Laboratory focus

The Occupational Therapy Neonatal Intensive Care Unit (NICU) Laboratory is part of a multidisciplinary team working to better understand the effects of the environment, medical conditions and interventions on the brain structure and functional outcome of the developing infant. Most of the current work involves premature infants born prior to 30 weeks gestation (0-1/2 months early). Neurobehavioral examinations and feeding evaluations are an important component of measuring early function. Measuring maternal, social, environmental and medical factors is also an important part of the lab’s work. Current topics of investigation include: the effects of language and sound exposure on infant development, reliability and validity testing of a newborn feeding assessment, the evaluation of a new program (Baby Bridge) to bridge the gap between NICU therapy services and outpatient therapy, neurobehavioral development, and the use of parent-driven, sensory-based interventions in the NICU.

Questions explored in laboratory

1. Can the use of parent-driven, sensory-based interventions improve outcomes of preterm infants who are hospitalized in the NICU?
2. Psychometric testing of the Neonatal Eating Outcome (NEO) assessment and using measures of feeding to define pathways to oral motor and feeding problems.
3. Can the continuity of services following NICU discharge be improved?
4. What evaluation tools used during the neonatal period can predict childhood outcome?
5. What therapeutic interventions applied during the neonatal period can improve outcomes?

Contributions to rehabilitation science

Dr. Pineda’s current research focuses on the effects of the NICU environment on preterm infant development. Her work investigates the impact of an intervention aimed at fostering parent-infant interaction while ensuring daily positive multi-modal sensory exposures in the NICU. Such work informs the rehabilitation team in the NICU on types, timing and duration of specific sensory experiences to optimize outcomes. It also sets the stage for parent education that can foster early engagement in the NICU to lay the foundations for the important parent-child relationship. Dr. Pineda has also contributed to the measurement and early identification of developmental impairment with her work identifying developmental changes prior to term-equivalent age, as well as her development of a new neonatal feeding assessment, the NEO Assessment.

Current and recent funding

Title: Engaging families in NICU Care to optimize outcomes of preterm infants
Principal Investigator: Bobbi Pineda, PhD, OTR/L
Funding Source: Gordon and Betty Moore Foundation
Project Period: 12/1/15-11/30/18
Total Award: $502,500
Title: The Preemie-Pacer: An innovative bottle to promote safe and efficient oral feeding in preterm infants
Principal Investigator: Tom Olesky, MBA, and Bobbi Pineda, PhD, OTR/L
Funding Source: R43HD092210 US NIH NICHD
Project Period: 4/1/17-12/31/17
Total Award: $149,917
Title: Reliability and validity of a developmental feeding assessment for the high risk infant
Principal Investigator: Alan Jette, PhD
Pilot Project Investigator: Bobbi Pineda, PhD, OTR/L
Funding Source: R24HD065688 NIH NICHD
Project Period: 7/1/14-6/30/16
Total Award: $32,400

Representative publications
