

Innovations in Neonatology



Rady Children's - A comprehensive system focused solely on children and adolescents.

PEOPLE



Dr. Farhad Imam receives prestigious NIH grant

Farhad Imam, M.D., Ph.D., a 2016 recipient of a UC San Diego Clinical and Translational Research Institute KL2 grant, has been awarded a prestigious K08 grant from the National Heart, Lung, and Blood Institute (NHLBI). Dr. Imam will receive up to five years of NHLBI support to continue studying hypoxia preconditioning and its role in preventing brain injury in infants. Hypoxia, an oxygen deficiency, can cause debilitating disease and organ injury in infants who encounter complications during childbirth and affects over 10,000 infants in the U.S. each year.

"I'm very pleased to expand this research to better understand how the body's natural response to hypoxia can be protective and lead to a preconditioned state where we are more resilient against severe hypoxia stress," says Dr. Imam, a member of the Division of Neonatology at Rady Children's Hospital-San Diego and an assistant professor of pediatrics at UC San Diego. "If we can understand more about how this protective phenomenon occurs naturally, we should be able to activate it therapeutically in high-risk infants and therefore minimize or even prevent brain injury."

Using an animal model of hypoxia preconditioning, Dr. Imam will conduct genetic and genomic investigations into its mechanisms. The goal is to develop novel preventive therapies. "Successful identification of a neuroprotective drug that activates the preconditioned state and protects against hypoxic injury would have a tremendous impact on the thousands of infants each year who suffer from hypoxic brain injury," he says.



PROGRAMS

Rady Children's expands NICU programs at Scripps Health

Rady Children's now operates all four neonatal intensive care units at [Scripps Health](#), an integrated health system in San Diego County that includes four hospitals. This program collaboration has been in existence for more than 20 years.

"Extending our collaborations with Scripps Health to the Mercy San Diego and Chula Vista NICUs will help us bring state-of-the-art neonatal care to more families throughout the San Diego region," says [Lance Prince, M.D., Ph.D.](#), division chief of neonatology at Rady Children's and UC San Diego. "Our overall mission is to ensure outstanding neonatal care within every hospital setting. We greatly value our relationship with Scripps and look forward to caring for those newborns that need a higher level of care and special expertise."



innovation
belongs in every moment

The expanded collaboration with Scripps Health completes Rady Children's plan of providing high quality neonatal care across the region. With the addition of the two Scripps NICUs, Rady Children's now operates seven NICUs in San Diego and Riverside counties (including the Level 4 NICU at Rady Children's), for a total of over 150 licensed beds. Rady Children's neonatologists also staff the NICUs at Pomerado Hospital and UC San Diego Medical Center, for a total of 54 beds.



Genomics Institute focuses on critically ill newborns

The Rady Children's Institute for Genomic Medicine, working with the Division of Neonatology, has begun sequencing the genomes of infants in Rady Children's neonatal intensive care unit and pediatric intensive care unit who are critically ill and have an unknown condition. During this start-up phase, the Institute is sequencing, on average, two or three families per week, with the goal of providing a rapid diagnosis of a genetic disease to enable timely, targeted treatments.



Earlier this year, the Institute hosted genomics researchers from across the nation to confer on their progress in determining whether sequencing of newborns' genomes can provide useful medical information beyond what current newborn screening already provides. These researchers are part of the [Newborn Sequencing In Genomic medicine and public HealTh \(NSIGHT\) program](#), which addresses how genomic sequencing can replicate or augment known screening results for newborn disorders, what knowledge sequencing can provide for conditions not currently screened, and what additional clinical information could be learned from sequencing relevant to the clinical care of newborns.

The NSIGHT program is funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) and the National Human Genome Research Institute (NHGRI), components of the National Institutes of Health. In fiscal year 2013, initial funding of \$5 million was given to four grantees under the Genomic Sequencing and Newborn Screening Disorders research program. The program, currently in its third year, is set to provide funding of \$25 million over five years.

The participating grantees in the NSIGHT program include Rady Children's Institute for Genomic Medicine, Rady Children's Hospital-San Diego and Children's Mercy - Kansas City; Boston Children's Hospital, Brigham and Women's Hospital & Baylor College of Medicine; the University of California, San Francisco and the California Department of Public Health; and the University of North Carolina at Chapel Hill.

Quality improvement project reduces infant length of stay

Rady Children's neonatologists working at [UC San Diego Medical Center](#) joined a quality improvement project with the Vermont Oxford Network to improve the hospital care of infants at risk for neonatal abstinence syndrome (NAS), a group of health issues that occur in a newborn who was exposed to addictive opiate drugs while in the mother's womb.



Starting in 2014 and continuing for two years, the project has made impressive gains in the care of these infants. A multidisciplinary group led by Lisa Stellwagen, M.D., of UC San Diego worked with physicians, nurses, pharmacists, social workers and others to define program goals. The implementation of a NAS policy, including a prenatal consult, parent education, treatment guidelines, communication with the mother's providers and encouragement of breastfeeding has been successful at decreasing infant length of stay, reducing opioid treatment and improving breastfeeding rates. Further gains were achieved in 2015 with the launch of the Mother Baby Bonding Program, which enabled low-risk infants with NAS to stay in couplet care with their mothers if medication was not required.

At the end of the project, hospital length of stay had decreased from 94 days to 17.5 days. Additionally, rates of opioid treatment dropped from 100 percent to 55 percent, and breast milk feeding at discharge increased from 0 percent to 55 percent. Almost half of the NAS infants now stay with their mothers on the postpartum floor for 5 to 10 days of observation and never go to the neonatal intensive care unit or need treatment with opioid medication. The neonatology team continues to work on improving the care for these babies in the mother/baby services program at UC San Diego Medical Center, and Rady Children's neonatal units have begun implementing the project.



Learn more at [RCHSD.org](#)