Safety, standardization improve CVICU CLABSI rates
Hospital reduces central line infection rate by 65 percent

Standardized practice and new safety measures reduced hospital-wide central line-associated bloodstream infection (CLABSI) rates at Le Bonheur Children’s by 65 percent from 2011 to 2012. The improvements have helped protect children in the hospital’s Cardiovascular Intensive Care Unit (CVICU) and Pediatric Intensive Care Unit (PICU) from central line-associated bloodstream infections for more than one year. Other inpatient units saw additional reductions in infections.

Michelle Grandberry, clinical director of Le Bonheur’s CVICU, attributes the reduction in part to a more judicious use of central lines in the CVICU. Since 2010, the team has seen a 26 percent decrease in central line usage after incorporating discussions of line necessity into daily CVICU rounds.

“The reduction of CLABSI in the CVICU is also rooted in the desire of our front-line care team to do the right thing for the patient,” Grandberry said. “Team members are more aware of CVL, including timing of tubing, cap and dressing changes. They take the time to inspect and discuss the integrity of the central line during bedside handoff. We also have a hard stop for any dressing that is not pristine.”

She added that the reduction in rates is a great example of how the entire team has been able to work together to affect change. The hospital had an overall 1.03 CLABSI rate for 2012 (infections per 1,000 line days); Le Bonheur’s CVICU and PICU achieved a rate of 0.44 against a national benchmark of 1.85. CVICU intensivists, cardiovascular surgeons, anesthesiologists and nurse practitioners collaborate with Quality Improvement and care providers hospital wide to develop guidelines for managing central lines and reducing CLABSI’s in the CVICU. These guidelines include:

• Anesthesia implemented insertion and maintenance CVL bundles in the OR
• Added alcohol site scrub in OR for “scrubbing the hub”
• Standardized scrubbing the hub at each use with 70 percent alcohol
• Stopped routine blood draws from central lines; blood draws now require a physician order
• Root cause analysis and event timelines for all CLABSI
• Implemented daily discussion of line necessity in CVICU rounds
• Antibiotic Stewardship Program
• Implemented the use of Biopatch on all patients with central lines
• Central lines are inspected every two hours by the bedside nurse, and a Vascular Access Team member inspects each line every 12 hours. An additional weekly inspection is done by a CVICU staff nurse to check for integrity of the dressing, as well as making sure all CVL tubing is labeled properly. Any deficiencies are discussed immediately with the patient’s care team.

Bissler named Nephrology chief
Former Chief Wyatt to focus on patient care, research

Pediatric Nephrologist John Bissler, MD, has been appointed the new chief of Pediatric Nephrology at Le Bonheur Children’s Hospital. He will also serve as director of Le Bonheur’s Tuberous Sclerosis Center of Excellence and a professor at the University of Tennessee Health Science Center (UTHSC). He comes to Memphis from Cincinnati Children’s Hospital Medical Center, where he served as the Clark D. West Chair of Nephrology and associate program director for Research and Academic Careers.

Bissler replaces Robert Wyatt, MD, who retired as chief this year after 14 years of leading Le Bonheur and UTHSC’s pediatric nephrology program. Wyatt has served in the division 29 years and will continue to see outpatients, conduct research and teach.

“Dr. Wyatt is a nationally respected pediatric nephrologist, and we have been fortunate to recruit another of the country’s top pediatric nephrologists to this role,” said Jon McCullers, MD, chair of UTHSC Department of Pediatrics and pediatrician in chief at Le Bonheur Children’s. “Dr. Bissler will continue to develop and build a successful division for Le Bonheur and the university.”

Bissler received his medical training at Northeastern Ohio University College of Medicine. He completed his residency in pediatrics at Children’s Medical Center, Akron, and his nephrology fellowship at Cincinnati Children’s. He is board certified in pediatrics and nephrology.

Bissler will see patients with tuberous sclerosis and other kidney disorders. His research interests include proliferative renal diseases, poly cystic kidney disease, tuberous sclerosis complex, Von Hippel-Lindau disease, Birt Hogg-Dube syndrome and renal cancers.
Heart Institute minimizes blood loss, reduces transfusions in surgeries

More than 20 percent of Le Bonheur’s open heart surgeries are now bloodless, meaning no blood or blood products are given during surgery. The Heart Institute has been taking aggressive steps to minimize blood loss during surgery and reduce perioperative blood transfusions over the last 18 months.

