

Jeffrey A. Towbin, MD, named pediatric cardiology chief, Heart Institute co-director

Cardiologist to lead programs at Le Bonheur, UTHSC, St. Jude

Jeffrey A. Towbin, MD, has been named co-director of the Heart Institute at Le Bonheur Children's Hospital, chief of Cardiology at St. Jude Children's Research Hospital and chief of Pediatric Cardiology at the University of Tennessee Health Science Center. Towbin comes to Memphis from Cincinnati Children's Hospital Medical Center, where he has successfully built one of the country's largest and most well respected pediatric cardiology programs and destination programs in pediatric heart failure and cardiovascular genetics.



Jeffrey A. Towbin, MD

Towbin's plans include the recruitment of additional faculty, enhanced training of pediatric and congenital cardiologists, development of several novel clinical and research programs and facilitation of a new pediatric cardio-oncology specialty, in partnership with St. Jude Children's Research Hospital. Towbin looks forward to furthering the clinical and research profile of both institutions.

"Dr. Towbin has been a pioneer in advancing the field of cardiac research and heart failure and has made significant additions to what we know about cardiovascular disease in children," said Chris Knott-Craig, MD, medical director of Cardiovascular Surgery and co-director of the Le Bonheur Heart Institute. "His expertise will help the Heart Institute advance our mission of finding better ways to diagnose and treat complex pediatric heart diseases, especially those with heart failure and malignant disease."

Towbin will serve as vice chair of Strategic Advancement and will hold the St. Jude Chair of Pediatric Cardiology at Le Bonheur. Clinically, he specializes in diagnostic and therapeutic advances for cardiomyopathies (heart muscle disease), heart failure, heart transplantation and cardiovascular genetics.

Towbin graduated from the University of Cincinnati College of Medicine in 1982 and completed fellowship training in pediatric cardiology and molecular cardiology at Texas Children's Hospital/Baylor College of Medicine.

"I hope to accomplish the building of a nationally-recognized destination program with world-class expertise and help the field to expand into new areas of care based on the paradigm we will develop," Towbin said.

Quality initiatives improve safety, care for heart patients

Heart Institute joins national collaboratives, sees results of focus

The Le Bonheur Heart Institute has joined a handful of national quality and safety collaborative in efforts to improve how it cares for congenital heart disease (CHD) - while contributing to the advancement of CHD care and management.

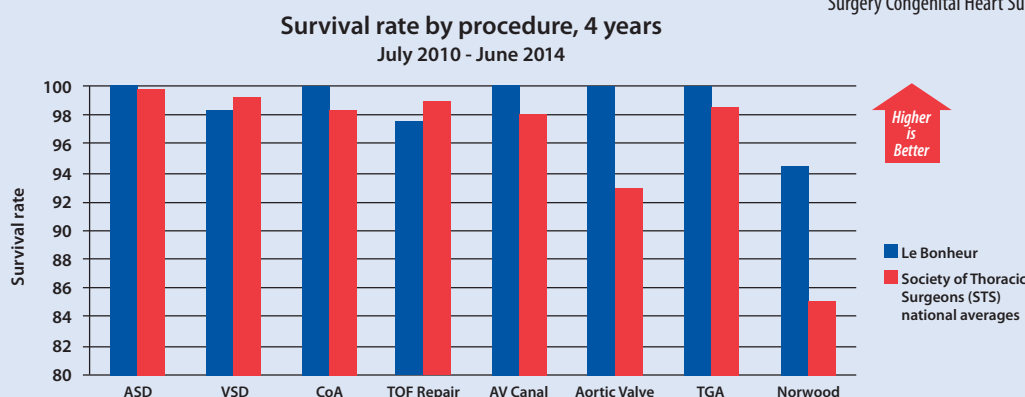
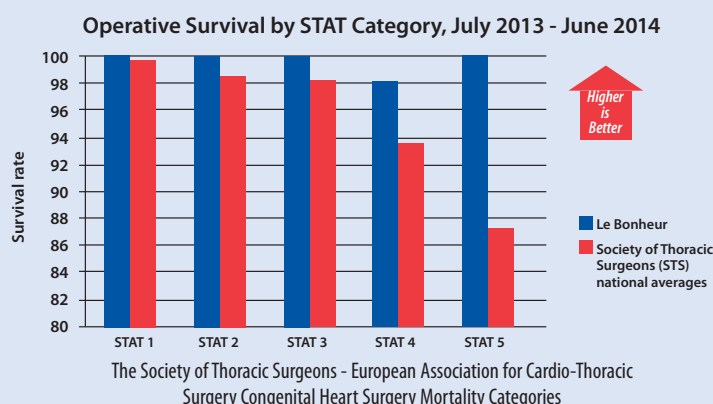
The Society of Thoracic Surgeons

