

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

Shelby Kutty, M.D., Ph.D., M.H.C.M.
Johns Hopkins University School of Medicine
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DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointments

8/18 – Present The Helen B. Taussig Professor
8/18 – Present Director, Helen B. Taussig Heart Center
8/18 – Present Director, Pediatric and Congenital Cardiology

Personal Data

Helen B. Taussig Heart Center
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Education and Training

1995 MBBS: Calicut University, India
1998 MD: Manipal University, India
2014 PhD: University of Amsterdam and University of Nebraska Medical Center
2016 MHCM: Masters Healthcare Management, Harvard University
2016 Interprofessional Leadership for Excellence and Academic Development (iLEAD-UNMC)
2017 Wharton-Deloitte Physician Leadership Academy
2018 Economics of Clinical Operations (ECO): Johns Hopkins School of Medicine
2020 Artificial Intelligence in Healthcare: MIT Sloan Executive Education

Residencies/ Fellowship

7/01 – 6/03 Residency: Pediatrics, Miami Children’s Hospital, Miami, Florida
7/03 – 3/06 Fellowship: Pediatric Cardiology, Cleveland Clinic Foundation, Cleveland, Ohio
8/06 – 1/08 Fellowship: Pediatric Cardiology, Children’s Hospital of Wisconsin, Milwaukee, Wisconsin
1/08 – 6/08 Cardiovascular Magnetic Resonance Training: Children’s Hospital, Boston, Massachusetts

Professional Experience

8/06 – 6/08 Instructor in Pediatrics Medical College of Wisconsin, Milwaukee
7/08 – 6/12 Assistant Professor of Pediatrics; Assistant Professor of Radiology and Internal Medicine, University of Nebraska Medical Center – College of Medicine
7/12 – 6/17 Associate Professor of Pediatrics, University of Nebraska Medical Center – College of Medicine
7/17 – 7/18 Professor of Pediatrics, Professor of Cellular and Integrative Physiology; Professor of Internal Medicine and Radiology, University of Nebraska Medical Center – College of Medicine
8/18 – present Adjunct Professor, University of Nebraska Medical Center – College of Medicine

Administrative Experience

9/17 – 8/18 Assistant Dean for Research and Development, Univ. Nebraska College of Medicine
1/17 – 8/18 Vice Chair of Pediatrics, Univ. Nebraska College of Medicine
6/11 – 8/18 Director of Research, Pediatric Cardiology, Univ. Nebraska Medical Center
1/11 – 8/18 Director of Cardiovascular Imaging, Children’s Hospital and Medical Center
6/12 – 7/14 Associate Fellowship Director, Pediatric Cardiology, Univ. Nebraska Medical Center

Additional Clinical Experience

4/99 – 5/00 Royal Children’s Hospital, University of Melbourne, Australia; Pediatric Cardiology
7/00 – 6/01 The Hospital for Sick Children, University of Toronto; Pediatric Cardiology

Present Administrative Role

As director, I am invested in developing programs, building relationships with all stakeholders to provide the best care, recruiting people, and nurturing a culture that values our mission. My goal is to drive transformational improvements by bringing people together, creating a vision, and enabling others succeed. I am passionate about leading innovative thinking and developing strategy while inspiring change. I lead a team that provides exceptional patient care, and pushes to improve treatments through research and innovation. We are able to achieve the best outcomes, safety and value through effective management of resources within Johns Hopkins. We have developed research laboratories dedicated to therapeutic ultrasound, right heart disease, cardiovascular analytic intelligence and outcomes. We are expanding our clinical programs in materno-fetal cardiac health, adult congenital heart disease, cardiovascular genetics, cardio-oncology, and others in the state of Maryland and beyond. Our programs span the continuum— from the fetus to the adult, all within one fully integrated system.

PUBLICATIONS: (Total 271 peer-reviewed manuscripts, OR 216, RA 28, CR 3, BC 8, other 16; H index 41, i-10 index 131)

Original Research (OR)

1. **Kutty S**, Asnes JD, Srinath G, Preminger TJ, Prieto LR, Latson LA. Use of a straight, side-hole delivery sheath for improved delivery of Amplatzer ASD occluder. *Catheter Cardiovasc Interv.* 2007; 69(1):15-20.
2. **Kutty S**, Deatsman SL, Nugent ML, Russell D, Frommelt PC. Assessment of regional right ventricular velocities, strain, and displacement in normal children using velocity vector imaging. *Echocardiography.* 2008; 25(3):294-307.
3. **Kutty S**, Greenberg RK, Fletcher S, Svensson LG, Latson LA. Endovascular stent grafts for large thoracic aneurysms after coarctation repair. *Ann Thorac Surg.* 2008; 85(4):1332-8.
4. **Kutty S**, Brown K, Asnes JD, Rhodes JF, Latson LA. Causes of recurrent focal neurologic events after transcatheter closure of patent foramen ovale with the CardioSEAL septal occluder. *Am J Cardiol.* 2008; 101(10):1487-92.
5. **Kutty S**, Deatsman SL, Russell D, Nugent ML, Simpson PM, Frommelt PC. Pulmonary valve replacement improves but does not normalize right ventricular mechanics in repaired congenital heart disease: a comparative assessment using velocity vector imaging. *J Am Soc Echocardiogr.* 2008; 21(11):1216-21.
6. **Kutty S**, Brown K, Qureshi AM, Latson LA. Maximal potential patent foramen diameter does not correlate with the type or frequency of the neurologic event prior to closure. *Cardiology.* 2009; 113(2):111-5.
7. Gowda ST, **Kutty S**, Ebeid M, Qureshi AM, Worley S, Latson LA. Preclosure pressure gradients predict patent ductus arteriosus patients at risk for later left pulmonary artery stenosis. *Pediatr Cardiol.* 2009; 30(7):883-7.
8. **Kutty S**, Whitehead KK, Natarajan S, Harris MA, Wernovsky G, Fogel MA. Qualitative echocardiographic assessment of aortic valve regurgitation with quantitative cardiac magnetic resonance: a comparative study. *Pediatr Cardiol.* 2009; 30(7):971-7.
9. **Kutty S**, Nykanen DG, Zahn EM. Early experience with a simplified technique for transcatheter closure of the patent foramen ovale. *Heart Lung Circ.* 2009; 18(6):384-7.
10. Jantzen DW, Aldoss O, Sanford B, Fletcher SE, Danford DA, **Kutty S**. Is combined atrial volumetrics by two-dimensional echocardiography a suitable measure for quantitative assessment of the hemodynamic significance of patent ductus arteriosus in neonates and infants? *Echocardiography.* 2010; 27(6):696-701; *corresponding author.
11. **Kutty S**, Xie F, Gao S, Drvol LK, Lof J, Fletcher SE, Radio SJ, Danford DA, Hammel JM, Porter TR. Sonothrombolysis of intra-catheter aged venous thrombi using microbubble enhancement and guided three-dimensional ultrasound pulses. *J Am Soc Echocardiogr.* 2010; 23(9):1001-6.
12. **Kutty S**, Kaul S, Danford CJ, Danford DA. Main pulmonary artery dilation in association with congenital bicuspid aortic valve in the absence of pulmonary valve abnormality. *Heart.* 2010; 96(21):1756-61.
13. **Kutty S**, Frommelt MA, Danford DA, Tweddell JS. Medium-term outcomes of Kawashima and completion Fontan palliation in single-ventricle heart disease with heterotaxy and interrupted inferior vena cava. *Ann Thorac Surg.* 2010; 90(5):1609-13.
14. Gowda ST, Latson LA, **Kutty S**, Prieto LR. Intermediate to long-term outcome following congenital coronary artery fistulae closure with focus on thrombus formation. *Am J Cardiol.* 2011 Jan 15; 107(2):302-8.
15. Khoo NS, Smallhorn JF, Kaneko S, Myers K, **Kutty S**, Tham EB. Novel insights into RV adaptation and function in hypoplastic left heart syndrome between the first 2 stages of surgical palliation. *JACC Cardiovasc Imaging.* 2011; 4(2):128-37.
16. **Kutty S**, Zhou J, Gauvreau K, Trincado C, Powell AJ, Geva T. Regional dysfunction of the right ventricular outflow tract reduces the accuracy of Doppler tissue imaging assessment of global right ventricular systolic function in patients with repaired tetralogy of Fallot. *J Am Soc Echocardiogr.* 2011; 24(6):637-43.