“Blood transfusions increase a patient’s risk of developing complications; it’s like getting a mini transplant,” said Chief Perfusionist Jerry Allen, CCP. “Blood transfusions are a known cause of whole body inflammation and have been linked to increased morbidity and mortality after cardiac surgery.”

For children weighing more than 34 pounds, more than 60 percent will have bloodless surgery, even if they have undergone previous operations during their lifetime, says Allen.

Allen’s team has focused on decreasing the cardiopulmonary bypass (CPB) circuit surface area, using shorter tube lengths and decreasing tubing diameters. This allows for less contact between the patient’s blood and tubing, thus reducing the risk of inflammation and other complications.

In a retrospective study presented at Le Bonheur in August, perfusionists reported that before August 2012, 50 percent of patients received two or more units of packed red blood cells during or after open heart surgery. Subsequently, using the newer, more efficient circuits, only 11 percent of patients required two or more units of blood, and in 20 percent of cases, no blood was used at all.

“Our goal here at Le Bonheur is to achieve a 90 percent bloodless surgery for patients who weigh more than 34 pounds,” said Allen. “We will continue to find ways to reduce our circuit volume by embracing new technologies and adopting new techniques in our practice.”

Pedi-Flite improves outcomes, reduces costs for pediatric diabetic patients

Giving families with diabetic children access to a transport team improves outcomes and efficiency, according to research from Le Bonheur Children’s Hospital and the University of Tennessee Health Science Center (UTHSC). The study, “Real-Time Support of Pediatric Diabetes Self-Care by a Transport Team,” was reported online ahead of print in Diabetes Care (PubMed ID:23959568).

Brandi E. Franklin, PhD, assistant professor in the UTHSC College of Pharmacy, retrospectively analyzed pager use in pediatric diabetic patients who used the service from August 2009 to December 2012, Pedi-Flite, Le Bonheur’s air and ground transport team, answered calls from families with diabetic patients in this new model akin to modern enhanced 911 services. Calls from families were routed to Pedi-Flite Transfer Center dispatchers, who are seasoned emergency medicine technicians trained in diabetes care by the Pediatric Endocrine Center of UT Le Bonheur Pediatric Specialists.

Investigators reported that although pager users were 2.75 times more likely to visit the Emergency Department (ED) for diabetic ketoacidosis or related illness, ED visits by pager users were less likely to lead to inpatient admissions. Moreover, those eventually admitted required a significantly shorter length of stay. More than half of all pages were resolved by Pedi-Flite dispatch without need for further referral to a physician. Researchers estimated that 439 ED visits and 115 admissions were avoided because of this novel system, saving more than $760,000.

“This approach reduces disparities in diabetes care and improves access for our patients,” said Franklin. The study was conceived and led by Robert Ferry, Jr., MD, who holds the Le Bonheur Chair of Excellence in Endocrinology as chief of UTHSC’s Division of Pediatric Endocrinology, in collaboration with Colé Crisler, Jr., MHA, administrative director of Patient Transport at Le Bonheur, and Meri Armour, MBA, president and CEO of Le Bonheur Children’s Hospital.

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**Profile:** MEET STEPHANIA CORMIER, PHD

Asthma researcher Stephania Cormier, PhD, spent her career studying the genetic and environmental factors that contribute to the development and exacerbation of adult airway diseases such as asthma.

Through her work at Louisiana State University (LSU) Health Science Center in New Orleans, she hypothesized that infants who contract respiratory syncytial virus (RSV) within a certain period of pulmonary and immunological immaturity are more likely to develop asthma later in life. When she introduced RSV to infant mice and studied their airway function, Cormier was able to pinpoint at what age RSV infection becomes a predictor of asthma.

Testing her hypothesis in RSV-infected human cells was the next step. That’s what led Cormier to join the Children’s Foundation Research Institute (CFRI) at Le Bonheur Children’s Hospital in April.

“The ongoing research programs in pediatric respiratory viruses and asthma in Memphis at the CFRI and St. Jude were very attractive to me,” said Cormier. “I anticipated that my integration into the current research environment here would bring significant benefit and impact to my research program. I further envisioned the collaborative ventures that could be formed to understand the molecular mechanisms by which the human infant/pediatric immune system is activated and responds to respiratory viruses.”

