

Cardiothoracic Surgery

Division Details

RESEARCH AND TRAINING DETAILS

Faculty	4
Research Fellows and Post Docs	1
Total Annual Industry Award Dollars	\$40,206
Total Publications	35

CLINICAL ACTIVITIES AND TRAINING

Clinical Fellows	1
Inpatient Encounters	579
Outpatient Encounters	335

Significant Publications

Hoffman GM, Brosig CL, Bear LM, **Tweddell JS**, Mussatto KA. **Effect of Intercurrent Operation and Cerebral Oxygenation on Developmental Trajectory in Congenital Heart Disease**. *Ann Thorac Surg*. 2016 Feb;101(2):708-16.

In this prospective observational study, researchers assessed overall hemodynamic well-being by near-infrared spectroscopy associated with neurodevelopmental outcome. In contrast to other studies, increasing numbers of surgical procedures was not associated with neurodevelopmental outcome when adjusted for cardiopulmonary bypass time and physiologic status. As such, treatment strategies that target improved physiologic status may also result in improved neurodevelopmental outcome.

Jacobsen RM, Earing MG, Hill GD, Barnes M, Mitchell ME, Woods RK, **Tweddell JS**. **The Externally Supported Ross Operation: Early Outcomes and Intermediate Follow-Up**. *Ann Thorac Surg*. 2015 Aug;100(2):631-8.

Factors predicting failure of the Ross aortic valve replacement procedure include: preoperative aortic regurgitation, large preoperative aortic annulus size, bicuspid aortic valve, and significant preoperative aortic root dilation. These factors are common in young patients who might otherwise benefit from the Ross procedure. In an effort to limit postoperative root dilatation, decrease the need for re-intervention and extend the population who might be candidates for the Ross operation, we investigated the use of external support of the pulmonary autograft with a Dacron tube graft. This paper summarizes our experience with 26 children, adolescents and young adults, undergoing the externally supported Ross procedure and shows excellent intermediate term outcome.

Moore RA, Lorts A, Madueme PC, Taylor MD, Morales DL. **Virtual implantation of the 50cc SynCardia total artificial heart**. *J Heart Lung Transplant*. 2016 Jun;35(6):824-7.

The current standard of practice to determine patient eligibility to fit for circulatory systems devices includes measuring weight and body surface area. In this retrospective analysis, we proposed that virtual implantation of the Syncardia Total Artificial Heart would increase fit eligibility in pediatric patients. Significantly, we demonstrated that with virtual implantation in 15 consecutive patients, one-third of our study group could have been candidates for the device, despite not meeting traditional demographics in determining fit. This work was instrumental in allowing virtual implantation to use as acceptable fit criteria in the clinical trial for the pediatric 50/50cc Total Artificial Heart.

