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Pain-Omics Across the Lifespan 27th International Nursing Research Congress Cape Town, July 21, 2016

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All, for your one.

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innovation
UNLEASHED

Disclosures

- The Authors have no disclosures to declare.

Pain, Gut Microbiome and Neurodevelopment in Preterm Infants

- Xiaomei Cong, PhD, RN
- Research supported by the National Institute of Nursing Research K23NR014674

Translational Genomics for Predicting Pediatric Pain Outcomes

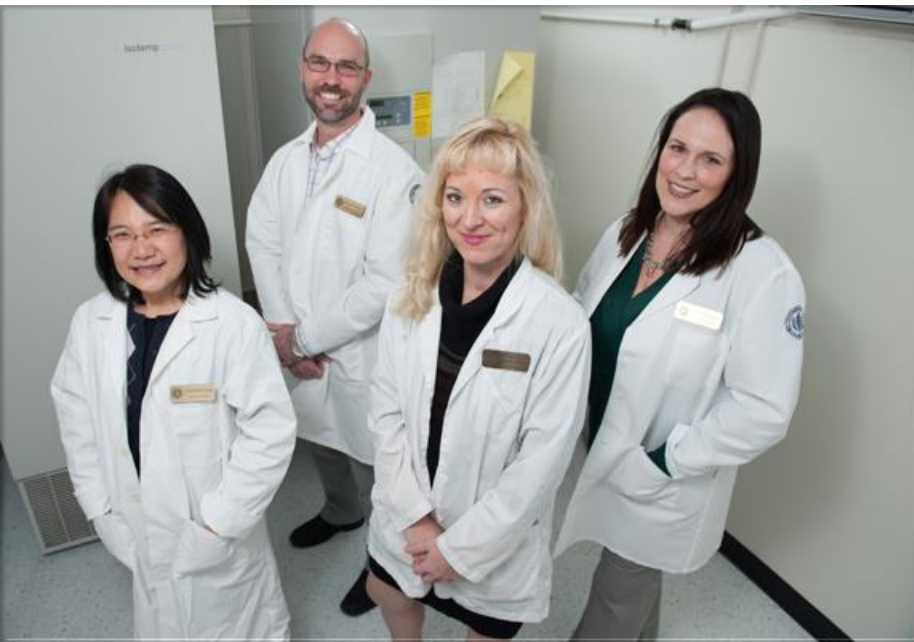
- Renee Manworren, PhD, APRN-BC, PCNS-BC, FAAN
- Research supported by CT Children's Medical Center

Genomics and Metabolomics in the Transition from Acute to Chronic Pain

- Angela Starkweather, PhD, ACNP-BC, CNRN, FAAN
- Research supported by the National Institute of Nursing Research R01 NR013932

Learning Objectives:

1. Explain “omic” methods for studying acute and chronic pain across the lifespan.
2. Describe innovative designs for including omic measures in nursing research.
3. Identify three translational opportunities for applying research findings to improve nursing practice of individuals with pain.



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The Center for Advancement in Managing Pain (CAMP)

CAMP provides a collaborative infrastructure for pain management professional and academic researchers from across disciplines to establish translational programs of research, implement interdisciplinary pain education, and develop innovative approaches for advancing the practice of precision pain management.

<http://nursing.uconn.edu/research/center-for-advancement-in-managing-pain/>

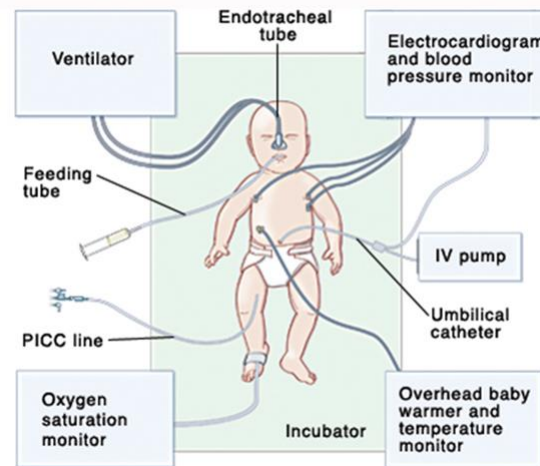
Painful/Stressful Early Life in the NICU

- Approximately 8%-12% of all U.S. births (N = 500,000 infants per year) will need some care in the NICU setting.
- In NICU, infants are exposed to numerous early life pain/stressors during critical periods of neurodevelopment.



Pain/Stressors in the NICU

- Repeated invasive painful procedures
- Daily uncomfortable cares
- Separation from parents and family
- NICU environment - noise, light, infection





Pain/Stress in Infants is Harmful!

- **Short-term:** increased HR, BP, and O₂ consumption fluctuation in intracranial pressure → intraventricular hemorrhage (IVH) and → periventricular leukomalacia (PVL).
- **Repeated/prolonged pain:** activate the central neurons in the dorsal horn and brainstem central sensitization, and general stress system, HPA
- **Long-term:** may alter neuronal and synaptic organization permanently and result in widespread changes in the immature brain leading to abnormal behaviors in adulthood.

What can we do?

- To discover new and creative approaches to address the challenge of infant pain is a primary nursing focus.