17. **Kutty S**, Burke RP, Hannan RL, Zahn EM. Hybrid aortic reconstruction for treatment of recurrent aortic obstruction after stage 1 single ventricle palliation: medium term outcomes and results of redilation. *Catheter Cardiovasc Interv.* 2011; 78(1):93-100.
18. Tian C, Shao CH, Moore CJ, **Kutty S**, Walseth T, DeSouza C, Bidasee KR. Gain of function of cardiac ryanodine receptor in a rat model of type 1 diabetes. *Cardiovasc Res.* 2011; 91(2):300-9.
19. Schuster A, **Kutty S**, Padiyath A, Parish V, Gribben P, Danford DA, Makowski MR, Bigalke B, Beerbaum P, Nagel E. Cardiovascular magnetic resonance myocardial feature tracking detects quantitative wall motion during dobutamine stress. *J Cardiovasc Magn Reson.* 2011; 13:58.
20. **Kutty S**, Wu J, Hammel JM, Xie F, Gao S, Drvol LK, Lof J, Radio SJ, Therrien SL, Danford DA, Porter TR. Microbubble mediated thrombus dissolution with diagnostic ultrasound for the treatment of chronic venous thrombi. *PLoS One.* 2012; 7(12):e51453.
21. **Kutty S**, Li L, Polak A, Gribben P, Danford DA. Echocardiographic knowledge-based reconstruction for quantification of the systemic right ventricle in young adults with repaired D-transposition of great arteries. *Am J Cardiol.* 2012; 109(6):881-8.
22. **Kutty S**, Hazeem AA, Brown K, Danford CJ, Worley SE, Delaney JW, Danford DA, Latson LA. Long-term (5- to 20-year) outcomes after transcatheter or surgical treatment of hemodynamically significant isolated secundum atrial septal defect. *Am J Cardiol.* 2012; 109(9):1348-52.
23. **Kutty S**, Graney BA, Khoo NS, Li L, Polak A, Gribben P, Hammel JM, Smallhorn JF, Danford DA. Serial assessment of right ventricular volume and function in surgically palliated hypoplastic left heart syndrome using real-time transthoracic three-dimensional echocardiography. *J Am Soc Echocardiogr.* 2012; 25(6):682-9.
24. **Kutty S**, Olson J, Danford CJ, Sandene EK, Xie F, Fletcher SE, Erickson CC, Kugler JD, Danford DA, Porter TR. Ultrasound contrast and real-time perfusion in conjunction with supine bicycle stress echocardiography for comprehensive evaluation of surgically corrected congenital heart disease. *Eur Heart J Cardiovasc Imaging.* 2012; 13(6):500-9.
25. Morton G, Schuster A, Jogiya R, **Kutty S**, Beerbaum P, Nagel E. Inter-study reproducibility of cardiovascular magnetic resonance myocardial feature tracking. *J Cardiovasc Magn Reson.* 2012; 14:43.
26. Poterucha JT, **Kutty S**, Lindquist RK, Li L, Eidem BW. Changes in left ventricular longitudinal strain with anthracycline chemotherapy in adolescents precede subsequent decreased left ventricular ejection fraction. *J Am Soc Echocardiogr.* 2012; 25(7):733-40.
27. Shao CH, Tian C, Ouyang S, Moore CJ, Alomar F, Nemet I, D'Souza A, Nagai R, **Kutty S**, Rozanski GJ, Ramanadham S, Singh J, Bidasee KR. Carbonylation induces heterogeneity in cardiac ryanodine receptor function in diabetes mellitus. *Mol Pharmacol.* 2012; 82(3):383-99.
28. **Kutty S**, Kuehne T, Gribben P, Reed E, Li L, Danford DA, Beerbaum PB, Sarikouch S. Ascending aortic and main pulmonary artery areas derived from cardiovascular magnetic resonance as reference values for normal subjects and repaired tetralogy of Fallot. *Circ Cardiovasc Imaging.* 2012; 5(5):644-51.
29. Mercer-Rosa L, Yang W, **Kutty S**, Rychik J, Fogel M, Goldmuntz E. Quantifying pulmonary regurgitation and right ventricular function in surgically repaired tetralogy of Fallot: a comparative analysis of echocardiography and magnetic resonance imaging. *Circ Cardiovasc Imaging.* 2012; 5(5):637-43.
30. Hoffman MA, Ramey AK, Hammel J, Truemper E, **Kutty S**, Chatterjee A. Recurrent mycotic aneurysm in a 2-year-old boy with group A Streptococcus bacteremia. *Pediatr Infect Dis J.* 2012; 31(10):1080-2.
31. Rangamani S, Varghese J, Li L, Harvey L, Hammel JM, Fletcher SE, Duncan KF, Danford DA, **Kutty S**. Safety of cardiac magnetic resonance and contrast angiography for neonates and small infants: a 10-year single-institution experience. *Pediatr Radiol.* 2012; 42(11):1339-46.
32. **Kutty S**, Rangamani S, Venkataraman J, Li L, Schuster A, Fletcher SE, Danford DA, Beerbaum P. Reduced global longitudinal and radial strain with normal left ventricular ejection fraction late after effective repair of aortic coarctation: a CMR feature tracking study. *Int J Cardiovasc Imaging.* 2013; 29(1):141-50.
33. Hammel JM, Duncan KF, Danford DA, **Kutty S**. Two-stage biventricular rehabilitation for critical aortic stenosis with severe left ventricular dysfunction. *Eur J Cardiothorac Surg.* 2013; 43(1):143-8.
34. Hinze A, **Kutty S**, Sayles H, Sandene EK, Meza J, Kugler JD. Reproductive and contraceptive counseling received by adult women with congenital heart disease: a risk-based analysis. *Congenit Heart Dis.* 2013; 8(1):20-31.
35. Schuster A, Morton G, Hussain ST, Jogiya R, **Kutty S**, Asress KN, Makowski MR, Bigalke B, Perera D, Beerbaum P, Nagel E. The intra-observer reproducibility of cardiovascular magnetic resonance myocardial feature tracking strain assessment is independent of field strength. *Eur J Radiol.* 2013; 82(2):296-301.
36. Padiyath A, Gribben P, Abraham JR, Li L, Rangamani S, Schuster A, Danford DA, Pedrizzetti G, **Kutty S**. Echocardiography and cardiac magnetic resonance-based feature tracking in the assessment of myocardial mechanics in tetralogy of Fallot: an intermodality comparison. *Echocardiography.* 2013; 30(2):203-10.

37. Piao L, Sidhu VK, Fang YH, Ryan JJ, Parikh KS, Hong Z, Toth PT, Morrow E, **Kutty S**, Lopaschuk GD, Archer SL. FOXO1-mediated upregulation of pyruvate dehydrogenase kinase-4 (PDK4) decreases glucose oxidation and impairs right ventricular function in pulmonary hypertension: therapeutic benefits of dichloroacetate. *J Mol Med (Berl)*. 2013; 91(3):333-46.
38. Hong Z, **Kutty S**, Toth PT, Marsboom G, Hammel JM, Chamberlain C, Ryan JJ, Zhang HJ, Sharp WW, Morrow E, Trivedi K, Weir EK, Archer SL. Role of dynamin-related protein 1 (Drp1)-mediated mitochondrial fission in oxygen sensing and constriction of the ductus arteriosus. *Circ Res*. 2013; 112(5):802-15.
39. Moore CJ, Shao CH, Nagai R, **Kutty S**, Singh J, Bidasee KR. Malondialdehyde and 4-hydroxynonenal adducts are not formed on cardiac ryanodine receptor (RyR2) and sarco (endo)plasmic reticulum Ca²⁺-ATPase (SERCA2) in diabetes. *Mol Cell Biochem*. 2013; 376(1-2):121-35.
40. **Kutty S**, Padiyath A, Li L, Peng Q, Rangamani S, Schuster A, Danford DA. Functional maturation of left and right atrial systolic and diastolic performance in infants, children, and adolescents. *J Am Soc Echocardiogr*. 2013; 26(4):398-409.e2.
41. **Kutty S**, Kottam AT, Padiyath A, Bidasee KR, Li L, Gao S, Wu J, Lof J, Danford DA, Kuehne T. Validation of admittance computed left ventricular volumes against real-time three-dimensional echocardiography in the porcine heart. *Exp Physiol*. 2013; 98(6):1092-101.
42. Parish V, Valverde I, **Kutty S**, Head C, Qureshi SA, Sarikouch S, Greil G, Schaeffter T, Razavi R, Beerbaum P. Dobutamine stress MRI in repaired tetralogy of Fallot with chronic pulmonary regurgitation: a comparison with healthy volunteers. *Int J Cardiol*. 2013; 166(1):96-105.
43. Schuster A, Paul M, Bettencourt N, Morton G, Chiribiri A, Ishida M, Hussain S, Jogiya R, **Kutty S**, Bigalke B, Perera D, Nagel E. Cardiovascular magnetic resonance myocardial feature tracking for quantitative viability assessment in ischemic cardiomyopathy. *Int J Cardiol*. 2013; 166(2):413-20.
44. Wynn J, Krishnan U, Aspelund G, Zhang Y, Duong J, Stolar CJ, Hahn E, Pietsch J, Chung D, Moore D, Austin E, Mychaliska G, Gajarski R, Foong YL, Michelfelder E, Potolka D, Bucher B, Warner B, Grady M, Azarow K, Fletcher SE, **Kutty S**, Delaney J, Crombleholme T, Rosenzweig E, Chung W, Arkovitz MS. Outcomes of congenital diaphragmatic hernia in the modern era of management. *J Pediatr*. 2013; 163(1):114-9.e1.
45. Khoo NS, Smallhorn JF, Kaneko S, **Kutty S**, Altamirano L, Tham EB. The assessment of atrial function in single ventricle hearts from birth to Fontan: a speckle-tracking study by using strain and strain rate. *J Am Soc Echocardiogr*. 2013; 26(7):756-64.
46. Parish V, Valverde I, **Kutty S**, Head C, Greil GF, Schaeffter T, Razavi R, Beerbaum P. Higher dose dobutamine stress MR imaging in repaired Tetralogy of Fallot: observer variance of volumetric assessment compared with normal volunteers. *J Magn Reson Imaging*. 2013; 38(6):1356-61.
47. Kutty SS, Peng Q, Danford DA, Fletcher SE, Perry D, Talmon GA, Scott C, Kugler JD, Duncan KF, Quiros-Tejeira RE, **Kutty S**; Liver Adult-Pediatric-Congenital-Heart-Disease Dysfunction Study (LADS) Group. Increased hepatic stiffness as consequence of high hepatic afterload in the Fontan circulation: a vascular Doppler and elastography study. *Hepatology*. 2014; 59(1):251-60.
48. **Kutty S**, Li L, Hasan R, Peng Q, Rangamani S, Danford DA. Systemic venous diameters, collapsibility indices, and right atrial measurements in normal pediatric subjects. *J Am Soc Echocardiogr*. 2014; 27(2):155-62.
49. **Kutty S**, Russell D, Li L, Hasan R, Peng Q, Frommelt PC, Danford DA. Echocardiographic measurement methods for left ventricular linear dimensions in children result in predictable variations in results. *Int J Cardiovasc Imaging*. 2014; 30(2):305-12.
50. **Kutty S**, Li L, Padiyath A, Gribben P, Gao S, Lof J, Bidasee KR, Danford DA, Kuehne T. Combination of real time three-dimensional echocardiography with diagnostic catheterization to derive left ventricular pressure-volume relations. *Echocardiography*. 2014; 31(2):179-87.
51. Riesenkauff E, Nordmeyer S, Al-Wakeel N, Kropf S, **Kutty S**, Berger F, Kuehne T. Flow-sensitive four-dimensional velocity-encoded magnetic resonance imaging reveals abnormal blood flow patterns in the aorta and pulmonary trunk of patients with transposition. *Cardiol Young*. 2014; 24(1):47-53.
52. **Kutty S**, Wu J, Hammel JM, Abraham JR, Venkataraman J, Abdullah I, Danford DA, Radio SJ, Lof J, Porter TR. Prevention of arteriovenous shunt occlusion using microbubble and ultrasound mediated thromboprophylaxis. *J Am Heart Assoc*. 2014; 3(1):e000689.
53. Tham EB, Smallhorn JF, Kaneko S, Valiani S, Myers KA, Colen TM, **Kutty S**, Khoo NS. Insights into the evolution of myocardial dysfunction in the functionally single right ventricle between staged palliations using speckle-tracking echocardiography. *J Am Soc Echocardiogr*. 2014; 27(3):314-22.
54. **Kutty S**, Attebery JE, Yeager EM, Natarajan S, Li L, Peng Q, Truemper E, Hammel JM, Danford DA. Transthoracic echocardiography in pediatric intensive care: impact on medical and surgical management. *Pediatr Crit Care Med*. 2014; 15(4):329-35.

