia (CDH)
- Chromosomal anomalies
- Chronic lung disease requiring home oxygen

NICU/NFC Care Pathway for Early Identification of Infants at High Risk for Cerebral Palsy



Results

GMA videos are recorded during NICU admission, followed by NFC visits. As the infant nears discharge from the NICU, planning for the initial NFC visit is initiated. The following components are considered as the infant begins the transition from NICU to NFC care:

- Number of completed GMA videos during NICU admission
 - Writhing vs Fidgety
- Corrected age of infant at initial NFC visit
 - Up to 6 weeks CA: If writhing videos were completed during NICU admission, continue with recording of additional writhing video during NFC visit. Schedule follow-up visit during ideal fidgety age range (12-16 weeks CA)
 - 7-9 weeks CA: Do not record GMA video. General movements are not clearly writhing or fidgety during this time period. Schedule follow-up visit during ideal fidgety age range (12-16 weeks CA)
 - 10-20 weeks CA: Record fidgety GMA video, aiming for ideal range of 12-16 weeks CA

The fidgety general movements assessment is most predictive of whether the infant is at risk for CP. A GMA with absent fidgety general movements indicates the infant is at high risk for CP. Skilled physical and/or occupational therapy interventions with a therapist well-versed in evidence-based interventions for infants at high risk for CP are initiated.

Discussion

The GMA is a valuable component to the comprehensive care of medically fragile infants whose care is complex in the neonatal period and beyond. It is a non-invasive way to identify the infant at high risk for CP, within the first few months of life. This early identification promotes early interventional therapies which has the potential to improve overall outcome.

Conclusion

A standardized and streamlined care pathway which crosses disciplines and settings is practicable and meaningful to practitioners and families.