South Texas Pediatric & Congenital Heart Center

2014-2015 OUTCOMES and PROGRAMMATIC REVIEW

A partnership for advanced pediatric care
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We are pleased to share with you the progress of the South Texas Pediatric and Congenital Heart Center – a partnership between University Health System and the University of Texas Health Science Center at San Antonio (UTHSCSA). In 2014 our program moved to its new home at University Hospital. We envisioned constructing a new congenital heart program with the sole purpose of focusing resources and expertise across all disciplines towards the care of children and families challenged by congenital heart disease. The program and concept has undergone a dramatic evolution as we prepare for the opening of our dedicated inpatient and outpatient Pediatric and Congenital Cardiac Center at University Hospital in the fall of 2016.

Our Pediatric and Congenital Cardiac Program has superior outcomes of any program in the nation. We are committed to focusing upon excellence via a defined process for patient and family-centered care. This is achieved through our dedicated Pediatric and Congenital Cardiac Unit at University Hospital, a specialized-care unit supported by a multidisciplinary team of caregivers staffed by physicians, nurses and ancillary-care providers who are committed to the care of families affected by congenital heart disease. Our program has structured multidisciplinary mechanisms to continuously focus upon the metrics that define our outcomes as well as being invested in several quality-improvement initiatives. Having a transparent approach to communication with our colleagues, and more importantly our patients and families, is one of our keys to success.

In this booklet, we share the program’s recent highlights and growth. We hope to illustrate our commitment to being a regional and national leader in the delivery of high-quality care. We believe a committed partnership between UTHSCSA and University Health System, along with a focused directive to spread our approach to care within South and West Texas will allow the growth and maturation of our team and program. As we continue to grow, we remain steadfast in our belief that the personal, programmatic and institutional investments we make today will produce a Center we will be proud of for years to come. We look forward to working with you to continue to improve our program and our outcomes. In doing so, we will be capable of truly impacting and changing the lives of all the families we are privileged to serve. Our responsibility is to care for these families as if they were our own. Our commitment is thus not only to heal and treat diseased hearts, but to provide families with logistical and emotional support during their child’s medical and surgical care.
PROGRAM SERVICES AT A GLANCE

• Fetal echocardiography and cardiology
• Prenatal consultation services with cardiothoracic surgery
• Pediatric cardiology: initial evaluation, follow up and preventative care
• Intersocietal Accreditation Commission accredited Pediatric Echocardiography Laboratory
• Diagnostic and Interventional Cardiac Catheterization procedures
• Neonatal, Infant, Pediatric and Adult Congenital Cardiac Surgery
• Extracorporeal Membrane Oxygenation (ECMO)
• Dedicated Pediatric and Congenital Cardiac Unit
• Opening of inpatient and outpatient Family Centered Pediatric and Congenital Cardiac Center – Fall, 2016
PROGRAMMATIC VOLUMES and OUTCOMES
Inpatient Echocardiograms

2014: 1,305
2015: 1,763
Programmatic Growth = 35.1%
Cardiac Catheterization Volumes

2014:
Diagnostic: 49
Intervention: 66
Electrophysiology Studies (Total EP): 34
Total = 149

2015:
Diagnostic: 37
Intervention: 54
Electrophysiology Studies (Total EP): 39
Total = 130
SURGICAL VOLUMES and OUTCOMES
Cardiothoracic Surgical Volumes

2014:
- Total Patients: 105
- Total Cases: 149
- Neonatal Patients: 31
- Neonatal Cases: 52

2015:
- Total Patients: 123
- Total Cases: 165
- Neonatal Patients: 35
- Neonatal Cases: 55

Programmatic Patient Growth of 17%
Programmatic Case Volume Growth of 11%
Neonatal Patient Growth of 13%
Cardiothoracic Surgical Mortality

2014: 1.34% (2 patients)
2015: 2.42% (4 patients)

STS National Mortality Average = 3.2%
Single Ventricle Patient Volumes

2014: 7 patients
Operative Mortality - 1 patient
Survival to Discharge = 85.7%

2015: 13 patients
Operative Mortality - 2 patients
Survival to Discharge = 84.6%

Single Ventricle Patient Growth = 86%
Single Ventricle Stage I Palliation Survival to Discharge

Operative Mortality – 1 patient
Survival to Discharge = 85.7%

Operative Mortality – 2 patients
Survival to Discharge = 84.6%
Adult Congenital Cases
(patients over 18 years of age at time of surgery):

2014: 3
2015: 13
Referral Patterns for Cardiac Surgery (patients):

Referring Source - 2014 / 2015

- UTHSCSA Division of Pediatric Cardiology - 53 / 49
- El Paso - 14 / 20
- Military Cardiologists - 17 / 17
- DHR Partnership - 4 / 8
- Laredo - 4 / 3
- Austin - 1 / 2
- Jatin Patel (San Antonio Private Practice Pediatric Cardiologist) - 0 / 4
- San Antonio PedatriX Cardiology - 1 / 7
- HeartGift, San Antonio - 7 / 6
- Marc Feldman (UTHSCSA Adult Cardiologist) - 1 / 4
- Other Physicians - 3 / 3
Referral Sources: 2014