The Heart Institute measures quality using data compiled by The Society of Thoracic Surgeons' (STS) National Congenital Heart Surgery database. STS compiles data from other top pediatric heart programs and publishes that information twice a year. Le Bonheur uses the database to benchmark itself against regional benchmarks and national standards and improve the care it offers.

Cardiac Intensive Care Units in Pediatrics Collaborative (CICUP)

Six children's hospitals, including Le Bonheur, have joined forces to develop multicenter research related to pediatric cardiac patients. Ongoing projects include hypoalbuminemia after cardiopulmonary bypass (CPB) in children, sildenafil use in post-Fontan patients and mediastinal infection in children undergoing cardiac surgery.

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Referrals: 866-870-5570

www.lebonheur.org/heart

A pediatric partner of The University of Tennessee Health Science Center/College of Medicine and St. Jude Children's Research Hospital



Meet the Team

The Heart Institute at Le Bonheur Children's Hospital uses the combined expertise of an advanced pediatric cardiac team to provide specialized care for children with congenital heart disease. Pediatric cardiologists, pediatric cardiothoracic surgeons, cardiac intensivists, pediatric intensivists and anesthesiologists make up the Heart Institute. Advanced practice nurses, perfusionists, cardiac nurses, respiratory therapists and lab and imaging technicians are specially trained in pediatric cardiology care.

Leaders of the Heart Institute include:



Chris Knott-Craig, MD, medical director of Cardiovascular Surgery and co-director of Heart Institute

Christopher Knott-Craig, MD, graduated from the University of Cape Town in South Africa and completed training in cardiac surgery at the Groote Schuur Hospital in South Africa. He is board certified by the South African Medical & Dental Council in cardiothoracic surgery. Knott-Craig also serves as professor and chief of pediatric cardiac surgery at the University of Tennessee Health Science Center (UTHSC) School of Medicine. His areas of special focus include neonatal/infant cardiac surgery, Ebstein's anomaly, Ross Procedure, minimally invasive valve surgery, cardiopulmonary bypass, ambulatory thoracic surgery, hyperhidrosis and pediatric congenital heart disease.



Jeffrey Towbin, MD, medical director of Pediatric Cardiology and co-director of Heart Institute

Jeffrey Towbin, MD, studied at the University of Cincinnati College of Medicine and completed his fellowship in pediatric cardiology at Texas Children's Hospital/Baylor College of Medicine. He is board certified by the American Board of Pediatrics with a pediatric cardiology subspecialty. Towbin serves as professor and chief of Pediatric Cardiology at UTHSC School of Medicine and vice chair of Strategic Advancement for Le Bonheur. He serves as chief of Cardiology for St. Jude Children's Research Hospital and holds the St. Jude Chair of Pediatric Cardiology at Le Bonheur. His areas of special focus include diagnostic and therapeutic advances for cardiomyopathies, heart failure, heart transplantation and cardiovascular genetics.



