

Vanderbilt University Medical Center

SimNewB™ improves assessments and emergency response in Vanderbilt University Medical Centers Perinatal Outreach Regionalization training program.



Nashville, TN

Monroe Carell Jr. Children's Hospital at Vanderbilt University Hospital's 78-bed Neonatal Intensive Care Unit (NICU) in Nashville treats 1,200+ infants each year. The NICU, classified level 3-C by the American Academy of Pediatrics, provides critical care transport, both inbound and returning, as an integral part of its specialized care.

Tennessee is #5 in the U.S. for infant mortality and morbidity, and rural medical professionals are often the first-responders in high-risk deliveries. Vanderbilt determined that staff in small community hospitals would benefit from additional competency training and skill set refinement, and launched a program using SimNewB simulators to take simulation training on-the-road.



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Cost-effective, comprehensive training program targets rural community hospitals

At a neonatal conference, Vanderbilt's Perinatal Outreach Regional Educator Mary Lee Lemley, MSN, RNC, Clinical Nurse Specialist, Division of Neonatology, discovered a Laerdal exhibit of simulator babies.

Though training costs are often prohibitive for small community hospitals, the initial care following delivery greatly impacts the baby's future quality of life. Lemley gained approval to offer simulation and educational assistance with skill labs, mock codes, endotracheal intubation/chest tube labs and neonatal/pediatric assessments.

Between program launch on February 9, 2009 and April 27, 2010, Lemley took simulation training to nine hospitals and four universities in a nine-county area: 3,652 nurses, residents and respiratory therapists participated in quarterly hands-on training programs with a SimNewB simulator named "Isabel".

Isabel travels in car seat and stroller and is dressed in baby clothes, evidence of Lemley's commitment to realism. "I treat her with care so they can't help but show the same respect for her in a code situation," said Lemley. "During trainings, I sit behind the warmer so the focus is on Isabel."

"Using scenarios, we progress from basic assessments and skills to a full blown mega code, from a simple unscheduled delivery to a gradual progression of difficulty. Laerdal's new Advanced Neonatal Resuscitation Scenarios include deliveries ranging from rare (hydrops, diaphragmatic hernias) to more common situations (shoulder dystocias, meconium aspiration). With a battery and medical air, we take Isabel from delivery room to transporter to NICU without stopping the scenario."

The custom-designed program is available to at least 37 regional hospitals, and to several Vanderbilt classes and its transport team; a new four-phase simulator training program for residents in Vanderbilt's NICU and newborn nursery rotation will begin in 2010. Many more hospitals now want to develop or expand similar training programs.

Simulator training ensures more confident response and improved care

Early in the Outreach Regionalization Program, Lemley conducted a mock code. The neonatal nurse practitioners, registered nurses and respiratory therapists couldn't provide high quality compressions to administer epinephrine. She adapted the training: staff now treat Isabel while working normal shifts in their own environment and use all their own equipment and meds.

Many hospitals report changes in emergency response, and schedule quarterly mock codes for staff. Improved learner response and effectiveness, and adoption of new techniques and effectiveness in patient care, have already been documented:

- Raised awareness of conditions and symptoms requiring transport to higher level of care
- Greater receptivity to new equipment and increased confidence in its effectiveness
- Increased ability to assemble medication administration devices, provide high quality chest compression and deliver effective breaths through bag mask ventilation
- Higher level of care by staff participating in quarterly simulator mega code and skill lab rotations

"A graduate nurse on her first night shift alone was involved in a patient code and said, 'I just pretended it was Isabel. I did a head to toe assessment, good positive pressure ventilation, and high quality compressions. Because of simulation, I knew how to work through the steps,'" noted Lemley. "People asked Captain Sully if he'd made emergency landings before his dramatic landing on the Hudson River. He said, 'yes, hundreds of times, on simulation.' That's what I want for this program."



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Vanderbilt University Hospital

U.S. News and World Report lists Vanderbilt University Hospital, located in Nashville, TN, and its 222-bed Monroe Carell Jr. Children's Hospital among "America's Best Hospitals." Named one of the nation's seven pediatric "Top Hospitals" for providing excellent patient safety in the Leapfrog Group's annual survey, Children's Hospital also received *Parents Magazine* recognition as one of the country's premier hospitals. Children's Hospital treats the region's sickest children, caring for patients in 44 states in the past year; it is also a premier teaching facility, dedicated to training the next generation of health care professionals. For more information, visit www.vanderbilt.edu

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