

MAKING H-HOPE (Hospital to Home: Optimizing the Preterm Infant Environment) THE STANDARD OF CARE IN YOUR NICU



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Parent Testimony

“It (**Massage+**) made me feel connected. It didn’t make me feel like just another parent in the NICU that had a baby that wasn’t doing well. It was almost a motivating factor to say, look, I gotta get there today because my baby needs this as opposed to that doomed feeling of, oh, my baby is sick and my baby is in the NICU.”



Objectives

- Review the evidence-based H-HOPE developmental / behavioral intervention
- Share the evidence for H-HOPE accumulated from 40 years of nursing research
- Describe the importance of key stakeholder engagement
- Identify essential components of planning for implementation

Benefits of H-HOPE from 40 years of research



Year	Outcome	Biologic/ Behavioral Measures
1988	Mother-infant interaction and responsivity – USA	Maternal: ↑ Responsivity to Stress, Growth Fostering Behaviors
2013		Infant: ↑ Clarity of Cues, Responsiveness to Mother Dyadic Mutuality: ↑ Mother-Infant Responsivity
2009	Neuroendocrine	↓ Infant Cortisol
2022		↑ Maternal Oxytocin
2020	Cost of Hospitalization	↓ Total Cost Per Infant
2002 , 2005	Feeding	Feeding Progression: ↓ Reduced time to transition from complete tube feeding to complete oral feeding
2015		Sucking Metrics: ↑ Number of sucks per sucking burst, total number of sucks, mean sucking pressure, sucking maturity index
2015		Oral feeding efficiency
2017		Oral intake and time to complete oral feeding

Benefits to Infants

- Increases the number of behavioral cues and **social interactive behaviors**, showing that infants are learning to *regulate their behavior*
- Improves oral feeding and growth
- Lowers stress reactivity
- Reduces average length of hospital stay
- Decreases health care visits for possible illness following discharge

White-Traut, R, Rankin, K. M., Yoder, J. C., Liu, L., Vasa, R., Geraldo, V., & Norr, K. F. (2015). Influence of H-HOPE Intervention for premature infants on growth, feeding progression, and length of stay during initial hospitalization. *Journal of Perinatology*, 35(8), 636–641. <https://doi:10.1038/jp.2015.11>



Benefits to Parents & Parent-Infant Relationship

- Learn how to interact and care for their infants while in the NICU
- Increase their confidence to care for their preterm baby at home
- Increases social responsiveness between parent and infant to improve their relationship

White-Traut, R., Norr, K., Fabiyi, C., Rankin, K., Li, Z., & Liu, L. (2013). Mother-infant interaction improves with a developmental intervention for mother-preterm infant dyads. *Infant Behavior and Development*, 36(4), 694-706.

<https://doi.org/10.1016/j.infbeh.2013.07.004>

Benefits to Hospital

- Average savings of \$14,000 per infant after accounting for the cost of giving H-HOPE

Vonderheid, S. C., Park, C. G., Rankin, K., Norr, K. F., & White-Traut, R. (2020). Impact of an integrated mother-preterm infant intervention on birth hospitalization charges. *Journal of Perinatology*, 40(6), 858-866. <https://doi.org/10.1038/s41372-019-0567-7>