Cormier brought six members of her research team and $4.5 million in National Institutes of Health support to Memphis, where she’ll continue her research in partnership with St. Jude Children’s Research Hospital and John DeVincenzo, MD, a leading RSV researcher at the University of Tennessee Health Science Center (UTHSC) and medical director of Molecular Diagnostics and Virology Laboratories at Le Bonheur. DeVincenzo has dedicated much of his career to understanding RSV and finding strategies for treatment and prevention.

Cormier’s research could help develop vaccine strategies to prevent RSV and reduce RSV-associated asthma. Beyond RSV, Cormier’s research is also focused on understanding how early environmental exposures to pollution, allergens and other respiratory viruses, such as influenza, play a role in developing asthma. She was one of the initial recipients of the Outstanding New Environmental Scientist Awards presented by the National Institutes of Environmental Health Sciences for her work studying environmentally persistent free radicals and their role in asthma initiation and exacerbation.

“Dr. Cormier is a fantastic addition to our growing research program at Le Bonheur,” said Jon McCullers, MD, pediatrician-in-chief at Le Bonheur Children’s and chair of the Department of Pediatrics at UTHSC. “She brings high profile basic and translational research to the CFRI and is applying it to one of our major targets for correction of health disparities – childhood asthma. Together with our clinical research staff, Dr. Cormier serves as an essential building block in our new Pediatric Asthma Program as we try to lessen the impact of this disease on kids in the Mid-South.”

**Childhood asthma statistics**

- Most common chronic disease of childhood.
- Affects 7 million children in the U.S., or 1 in 11 kids.
- Leads to $41.4 million in health care costs for Tennesseans.
- In 2012, Le Bonheur treated more than 3,000 children in the Emergency Department for asthma-related illness.

*Source: Centers for Disease Control and Prevention*
*Source: Tennessee Department of Health*
Physicians join leadership academy

Four Le Bonheur physicians are inaugural members in a new leadership program designed to give doctors at Methodist Le Bonheur Healthcare the skills and competency they need to lead in a changing health care environment.

The Physician Leadership Academy is a one-year course that includes instruction from the American College of Physician Executives and the University of Tennessee at Knoxville Physician Executive MBA program. Le Bonheur is one of six hospitals in the Methodist Le Bonheur Healthcare system. Le Bonheur physicians in the class include Radiologist Harris Cohen, MD; Emergency Medicine Specialist Rick Hanna, MD; Cardiologist Vijay Joshi, MD; and Radiologist Jeff Scrugham, MD.

“The Affordable Care Act has enabled physicians and hospitals to cooperate like never before – working as a team to care for patients. To guide this change requires new thinking and leadership,” said Joshi, interim chief and associate professor of pediatric cardiology at UTHSC. “I want to help lead our team to excel at this challenge. I want to get know how to optimize systems, do our work better and give better outcomes to our patients.”

Anand delivers centennial lecture in Netherlands

Kanwaljeet “Sunny” Anand, MBBS, was the keynote speaker at Erasmus University Medical Center’s centennial lecture Oct. 4. His lecture at the Rotterdam, Netherlands hospital was titled “Pain in infancy: From stress to society.” Anand is the division chief of Pediatric Critical Care Medicine at and UTHSC.

Pediatricians honored by TN AAP

Two Memphis-area pediatricians were recently recognized by the American Academy of Pediatrics Tennessee Chapter for their service. Julie Ware, MD, of the Shelby County Breastfeeding Coalition and All Better Pediatrics was named “Pediatrician of the Year”. John Pender, MD, of Pediatric Associates was named “Senior Pediatrician of the Year”.

Urology team presents at fall Congress

Dana Giel, MD, served as a moderator on cystic kidney disease at the Society for Fetal Urology, which was held during the Society of Pediatric Urology’s Pediatric Urology Fall Congress in September. Also, the Urology division had a podium and poster presentation on “Urologic anomalies in cases of anorectal malformation.”

Dr. Giel and her colleagues are working to expand a collaborative care plan while the patient is still at the referring facility. For more information, contact the Le Bonheur Transfer Center at 1-888-899-9355.