55. Hammel JM, House AV, Danford DA, **Kutty S**. Staged Left Ventricular Recruitment and Biventricular Conversion in Hypoplastic Left Heart Syndrome. *World J Pediatr Congenit Heart Surg.* 2014; 5(3):449-52.
56. Hösch O, Sohns JM, Nguyen TT, Lauerer P, Rosenberg C, Kowallick JT, **Kutty S**, Unterberg C, Schuster A, Faßhauer M, Staab W, Paul T, Lotz J, Steinmetz M. The total right/left-volume index: a new and simplified cardiac magnetic resonance measure to evaluate the severity of Ebstein anomaly of the tricuspid valve: a comparison with heart failure markers from various modalities. *Circ Cardiovasc Imaging.* 2014; 7(4):601-9.
57. Kowallick JT, **Kutty S**, Edelmann F, Chiribiri A, Villa A, Steinmetz M, Sohns JM, Staab W, Bettencourt N, Unterberg-Buchwald C, Hasenfuß G, Lotz J, Schuster A. Quantification of left atrial strain and strain rate using Cardiovascular Magnetic Resonance myocardial feature tracking: a feasibility study. *J Cardiovasc Magn Reson.* 2014; 16:60.
58. Hong Z, Cabrera JA, Mahapatra S, **Kutty S**, Weir EK, Archer SL. Activation of the EGFR/p38/JNK pathway by mitochondrial-derived hydrogen peroxide contributes to oxygen-induced contraction of ductus arteriosus. *J Mol Med (Berl).* 2014; 92(9):995-1007.
59. **Kutty S**, Colen T, Thompson RB, Tham E, Li L, Vijarnsorn C, Polak A, Truong DT, Danford DA, Smallhorn JF, Khoo NS. Tricuspid regurgitation in hypoplastic left heart syndrome: mechanistic insights from 3-dimensional echocardiography and relationship with outcomes. *Circ Cardiovasc Imaging.* 2014; 7(5):765-72.
60. Tian C, Shao CH, Padanilam C, Ezell E, Singh J, **Kutty S**, Bidasee KR. CCDI: a new ligand that modulates mammalian type 1 ryanodine receptor (RyR1). *Br J Pharmacol.* 2014; 171(17):4097-111.
61. Schmitt B, Bauer S, **Kutty S**, Nordmeyer S, Nasserli B, Berger F, Alexi-Meskishvili V. Myocardial perfusion, scarring, and function in anomalous left coronary artery from the pulmonary artery syndrome: a long-term analysis using magnetic resonance imaging. *Ann Thorac Surg.* 2014; 98(4):1425-36.
62. Kowallick JT, Lamata P, Hussain ST, **Kutty S**, Steinmetz M, Sohns JM, Fasshauer M, Staab W, Unterberg-Buchwald C, Bigalke B, Lotz J, Hasenfuß G, Schuster A. Quantification of left ventricular torsion and diastolic recoil using cardiovascular magnetic resonance myocardial feature tracking. *PLoS One.* 2014; 9(10):e109164.
63. Frandsen EL, House AV, Xiao Y, Danford DA, **Kutty S**. Subspecialty surveillance of long-term course of small and moderate muscular ventricular septal defect: heterogenous practices, low yield. *BMC Pediatr.* 2014; 14:282.
64. **Kutty S**, Li L, Danford DA, Houle H, Datta S, Mancina J, Xiao Y, Pedrizzetti G, Porter TR. Effects of right ventricular hemodynamic burden on intraventricular flow in tetralogy of fallot: an echocardiographic contrast particle imaging velocimetry study. *J Am Soc Echocardiogr.* 2014; 27(12):1311-8.
65. Addeman BT, **Kutty S**, Perkins TG, Soliman AS, Wiens CN, McCurdy CM, Beaton MD, Hegele RA, McKenzie CA. Validation of volumetric and single-slice MRI adipose analysis using a novel fully automated segmentation method. *J Magn Reson Imaging.* 2015; 41(1):233-41.
66. Apers S, Kovacs AH, Luyckx K, Alday L, Berghammer M, Budts W, Callus E, Caruana M, Chidambathanu S, Cook SC, Dellborg M, Enomoto J, Eriksen K, Fernandes SM, Jackson JL, Johansson B, Khairy P, **Kutty S**, Menahem S, Rempel G, Sluman MA, Soufi A, Thomet C, Veldtman G, Wang JK, White K, Moons P; APPROACH-IS consortium; International Society for Adult Congenital Heart Disease (ISACHD). Assessment of Patterns of Patient-Reported Outcomes in Adults with Congenital Heart disease - International Study (APPROACH-IS): rationale, design, and methods. *Int J Cardiol.* 2015; 179:334-42.
67. Hammel JM, Danford DA, Spicer RL, **Kutty S**. Fetal and neonatal imaging and strategy of primary neonatal heart transplantation in hypoplastic left heart with Ebstein's anomaly. *Echocardiography.* 2015; 32(3):598-601.
68. Ryan JJ, Huston J, **Kutty S**, Hatton ND, Bowman L, Tian L, Herr JE, Johri AM, Archer SL. Right ventricular adaptation and failure in pulmonary arterial hypertension. *Can J Cardiol.* 2015; 31(4):391-406.
69. Schuster A, Paul M, Bettencourt N, Hussain ST, Morton G, **Kutty S**, Bigalke B, Chiribiri A, Perera D, Nagel E, Beerbaum P. Myocardial feature tracking reduces observer-dependence in low-dose dobutamine stress cardiovascular magnetic resonance. *PLoS One.* 2015; 10(4):e0122858.
70. House AV, Danford DA, Spicer RL, **Kutty S**. Impact of clinical follow-up and diagnostic testing on intervention for tetralogy of Fallot. *Open Heart.* 2015; 2(1):e000185.
71. Kowallick JT, Morton G, Lamata P, Jogiya R, **Kutty S**, Hasenfuß G, Lotz J, Nagel E, Chiribiri A, Schuster A. Quantification of atrial dynamics using cardiovascular magnetic resonance: inter-study reproducibility. *J Cardiovasc Magn Reson.* 2015; 17:36.
72. Hösch O, Ngyuen TT, Lauerer P, Schuster A, **Kutty S**, Staab W, Unterberg-Buchwald C, Sohns JM, Paul T, Lotz J, Steinmetz M. BNP and haematological parameters are markers of severity of Ebstein's anomaly: correlation with CMR and cardiopulmonary exercise testing. *Eur Heart J Cardiovasc Imaging.* 2015; 16(6):670-5.
73. Danford DA, Martin AB, Danford CJ, Kaul S, Marshall AM, **Kutty S**. Clinical Implications of a Multivariate Stratification Model for the Estimation of Prognosis in Ventricular Septal Defect. *J Pediatr.* 2015;167(1):103-7.e1-2

74. Schmitt B, Li T, **Kutty S**, Khasheei A, Schmitt KR, Anderson RH, Lunkenheimer PP, Berger F, Kühne T, Peters B. Effects of incremental beta-blocker dosing on myocardial mechanics of the human left ventricle: MRI 3D-tagging insight into pharmacodynamics supports theory of inner antagonism. *Am J Physiol Heart Circ Physiol*. 2015; 309(1):H45-52.
75. Sampaio F, Lamata P, Bettencourt N, Alt SC, Ferreira N, Kowallick JT, Pimenta J, **Kutty S**, Fraga J, Steinmetz M, Bettencourt P, Gama V, Schuster A. Assessment of cardiovascular physiology using dobutamine stress cardiovascular magnetic resonance reveals impaired contractile reserve in patients with cirrhotic cardiomyopathy. *J Cardiovasc Magn Reson*. 2015; 17:61.
76. Xiao Y, Gowda ST, Chen Z, Delaney JW, Amin Z, Latson LA, **Kutty S**. Transcatheter Closure of Coronary Artery Fistulae: Considerations and Approaches Based on Fistula Origin. *J Interv Cardiol*. 2015; 28(4):380-9.
77. Lunning MA, **Kutty S**, Rome ET, Li L, Padiyath A, Loberiza F, Bociek RG, Bierman PJ, Vose JM, Armitage JO, Porter TR. Cardiac magnetic resonance imaging for the assessment of the myocardium after doxorubicin-based chemotherapy. *Am J Clin Oncol*. 2015; 38(4):377-81.
78. Shoiab I, Danford DA, Li L, Abdullah I, Hammel JM, **Kutty S**. Pre-discharge Transthoracic Echocardiography after Surgery for Congenital Heart Disease: A Routine with a Reason? *J Am Soc Echocardiogr*. 2015; 28(9):1030-5.
79. Schuster A, Stahnke VC, Unterberg-Buchwald C, Kowallick JT, Lamata P, Steinmetz M, **Kutty S**, Fasshauer M, Staab W, Sohns JM, Bigalke B, Ritter C, Hasenfuß G, Beerbaum P, Lotz J. Cardiovascular magnetic resonance feature-tracking assessment of myocardial mechanics: Intervendor agreement and considerations regarding reproducibility. *Clin Radiol*. 2015; 70(9):989-98.
80. Parthiban A, Li L, Kindel SJ, Shirali G, Roessner B, Marshall J, Schuster A, Klas B, Danford DA, **Kutty S**. Mechanical Dyssynchrony and Abnormal Regional Strain Promote Erroneous Measurement of Systolic Function in Pediatric Heart Transplantation. *J Am Soc Echocardiogr*. 2015; 28(10):1161-1170, e2.
81. Cantinotti M, Giordano R, Scalese M, Molinaro S, Della Pina F, Storti S, Arcieri L, Murzi B, Marotta M, Pak V, Poli V, Iervasi G, **Kutty S**, Clerico A. Prognostic role of BNP in children undergoing surgery for congenital heart disease: analysis of prediction models incorporating standard risk factors. *Clin Chem Lab Med*. 2015;53(11):1839-1846
82. Danford DA, Karels Q, Kulkarni A, Hussain A, Xiao Y, **Kutty S**. Mortality-related resource utilization in the inpatient care of hypoplastic left heart syndrome. *Orphanet J Rare Dis*. 2015; 10:137.
83. Slesnick TC, Schreier J, Soriano BD, **Kutty S**, Nutting AC, Kim DW, Powell AJ, Valente AM. Safety of Magnetic Resonance Imaging after Implantation of Stainless Steel Embolization Coils. *Pediatr Cardiol*. 2016; 37(1):62-7.
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13. Cantinotti M, Giordano R, Clemente A, Assanta N, Murzi M, Murzi B, Crocetti M, Marotta M, Scalese M, **Kutty S**, Iervasi G. Strengths and Limitations of Current Adult Nomograms for the Aorta Obtained by Noninvasive Cardiovascular Imaging. *Echocardiography*. 2016; 33(7):1046-68.
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15. Cantinotti M, **Kutty S**, Franchi E, Paterni M, Scalese M, Iervasi G, Koestenberger M. Pediatric echocardiographic nomograms: What has been done and what still needs to be done. *Trends Cardiovasc Med*. 2017; 27(5):336-349.
16. Cantinotti M, Valverde I, **Kutty S**. Three-dimensional printed models in congenital heart disease. *Int J Cardiovasc Imaging*. 2017; 33(1):137-144.
17. Cantinotti M, Giordano R, Emdin M, Assanta N, Crocetti M, Marotta M, Iervasi G, Lopez L, **Kutty S**. Echocardiographic assessment of pediatric semilunar valve disease. *Echocardiography*. 2017; 34(9):1360-1370.
18. Cantinotti M, Giordano R, Assanta N, Murzi B, Melo M, Franchi E, Crocetti M, Iervasi G, **Kutty S**. Strengths, Limitations, and Geographical Discrepancies in the Eligibility Criteria for Sport Participation in Young Patients With Congenital Heart Disease. *Clin J Sport Med*. 2018 Nov;28(6):540-560
19. **Kutty S**, Danford DA, Diller GP, Tutarel O. Contemporary management and outcomes in congenitally corrected transposition of the great arteries. *Heart*. 2018; 104(14):1148-1155.
20. Voges I, Giordano R, Koestenberger M, Marchese P, Scalese M, Ait-ALi L, Santoro G, Iervasi G, Valverde I, **Kutty S**, Cantinotti M. Nomograms for Cardiovascular Magnetic Resonance Measurements in the Pediatric Age Group: To Define the Normal and the Expected Abnormal Values in Corrected/Palliated Congenital Heart Disease: A Systematic Review. *J Magn Reson Imaging*. 2019 May; 49(5):1222-1235.

