Neonatology Innovation Retreat

On July 19, 2016

The Center for Innovation (CFI) hosted a retreat with the Division of Neonatology at CHLA and the Viterbi School of Engineering at USC for the purpose of collaborating on new solutions to unmet needs concerning high-risk newborns. The retreat was held at the Mr. C Hotel Beverly Hills hotel on June 24.

"Last year, we hosted a retreat with the Department of Surgery and Viterbi engineers to explore the use of virtual and augmented reality in pediatric surgery" said Jessica Rousset, Director of the Center for Innovation and co-director, with Yaniv Bar-Cohen, MD, of the Consortium for Technology and Innovation in Pediatrics (CTIP). "We hope to offer this type of forum to a different CHLA department or division each year."

The goals of these events are to better understand the current limitations in care from multiple stakeholders' perspectives, to brainstorm with colleagues from the Viterbi School of Engineering at USC around potential solutions, and to nurture a culture that proactively seeks to improve standards of pediatric care through multidisciplinary interactions and collaborative research.

This year's program began with a welcome by Philippe Friedlich, MD, interim center director and division chief for Fetal and Neonatal Medicine and introductory remarks by Rousset and Bar-Cohen.

A lively keynote presentation was delivered by Evan Richards, director, Education and Clinical Services, for Bunnell Incorporated – a medical equipment company best known for the Life Pulse Ventilator, the first high-frequency ventilator approved by the U.S. Food and Drug Administration (FDA) for clinical use in 1988. The keynote was followed by a session on how to brainstorm by Denny Royal, a consultant with a background in design research and expertise in helping clients solve challenges from a holistic perspective.

Four topics, representing critical issues faced by clinicians in neonatal intensive care units, had been identified in advance for the purpose of brainstorming during the retreat. Attendees mobilized into teams to work on selected problems and shared the results and proposed solutions with the entire group at the end of the program. The four topics were:

- Innovating the Isolette –Re-imagining the isolette as an artificial womb with environmental controls that mimic in utero conditions while positioning the baby to better facilitate various procedures (LP, IV, intubation, etc.) and better communicate information on the infant's vital signs with family through video.
- GI function in Neonates – Working on solutions for improved monitoring, diagnosis and treatment of GI function in preterm babies with attention to motility, stool, reflux, and perfusion.
- Simulation Training –Working on solutions for improving physician training and patient family education and engagement.
- Neonatal Imaging –Working on solutions to improve point-of-care imaging for preterm babies; enabling imaging without interruption of life sustaining-drugs and devices, with attention to portability, procedure duration, surface size and imaging depth, sedation/movement and normal references.

The Center for Innovation will work in the coming months to assist participants with refining the solution concepts that emerged from the retreat and will help identify and pursue appropriate philanthropic, federal and industry funding opportunities.

These retreats are made possible through funding from USC to the Consortium for Technology and Innovation in Pediatrics (CTIP), for the purpose of fostering collaboration between USC-based engineers and clinicians at CHLA with the goal of solving problems specific to pediatric medicine. CTIP is an FDA-funded accelerator for pediatric medical technologies based at CHLA and operated through the CFI to support the development of novel ideas by CHLA faculty and innovators across the country.