The Newborn Critical Care Center (NCCC) on the fourth floor of the North Carolina Children’s Hospital, is a state-of-the-art 17,280 square feet facility with 58 intensive care and intermediate care beds, including four isolation beds with the capacity for ventilatory isolation (negative pressure). The NCCC is served by 11 board-certified attending neonatologists, 18 nurse practitioners, and more than 150 neonatal specialists. A larger, multidisciplinary team of clinicians from N.C. Children’s Hospital, which includes social workers, pediatric pharmacists, respiratory care practitioners, dietitians, and physical and occupational therapists, complements the care provided by this core team. Our health care practitioners diagnose and treat about 750 newborns from more than 50 counties throughout North Carolina each year. More than two-thirds of the 750 newborns admitted to the NCCC annually are born at North Carolina Women’s Hospital, just a corridor away from the NCCC. The Pediatric Transport Team, part of Carolina Air Care, transports the remainder of infants to our hospital.

The NCCC is comprised of six pods with six-twelve beds/pod. There are three family sleep rooms that are used for parents of newly born critically ill infants, parents to stay with convalescing infants close to discharge, or for mothers to breastfeed infants close to discharge. The NCCC is connected to the labor and delivery suite on the fourth floor of the UNC Women’s Hospital providing easy movement between sites of delivery of newborns and the NCCC.

All pods contain areas for bedside charting and computers to access laboratory information. All bed spaces are equipped with a full capacity bedside monitor, with the system linked throughout the facility via local area network. This network is interfaced through a server with the hospital’s Information Systems Department and is web-enabled. Information that can be digitized either from direct patient monitoring or through remote devices such as pulse oximeters, mechanical ventilators, etc. then can be accessed through the processor at individual monitoring stations or the central server.

On the far north side of the NCCC, just outside the patient care pods, there is a radiology reading room with full digital capabilities and monitors for viewing digitized radiographs. On the northeast side of the NCCC is a treatment room with sufficient space and equipment for major surgical procedures. At the southwest corner is a suite of offices for the nurse managers, nurse educators, the unit secretary and other support personnel; this suite also contains on-call space for faculty and a large conference room in this central area is equipped with the full range of audiovisual devices including a slide projector, digital projection system, DVD and monitor, and telecommunication lines for videoconferencing. The NCCC central area also includes a clean utility room and a soiled utility room. The central support area includes both a Respiratory Therapy storage room and a second equipment storage room. Patient support equipment for the NCCC includes a full line of mechanical ventilators and machines capable of ventilation, as well as a nitric oxide delivery and monitoring system. There is also a parent resource center, which includes a traditional library, audiovisual material with a DVD, and a dedicated computer for parents to access the Internet while researching information on their infant.

The NCCC is equipped with 25 Drager Babylog 8000 Infant Ventilators (one with graphics), 2 VIP Bird Infant Ventilators, 3 Sensormedics 3100 A High Frequency Oscillatory Ventilators, 2 Bunnel High Frequency Jet Ventilators, 20 Bubble Flow NCPAP devices, 3 INOVent Nitric Oxide delivery systems with the capability to have as many as needed, 4 Novametrix Vent-check’s, 1 Spacelab end-tidal CO2 monitor, and 4 Radiometer trans-cutaneous CO2 monitoring systems. In addition, nitrogen tanks with regulators and carbon dioxide tanks with regulators are available for reduction of FiO2 as needed. For larger and/or mature infants, we have the ability to use one of 40 Maquet Servo I Ventilators from the Pediatric Critical Care/Adult Critical Care services. NCCC respiratory therapists use 2 Fujitsu notebook laptops with wireless capability to document services via a Mediserve Information System linked into Web CIS 2.0 for Medical Information Management.

The NCCC is also equipped with 49 Spacelabs 1700 monitors and 4 Spacelabs 1050 monitors that are networked together, allowing for remote access so that, for example, an infant can be monitored while in one of the three sleep rooms. The NCCC has 49 Masimo pulse oximeters and 60 Fisher & Paykel Cosycot Infant Warmers, each equipped with a battery, bilirubin light module, scale, gas block (O2 & air), and a built-in Fisher & Paykel Neopuff machine. In addition, the NCCC has 30 freestanding Neopuff machines for infants in an open crib. Thus, every baby in NCCC and labor and delivery has immediate access to a Neopuff. Pediatric audiologists perform hearing screening via distortion product of otoacoustic emissions with a Grayson-Stadler Instruments 70 machine. Further testing, if needed, can be performed using a Grayson-Stadler Instruments TYMP STAR with an imittance bridge to perform tympanography and acoustic reflexes as needed or a Natus ALGO biologic ABAER system to perform automated brain auditory evoked responses.

The Division of Pediatric Cardiology performs echocardiograms with one of 4 Philips 5500 machines. The Extracorporeal Life Support (ECLS) program uses the most up-to-date system available with 2 complete Stockert III Systems including Transonic Flow meter HT110, oxygenators, tubing packs, cannulas, heat exchangers, and ACT tubes. We are using the CDI 500 continuous blood gas monitoring system and a paperless database charting system that integrates all information from the bedside patient monitor and ECLS circuit to a lap top computer automatically.

*Updated: 4/16/19*