21. Gupta-Malhotra M, Schaaf W, **Kutty S**. A Primer on Multimodal Imaging and Cardiology-Radiology Congenital Heart Interface. *Children (Basel)*. 2019 Apr 23; 6(4). pii: E61.
22. Stern KWD, Emani SM, Peek GJ, Geva T, **Kutty S**. Epicardial echocardiography in pediatric and congenital heart surgery. *World Journal for Pediatric and Congenital Heart Surgery* May 2019
23. **Kutty S**, Jacobs M, Thompson WR, Danford DA. The Fontan Circulation Of The Next Generation: Why It's Necessary, What It Might Look Like. *J Am Heart Assoc*. 2020 Jan 7;9(1):e013691.
24. Budts W, Ravekes WJ, Danford DA, **Kutty S**. Diastolic Heart Failure in Patients with the Fontan Circulation: A Review. *JAMA Cardiol*. 2020 Feb 5. doi: 10.1001/jamacardio.2019.5459.
25. Ta HT, Alsaied T, Steele JM, Truong VT, Mazur W, Nagueh SF, **Kutty S**, Tretter JT. Atrial Function and Its Role in the Non-invasive Evaluation of Diastolic Function in Congenital Heart Disease. *Pediatr Cardiol*. 2020 Apr 27. doi: 10.1007/s00246-020-02351-w.
26. Tseng SY, Siddiqui S, Di Maria MV, Hill GD, Lubert AM, **Kutty S**, Opotowsky AR, Possner M, Morales DLS, Quintessenza JA, Alsaied T. Atrioventricular Valve Regurgitation in Single Ventricle Heart Disease: A Common Problem Associated with Progressive Deterioration and Mortality. *J Am Heart Assoc*. 2020 May 16;e015737. doi: 10.1161/JAHA.119.015737.
27. Cantinotti M, Giordano R, Assanta N, Koestenberger M, Franchi E, Marchese P, Clemente A, **Kutty S**, D'Ascenzi F. Echocardiographic Screening of Anomalous Origin of Coronary in Athletes with a Focus on High Take-Off. *Healthcare* 2021, 9(2), 231; <https://doi.org/10.3390/healthcare9020231>
28. Jani V, Shivaram P, Porter TR, **Kutty S**. Ultrasound Theranostics in Adult and Pediatric Cardiovascular Research 2020 Jun 3 *Cardiovasc Drugs Ther*. 2020;10.1007/s10557-020-07016-7.

Case Reports (CR)

1. **Kutty S**, Cava JR, Frommelt MA. Idiopathic infantile arterial calcification: a case report of prenatal and postnatal echocardiographic diagnosis. *Echocardiography*. 2009; 26(7):862-4.
2. Alkuwari M, Kamal RY, Shelby S, Maliyekkal ST, **Kutty S**. Low-dose CT angiography for evaluation of great vessels and airway in arterial tortuosity syndrome. *Eur Heart J Cardiovasc Imaging*. 2012; 13(12):1054.
3. Mathias W Jr, Arrieta SR, Tavares GMP, Sbrano JCN, Tsutsui JM, **Kutty S**, Porter TR. Successful Recanalization of Thrombotic Occlusion in Pulmonary Artery Stent Using Sonothrombolysis. *CASE*. 2019 Jan 2; 3(1):14-17.

Book Chapters (BC)

1. Fletcher SE, **Kutty S** (2010) Cardiac MRI for Congenital Heart Disease. *Cardiovascular Imaging Review: Expert Consult Online and Print 2010*: Elsevier Inc. Publishing.
2. **Kutty S**, Danford DA (2015) Cardiac Murmurs. *American Academy of Pediatrics Textbook of Succinct Pediatrics*. AAP publications.
3. Jone PN, **Kutty S** (2019) Three Dimensional Echocardiography in the Assessment of Tricuspid Valve Disease. *Textbook of Three-dimensional Echocardiography*. Springer Publishing.
4. **Kutty S**. (1999) Serum Immunoglobulin E levels in Children with Bronchial Asthma Manipal Academy of Higher Education Thesis for award of Master's degree in Pediatrics. Manipal University Press.
5. **Kutty S** (2016). *Modern echocardiography in pediatric right ventricular remodeling*. University of Amsterdam Press.
6. **Kutty S**, Danford DA (2019). *Congenitally Corrected Transposition of the Great Arteries (Atrioventricular and Ventriculoarterial Discordance)*. Moss & Adam's Heart Disease in Infants, Children, and Adolescents: Including the Fetus and Young Adult, 10th edition. Elsevier Inc. Publishing.
7. Cedars A, **Kutty S** (2020). *Intracardiac left to right shunt lesions and Eisenmenger syndrome*. Hurst's The Heart, 15th edition. McGraw-Hill Education Publishing.
8. **Kutty S**, Mulvagh S (2020). *Ultrasound Enhancing Agents: Optimizing Echocardiography in Children and Adults*, 2nd edition. ABC Medical Education Publishing.

Other Publications:

Editorials

1. **Kutty S**, Danford DA. Pediatric and adult congenital heart disease imaging: choices and considerations. *J Ultrasound Med*. 2013; 32(8):1351-2.

2. Taylor MD, **Kutty S**. Magnetic resonance imaging computation of intracardiac flow derangements in heart failure dyssynchrony. *Am J Physiol Heart Circ Physiol*. 2019 Jan 1; 316(1):H10-H12.
3. Van De Bruaene A, **Kutty S**. The peculiar challenges of breathing and exercising with a Fontan circulation. *Am J Physiol Heart Circ Physiol*. 2019 Feb 1; 316(2):H311-H313.
4. **Kutty S**. Early Detection of Increased Risk for Atrial Fibrillation Recurrence Based on Intra-Atrial Dyssynchrony. *JACC Cardiovasc Imaging*. 2019 Feb; 12(2):320-322.
5. **Kutty S**, Danford DA. Shunts and the Single Right Ventricle. *Circ Cardiovasc Imaging*. 2019 Feb; 12(2): e008711.
6. Omura J, Bonnet S, **Kutty S**. Right Ventricular and Pulmonary Vascular Changes in Pulmonary Hypertension Associated with Left Heart Disease. *Am J Physiol Heart Circ Physiol*. 2019 May 1;316(5):H1144-H1145.
7. Alenezi F, Rajagopal S, **Kutty S**. Assessing Right Atrial Function in Pulmonary Hypertension –a Window to the Soul of the Right Heart? *Am J Physiol Heart Circ Physiol*. 2020 Jan 1;318(1):H154-H155.
8. Gaur L, **Kutty S**. Surveillance of Repaired Aortic Coarctation: The Quest for a Better Index of Left Ventricular Afterload. *Circ Cardiovasc Imaging*. 2020 Feb;13. doi: 10.1161/CIRCIMAGING.120.010426.
9. Opotowsky A, Cedars A, **Kutty S**. Atrial Septal Defects and Pulmonary Hemodynamics: A Time for Holey Reflection. *Am J Physiol Heart Circ Physiol*. 2020. doi: 10.1152/ajpheart.00226.2020.
10. Cedars AM, **Kutty S**. The Way Forward in Congenital Heart Disease Research, 2020 Jun 24. *JAMA Cardiol*. 2020;10.1001/jamacardio.2020.2034.
11. Shivaram P, **Kutty S**. Extending fellowship for specialised training in paediatric cardiology: deciding when "enough is enough" and when "the sky's the limit". *Cardiol Young*. 2020 Nov;30(11):1557-1558.

Letters, Correspondence

1. **Kutty S**, Latson LA. Techniques for closure of large atrial septal defects. *Catheter Cardiovasc Interv*. 2007 Aug 1; 70(2):329-30; author reply 331-2.
2. **Kutty S**, Danford DA. Authors' reply. True Diameter of Vessels. *J Am Soc Echocardiogr*. 2014; 27(4):449.
3. Cramer JW, **Kutty S**, Patel SG, Frommelt MA, Frommelt PC. Authors' Reply. *J Am Soc Echocardiogr*. 2018; 31(1):114.
4. Cantinotti M, Giordano R, Kutty S. Lung ultrasonography in Pediatric cardiac surgery: a complementary diagnostic tool (Reply). *Ann Thorac Surg*. 2019 Nov 21.pii: S0003-4975(19)31714-X. doi: 10.1016/j.athoracsur.2019.09.082.
5. **Kutty S**, Tutarel O, Diller GP, Danford DA. Medical Management of the Systemic Right Ventricle. *Heart*. 2018; 104(14):1226-1227.

Media Releases or Interviews

- <https://www.hopkinsmedicine.org/news/newsroom/news-releases/covid-19-story-tip-johns-hopkins-gets-game-changer-grant-to-fight-pediatric-syndrome-tied-to-covid-19-virus>
- <https://www.hopkinsmedicine.org/news/articles/a-game-changer-grant-for-managing-a-mystifying-sars-cov-2-related-disease>
- <https://www.hopkinsmedicine.org/news/articles/from-one-visionary-to-another>
- <https://www.hopkinsmedicine.org/news/articles/exploring-theranostics-for-children>
- <https://www.hopkinsmedicine.org/news/articles/on-board-shelby-kutty-director-the-helen-b-taussig-heart-center>
- https://www.hopkinsmedicine.org/news/articles/a-blue-baby-returns?fbclid=IwAR2rYzBd3t5ac13nRfuXNYyy2KOthaW5Zscvcn4HjfQW1En_kV1vrQ78AXI
- <https://www.unmc.edu/news.cfm?match=19949>
- <https://www.unmc.edu/news.cfm?match=21380>
- <https://www.unmc.edu/news.cfm?match=21433>
- <https://www.unmc.edu/news.cfm?match=19765>
- <https://www.unmc.edu/news.cfm?match=19289>
- <https://www.unmc.edu/news.cfm?match=21205>
- <https://www.unmc.edu/cce/com-research-retreat/>
- <https://www.unmc.edu/news.cfm?match=22045>

Other Media

1. Porter TR, Olson J, Johnson M, Kutty S. Self-Assessment Program. Contrast cases for Echo SAP 6 (online and CD-ROM), American College of Cardiology Foundation 2010