- UTHSCSA Pedi Cardiology: 50%
- El Paso: 13%
- Military: 16%
- RGV: 4%
- Laredo: 4%
- Austin: 0%
- SA PedatriX: 1%
- M. Feldman: 1%
- J. Patel: 0%
- HeartGift: 7%
- Other: 3%

Total = 105
Referral Sources: 2015

- UTHSCSA Pedi Cardiology: 40%
- El Paso: 16%
- Military: 14%
- RGV: 8%
- SA PedatriX: 6%
- J. Patel: 3%
- HeartGift: 5%
- M. Feldman: 3%
- Other: 2%
- Laredo: 2%
- Austin: 2%
PEDIATRIC and CONGENITAL CARDIAC UNIT
The Pediatric & Congenital Cardiac Unit (PCCU) serves the inpatient practice of the South Texas Pediatric and Congenital Heart Center. The faculty of the UTHSCSA Division of Pediatric Critical Care provides 24/7 in-unit patient care; the heart team is led by an attending physician and consists of a mid-level provider or Critical Care fellow. In 2015, the PCCU continued its successful course of integrating the efforts of UT-Kids/UTHSCSA faculty and University Hospital dedicated staff.
PCCU Highlights

Patient Care

- Focused educational program including designed curriculum, mock codes, and clearly identified process to advance based upon experience
- Peripherally Inserted Central Catheter (PICC) team and protocol in development
- Created a formal procedure for transfusion of blood collected in the Operating Room (“cell-saver”) or blood product initiated there, such as reconstituted blood. This might be the first or among the few such formally established procedures in the country
- In collaboration with Anesthesiology and CT-Surgery created a process to improve efficiency of transition from the PCCU to the Operating Room

Quality Measures

- Longest days (353 days) between central line infections: 0.85/1000 Central Line Days vs. national average of 1/1000 Central line Days
- Consistently in the top two in quality metrics server by the Pediatric CMT (central line infection, urinary catheter infection, hand hygiene, patient satisfaction)
- Low mortality rate of all admissions to the PCCU.
  
  2014: 2.8%
  2015: 1.6%

Staff Advancement

- Increased nursing FTE from 20.4 to 23.25
- Patient care coordinator joined the Unit
- Four nursing staff attended two national educational conferences focused on cardiac critical care
- 83.3% baccalaureate-prepared nurses vs. magnet national average of 65.78%

Facility Improvement

Our new Pediatric Cardiac Care Unit (PCCU), set for completion fall 2016, will include four hotel-like rooms for parents to sleep just a few steps from their child’s room, along with a common living area, a shared kitchen and laundry.
Program Expansion

- Increased direct transfers to the PCCU.
  2014: 19 – Eagle Pass (6), Edinburg* (2), Laredo (2)
  2015: 35 – Edinburg* (6), El Paso (6), Eagle Pass (3)

- The PCCU admitted patients from a wide geographic distribution ranging from West Texas to the Rio Grande Valley Region (Figure 1).

- PCCU admissions increased by almost 30 % (from 249 admissions in 2014 to 321 in 2015) with Pediatric Cardiac Critical Care Service seeing a 157 % increase.
  2014: Total = 249 with 37 direct admit to Cardiac Critical Care
  2015: Total = 321 with 95 direct admit to Cardiac Critical Care

Recognition

- Praised by Joint Commission surveyor

- A 2015 graduate fellow of the Division of Critical Care Medicine is now an attending at a very active pediatric cardiac program in Albuquerque, New Mexico

Academic Contribution

- Dr. Carrillo, fellow graduate of Pedi Critical Care Medicine, presented a podium abstract on the practice of immunization in infant with congenital heart disease (2015 American Academy of Pediatrics national meeting)
QUALITY IMPROVEMENT INITIATIVES
Sternal Wound Infection Project
This project was initiated in 2011 when we looked at sternal wound infections following pediatric cardiac surgery via a survey study of all programs across the United States. We discovered very little protocolized consistency in approach to limit infections. This study was published in the Annals of Thoracic Surgery. As a follow up, our group embarked upon creating a data driven protocol for the prevention of sternal wound infections and implemented it within our program from 2011-2013. We found that the implementation of the protocol decreased our incidence of sternal wound infections, and our result was published in the World Journal for Pediatric and Congenital Cardiac Surgery in 2013. Subsequently we became the lead institution in a two-year prospective multi-institutional study involving 10 programs looking at a uniform protocolized approach towards decreasing the incidence of sternal wound infections. This study has been performed in conjunction with the Society of Thoracic Surgeons National Database. Our data collection has just been completed and we are in the process of data analysis prior to formal presentation and manuscript submission.

Fontan Protocol
In June of 2015 our program initiated a protocolized approach for patients undergoing third-stage palliation for single ventricle disease – the Fontan Procedure. This operation is well known to be associated with prolonged hospital stays secondary to pleural effusions. Our team used a data-driven approach to create a formalized protocol for all patients receiving the Fontan procedure, which included specific surgical, intensive care and pharmacologic therapies. Since the initiation of the protocol, our programmatic lengths of stay for a Fontan Procedure have decreased from an average of 66 percent.

