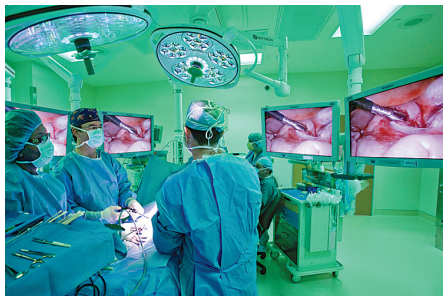


OR suite enhances integration, teaching

Surgical teams benefit from new technology

A new 15-room operating suite at Le Bonheur Children's Hospital has added technology and space designed to improve patient care and enhance teaching capabilities. Serving multiple surgical disciplines, the suite includes fully integrated rooms with features



Operating Rooms at Le Bonheur Children's are equipped with multiple monitors that can show different types of information at the same time. The green light helps reduce glare on the screens.

like an intraoperative MRI and web-casting capabilities.

"The integration is tremendous," said Max Langham, MD, medical director of General Surgery. "The technology in these suites benefits our patients and

families, the surgeons and our residents and students. Having these facilities really makes a difference."

Integration and Efficiency

Each operating room features touch-screen computer panels, flat-screen mobile monitors and a camera that allows a remote access view of what's happening inside the OR. Surgeons can use multiple monitors to see preoperative images, labs and notes and other information, all while they are working.

"We now have multiple monitors in the rooms capable of showing many different types of information at the same time," said Orthopaedic Surgeon Derek Kelly, MD. "For example, on a scoliosis spinal fusion case, I can have the patient's preoperative X-rays on one screen, labs and notes on another, and intraoperative C-arm images on two screens – one for me and another for my assistant."

In addition, images from a microscope can be routed quickly to a pathologist in another room, who can then discuss findings with the surgeons through overhead audio in the room.

Physician work space in between surgical areas also allows surgeons to complete notes and dictation while waiting for the next case, ensuring they are on site for the next case.

iMRI

One operating suite is equipped with a \$7 million intraoperative MRI that provides high resolution images before, during and after surgery without requiring surgeons to move the patient from the surgical table.



An intraoperative MRI (iMRI) in the Operating Room provides images during surgery.

The wide bore 3T iMRI moves between an operating theatre and diagnostic facilities, ensuring the patient always maintains optimal surgical position. The magnet is removed completely from the OR when scanning is complete.

For chief of Pediatric Neurosurgery Rick Boop, MD, chief of Pediatric Neurosurgery at Le Bonheur Children's, the technology proves invaluable. He often uses the iMRI in caring for patients with brain tumors.

"Before, if we saw a residual tumor in the MRI scan, we had to take the child back to surgery to remove it, requiring another craniotomy and anesthetic," Boop said. "Now, we can do all of this in one operative setting."

Teaching

Surgeons are able to use technology in the operating suite to enhance teaching efforts, in developing a new generation of pediatric subspecialists.



The Truevision 3-D surgical microscope converts optical view from the microscope to a digital 3DHD image, displaying video on monitors in the room.

In the neuro-surgical suite, Boop relies on Truevision 3-D technology to convert an optical view from the surgical microscope to a digital 3-D HD image, displaying video on a 46-inch monitor inside the operating room. A 3-D HD video recording accurately captures the surgical view for later use, making it ideal for teaching.

Surgeons have similar capabilities in other parts of the OR.

"As we try to teach, the technology gives us the ability to record and present in meetings or conferences," said General Surgeon Langham. "We can also show it to parents, as part of our family education." Langham uses recordings, for example, to educate parents after operating on airways.



Integration inside the operating rooms give surgeons better opportunities to teach.

ECMO SIMULATION PROVIDES LIFE-LIKE TRAINING



A new Extracorporeal Membrane Oxygenation (ECMO) simulation module at Le Bonheur Children's is providing life-like scenario-based training for those caring for some of the hospital's most critically ill patients.

The module was created under the guidance of ECMO Medical Director Samir Shah, MD, and ECMO coordinators Ricky Holloway, RN, and Ashley Powell, RN. It is designed to train physicians, ECMO nurse specialists and respiratory therapists in critical care areas to deal with the potential needs of critically ill patients.

ECMO is offered for some of Le Bonheur's sickest children, typically those with cardiac or respiratory disorders who are unresponsive to standard management.

"This process requires a dedicated team of well-trained professionals who can deal with emergencies rapidly, safely and efficiently," Shah said. "Simulation training helps achieve these goals."

The Le Bonheur ECMO team is comprised of a group of critical care physicians, nurses and respiratory therapists who maintain their competency throughout the year to deliver this life-saving therapy. Given the technical prowess required in its implementation, simulation-based training offers an opportunity for case-based learning to improve the overall safety profile and outcomes of this complex process. Shah and his ECMO team have made simulation-based training a standard modality at Le Bonheur for all ECMO patient-care scenarios.

"As ECMO technology and standard of care advances, we are able to retrain our physicians, nurses and therapists with the simulation module," Shah said. "This ensures we are always providing the highest level of care to our patients."

Trauma teams enhance coverage, response

Improvements key to Level 1 ACS designation

When the paramedics found him, 6-year-old Xavier Tabor was slipping into a coma. Unresponsive, in the back seat of a car that had just crashed, Xavier already had signs of severe brain injury.

Paramedics called for Xavier to be airlifted to Le Bonheur Children's, where trauma teams worked to care for the young boy. Xavier had suffered a fractured skull, pelvic and rib fractures, and liver and kidney lacerations.

For Xavier, getting the right level of care quickly meant all the difference. And he's an example of why trauma leaders at Le Bonheur Children's are working to improve the responsiveness and services offered to pediatric trauma victims.

In 2010, trauma leaders reduced the average time it takes to get a patient from the door of the Emergency Department to the Operating Room by 54% — from 201 to 93 minutes. Those numbers were helped by the 24/7 presence of anesthesia and an Operating Room team, improved processes in surgery and a dedicated trauma room in the OR.

In addition, general surgeons responded to the highest level of trauma activation in less than 15 minutes in 92 percent of cases.

"Our goal is to get our patients to the right level of care quickly, and these improvements are helping us," said Le Bonheur Children's Trauma Director Trey Eubanks, MD. "With these changes, we can improve the care we offer."

Eubanks is leading Le Bonheur's efforts to earn Level 1 Trauma designation by the American College of Surgeons, the highest level of certification for trauma awarded to hospitals in the United States.

Trauma leaders have also decreased the time it takes to move patients from the Emergency Department entry point to the Pediatric Intensive Care Unit by 40 percent.

Those numbers were helped by decreasing the time it takes to get a child from the entry point to a CT scan and adding emphasis on moving patients straight to the Operating Room or PICU after a CT scan.