2. Porter TR, Olson J, Johnson M, Kutty S. Self-Assessment Program. Contrast cases for Echo SAP 6 (online and CD-ROM), American College of Cardiology Foundation 2011
3. Patel S, Yetman A, Kutty S. The “Boudin Blanc” Aorta. Multimodality imaging of a thoracic aorta aneurysm. American College of Cardiology Cardio Source 2015.
4. Twitter Handle: @ShelbyKuttyMD <https://twitter.com/ShelbyKuttyMD>
5. Linkedin: <https://www.linkedin.com/in/shelby-kutty-md-phd-mhcm-5727749b/>
6. Helen B. Taussig Heart Center Vision <https://youtu.be/kFQWZS3dRKw>
7. Helen B. Taussig Heart Center Mission <https://youtu.be/rT0lzvxJfNw>
8. American Society of Echocardiography <https://aseuniversity.org/ase/search/1/query/2?q=kutty>
9. PICS Foundation 2018 <https://www.youtube.com/watch?v=39eFt7Zzw6c&feature=youtu.be>
10. PICS Foundation 2019 <https://www.youtube.com/watch?v=PL3rlhbsI4g>
11. American Society of Echocardiography University <https://aseuniversity.org/ase/search/1/query/0?q=kutty>
12. Analytic Intelligence at Johns Hopkins Medicine <https://www.youtube.com/watch?v=5w46M2BoqUE>

FUNDING

Extramural Sponsorship

Current

2021-2024	A data science approach to identify and manage Multisystem Inflammatory Syndrome in Children (MIS-C) associated with SARS-CoV-2 infection and Kawasaki disease in pediatric patients R61/R33 NIH \$4.8 million Role: MPI
2021-2023	A Phase 4, Open-Label, Non-randomized, Multicenter Study to Evaluate Safety and Efficacy of Intravenous Administration of OPTISON for Contrast-Enhanced Echocardiography in Pediatric Patients. GE Healthcare \$256,817 Role: PI
2020-2024	Mesenchymal Stem Cells (LMSCs) Delivered During Stage II Surgery for Hypoplastic Left Heart Syndrome (ELPIS II) NIH UG3 sub-contract \$691,843 Role: CMR core lab Co-I
2020-	Prediction of clinical deterioration in patients with Tetralogy of Fallot based on features extracted from magnetic resonance imaging (MRI) Project collaboration with Inner Eye (Microsoft) and Precision Medicine Imagine Virtual center of Excellence (Johns Hopkins Medicine) Role: PI

Pending

6/21	Elucidating the pathways to cardiac dysfunction in young adults with perinatally acquired HIV treated with long-term combination antiretroviral therapy (cART) RO1 NIH Role: Kutty (MPI), 7%
6/21	SoCial Interventions and AccePtance for Health Disparities in Complex Congenital Heart Disease (SCIPDisparitiesCHD) RO1 NIH Role. Kutty (MPI), 5%
2/21	The Cardiovascular Effects of Angiotensin Autoantibodies Associated with Preeclampsia RO1 NIH Role. Kutty (MPI), 5%
10/20	Continuous predictive monitoring patients of patients with structural heart disease to individualize and optimize the timing of clinical evaluations RO1 NIH

Role: Kutty (MPI); 10%

- 6/20 Cavitation mediated effects on vascular and cardiac reactivity
R01 NIH
\$1,400,000
Role: Kutty (PI), 20%; to examine parameters of ultrasound and microbubble optimization for theranostics, resubmission
- 6/20 Granular risk-stratification and management tools for children and adults with genetically mediated aortopathy and arteriopathy, resubmission
RO1 NIH (MPI)
\$1,400,000
- 4/20 Structural Heart Health and Disease Trajectory Project
Industry (Kutty PI)
- 4/20 Digital public health platform for COVID-19 data collection and predictive modeling of cardiovascular risk and proximity-based exposure
Industry (Kutty PI)
- 2/20 Simulation-based imaging framework to reconstruct extremely high-resolution in vivo 4D blood flow
R01
National Institute of Health (NIH)
\$93,579
Role: Kutty (Co-I); 5%; Acquire MRI scans to compute clinical and pathophysiological biomarkers
- 2/20 Predicting Responders to Intervention Using Computation in Repaired Tetralogy of Fallot, PREDICATE
R01
National Institute of Health (NIH)
Role: Kutty (Co-I); Investigate computational modeling-based risk prediction in tetralogy of Fallot
- 7/19 Intraventricular Vector Flow Mapping in Cardiomyopathy
\$40,000
Hitachi Aloka Ultrasound
Equipment and technical support
Role: Kutty (PI)
- Previous**
- 12/10-12/13 Microbubble mediated thromboprophylaxis in central venous shunts
American College of Cardiology Foundation
\$ 195,000
Role: Kutty (PI); 50%
- 6/10-6/11 Ultrasound cavitation and in-vivo thrombus dissolution
Edna Ittner Foundation
\$ 60,000
Role: Kutty (PI)
- 7/11-3/13 Knowledge-based reconstruction for assessment of right ventricular volumes
Ventripoint Inc.
\$ 50,000

Role: Kutty (PI); Echocardiography and cardiac magnetic resonance in patients with tetralogy of Fallot and in systemic right ventricle

- 11/11-5/16 Sonothrombolysis of Systemic to Pulmonary Shunts
American Heart Association
\$ 400,000
Role: Kutty (PI); 40%; Sonothrombolysis of Systemic to Pulmonary Shunts
- 9/14-6/16 Ventricular, Vascular and Endothelial Function Late After Repair of Aortic Coarctation
\$30,000
LIGA Amigos Santa Marta, Portugal
Role: Kutty (site PI); Assessment of Ventricular, Vascular and Endothelial Function Late after Repair of Aortic Coarctation
- 9/15-6/17 Safety and Efficacy of Lumason /Sonovue® in Pediatrics
Bracco Pharmaceuticals
\$ 20,000
Role: Kutty (site PI); A Multicenter Clinical Evaluation of Safety and Efficacy of Lumasontm /Sonovue® As a Contrast Agent in Pediatric Echocardiography
- 9/16-6/18 Fibrin-Targeted Microbubbles and Ultrasound for Treatment of Endocarditis
STTR/R41
National Institute of Health (NIH)
\$ 256,000
Role: Kutty (PI), 10%; Development and feasibility of Fibrin targeting of Microbubbles for treatment of endocarditis
- 9/17-6/19 Follow up of systemic right ventricle function
American Heart Association Grant in Aid
\$10,000
Craig Broberg (PI)
Role: Kutty (Co-I); the Systemic Right Ventricle: Risks and Outcomes of Congestive Heart Failure

INTRAMURAL support

Previous

- 7/08-6/09 Quantification of Ventricular Mechanics and Myocardial Blood Flow Reserve
Children's Hospital and Medical Center Foundation
\$ 38,000
Role: Kutty (PI); Quantification of Ventricular Mechanics and Myocardial Blood Flow Reserve in Adolescents and Young Adults
- 7/09-6/10 Integrated Assessment of Ventricular Function
Children's Hospital and Medical Center Foundation
\$ 34,000
Role: Kutty (PI); Integrated Assessment of Ventricular Function Using Echocardiography and Lumped Heart Cardiac MR Coupled with Conductance Catheterization
- 7/10-6/11 Hepatic Function in Palliated Single Ventricle Congenital Heart Disease
Children's Hospital and Medical Center Foundation
\$ 34,000
Role: Kutty (PI); Hepatic Function in Palliated Single Ventricle Congenital Heart Disease: Liver Adult-Pediatric-Congenital-Heart-Disease Dysfunction Study (LADS) Group

7/11-6/12	Right Ventricular Physiology in Patients with Repaired Tetralogy of Fallot Children's Hospital and Medical Center Foundation \$ 26,500 Role: Kutty (PI); the Effect of Restrictive Right Ventricular Physiology on Clinical Outcomes in Patients with Repaired Tetralogy of Fallot
11/12-10/13	Right Ventricular Physiology in Patients with Repaired Tetralogy of Fallot Children's Hospital and Medical Center Foundation \$ 15,445 Role: Kutty (PI), %; the Effect of Restrictive Right Ventricular Physiology on Clinical Outcomes in Patients with Repaired Tetralogy of Fallot
11/13-10/14	Right Ventricular Metabolism in Pulmonary Hypertension Children's Hospital and Medical Center Foundation \$ 27,000 Role: Kutty (PI); Right Ventricular Metabolism in Pulmonary Hypertension, Pulmonary Regurgitation, and Stenosis
11/14-10/15	Ventricular Fluid Energetics and Myocontractility indexes Pediatric Enrichment Fund \$ 30,000 Role: Kutty (PI); Assessment of Ventricular Fluid Energetics and Myocontractility indexes in a Porcine Model of Right Ventricular Remodeling
11/16-10/17	Drp1 in Right Ventricular Ischemia-Reperfusion Injury Children's Hospital and Medical Center Foundation \$ 36,517 Role: Kutty (PI); Inhibition of Drp1 Improves Diastolic Function in a Porcine Model of Right Ventricular Ischemia-Reperfusion Injury

CLINICAL ACTIVITIES

Clinical Focus

- Echocardiography Laboratory, Division of Cardiology: supervise, perform, and interpret transthoracic, transesophageal and fetal echocardiograms in children and young adults.
- Cardiovascular MRI and CT, Division of Cardiology: supervise, perform, and interpret cardiac MRI and CT studies in patients with congenital and acquired heart disease.
- Preventive Cardiology: Evaluation and treatment of dyslipidemia and atherosclerotic risk factors during childhood to reduce cardiovascular disease burden during adulthood.
- Quantitative analysis of myocardial function and flow by multi-modality imaging, focusing on new technology.
- Use of ultrasound contrast agents to reduce medical radiation exposure in children, and help cardiologists around the nation understand the importance of these agents for cardiovascular imaging in children.
- Identify novel cardiac imaging strategies for improved detection and outcome prediction in the clinical setting, promote disease-specific utilization, and reduce "low-value" imaging.

Medical, other state/government licensure

2018-present	Maryland #D0086087 (Active)
2008-2018	Nebraska #24594 (Inactive)
2012-2018	South Dakota # 7929 (Inactive)
2004-2006	Ohio # 35.084108 (Inactive)
2006-2008	Wisconsin #49916 (Inactive)
2003-2008	Florida #ME89932 (Inactive)
2006-2008	Pennsylvania #MD430008 (Inactive)

Boards, other specialty certification

2004	American Board of Pediatrics (expired)
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2008 American Board of Pediatrics-Pediatric Cardiology (active)

Clinical Program Building / Leadership

2011- 2018 Director of Cardiac Imaging; Children's Hospital and Medical Center, Omaha NE; Advancement of echocardiography, cardiovascular magnetic resonance and computed tomography; Medical director activities involved with the capital budget and strategic planning for imaging.

EDUCATIONAL ACTIVITIES

Participate as mentor in the postgraduate Institutional National Research Service Award (T32). Leading clinical research studies on myocardial function using echocardiography and cardiovascular magnetic resonance, resulting in several dozen peer-reviewed publications as well as extramural funding. Have had experience participating in the education and mentoring of several trainees in pediatric heart disease and cardiac imaging, and will continue to have opportunities for postdoctoral trainees.