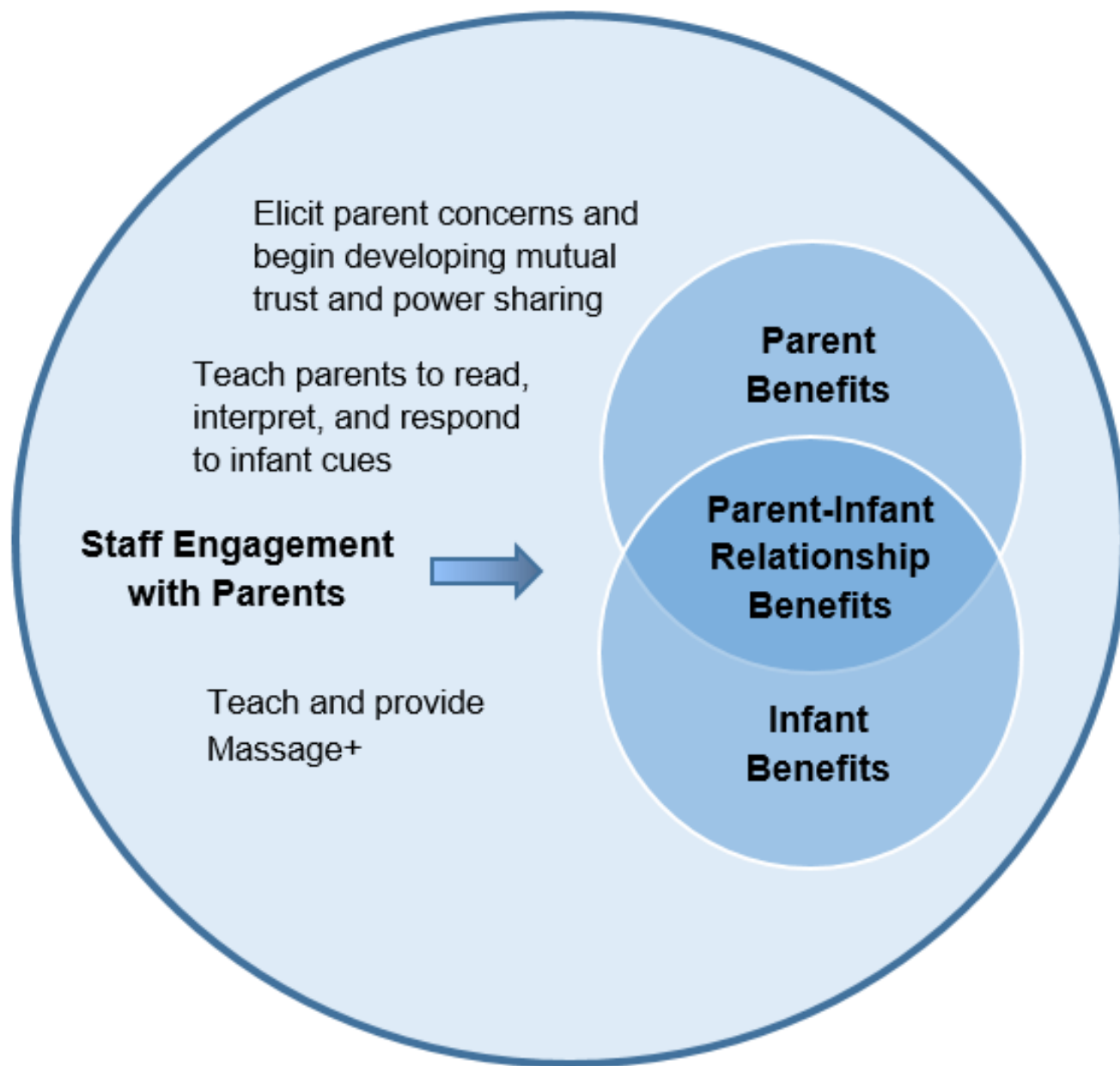
What is H-HOPE?



Early Developmental Intervention a Standard of Care for Preterm Infants

- Vermont Oxford Network: “**All Care is Brain Care**”
- The Physical Environment Exploratory Group **endorses use of sensory interventions, including massage, as standard care after 30–31 weeks post-menstrual age**
- Few NICUs provide evidence-based standardized early developmental interventions that have a **behavioral focus** as routine care such as **H-HOPE**.
- **H-HOPE**: Massage+ and Parents+





H-HOPE: Two Components

Infant-Focused Massage+

Parents and clinicians support the preterm infant neurologic development in four areas:

- Autonomic
- Sensory
- Motor
- State regulation

Parent-Focused Parents+

Parents learn how to deliver Massage+ and their infant's behavioral cues:

- Behavioral state
- Engagement
- Disengagement
- Feeding



Infant-Focused Massage+

- Parents are taught how to administer **Massage+** by trained staff
- Infants receive Massage+ twice a day while in the NICU and after hospital discharge
- Any trained staff administer Massage+ when parents are unable to visit



Parent-Focused Parents+

- Participatory Guidance **engages** parents and builds upon what they already know about their infant
- There are two sessions in the **hospital** provided by trained NICU staff as soon as the infant is ready. Parents to learn Massage+ and the infant's behavioral cues
- There are two sessions at **home** via screen time to review Massage+, behavioral cues and parenting strategies



Planning
Implementing
Sustaining



Health Systems Stakeholder Engagement: Communication

- Engage stakeholders at all levels including operational/clinical leaders, clinicians and medical staff
- Establish **bidirectional communication** through information-sharing sessions about H-HOPE
 - Schedule listening sessions for leaders, clinicians (nurses, PT, OT, SLP) and parents
 - Assess clinician interest, readiness and commitment for developmental/behavioral intervention
 - Evaluate capacity for practice change at the unit level: feasibility and timing
- Determine if H-HOPE is a priority for the unit

