

# Innovations in Neonatology



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



## PROGRAMS

### Neuro-NICU only one of its kind in Southern California

The Neuro-NICU Program at Rady Children's Hospital-San Diego, co-directed by neonatologists [Jose Honold, M.D.](#), and [Crystal Le, M.D.](#), and neurologist [Jeffrey Gold, M.D.](#), aims to prevent brain injury in infants through prevention and early detection of neurological problems.

Founded in 2012, the program was one of the first of its kind in the country; currently, it is one of a select few providing the highest level of specialized care to neonates at risk for neurological injury. Many of our patients are transported to Rady Children's by our own [Neonatal Transport team](#) from other hospitals in the Southern California region.

Our multidisciplinary team treats infants with conditions such as stroke, hypoxic ischemic encephalopathy, intraventricular hemorrhage, arteriovenous malformations, genetic disorders, brain malformations, extreme prematurity and related conditions, including seizures. Infants who are exhibiting signs of seizures, such as unstable vital signs or lack of alertness, are immediately put on continuous video electroencephalogram (EEG) to check their brain's electrical activity. If they begin to have seizures, they are treated with anticonvulsant medication.



There is also a large computer server for the EEGs with protected online access, which enables doctors to monitor brain signals remotely. As a result, seizures can be detected even when physicians are not physically at the hospital.

[Learn more about our Neuro-NICU.](#)

### Specialized team cares for smallest newborns



Extremely low birth weight (ELBW) babies, those born weighing 1,000 grams or less, often have multiple morbidities relating to several body systems. As a result, they require very specialized care. In the San Diego area, the sickest of these infants with the greatest risk of complications are cared for by the ELBW team at Rady Children's. Rady Children's operates the region's only level IV NICU and is the primary referral center for these infants.

The ELBW team consists of NICU nurses who complete intensive in-house training. This advanced training hones their skills to recognize the complications associated with an extremely low birth weight, reviews the underlying mechanisms and interactions of these complications, and teaches techniques in providing the specialized care required for ELBW patients in their first weeks of life.

The ELBW team meets regularly to learn from recent cases and to review the latest literature on the most current standards of care. This commitment to continuous learning not only ensures the highest level of care for the smallest and most fragile patients, but builds peer leaders and subject matter experts who improve care and outcomes across the unit.



## INNOVATIONS

Telemedicine robots improve patient care, efficiency

Rady Children's has multiple satellite and consulting NICUs throughout the region. It has not been feasible historically for our neonatologists to be physically present to consult on every case. To address this issue, the hospital has placed state-of-the-art telemedicine robots at each of the unit's locations, which are now being used on a daily basis.

The robots can be navigated around the hospital and incorporate real-time high-definition video and sound, all controlled via an app available on a physician's computer or mobile device. This highly advanced technology allows our neonatologists to make diagnoses and treatment decisions faster than ever before, benefiting patients and their families and improving operational efficiency.



Recently, an infant was born at a hospital about an hour and a half from the Rady Children's campus. The initial diagnosis would necessitate an air transfer to our main NICU and carried a grim prognosis -- an expected lifespan of only months.

With the robot in place, our treatment team gathered around the console, directed the physician at the remote location on how to perform a series of exams, and watched the exams in real-time. Based on these tests, our team determined that the diagnosis was incorrect, which not only alleviated the family's fears, but allowed the patient to remain close to home and saved a costly and unnecessary trip on the transport helicopter.



RESEARCH

## Transport team part of pivotal study on cooling device

Rady Children's neonatal transport team recently participated in a multicenter clinical trial that has led to U.S. Food and Drug Administration approval of a specialized cooling device. The study found that using the device on newborns with neonatal encephalopathy provides a more predictable temperature management during neonatal transport than the current practice.



The study involved 100 newborns with neonatal encephalopathy who were cooled during transport to nine neonatal intensive care units in California. Newborns who met institutional criteria for therapeutic hypothermia were randomly assigned to receive cooling according to usual center practices versus device servo-regulated cooling. The primary outcome was the percentage of temperatures in the target range (33°-34°C) during transport.

The results showed that infants cooled using the device had a higher percentage of temperatures in the target range compared with infants in the control group. More subjects also reached target temperature during transport using the servo-regulated device and in a shorter period of time. Additionally, device-cooled infants reached the target temperature by one hour with greater frequency than the infant controls.

[Jose Honold, M.D.](#), director of the Children's Hospital Emergency Transport (CHET) Neonatal team at Rady Children's, is one of the study's authors.

[Click here to read the abstract.](#)



innovation  
belongs in every moment



Learn more at [RCHSD.org](http://RCHSD.org)