Teaching

Fellowship Program:

- Assisted with organized submission of a pediatric cardiology fellowship training program proposal to the University of Nebraska Medical Center Graduate Medical Education
- Assisted with organized submission of Subspecialty Program Information Form (PIF) to the Accreditation Council for Graduate Medical Education (ACGME) (2010)

Classroom instruction

2008-2019 Core pediatric lecture series in Pediatric cardiology
2008-2019 Pediatric residents didactic lecture series
2008-2019 Core fellow lecture series in Cardiac imaging

Clinical instruction

2008-2019 Clinical rounds in Pediatric cardiology inpatient services
2008-2019 Ambulatory instruction for residents and fellows rotating in Pediatric cardiology clinics
2008-2019 Hands on demonstration in Pediatric echocardiography for fellows

Didactic Sessions

1/14 Heterotaxy syndromes
2/14 Assessment of Right Ventricular Function
6/14 Basics of Three-Dimensional Echocardiography
8/14 Choosing a Research Mentor
9/14 Basics of Strain and Strain Rate Echocardiography
10/14 Diagnostic Error Situations in Echocardiography
12/14 Assessment of Valve Function
3/15 Stress Imaging in Congenital Heart Disease
4/15 Imaging of Interrupted Aortic Arch
5/15 Data sharing: Imaging
6/ 15 Imaging in Aortic Valve Disease
8/15 Echocardiography V: Instrumentation – laboratory
8/15 Choosing a Research Mentor
12/15 D-Transposition of the Great Arteries
2/16 Double Outlet Right Ventricle
3/16 Tetralogy of Fallot- Atrioventricular Septal Defect
5/16 Data sharing: Imaging
6/16 Transposition of the Great Arteries
8/16 Echocardiography V (Instrumentation – lab)
8/16 Choosing a Research Mentor
10/16 Strain and Torsion Imaging by Echocardiography
11/16 Assessment of Aortic Regurgitation
12/16 Truncus Arteriosus
2/17 Abnormal Systemic Venous Connections

3/17	Data sharing: Magnetic Resonance Imaging / Computer Tomography Service
5/17	Double Outlet Right Ventricle
5/17	Echocardiography in Kawasaki Disease
7/17	Total Anomalous Pulmonary Venous Return”
7/17	Congenitally Corrected Transposition of the Great Arteries
8/17	Echo V (Instrumentation – lab)
8/17	Choosing a Research Mentor
11/17	Imaging of the Fontan Circulation
11/17	Hands- on Left Ventricular Strain Assessment

Sonographer sessions and Adult Cardiac Conference Lectures: University of Nebraska Medical Center

7/17	Role of Imaging in the Evaluation of Single Ventricle with the Fontan Palliation
7/17	Congenitally Corrected Transposition of the Great Arteries
11/16	Aortic Regurgitation in Adult Congenital Heart Disease
6/16	Transposition of the Great Arteries
9/15	Assessment of Right Ventricular Function by Non-Invasive Imaging

CME planning and instruction

11/15	Program chair- Valve and Ventricle: Modern Echocardiography for the Left Heart, UNMC
11/17	Program chair- Optimizing Long-Term Care in Fontan: Getting by (or not) on One Ventricle, UNMC
6/18	Program chair- UNMC COM Research Retreat-Clinical and Basic Scientists: Meet your Blind Date
2/19	Co-chair- Annual Cardiovascular Innovations and Outcomes Colloquium, the Johns Hopkins Hospital

Mentoring

Advises /Mentees

2008-2009	David Jantzen MD, Pediatric Cardiologist, University of Illinois-Peoria, Peoria, IL
2012-2013	Asif Padiyath, MD, Anesthesiology Resident, Johns Hopkins University,
2012-2016	Andreas Schuster, MD, PhD, Cardiologist, Georg-August-University, Göttingen, Germany
2012-2013	Alicia Hinze, MD, Rheumatology Fellow, Johns Hopkins University,
2011-2012	Sheela Rangamani, MD, Department of Obstetrics, All India Institute of Medical Sciences, India
2013-2014	Erik Frandsen, MD, Pediatric Cardiology Fellow, Oregon Health Science University Hosp, Portland OR
2013-2016	Shaija Kutty, MD, Pediatric Gastroenterologist, University of Nebraska Medical Center, Omaha NE
2014-2015	Matthew Lunning, MD, Assistant Professor, Division of Oncology & Hematology, University Nebraska Medical Center, Omaha NE
2014-2015	Anitha Parthiban, MD, Pediatric Cardiologist, Children's Mercy Hospitals and Clinics Kansas City MO
2014-2015	Irsa Shoiab, MD, Thoracic Surgery Fellow, Mayo Clinic, Rochester MN
2011-2012	Joseph Poterucha, DO, Cardiac Intensivist, Mayo Clinic, Rochester MN
2014-2015	Asha Vaikom House, MD, Assistant Professor, University of Oklahoma, Tulsa, OK
2014-2015	Yunbin Xiao, MD, Ph.D, Pediatric Cardiologist, Department of Cardiology, Hunan Children's Hospital, Changsha, Hunan, China
2011-2012	Maryam Alkuwari, MD, Chief Radiologist, Hamad Medical Corporation, Doha, Qatar
2015-2017	Aparna Kulkarni, MD, Assistant Professor of Pediatrics, Icahn School of Medicine at Mount Sinai, Center, Bronx NY
2015-2017	Joby Varghese, MBBS Assistant Professor, Department of Anesthesiology Children's Hospital & Medical Center, Omaha NE
2013-2015	James Hammel, MD, Associate Professor, Pediatric Cardiac Surgery, University of Nebraska Medical Center, Children's Hospital & Medical Center, Omaha NE
2016-2017	Massimiliano Cantinotti, MD Pediatric Cardiologist, Fondazione Toscana Gabriele Monasterio, Pisa, Italy
2016-2017	Pei-Nei Jone, MD Associate Professor of Pediatric Cardiology, Children's Hospital Colorado, University of Colorado, Denver CO
2016-2017	Steven Kindel, MD Associate Professor, Division of Pediatric Cardiology, Children's Hospital, Milwaukee, WI
2016-2017	Ling Li, MD, PhD Department of Pediatrics, University of Nebraska Medical Center, Omaha NE
2016-2017	Shivani Patel, MD, Pediatric Cardiologist, Ann & Robert H Lurie Children's Hospital of Chicago
2016-2017	Eric Rush, MD, Clinical Geneticist, Associate Professor of Pediatrics, University of Missouri – Kansas City, Kansas City MO

2016-2017 Quanliang Shang MD, PhD, Radiologist, 2nd Xiangya Hospital, Central South University, Changsha, Hunan, China

2017-2018 Jennifer Winter, MD, Assistant Professor, Division of Pediatric Cardiology, Children's Hospital & Medical Center

2014-2016 Filip Konecny, PhD, Application Scientist, Surgical trainer, Transonic Systems Inc. London UK

2015-2017 Joao Filipe Fernandes, PhD, Post-doctoral Fellow, German Heart Centre Berlin, Augustenburger Platz, Berlin, Germany

2008-2009 Olamide Alabi, MD, Vascular Surgeon, Oregon Health & Science University Hospital, Portland OR

2009-2010 Andrew Maloney, MD, Pediatrician, Centracare Health Pediatrics, St. Cloud MN

2009-2010 Eric Reed, MD, Pediatrician, Rady Children's Hospital, San Diego CA

2009-2010 Bridget Graney, MD, Fellow in Pulmonary and Critical Care, University of Colorado, Denver CO

2008-2009 Osamah Aldoss, MD, Pediatric Cardiologist, University of Iowa, Iowa City

2009-2010 Philip Boucher, MD, Pediatrician, Lincoln Pediatric Group, Lincoln NE

2009-2014 Christopher Danford, MD, Gastroenterology Fellow, Massachusetts General Hospital, Boston MA

2009-2014 Shunji Gao, MD, Department of Cardiology, University of Nebraska Medical Center, Omaha NE

2008-2009 Sheetal Kaul, MD, Department of Medicine, University of Delhi, India

2010-2011 Disha Kriplani, MD, Pediatric Intensivist, Loma Linda University, Loma Linda CA

2010-2011 Rahul Varman, MD, Resident, Washington University School of Medicine, St. Louis MO

2010-2013 Paul Gribben, MD, Radiology Resident, University of Nebraska Medical Center, Omaha NE

2011-2012 Charles Kelly, MD, Resident in Family Medicine, Hennepin County Medical Center, Minneapolis MN

2011-2012 Thomas Knowles, MSIII, Resident, Oregon Health Sciences University, Portland OR

2011-2016 Juefei Wu, MD, PhD, Assistant Professor of Cardiology, Nanfang Hospital, Southern Medical University, Guangzhou, China

2012-2014 John-Emmett Mahon, Medical student, University of Nebraska Medical Center, Omaha NE

2012-2014 Alan Spanel, MSIII, Medical student, University of Nebraska Medical Center, Omaha NE

2012-2014 Peter Woolman, MSIII, Pediatric Resident, Vanderbilt University Children's Hospital, Nashville TN

2012-2014 Paul Homer, MD, Pediatric resident, University of Washington Research Center, Seattle WA

2012-2014 Joseph Abraham, BS, Medical Student, Cleveland Clinic Lerner College of Medicine, Cleveland OH

2012-2014 Qinghai Peng, MD, PhD, Associate Professor, Department of Ultrasound Medicine, 2nd Xiangya Hospital of Central South University, Changsha, Hunan, China

2012-2014 Jeeva Venkataraman, BS, DDS candidate, Columbia University College of Dental Medicine, New York

2013-2016 Rimsha Hasan, MD, Cardiovascular Medicine Fellow, University of Arkansas Medical Science, Little Rock

2013-2014 Swetha Natarajan, MD, General Pediatrician, New Brunswick NJ

2015-2018 Collin Erickson, BS, Engineer and Research Associate, Department of Pediatric Cardiology, University of Nebraska Medical Center, Omaha NE

2015-2017 Hao Hua Hsu, MD, Associate Professor, Pediatric Cardiology, University of Nebraska Medical Center, Omaha NE

2015-2017 Navya Joseph, MD, Resident, Department of Neurological Sciences, University of Nebraska Medical Center, Omaha NE

2015-2017 Na Liu, MD, PhD, Cardiologist, Department of Cardiology, 2nd Xiangya Hospital of Central South University, Changsha, Hunan, China

2015-2017 Ming Zhang, MD, PhD, Professor, Department of Ultrasound Medicine, 2nd Xiangya Hospital of Central South University, Hunan, China

2015-2017 Jia Zhou, MD, Assistant Professor, Department of Ultrasound Medicine, 1st Hospital of Nanhua University, Hunan, China

2016-2017 Philp Levy, MD, Neonatologist, Goryeb Children's Hospital, Atlantic Health System, Morristown NJ

2016-2017 George Vargese, Student, Millard North High School, Omaha NE

2016-2017 Vijay Menon, Student, Brownell Talbot School, Omaha NE

2017-2019 Pushpa Shivaram, MD, Assistant Professor, Augusta University, Augusta GA