Klimo, Choudhri recognized by Memphis Business Journal

Chief of Pediatric Neurosurgery Paul Klimo, MD, was recently named a finalist in the Health Care Heroes Award by Memphis Business Journal. Also, Pediatric Neuroradiologist Asim Choudhri, MD, was named to the Top 40 Under 40 list.

Hospital implements image-sharing service

Le Bonheur Children’s can now share medical images securely between subspecialists and referring providers. LifeIMAGE allows providers to upload imaging exams via a secure cloud service, without additional software, hardware or VPN. The HIPAA-compliant service eliminates the need for repeat tests and sharing images via compact disc. Also, by using LifeIMAGE, Le Bonheur’s subspecialists can provide real-time consultation and develop a collaborative care plan while the patient is still at the referring facility. For more information, contact the Le Bonheur Transfer Center at 1-888-899-9355.

Grand Rounds offered online

Archived Le Bonheur Pediatric Grand Rounds are now available at www.lebonheur.org/cme, for free continuing medical education credit. Click on each presentation, and enter the password “lebonheur” when prompted. For more information, contact physicians@lebonheur.org or call 901-516-8933.
Michael Boyd had a seizure at school. At the Emergency Department, radiologists found an abnormal spot, and the MRI confirmed the 14-year-old from Lebanon, Va., had a mass on his left frontal lobe. Physicians referred Michael to Niswonger's Children's Hospital in Johnson City, Tenn. There, doctors recommended Michael fly immediately 500 miles across the state to Le Bonheur Children's Hospital.

“They told us that Dr. Frederick Boop was the best. He had done many surgeries like this before,” said mother Amy Boyd.

When the family arrived in Memphis, Michael's room was waiting. The doctors and nurses began to explain what was going to happen. Michael underwent a series of diagnostic tests – MRI, functional MRI, tractography, spectroscopy, magnetoencephalography (MEG) and transcranial magnetic stimulation (TMS) — all completed on his first day at Le Bonheur.

“Before they took him for each test, they spoke to all of us. They explained what each test was for and how it was going to help the doctors see and understand the tumor. Our biggest fear was not knowing how the tumor was attached,” said Amy.

Michael had a fibrillary astrocytoma, a low-grade tumor that is not likely to spread to other parts of the body. Michael's tumor was located in the left frontal lobe, in an area that typically controls language functions. The tumor had an infiltrating appearance and might possibly impair functions as it grew.

Because of the tumor’s high-risk location, the wide range of diagnostic tools available at Le Bonheur gave Michael's surgical team important information.

“The goal is maximum lesion resection with minimal functional deficit,” said Neuroradiologist Asim Choudhri, MD. “These images served as a road map and helped Dr. Boop remove as much of the tumor’s margins without impairing functions.”

The surgical team used the intraoperative MRI.

“There came a margin in which the tissue of the tumor began to blend with the tissue of the normal brain, and once we were unable to tell brain from tumor, we felt it best to stop. If this small area starts to grow down the road, he has several treatment options, but for now we will just follow him by MRI,” said Boop, chairman of the Department of Neurosurgery.

Four days after surgery, Michael was ready to go home. He experienced slurred speech and occasional headaches for a few weeks after surgery, but he's now returned to feeling like himself.

“He's doing great now. He told us that he felt he was doing better in school now since the tumor is gone,” said Amy.

Michael will be monitored by physicians at St. Jude Children's Research Hospital, Niswonger's Children's Hospital and Le Bonheur.

Surgeons remove fibrillary astrocytoma in 14-year-old, preserve language functions

Dr. Frederick Boop and Dr. Asim Choudhri review Michael Boyd’s MRI scan.

1. Axial FLAIR MRI image
2. Axial FLAIR with Diffusion Tensor Imaging (DTI) overlay to show impact of the mass on adjacent nerve bundles
3. Axial FLAIR image with functional MRI (fMRI), with pink showing areas of expressive language (Broca’s area)
4. Axial T2 image from intraoperative MRI (iMRI) showing resection cavity corresponding to the previously seen left inferior frontal lobe mass. A thin rim of lesion was left at the posterior rim due to the adjacent language activation centers. The remainder of the margins show no residual tumor.

Watch a video case study with Neuroradiologist Asim Choudhri, MD, at www.lebonheur.org/boyd

Michael Boyd saws Dr. Frederick Boop five months after his brain tumor surgery.