

# LOCAL

## Birthing with Reproductions

Crouse's programmable simulators breathe, bleed, teach

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The first clue that there might be something wrong with Noelle's pregnancy was when her water broke about eight weeks early.

The second sign came Tuesday when a monitor next to her bed in Crouse Hospital showed her baby's heart rate was plummeting.

Dr. Reem Akkawi, an ob-gyn resident, slipped on a pair of disposable gloves and did a pelvic exam on Noelle. Akkawi could feel the umbilical cord coming out before the baby, a dangerous complication which can cut off blood flow to the baby and result in still birth.

"We need to do a C-section upstairs to save your baby," Akkawi said.

A team of nurses quickly transferred the patient from her bed to a gurney and whisked her to an operating room on the eighth floor. Akkawi straddled Noelle and rode on the gurney, all the while keeping her hand on the umbilical cord to keep it from compressing.

Within 15 minutes, an attending physician, Dr. Stephen Brown, completed the emergency cesarean section and delivered a baby boy who wasn't breathing and barely had a pulse.

The baby was handed off to staff from the neonatal intensive care unit. In a corner of the operating room, they used a self-inflating bag and mask to resuscitate him until the baby's breathing, heart rate and color became normal.

All this to save a dummy.

Noelle and her baby, Hal, are computerized mannequins, known as human patient simulators. Crouse recently purchased them with \$40,000 in hospital foundation



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**LINDA WEBSTER**, a nurse instructor in the Crouse Hospital nursing school, works with the birthing simulator used to train nursing students at the Marley Education Center.

money to use in training drills like the one that took place Tuesday in the hospital and to teach students in its nursing school. Crouse already has an adult male patient simulator and two other mannequins — a man and child — on order.

Noelle is the first simulator at Crouse that gives birth. Upstate Medical University plans to start using a birthing simulator this summer with its physician assistant students and St. Joseph's Hospital Health Center plans to get one for its nursing students.

Hospitals and schools worldwide are increasingly using the devices to teach nurses, doctors, emergency medical technicians and other health professionals.

Noelle and Hal, made by Gaumard Scientific, a Miami, Fla.-based company, are equipped with complex wiring and computer software that allow instructors using a wireless tablet computer to remotely program them to perform life-like functions. Noelle speaks, moans, goes into convulsions, hemorrhages fake blood and can mimic all sorts of birth emergencies including breech birth and dystocia, a situation where the baby's shoulder gets stuck on the way out.

Baby Hal cries, turns blue if he doesn't get enough oxygen, has a heart beat and even makes bowel sounds.

Umbilical cord prolapse, the complication that triggered the emergency C-section in Tuesday's drill, happens in about one in every 300 births.

Martiel Stoecker, a clinical nurse specialist in the hospital's obstetrics department, said that's why it's important to have a birthing simulator that lets nurses and doctors sharpen their skills.

"Every day we don't have a crisis so they are not used to seeing it," Stoecker said. "When we go to check Noelle, we can do an exam and feel the cord, which you can't do on a real person in a training drill."

After the drill, nurses and doctors involved in the exercise gathered in a conference room to talk about how it went and identify ways they could improve communication and performance.

The mannequins give nursing students hands-on experience in a "near real" situation, said Doreen Masella, Crouse's nursing lab simulation manager.

"Yes it's a doll, but the heart sounds similar to a real baby's," Masella said. "It allows them to experience it, but not for real. They can make a mistake and it's OK."

On the first day of class, new nursing students at Crouse use baby Hal when they are learning how to evaluate a newborn's condition right after birth by checking the baby's heart rate, muscle tone, breathing rate and skin coloration.



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**CROUSE HOSPITAL** nursing students (*from left*) Ráisa Zhovklaya, of Warners, Laura Merrill, of Syracuse, and Marguerite Valenti, of Onondaga Hill, attend to a mechanical newborn baby while being trained at the Marley Education Center. The class witnessed a birth by the birthing simulator, seen behind them.