2019 Jin Zhang, MD, Johns Hopkins Medicine, Baltimore MD

2019 Apurva Sharma, MD, Johns Hopkins Medicine, Baltimore MD

2019 Benjamin Barnes, MD, Johns Hopkins Medicine, Baltimore MD

2018- Lasya Gaur, MD, Johns Hopkins Medicine, Baltimore MD

2018- Bharath Ambale-Venkatesh, PhD, Johns Hopkins Medicine, Baltimore MD

2018- Melanie Nies, MD, Johns Hopkins Medicine, Baltimore MD

2018- Edem Binka, MD, Johns Hopkins Medicine, Baltimore MD

2018- Vivek Jani, MS, Johns Hopkins Medicine, Baltimore MD
2019- Jack Bliamptis, BS, Johns Hopkins Medicine, Baltimore MD
2020- Junzhen Zhan, MD, Johns Hopkins Medicine, Baltimore MD

Post-doctoral Advisees /Mentees

2012-2013 Qinghai Peng, MD, PhD, Associate professor, Department of Radiology, 2nd Xiangya Hospital of Central South University, China
2012-2013 Juefei Wu, MD, PhD, Associate professor, Southern Medical University, China
2013-2015 Quanliang Shang, MD, PhD, Associate professor, Department of Radiology, 2nd Xiangya Hospital of Central South University, China
2013-2015 Ming Zhang, MD, PhD, Chief Physician, Department of Ultrasound, 2nd Xiangya Hospital of Central South University, China
2015-2017 Navya Joseph, MD, Neurology resident, UNMC Omaha NE
2016-2017 Na Liu, MD, PhD, Attending, 2nd Xiangya Hospital of Central South University, China
2016-2018 Jia Zhou MD, PhD, Associate Professor, University of South China
2016-2018 Yunbin Xiao, MD, PhD, Associate Professor, Hunan Children's Hospital
2019-2021 Junzhen Zhan, MD, Assistant Professor, 2nd Xiangya Hospital of Central South University, China
2021-2022 Jef Van den Eynde, Medical student researcher, Belgian American Education Foundation grant awardee

Thesis committees

2016-2017 Quanliang Shang, MD, PhD, Attending, 2nd Xiangya Hospital, Central South University
2019-Present Julie Shade, BS, PhD student, Institutional of Computational Medicine, Johns Hopkins School of Medicine, Baltimore, MD

RESEARCH ACTIVITIES

Research Focus

Contributions to science in four themes:

- (1) Clinical utility of measurements of cardiac and vascular function in the fetal, pediatric and young adult heart
- (2) Systems of care and cardiovascular outcomes in pediatric and adult congenital cardiology
- (3) Diagnostic and therapeutic uses of ultrasound mediated microbubble cavitation
- (4) New technology in the multimodal imaging-based assessment of congenital heart disease

Myocardial function assessment: Investigate ways that multi-modal imaging can benefit children and adults with cardiovascular disease through precise assessment of myocardial function to provide accurate cardiac prognosis. Goals are to identify cardiac imaging strategies for improved detection or outcome prediction, achieve better disease-specific utilization of multi-modal imaging, and discover better markers of right heart function.

Ultrasonic contrast: Investigate how ultrasound contrast agents could be used to reduce medical radiation exposure, as well as treat problems like vasospasm and thrombosis.

Cardiovascular outcomes from predictive modeling: Investigate the impact of modern predictive models for heart failure, congenital heart disease and aortopathies on patient outcomes.

Research Program Building / Leadership

5/19 Developed **Cardiovascular Analytic Intelligence Initiative (CV-AI²)** within the Helen B. Taussig Heart Center. CV-AI², directed by Cedric Manlhiot, PhD focuses on three areas:

- 1) Developing methods for real-time utilization of clinical data including integration of predictive models into the clinical IT infrastructure
- 2) Testing of new strategies to develop predictive models for clinical use using best in breed of biostatistical methods, machine learning and ensemble models
- 3) Studying how predictive analytics get deployed and implemented in clinical systems, how they are used by physicians and whether they improve patient outcomes.

CV-AI² focuses specifically on the development of applications and algorithms that acquire data, transform it and generate useful predictions for clinical care. CV-AI² also handles the post-implementation evaluation. CV-AI² collaborates with multiple other groups to achieve these objectives.

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

2012 – 2014 Associate Program Director, Fellowship Training Program, UNMC, Omaha NE
2011 – 2018 Director of Research, Division of Pediatric Cardiology, UNMC, Omaha NE

2011 – 2018 Director of Cardiac Imaging, Division of Pediatric Cardiology UNMC, Omaha NE
 2017 – 2018 Assistant Dean for Research and Development, UNMC, Omaha NE
 2017 – 2018 Vice Chair, Department of Pediatrics

Editorial Board appointments

Consulting Editor

2019 – Present Journal of Clinical Investigation (JCI)

Associate Editor

2017 – Present American Journal of Physiology-Heart and Circulatory Physiology (AJP-Heart)

2018 – Present Cardiology in the Young

Editorial Consultant

2015 – Present Journal of American College of Cardiology: Imaging

2018 – Present World Journal for Pediatric and Congenital Heart Surgery

2015 – Present Circulation: Cardiovascular Imaging

2014 – Present Echocardiography

2015 – Present Journal of Structural Heart Disease

2017 – Present American Society of Echocardiography CASE

2019 – Present Journal of American College of Cardiology: Case Reports

2019 – Present Journal of the American Society of Echocardiography

Journal peer review activities

2007– Present American Journal of Cardiology

2011– Present Cardiology in the Young

2012– Present Circulation

2013– Present European Heart Journal

2010– Present European Heart Journal: Cardiovascular Imaging

2011– Present Heart

2012– Present International Journal of Cardiology

2014– Present PLOS One

2015– Present Journal of Molecular and Cellular Cardiology

2016– Present Heart Failure Reviews

2017– Present Radiology

2013– Present International Journal of Cardiovascular Imaging

2010– Present Journal of Cardiovascular Magnetic Resonance

2012– Present Journal of Magnetic Resonance Imaging

2011– Present Journal of the American College of Cardiology

2008– Present Journal of the American Society of Echocardiography

2010– Present The Journal of Pediatrics

2019– Present Progress in Pediatric Cardiology

Other peer review activities

2012 Abstract Reviewer, American College of Cardiology Scientific sessions

2013 Abstract Reviewer, American Society of Echocardiography, Scientific sessions

2013 Abstract Reviewer, American College of Cardiology Scientific sessions

2014 Abstract Reviewer, American College of Cardiology Scientific sessions

2014 Abstract Reviewer, American Society of Echocardiography Scientific sessions

2015 Abstract Reviewer, American Society of Echocardiography sessions

2018 Abstract Reviewer, American College of Cardiology Scientific sessions

Advisory Committees, Review Groups/Study Sections

2012-2015 Annual Scientific Sessions Program Committee – American College of Cardiology

2014- 2017 Continuing Medical Education Committee – American Society of Echocardiography

2014-2018 Member Engagement Committee – Society for Pediatric Research

2012- 2014 Adult Congenital and Pediatric Cardiology’s Publications Work Group – American College of Cardiology

2012- 2013 Adult Congenital and Pediatric Cardiology Section representative, Stress / Perfusion / Metabolism Group, Food and Drug Administration (FDA) - American College of Cardiology Imaging Standards Initiative

2016-2018	Information Technology Committee – American Society of Echocardiography
2016-2018	Contrast Guidelines Committee – American Society of Echocardiography
2016-2019	Communications Committee – Society for Cardiovascular Magnetic Resonance
2012-2018	Research and Development Committee – University of Nebraska College of Medicine
2011-2018	Pediatric Research Committee - University of Nebraska Medical Center College of Medicine
2015-2018	Gary Perkins Pediatric Research Institute Work Group – University of Nebraska Medical Center and Children’s Hospital
2016-2018	Department of Pediatrics Chairman’s Executive Team – University of Nebraska Medical Center
2013-2018	Scholarship Oversight Committee - Pediatric Cardiology (Chair), University of Nebraska Medical Center
2012-2018	Scholarship Oversight Committee – Pediatric Gastroenterology, University of Nebraska Medical Center
2016-2018	Pharmacy and Therapeutics Committee – Children’s Hospital and Medical Center
2017-2018	Children’s Specialty Physicians Nomination Committee, Children’s Hospital & Medical Center
2017-2018	Ad-hoc Evaluation Committee – Neurosurgery Departmental Review, University of Nebraska Medical Center
2017-2018	Society for Pediatric Research Young Investigator Coaching Program
2018-present	Adult Congenital Pediatric Cardiology Advocacy work group of American College of Cardiology
2017-2018	Research Committee, Department of Cardiology, Children’s Hospital and Medical Center
2017-2018	American Heart Association - Strategically Focused Research Network Children's Clinical Committee
2017-2018	American Heart Association - Strategically Focused Research Network (SFRN) Peer Review Committee
2017-2018	Member, Membership Committee, Society for Cardiovascular Magnetic Resonance
2019-present	Steering Committee Member, SCMR Advanced 3D+ Visualization Special Interest Group (3D+ SIG)
2019-present	Member at large, Finance Committee, the American Society of Echocardiography
2018-present	Member, Johns Hopkins Medicine Heart and Vascular Service Line Work Group
2018-present	Member, Johns Hopkins Taussig Heart Center Comprehensive Unit-Based Safety Program (CUSP)
2019-present	Member, Physician Communications Advisory Committee, Johns Hopkins Medicine
2019-present	Member, Search Committee for Heart Center Rebuild, Johns Hopkins All Children’s Hospital
2019-present	Member, I-270 Medical Office Building Ambulatory Design Workgroup, Johns Hopkins Medicine
2019-present	Member, Department of Pediatrics Faculty Promotions Committee, Johns Hopkins Medicine
2020-present	Member, Childrens Center Equity, Diversity and Inclusion Council

Professional Societies

2012	Fellow, American Heart Association; Council of Cardiovascular Disease in the Young (FAHA)
2010	Fellow, American College of Cardiology (FACC)
2009	Fellow, American Society of Echocardiography (FASE)
2009	Fellow, American Academy of Pediatrics (FAAP)
2012	Member, American Pediatric Society – Society for Pediatric Research (APS-SPR)
2011	Member, Society for Cardiovascular Magnetic Resonance

Session Chair

9/21	Advanced Multimodality Imaging track, World Congress of Pediatric Cardiology and Cardiac Surgery
9/21	Digital Cardiac Experience (WC-DCX), World Congress of Pediatric Cardiology and Cardiac Surgery

Consultantships

2012-2015	Clinical Program Development, Aster Medcity, Kochi, India
2012-2013	Clinical Imaging Program Development, Hamad Medical Corporation Hospital, Doha, Qatar
2019	Cardiovascular Imaging Program Development, Heart Hospital, Doha, Qatar
2019	GE Healthcare

RECOGNITION

Awards, Honors

2005	Research Excellence by a Fellow, Cleveland Clinic Chairman’s Award
2007	Society for Cardiovascular Magnetic Resonance Educational grant
2007	American Society of Echocardiography Pediatric Council Award
2008	American College of Cardiology Section on Congenital Heart Disease Travel Award
2010	American Society of Echocardiography Arthur Weyman Young Investigator Award