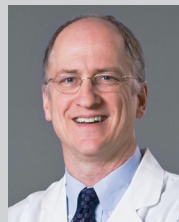
Mayte Figueroa, MD, medical director of Cardiovascular Intensive Care Unit

Mayte Figueroa, MD, is a graduate of Mount Sinai School of Medicine. She completed a fellowship in pediatric cardiology at the Medical University of South Carolina and an advanced fellowship in pediatric critical care cardiology at Baylor College of Medicine. Figueroa is board certified in pediatrics and has a cardiology subspecialty. She is also an associate professor at UTHSC. Her areas of focus include pediatric cardiomyopathy, cardiovascular disease, non-invasive pediatric cardiology, pediatric cardiac critical care, pulmonary hypertension, quality improvement and simulation-based education.



Vijay Joshi, MD, medical director of Non-Invasive Cardiology

Vijay Joshi, MD, attended medical school at the University of Vermont and completed a fellowship in pediatric cardiology at Children's Hospital of Philadelphia. Board certified by the American Board of Pediatrics with a cardiology subspecialty, Joshi is also an associate professor at UTHSC. His patient care emphasis is on general cardiology with focus on fetal cardiology, advanced echocardiography, cardiac MRI and exercise testing.



B. Rush Waller, MD, medical director of Cardiovascular Catheterization Lab

B. Rush Waller, MD, studied at UTHSC and completed fellowships in pediatric cardiology and pediatric interventional cardiology at the Medical University of South Carolina. Waller is an associate professor at UTHSC and is board certified by the American Board of Pediatrics with a cardiology subspecialty. His areas of focus include interventional pediatric cardiology, including therapeutic catheterizations for critically ill neonates, critically ill preoperative patients and complex cases of adults with congenital heart disease and transcatheter closure of intracardiac shunts.



Glenn Wetzel, MD, PhD, medical director of Pediatric Electrophysiology, director of Fellowship Program

Glenn Wetzel, MD, PhD, completed fellowship training in pediatric cardiology at University of California at Los Angeles. He is board certified by the American Board of Pediatrics and has a cardiology subspecialty. Wetzel is also a professor at UTHSC. His special interests include pediatric electrophysiology (arrhythmias), radiofrequency ablation and cryoablation, cardiomyopathy, pediatric pacemakers and internal defibrillator devices (ICDs).

CARDIOLOGY TELEHEALTH CLINIC LAUNCHES

Le Bonheur's cardiology team is now offering a telehealth clinic for children in West Tennessee and North Mississippi who need pediatric cardiac services.

Cardiologist Ronak Naik, MD, is leading the clinic, which connects children at Lifespan Health in Savannah, Tenn., with Naik in Memphis, Tenn., roughly 125 miles away. Naik interacts with children who have been referred for a cardiology consult through video conference. A nurse



Ronak Naik, MD

in the telehealth clinic in Savannah assists by providing vital signs and facilitating the video. A unique tele-stethoscope, connected to computer software on either side, allows Naik to listen to the heart sounds and lungs of the children from a distant clinic site. The echocardiograms are also transmitted electronically for review and interpretation by Naik. The clinic is in cooperation with the Tennessee Primary Care Associations (TPCA), which provided the telehealth equipment, and Lifespan Health.

"The need for specialized pediatric cardiology services in remote areas is increasing gradually. Technology has enabled us through telemedicine to meet this demand. Our telehealth clinic will give more children – especially in rural areas – better access to the specialized pediatric cardiology services that they need," Naik said. "We hope that by offering these services, we are giving children the best chance at discovering heart conditions in a timely fashion to intervene."

Team joins Sudden Death in the Young review

Members of Le Bonheur's Heart and Neuroscience institutes join a national Sudden Death in the Young clinical review team to review pediatric deaths in their respective states and to identify the cause comprehensively.

Tennessee is one of 10 states to receive the Sudden Death in the Young Registry grant funding. The state's clinical review team will include cardiology, neurology and general pediatrics. The teams will begin meeting in early 2015.