Implementation Team Planning: Forming the Team

- Identify the “Implementation Team”
 - Development the roles and responsibilities for implementing and sustaining H-HOPE
 - Operational leaders
 - Clinical Nurse Specialists / Developmental Specialists
 - Clinical Educators
 - Bedside clinicians / therapists
 - Developmental Care Committee members
 - Create **change champion role** and responsibilities
- Develop timeline for planning, implementation, and evaluation
- Schedule team meetings



Implementation Team Planning: Engaging Clinicians

- **Bidirectional communication** with clinicians
 - Create an environment that welcomes clinician participation and opinion to build awareness and commitment
 - Discuss how to integrate H-HOPE into workflow
 - Review process for previous practice changes in the NICU
 - Share progress with all leaders and identify support needed from them
 - Provide continuous updates with all who may be impacted by the developmental/behavioral intervention
- Identify potential facilitators and barriers for implementation
- Determine evaluation methods for processes and outcomes

Implementation Team Planning: Logistics

- Determine all resources necessary for implementation
- Review educational materials and videos on Pathways.org
- Electronic Health Record (EHR) modifications for ease of staff documentation
 - Identify key personnel for modifying the EHR
 - Add banner to identify eligible infants
 - Determine capability to download outcome data related to Massage+ and Parents+ sessions
 - Communicate documentation changes with clinicians for feedback
- Determine system and unit modifications needed for implementation



Implementation Team Planning: Clinician Education / Training

- Plan for in-person, online or hybrid training
- Consider Train the Trainer model for in-person training with champions
- Review H-HOPE Toolkit posted on Pathways.org
 - Introduction of H-HOPE for key stakeholders
 - Clinician training available in three 10 minute modules
 - Introduction to Massage+ and Parents+: an evidence-based developmental/behavioral intervention
 - Assessing infant behavioral cues during delivery of Massage+
 - Using participatory guidance for teaching Parents+
- Review sample CEU packet on Pathways.org



Implementation Team Planning: Parent Education

- Two Parents+ sessions delivered by NICU clinicians
 - Parents+ session I
 - Parents+ session II
- Two Parents+ post discharge sessions by trained clinicians
- Massage+ videos available on Pathways.org
- Multi racial/ethnic training dolls
 - Kaplan Learning:
<https://www.kaplanco.com/product/80797P/14-inch-lots-to-love-babies-with-different-skintones?c=2%7CDP1020->



Implementation Team: Strategies for Implementation

- Schedule a Go-Live day to create excitement
- Communicate new intervention with parents – snacks & chat
- Plan for champions availability on all shifts to assist clinicians with implementation
- Daily rounding by operational and clinical leaders
- Huddles to share thoughts and feedback
- Recognize nurses who begin incorporating Massage+ and Parents+



Implementation Team: Strategies for Evaluation

- Audit documentation of Message+ and Parents+
- Observation of delivery of Message+ and Parents+ and offer feedback for further training
- Observation of H-HOPE discussions on rounds
- Ask for opinions from parents and clinicians
- Audit number of clinicians trained to deliver the intervention
- Collect data on facilitators and barriers to implementation
- Incorporate evaluation data into annual report



Implementation Team: Strategies for Sustainment

- Incorporate H-HOPE and developmental care into the daily rounding discussion
- Develop strategies needed to sustain as standard of care during high census, short staffing, etc.
- Incorporate H-HOPE training/education into new employee orientation
- Support Developmental Committee with continued implementation and annual evaluation of intervention



H-HOPE Video



<https://vimeo.com/463854475/095e24c39c>

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References – Open the links below

- Topics:
 - **Growth** – White-Traut, R, Rankin, K. M., Yoder, J. C., Liu, L., Vasa, R., Geraldo, V., & Norr, K. F. (2015). Influence of H-HOPE Intervention for premature infants on growth, feeding progression, and length of stay during initial hospitalization. *Journal of Perinatology*, 35(8), 636–641. <https://doi:10.1038/jp.2015.11>
 - **Hospital Cost** – Vonderheid, S. C., Park, C. G., Rankin, K., Norr, K. F., & **White-Traut**, R. (2020). Impact of an integrated mother-preterm infant intervention on birth hospitalization charges. *Journal of Perinatology*, 40(6), 858-866. <https://doi.org/10.1038/s41372-019-0567-7>

Additional References

- <https://www.ncbi.nlm.nih.gov/myncbi/rosemary.white-traut.2/bibliography/public/> (CTRL ALT Click – open hyperlink)

Thank you!

Pathways.org,

National Institute of Child Health and Human
Development, National Institutes of Health