Division Publications

1. Adachi I, Burki S, Zafar F, Morales DL. **Pediatric Ventricular Assist Devices.** *J Thorac Dis.* 2015; 7:2194-202.
2. Blume ED, Rosenthal DN, Rossano JW, Baldwin JT, Eghtesady P, Morales DL, Cantor RS, Conway J, Lorts A, Almond CS, Naftel DC, Kirklin JK, PediMACS Investigators. **Outcomes of Children Implanted with Ventricular Assist Devices in the United States: First Analysis of the Pediatric Interagency Registry for Mechanical Circulatory Support (Pedimacs).** *J Heart Lung Transplant.* 2016; 35:578-84.
3. Buelow MW, Earing MG, Hill GD, Cohen SB, Bartz PJ, Tweddell JS, Ginde S. **The Impact of Obesity on Postoperative Outcomes in Adults with Congenital Heart Disease Undergoing Pulmonary Valve Replacement.** *Congenit Heart Dis.* 2015; 10:E197-202.
4. Castleberry C, Zafar F, Thomas T, Khan M, Bryant R, Chin C, Morales D, Lorts A. **Allosensitization Does Not Alter Post-Transplant Outcomes in Pediatric Patients Bridged to Transplant with a Ventricular Assist Device.** *Pediatr Transplant.* 2016; 20:559-64.
5. Castleberry CD, Zafar F, Dipchand AI, Edwards L, Chin C. **Early Initiation of Mtor Inhibitors in Children with Heart Transplantation: A Propensity-Based Registry Analysis.** *J Heart Lung Transplant.* 2016; 35:253-5.
6. Cooper DS, Morales DL, Corral M, Paden MT, RR. **Databases for Extracorporeal Membrane Oxygenation and Ventricular Assist Devices.** In: P Barach, JP Jacobs, S Lipschultz, P Laussen, eds. *Pediatric and Congenital Cardiac Care: Volume 1: Outcomes Analysis.* New York: Springer; 2015:211-18.
7. Elderie A, Reddy A, Zafar F, Hirsch R, Morales DL. **Ventricular Septal Defect Creation: A Viable Option to Decompress a Large Nonsystemic Left Ventricle in a Fontan Patient.** *World J Pediatr Congenit Heart Surg.* 2016.
8. Flores S, Moore RA, Statile CJ, Michelfelder EC, Wanstrath SG, Knilians TK, Morales DL, Cooper DS. **Critical Care for Patients with Congenital Abnormalities of the Coronary Arteries.** *Cardiol Young.* 2015; 25:1561-6.
9. Guzman-Pruneda FA, Orr Y, Trost JG, Zhang W, Das S, Melicoff E, Maddox J, Nugent M, Mery CM, Adachi I, Schechter MG, Mallory GB, Morales DL, Heinle JS, McKenzie ED. **Bronchial Artery Revascularization and En Bloc Lung Transplant in Children.** *J Heart Lung Transplant.* 2016; 35:122-9.
10. Hoffman GM, Brosig CL, Bear LM, Tweddell JS, Mussatto KA. **Effect of Intercurrent Operation and Cerebral Oxygenation on Developmental Trajectory in Congenital Heart Disease.** *Ann Thorac Surg.* 2016; 101:708-16.
11. Jacobs JP, Mayer JE, Jr., Mavroudis C, O'Brien SM, Austin EH, 3rd, Pasquali SK, Hill KD, He X, Overman DM, St Louis JD, Karamlou T, Pizarro C, Hirsch-Romano JC, McDonald D, Han JM, Dokholyan RS, Tchervenkov CI, Lacour-Gayet F, Backer CL, Fraser CD, et al. **The Society of Thoracic Surgeons Congenital Heart Surgery Database: 2016 Update on Outcomes and Quality.** *Ann Thorac Surg.* 2016; 101:850-62.
12. Jacobs JP, O'Brien SM, Pasquali SK, Gaynor JW, Mayer JE, Jr., Karamlou T, Welke KF, Filardo G, Han JM, Kim S, Quintessenza JA, Pizarro C, Tchervenkov CI, Lacour-Gayet F, Mavroudis C, Backer CL, Austin EH, 3rd, Fraser CD, Tweddell JS, Jonas RA, et al. **The Society of Thoracic Surgeons Congenital Heart Surgery Database Mortality Risk Model: Part 2-Clinical Application.** *Ann Thorac Surg.* 2015; 100:1063-8; discussion 68-70.