Cardiologists Glenn Wetzel, MD, and Alex Arevalo, MD, and Neurologist Amy McGregor, MD, will represent Le Bonheur.

National Pediatric Cardiology Quality Improvement Collaborative (NPC-QIC)

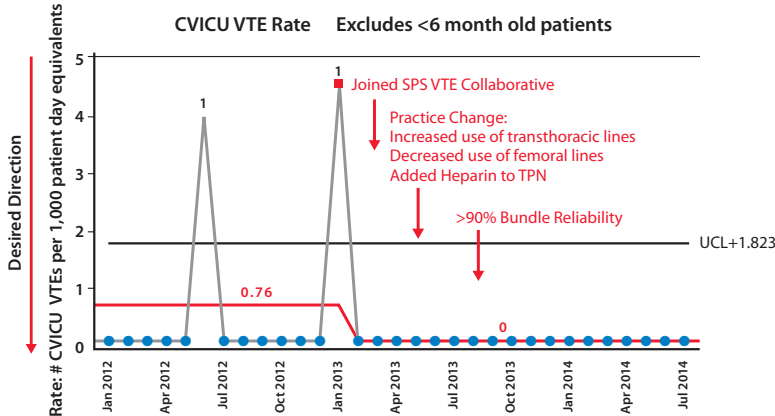
A multidisciplinary team, led by Le Bonheur cardiologist Mayte Figueroa, MD, is working to improve survival and quality of life of infants with Hypoplastic Left Heart Syndrome during the “interstage” period: between discharge from Stage 1 Norwood and admission for a Stage 2 bidirectional Glenn procedure. The project is part of the National Pediatric Cardiology Quality Improvement Collaborative (NPC-QIC), and the team’s goals are to reduce mortality by 50 percent, reduce readmissions from major events by 50 percent and decrease growth failure during the interstage period. The NPC-QIC include 55 children’s hospitals. Le Bonheur Cardiologist Jean Ballweg, MD, sits on the collaborative’s research committee, which monitors projects that use the registry data.

Children’s Hospitals’ Solutions for Patient Safety National Children’s Network

Le Bonheur is one of more than 80 children’s hospitals from across the country working to improve the safety and care for children. The group is working toward:

- 40 percent reduction in hospital-acquired conditions (HACs)

Venous Thromboembolism (VTE) Rate

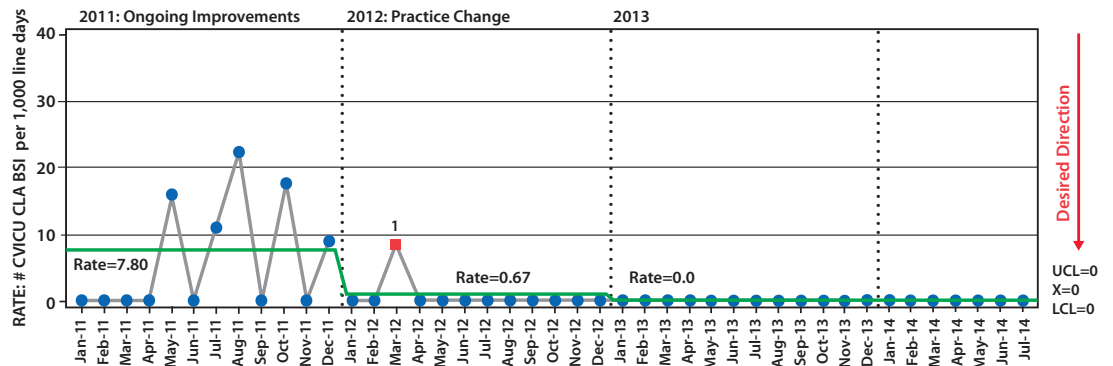


Since Le Bonheur joined the Solutions for Patient Safety VTE Collaborative in March 2013, the Cardiovascular Intensive Care Unit has gone more than 700 days without a VTE. In June 2013, the unit increased the use of transthoracic lines, decreased the use of femoral lines and added heparin to TPN.