Early Extubation Protocol
In December of 2015, our program initiated an early extubation strategy for patients undergoing congenital heart surgery. More specifically, we are tracking our ability to extubate a patient in the operating room setting versus within six hours upon arrival to the PCCU. This study involves inclusion of a well-defined subset of patients. We have constructed this protocol using parameters defined by other studies; however, we submit that this particular approach is more encompassing than previously published reports. It is our belief that we must evaluate the safety of such an approach and if we deem it to be a safe therapeutic initiative, to further evaluate our ability to extubate patients earlier and in doing so, shorten hospital stays.
ACHIEVEMENTS
1. Humanitarian Efforts

Our program has been committed to several humanitarian endeavors to narrow the global disparity in the delivery of congenital cardiac care. Congenital heart disease is the most common birth defect in the world, impacting nearly one percent of all live births. Over 90 percent of children in the world who are in need of a surgical intervention for congenital heart disease do not have access to care.

HeartGift San Antonio

HeartGift, San Antonio was established in 2008. Its purpose is to bring children from underserved regions of the world to San Antonio for corrective heart surgery. To date our program has performed corrective surgery on 43 patients. Since our partnership with UHS, we have performed corrective surgery on 13 patients from seven different countries. These countries include Uganda, Mongolia, Philippines, Honduras, Bolivia, Kenya and Jamaica.

Medical Humanitarian Trip to Palestine and the Gaza Strip

In October of 2015, a nine-person team from San Antonio and UHS/UTHSCSA embarked on a 10-day trip to the Gaza Strip and performed corrective surgical procedures on nine children with congenital heart disease. This is the sixth time a trip has been made by team members to the Middle East with a total of 81 patients receiving surgical intervention.

Medical Humanitarian Trip to Lima, Peru

In January of 2016, our seven-person team embarked upon a 10-day trip to Lima, Peru and performed corrective surgical procedures on children with congenital heart disease.

2. Optum Center of Excellence Designation

As of January 2016, Optum has designated 19 congenital heart programs in the U.S. as Centers of Excellence. Our program is one of those centers and one of only three in the state of Texas. Per their website, Optum states:

“Patients with complex medical conditions are more likely to get better care when they are treated by experienced, knowledgeable physicians, and better care leads to shorter hospital stays, higher success rates, faster recoveries and lower costs. At Optum, we have provided access to clinically superior, cost-effective health care for complex medical conditions since 1986. Find out how we can assist you or your organization.”

www.myoptumhealthcomplexmedical.com/gateway/public/chd/chd.jsp
3. William Randolph Hearst Foundation Endowment

The William Randolph Hearst Endowment and Chair in Congenital Heart Disease was created in October of 2013 as the program was in transition to move to University Health System. This endowment has grown to $800,000 through funds not only from the Hearst Foundation, but also the President’s office at UTHSCSA, as well as local philanthropic support. This Endowment has allowed for a yearly visiting professorship to be created, which has been extremely educational for the entire program in regards to bringing nationally recognized physicians to San Antonio. In addition, the endowment is in the process of funding a large portion of the Information Technology and Academic Resources within the newly designed inpatient and outpatient Pediatric and Congenital Heart Center at University Health System.

4. Doctor’s Hospital At Renaissance Partnership

University Health System and UTHSCSA jointly have partnered with Doctor’s Hospital at Renaissance (DHR) for the care of children and families with congenital heart disease in the Rio Grande Valley Region. This partnership was initiated in August of 2015 with the first formal surgical clinic held at DHR on September 24, 2015. We are seeing fetal consultations as well as pre- and post-operative surgical patients. This partnership, in its infancy, has already yielded a 100% increase in patient referrals from the Region to our program. In addition, a pediatric cardiology summit was held involving all local pediatric cardiologists on January 20, 2016, at which time further discussions were held regarding the amalgamation of pediatric cardiothoracic surgical services for the area. We will continue to hold a monthly clinic as well as well-defined outreach initiatives in 2016. In addition, we are pleased to be a template for other pediatric subspecialty services who wish to create a formal partnership with DHR. The objective of creating a University Health System/UTHSCSA multispecialty pediatric clinic at DHR would be a key initiative for furthering the pediatric initiative in the Rio Grande Valley Region.
PEER-REVIEWED PUBLICATIONS
Peer-reviewed Publications


**Husain SA.** Cardiac Strangulation: Should We Worry? Journal Of Thoracic and Cardiovascular Surgery, 2014;14:833


National Speaker Invited Presentations


Maldonado E. Congenital Heart Disease: Collaborating for Improved Care. San Antonio Military Health System and Universities Research Forum, July 24, 2015

Husain SA. Disparities in the Delivery of Surgical Care For Congenital Heart Disease: The Importance of Teamwork in the Operating Room: American Association for Surgical Technologists Annual Conference. San Antonio, TX. May 15, 2015

Direct-patient referrals to University Hospital: 210-358-1583
Pediatric transfers and transports to University Hospital: 210-743-3100
Outpatient referrals with same-day appointments upon request: 210-341-7722