

# Design Thinking Improves the NICU

In the neonatal intensive care unit (NICU) at Cone Health Women's and Children's Center at Moses Cone Hospital, fragile newborns fight for life with every breath. Skilled care teams confer on the best treatment protocols. Anxious parents sit helplessly by the incubators that cradle their infants. For four months in the spring of 2019, 45 graduate students from the Bryan School of Business and Economics joined them in an effort to apply design thinking to improve the clinical and family experience.

"The whole project started when we were planning for our move to our new hospital building," explains Tina Hunsucker, RN, MPH, NNP-BC, Director of Neonatal Services at the Cone Health Women's and Children's Center. "We were interested in improving our rounds process, the way our multidisciplinary team goes bedside to bedside to discuss the patient, review

the baby's problems or changes, and determine care over the next 24 hours."

Rounds can include medical teams of five to seven individuals. In the new Cone Health NICU, those teams need to manage up to 45 infants in two different rooms.

"The problem of how to round in an efficient manner while

satisfying multiple stakeholders presented a complex challenge," says Benjamin Rattray, DO, FAAP, Neonatal Transport Director at Cone Health. "We needed to balance the communication needs of the various medical teams and parents while creating an efficient workflow. That's why we turned to the students at the Bryan School."

## OFFERING A NEW POINT OF VIEW

Greg Hewitt, Executive Director of Innovation at Cone Health, made the introduction between Hunsucker, Rattray, and Dr. Cheryl Nakata, the Joseph M. Bryan Distinguished Professor of Innovation at the Bryan School. "To be honest, many of us on the clinical side weren't quite sure how business students could help us," Hunsucker says. "But Cheryl helped us understand how a new point of view about how we do rounds could be valuable."

That point of view was underpinned by design thinking, a creative problem-solving approach that places human need at the center of the innovation process. Nakata's goal was to immerse her graduate students in the

MBA Technology and Innovation class in a real-world application of design thinking.

"Design thinking cultivates the ability to work well with others as well as develop effective solutions to tough challenges. It also adds value by instilling adaptiveness," she says. "We live in an uncertain world, and businesses are grappling now more than ever with sudden shifts and negative events. To better prepare graduates to pivot quickly and adroitly in these environments, the course teaches them about reimagining what is possible and moving courageously forward through the unknowns."

Design thinking is entirely hands-on and experiential. By working with the Cone Health NICU teams, the students were required to engage firsthand with a real innovation problem through direct observations and in-depth interviews. "The students learn by doing rather than just knowing. Design thinking thus aligns very well with the Bryan School's focus on developing exceptional problem-solvers through hands-on/experiential projects," Nakata says.

## TAKING A CREATIVE PROBLEM-SOLVING APPROACH

"We found this to be a very interesting process," Hunsucker says. "Most of the students did not have any medical background, so we started with a 'speed-dating' approach to help them get a foundational understanding of what went on in a NICU and what we want to achieve by doing rounds."

The students heard from each team member to understand roles, responsibilities, and issues with the rounding process. They observed rounds and debriefed with the clinicians.

Then they interviewed other experts in different business sectors to identify unique approaches to communication that could be applied to the NICU rounds model.

While working as teams, students applied Nakata's human flourishing innovation approach to conceive solid solutions for a better rounding protocol.

"Human flourishing innovation incorporates a flexible, open focus on creative problem-solving to allow different people, skills, and perspectives to merge and inform innovative solutions," Nakata says.

## DEVELOPING WORKABLE SOLUTIONS

The four-month project was deemed a success by all participants. Each student team developed a portfolio and presented their solutions to Cone Health. "By using design thinking, the students were able to come up with novel approaches to rounding with a focus on efficiency and improving the experience for all people involved," Rattray says.

When the Cone Health staff moved to the new NICU, they implemented several of the teams' solutions right away, including changes to how NICU teams are structured. Now, mixed acuity teams with a neonatologist and two nurse practitioners are assigned to each of two zones in the NICU.

"These changes helped increase the speed and efficiency of rounds, as well as decreased the amount of walking required in our new larger unit. This allowed us to complete rounds earlier in the day, which helps the pharmacy and nutrition teams implement the new daily orders as well as increases the time the medical team has to communicate with parents and complete other daily tasks," Rattray says.



By balancing communications and efficient workflow is vital in the NICU. By applying design thinking, students offered multiple workable solutions to the physicians at Cone Health Women's and Children's Center.



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Benjamin Rattray, DO, FAAP  
Neonatal Transport Director  
Cone Health



Another of the teams' suggestions was to do brief evening rounds so that night nurses could participate in the plans of care for each infant. "We loved this idea and are looking forward to implementing that next," Hunsucker says.

"I would love to be involved in another project like this," she says. "The students did an outstanding job and showed us the value of going outside of our silos to find creative ways to look at challenges through a different lens."