As part of the Children’s Hospitals’ Solutions for Patient Safety National Children’s Network, Le Bonheur has worked, hospitalwide, on initiatives to eliminate central line infections. The hospital began housewide education and leadership rounding and eliminated routine lab draws from the line in January 2012. The Cardiovascular Intensive Care Unit has gone within nearly 1,000 days now without a central line infection.

Central Line Infections

CVICU CLABSI Rate by Improvements



- 20 percent reduction in readmissions
- 25 percent reduction in serious safety events (SSEs)
- reduction in central line and surgical site infections

In the Heart Institute’s Cardiovascular Intensive Care Unit, and across the hospital, the teams are measuring surgical site infections, adverse drug events, catheter-associated UTIs, central line-associated BSI, falls, pressure ulcers, ventilator-associated pneumonia and venous thrombotic events.

American College of Cardiology/Improving Pediatric and Adult Congenital Treatment (IMPACT) Registry

Le Bonheur has joined a national clinical registry to study adult and pediatric patients with congenital heart disease who have undergone diagnostic catheterizations and catheter-based interventions. Reducing Radiation Risk (RRR) is the first project involving the registry. Through the use of quality improvement tools and national data review calls, the group’s goal is to reduce radiation exposure (in measured Cumulative Air Kerma units; mGy) for patients undergoing congenital cardiac catheterization procedures by 25 percent from baseline within a 12-month period.

Pediatric Cardiac Critical Care Consortium

Le Bonheur is one of 12 children’s hospitals, nationally, to join the consortium, known as PC4, which works to advance pediatric cardiac intensive care medicine with data evaluation, identification of evidence-based practices and public dissemination of information.

American College of Cardiology/ICD Registry

Le Bonheur is member of the ICD Registry™, which studies the care of implantable cardioverter defibrillator (ICD) patients. The role of the registry is to determine the association between treatment strategies and clinical outcomes.

Study shows novel bypass can reduce kidney injury

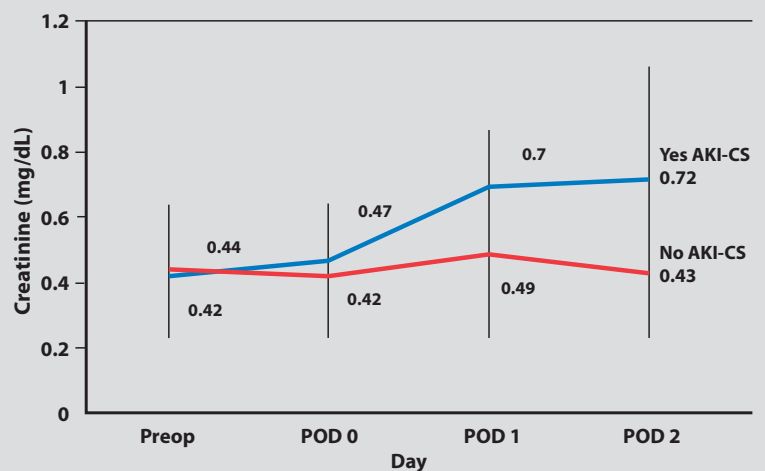
Novel bypass strategies are associated with lower incidence of kidney injury (AKI-CS) in neonates and young infants who have undergone cardiac surgery for congenital heart disease.

Acute kidney injury following cardiac surgery (AKI-CS) is a serious condition that that occurs in 40-80 percent of infants. Members of Le Bonheur’s Heart Institute published results of a study aimed at lowering the incidence and risk factors for AKI-CS by using novel bypass strategies for neonates and young infants undergoing repair of cardiac defects.

The study, “Cardiopulmonary bypass strategies associated with improved renal function following cardiac surgery in neonates and young infants,” (TK Susheel Kumar, MD; Jerry Allen, CCP; Thomas Spentzas, MD, MS; Lindsay Berrios, CCP; Jean A Ballweg, MD; Samir Shah, MD; Christopher J Knott-Craig, MD) was presented in a poster at the Congenital Heart Surgeon’s Society meeting in October.