13. Karkhanis T, Rao M, Zafar F, Morales D, Haridas B. **Tracheal Cartilage Ring Biomechanical Properties for Pediatric Exostent Design.** *J Med Devices.* 2016; 10:1-2.
14. Khan M, Yeager M, Bryant R, Lorts A, Morales D. **Coronary Artery Reconstruction Using a Bioengineered Patch and Epicardial Tunnel.** *Ann Thorac Surg.* 2016; 101:363-65.
15. Khan MS, Zhang W, Taylor RA, Dean McKenzie E, Mallory GB, Schechter MG, Morales DL, Heinle JS, Adachi I. **Survival in Pediatric Lung Transplantation: The Effect of Center Volume and Expertise.** *J Heart Lung Transplant.* 2015; 34:1073-81.
16. Kimura N, Khan MS, Schechter M, Rizwan R, Bryant R, 3rd, Wells E, Towe C, Zafar F, Morales DL. **Changing Demographics and Outcomes of Lung Transplantation Recipients with Cystic Fibrosis.** *J Heart Lung Transplant.* 2016.
17. Loomba R, Bowman J, Cao Y, Tweddell J, Dearani J, Simpson P, Cetta F, Pelech A. **Is Aortic Valve Leaflet Morphology Predictive of Outcome in Pediatric Aortic Valve Stenosis?** *Congenit Heart Dis.* 2015; 10:552-60.
18. Lorts A, Villa C, Morales D. **Children Are Not Small Adults: Options for Pediatric Ventricular Assist Devices.** *Curr Pediatr Rep.* 2015; 3:245-54.
19. Moore RA, Lorts A, Madueme PC, Taylor MD, Morales DL. **Virtual Implantation of the 50cc Syncardia Total Artificial Heart.** *J Heart Lung Transplant.* 2016; 35:824-7.
20. Morales D, Zafar F, Jacobs J. **Use of National Death Registries to Empower Databases in Reporting Longitudinal Follow-Up.** In: *Pediatric and Congenital Cardiac Care: Volume 1: Outcomes Analysis.* New York: Springer; 2015.
21. Nandi D, Lin KY, O'Connor MJ, Elci OU, Kim JJ, Decker JA, Price JF, Zafar F, Morales DL, Denfield SW, Dreyer WJ, Jefferies JL, Rossano JW. **Hospital Charges for Pediatric Heart Failure-Related Hospitalizations from 2000 to 2009.** *Pediatr Cardiol.* 2016; 37:512-8.
22. Niebler RA, Shah TK, Mitchell ME, Woods RK, Zangwill SD, Tweddell JS, Berger S, Ghanayem NS. **Ventricular Assist Device in Single-Ventricle Heart Disease and a Superior Cavopulmonary Anastomosis.** *Artif Organs.* 2016; 40:180-4.
23. Niebler RA, Woods KJ, Murkowski K, Ghanayem NS, Hoffman G, Mitchell ME, Punzalan RC, Scott JP, Simpson P, Tweddell JS. **A Pilot Study of Antithrombin Replacement Prior to Cardiopulmonary Bypass in Neonates.** *Artif Organs.* 2016; 40:80-5.
24. Pigula F, Naim, Backer C, Fraser C, Tweddell J, Hirsch-Romano J, Gandhi S, Gaynor J, Neirotti R, Walters H. **Subclinical Seizures Identified by Postoperative Electroencephalographic Monitoring Are Common after Neonatal Cardiac Surgery Discussion.** *J Thorac Cardiovasc Sur.* 2015; 150:178-80.
25. Ramachandran P, Woo JG, Ryan TD, Bryant R, Heydarian HC, Jefferies JL, Towbin JA, Lorts A. **The Impact of Concomitant Left Ventricular Non-Compaction with Congenital Heart Disease on Perioperative Outcomes.** *Pediatr Cardiol.* 2016; 37:1307-12.
26. Rosenthal DN, Almond CS, Jaquiss RD, Peyton CE, Auerbach SR, Morales DR, Epstein DJ, Cantor RS, Kormos RL, Naftel DC, Butts RJ, Ghanayem NS, Kirklin JK, Blume ED. **Adverse Events in Children Implanted with Ventricular Assist Devices in the United States: Data from the Pediatric Interagency Registry for Mechanical Circulatory Support (Pedimacs).** *J Heart Lung Transplant.* 2016; 35:569-77.
27. Siddiqui NA, Sophie Z, Zafar F, Soares D, Naz I. **Predictors for the Development of Post-Thrombotic Syndrome in Patients with Primary Lower Limb Deep Venous Thrombosis: A Case-Control Study.** *Vascular.* 2016.
28. Sosa T, Goldstein B, Cnota J, Bryant R, Frenck R, Washam M, Madsen N. **Melody Valve Bartonella Henselae Endocarditis in an Afebrile Teen: A Case Report.** *Pediatrics.* 2016; 137.
29. Tweddell J. **Advances in Neonatal Cardiac Surgery: Recent Advances, the Low-Hanging Fruit, What Is on the Horizon and the Next Moonshot.** *Curr Opin Cardiol.* 2016; 31:109-16.
30. Tweddell J. **Are Stem Cells the Next Frontier for Hypoplastic Left Heart Syndrome? What Are the Promise, the Reality, and the Future?** *J Thorac Cardiovasc Surg.* 2015; 150:1023-25.

31. Tweddell J. **Where Do We Go Now?** *J Thorac Cardiovasc Surg.* 2015; 150:1453-54.
32. Tweddell J, Hoffman G, Ghanayem N, Frommelt M, Mussatto K, Berger S. **Hypoplastic Left Heart Syndrome.** In: H Allen, R Shaddy, D Penny, T Feltes, F Cetta, eds. *Moss & Adams' Heart Disease in Infants, Children, and Adolescents, Including the Fetus and Young Adult Ninth Edition.* Philadelphia PA: Lippincott Williams & Wilkins; 2016:1125-62.
33. Tweddell JS. **Historical Perspectives of the American Association for Thoracic Surgery: Thomas L. Spray.** *J Thorac Cardiovasc Surg.* 2016; 152:945-9.
34. Tweddell JS. **Invited Commentary.** *Ann Thorac Surg.* 2015; 100:180.
35. Zafar F, Hinton R, Moore R, Baker R, Bryant R, Narmoneva D, Taylor M, Morales D. **Physiological Growth, Remodeling Potential, and Preserved Function of a Novel Bioprosthetic Tricuspid Valve Tubular Bioprosthesis Made of Small Intestinal Submucosa-Derived Extracellular Matrix.** *J Am Coll Cardiol.* 2015; 66:877-88.
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Grants, Contracts, and Industry Agreements

Annual Industry Award Dollars

Investigator	Industry Sponsor	Amount
David Morales, MD	CorMatrix	\$40,206
Total Annual Industry Award Dollars		\$40,206