In the study, physicians followed 102 consecutive patients younger than 2 months old undergoing repair of cardiac defects on cardiopulmonary bypass (CPB) between January 2010 and

December 2012. Strategies to preserve renal function included maintenance of high hematocrit and flow rates on bypass despite usage of moderate and deep hypothermia. Ten patients in the study developed AKI-CS; none developed acute renal failure.



Patients who developed kidney injury (AKI-CS) have a persistent elevation of creatinine at postoperative days 1 and 2. For patients without injury, the creatinine returns to preoperative levels on day 2.

Pediatric Heart Update is a publication of the Heart Institute at Le Bonheur Children's Hospital

Chris Knott-Craig, MD, Co-Director, Heart Institute
Jeffrey A. Towbin, MD, Co-Director, Heart Institute

Mohammed Alsheikh-Ali, MD
Alex Arevalo, MD
Jean Ballweg, MD
John Edney, MD
Mayte Figueroa, MD
Jason Johnson, MD
Ryan Jones, MD
Vijay Joshi, MD
Dai Kimura, MD
Nagendra S. Kodali, MD
TK Susheel Kumar, MD
Kelvin Lee, MD
Ronak Naik, MD
Ranjit Philip, MD
Shyam Sathanandam, MD
Andreas Schwingshackl, MD
Samir Shah, MD
B. Rush Waller, MD
Glenn Wetzel, MD, PhD
Adam Willis, MD, PhD
Thomas Yohannan, MD



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Le Bonheur Heart Institute Publications and Presentations: 2013-2014

Publications

2014

McCallister Katie, Chimm Rebecca, Briceno Mario, Shelton Chasity, Figueroa Mayte, Rayburn Mark. Bumetanide continuous infusions in critically ill pediatric patients. Accepted for publication in *Pediatric Critical Care Medicine*.

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Figueroa M, Subramanian S, Grandberry M, Hannah D. Inter-rater reliability with use of VTE risk assessment tool reduces rates of Venous Thromboembolism in a Pediatric Cardiovascular Unit. Poster presentation: 10th International Pediatric Cardiac Intensive Care Society (PICCS) Conference in Miami Beach, Florida. December 2014

Figueroa M, Holloway R, Shah S. Implementation of a pediatric cardiac arrest algorithm leads to early recognition of need for extracorporeal life support and improved outcomes" Poster presentation: 10th International Pediatric Cardiac Intensive Care Society (PICCS) Conference in Miami Beach, Florida. December 2014

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Knott-Craig CJ. Cardiopulmonary Bypass Strategies to Optimize Renal Function after Cardiac Surgery in Neonates and Young Infants. *Congenital Heart Surgeons Society*, Chicago, Ill. October 2014.

Knott-Craig CJ. Surgical Treatment of Ebstein's Anomaly: From Neonate to Adult. Southern Thoracic Surgical Association. Tucson, Ariz., November 2014.

Knott-Craig CJ. Neonatal Ebstein's Anomaly: Patient Selection for Surgical Intervention. American Heart Association. Chicago, Ill. November 2014.

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Knott-Craig C., Kumar T. S., Figueroa M., Joshi V. M. What Is the Best Surgical Option for Symptomatic Neonates With Ebstein's Anomaly and Pulmonary Atresia? Oral Presentation. Society of Thoracic Surgeons 50th Annual Meeting, January 25-29, 2014, Orlando, FL.

Philip Ranjit, Waller Benjamin Rush III, Jones Tamekia, Agrawal Vijay, Wright Dena, Sathanandam Shyam. Description of the Fetal Type Patent Ductus Arteriosus and the Choice of Transcatheter Occlusion Device. Poster presentation at the Pediatric Interventional Cardiology Society (PICCS) meeting, June 2014, Chicago, IL.

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