- 2010 American College of Cardiology Foundation/Pfizer Career Development Award in Cardiovascular Med
- 2011 American Heart Association Council for Cardiovascular Disease in the Young Early Career Investigator Award
- 2012 Best Poster Award, Congenital Cardiology Solutions Pathway, American College of Cardiology Scientific Sessions
- 2016 Inspirational Mentor of Educators – University of Nebraska Medical Center Inaugural Impact in Education Award
- 2016 Distinguished Scientist–University of Nebraska Medical Center Annual Research Award
- 2018 Aresty Scholar – Wharton School at the University of Pennsylvania
- 2020 21st Annual Feigenbaum Lecturer – the American Society of Echocardiography

Invited Lectures (National and International, 80 invited lectures in last 10 years)

- 6/10 Congenital Coronary Anomalies: Isolated and in Conjunction with Non-Coronary Congenital Heart Disease, the American Society of Echocardiography Sessions, Montreal, CA
- 4/11 Microbubble enhanced sonothrombolytic therapy, Japanese Society of Echocardiography meeting, Kagoshima, Japan
- 12/10 Microbubble enhanced Sonothrombolytic therapy in central catheter thrombosis: In-vivo results, European Association of Echocardiography (EUROECHO) sessions, Copenhagen, Denmark
- 6/ 10 Planar Maps of Right Ventricular Vorticity Fields in Tetralogy of Fallot Compared with Normal Hearts: The Use of Novel High-Resolution Echo Contrast Particle Imaging Velocimetry, American Society of Echocardiography Scientific Sessions, San Diego, California
- 12/11 Maturation of left and right atrial systolic and diastolic performance in infants, children and adolescents, European Association of Echocardiography (EUROECHO) sessions, Budapest, Hungary
- 11/11 Microbubble Enhanced Sonothrombolytic Therapy Facilitates Reduction of Central Venous Catheter Associated Thrombi in Vivo, American Heart Association (AHA) sessions, Orlando, Florida
- 5/12 Role of magnetic resonance in the evaluation of congenital heart disease in the adult, Department of Radiology, Heart Hospital, Doha, Qatar
- 5/12 The Use of Novel High-Resolution Echo Contrast Particle Imaging Velocimetry for the Right Ventricle, Center for Innovative Cardiovascular Technologies, College of Engineering, Georgia Inst. Of Technology, Atlanta, GA
- 2/13 Combining Flow and Function: Quantifying Shunts and Regurgitation, Society for Cardiovascular Magnetic Resonance (SCMR) Annual Scientific Sessions, San Francisco
- 3/13 Heart Failure Beginning in Childhood or Adolescence: Challenges and Opportunities, American College of Cardiology (ACC) Scientific Sessions, San Francisco, CA Co-Chair
- 6/13 Pediatric Applications of Microbubble Potentiated Ultrasound, Wake Forest Baptist Medical Center, Wake Forest University
- 5/12 Role of magnetic resonance in the evaluation of congenital heart disease in the adult, Department of Radiology, Heart Hospital, Doha, Qatar
- 5/12 The Use of Novel High-Resolution Echo Contrast Particle Imaging Velocimetry for the Right Ventricle, Center for Innovative Cardiovascular Technologies, College of Engineering, Georgia Inst. Of Technology, Atlanta, GA
- 2/13 Combining Flow and Function: Quantifying Shunts and Regurgitation, Society for Cardiovascular Magnetic Resonance (SCMR) Annual Scientific Sessions, San Francisco
- 3/13 Heart Failure Beginning in Childhood or Adolescence: Challenges and Opportunities, Co-Chair, American College of Cardiology (ACC) Scientific Sessions, San Francisco, CA
- 6/13 Pediatric Applications of Microbubble Potentiated Ultrasound, Wake Forest Baptist Medical Center, Wake Forest University
- 1/14 Putting Hemodynamics Together: Clinical Cases with an Edge, Speaker. Society for Cardiovascular Magnetic Resonance (SCMR) Annual Scientific Sessions, New Orleans, LA
- 3/14 Protagonist: ACE Inhibitor Therapy Should Be Routine After Fontan Palliation, American College of Cardiology (ACC) Scientific Sessions, Washington, DC
- 12/13 How to Session: How to Give a Successful Presentation? European Association of Cardiovascular Imaging (EUROECHO-Imaging) sessions, Istanbul, Turkey
- 6/14 Novel Technology in Pediatric Echocardiography, Speaker; Microbubbles to See and Treat, Co-Chair. American Society of Echocardiography Scientific Sessions, Portland, Oregon

- 12/14 Pharmacological Stress testing by Magnetic Resonance Imaging, Speaker. European Association of Cardiovascular Imaging (EUROECHO-Imaging) sessions, Vienna, Austria.
- 11/14 Ultrasound Theranostic Applications, Speaker. Department of Cardiology, the Children's Hospital of Philadelphia
- 12/14 Chairperson. Moderated Poster Session, European Association of Cardiovascular Imaging (EUROECHO-Imaging) sessions, Vienna, Austria
- 2/15 CMR in Congenital and Pediatric Patients: Case Review Session, Moderator and Organizer. Society for Cardiovascular Magnetic Resonance Annual Scientific Sessions, Nice, France
- 3/15 Controversies and State of the Art in Management of Left Sided Lesions, Co-Chair. American College of Cardiology (ACC) Scientific Sessions, San Diego, CA
- 6/15 Emerging Technologies in Imaging Congenital Heart Disease: (Joint ASE/EACVI Session), Chair. American Society of Echocardiography (ASE) Scientific Sessions, Boston, MA
- 6/15 Myocardial Mechanics in Congenital Heart Disease: Can We Measure Atrial Function and What does it mean? Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Boston, MA
- 9/15 Non-invasive Imaging for the Assessment of Right Ventricular Performance, Speaker. Annual Meeting, International Academy of Cardiovascular Sciences, Omaha, NE
- 9/15 Right ventricular Functional Assessment with 3D Echocardiography, Speaker. University of Alberta: Clinical Application of 3D Echo in Pediatric Heart Disease, Edmonton, Canada
- 1/16 Oral Abstract Sessions, Moderator. Society for Cardiovascular Magnetic Resonance (SCMR) Annual Scientific Sessions, Los Angeles, CA
- 6/16 Three-Dimensional ventricular fiber anatomy and function, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Seattle, WA
- 12/16 Aortic valve regurgitation in adults with congenital heart disease, European Association of Cardiovascular Imaging (EUROECHO-Imaging) sessions, Leipzig, Germany
- 1/17 Pediatric Interventional Cardiology Symposium, PICS~AICS sessions, Miami, FL.
- 1/17 Pulmonary hypertension in Congenital Heart Disease, Speaker. 11th Annual Pulmonary Vascular Research Institute (PVRI) World Congress, Miami FL
- 6/17 Use of Contrast in Pediatric and Adult Congenital Heart Disease: Recent Literature and Need for Guidelines, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Baltimore
- 12/17 Advanced echo modalities in single ventricle: what role? Speaker. European Association of Cardiovascular Imaging (EUROECHO-Imaging) sessions, Lisbon, Portugal
- 12/17 Cardiac Imaging in the Information Highway, Speaker. HIMSS Qatar Educational Conference and Health IT Exhibition-2017, Doha, Qatar
- 2/18 Imaging of Tetralogy of Fallot, Speaker. 2nd Qatar Cardiac Imaging Conference 2018, Doha, Qatar
- 2/18 Imaging of Transposition of Great Arteries, Speaker. 2nd Qatar Cardiac Imaging Conference 2018, Doha, Qatar
- 2/18 Imaging of the Fontan circulation, Speaker. 2nd Qatar Cardiac Imaging Conference 2018, Doha, Qatar
- 1/18 The Role of Leadership in Fostering Success in a Department of Pediatrics, Speaker. Augusta University Department of Pediatrics Noon Conference, Augusta, Georgia
- 5/18 Right Ventricular Response to Pressure Loads in Adults with Congenital Heart Disease, Speaker. World Congress of Echocardiography and Allied Techniques, Albena Resort, Varna, Bulgaria.
- 5/18 Using contrast echo in Congenital Heart Disease, Speaker. World Congress of Echocardiography and Allied Techniques, Albena Resort, Varna, Bulgaria
- 5/18 Contrast Beyond Endocardial Border Definition - Improving Diagnostic Value, Speaker. World Congress of Echocardiography and Allied Techniques, Albena Resort, Varna, Bulgaria
- 5/18 Echo and Multimodality imaging in Congenital Heart Disease Interventions, Speaker. World Congress of Echocardiography and Allied Techniques, Albena Resort, Varna, Bulgaria
- 6/18 Microvascular Abnormalities That Are Not Coronary Disease, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Nashville, TN
- 6/18 Ultrasound Contrast and Therapeutic Intervention, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Nashville, TN
- 6/18 Ultrasound Enhancing Agents (Contrast) Guidelines - Ready For Pediatrics? Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Nashville, TN
- 2/18 Cardiac Ultrasound: A Theranostic Future, Speaker. Taussig Congenital Heart Center, Johns Hopkins University
- 9/18 Speaker, Pediatric Interventional Cardiology Symposium, PICS~AICS sessions, Las Vegas, NV

- 10/18 Speaker, American Journal of Physiology-Heart and Circulatory Physiology Conference and Editorial Retreat, Omaha, NE
- 12/18 Speaker: Success and Failure of Pulmonary Valve Therapy: New Concepts in Imaging session, EACVI, Milano, Italy
- 12/18 Participant: Rest of the World team: Echo jeopardy. EACVI, Milano, Italy
- 2/19 Moderator: Pediatric Track Session 3: Oral Abstracts - CMR in Pediatrics and Congenital Heart Diseases II, SCMR Scientific sessions
- 2/19 Moderator: The Rambam Foundation Cardiology and Innovation Symposium; The YJP Mansion, New York City,
- 5/19 Moderator: Cardiology track of the 46th Annual Pediatric Trends, The Johns Hopkins Hospital,
- 5/19 Moderator: 20th Anniversary Arrhythmogenic Right Ventricular Cardiomyopathy Program International Symposium: Diagnosis of ARVC: 2010 Diagnostic criteria
- 5/19 Speaker: Innovations in Imaging: Impact on Outcomes in Congenital Heart Disease—Fetus through Adult symposium, Icahn School of Medicine at Mount Sinai, Title: Advanced Imaging of Single Ventricle
- 5/19 Grand rounds, the Johns Hopkins Hospital: To infinity and Beyond in Pediatric Cardiac Imaging: From Speckles to Strain to Theranostics
- 6/19 Speaker: Following the Ultrasound Enhancing Agents (Contrast) Guidelines: Break Out the Bubbles! - Should I or Shouldn't I? - Safety, Pediatrics and Pregnancy, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Portland
- 6/19 Moderator and Speaker: Echo Innovation - Machine Learning in Echo, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Portland
- 8/19 Visiting Professor Lecture: Multimodal Cardiac Imaging of Viability, Hamad Heart Hospital, Doha, Qatar
- 8/19 Visiting Professor Lecture: Droplet Imaging for detection of microvascular disease, Kings College London, UK
- 9/19 Moderator: Advances in Imaging Modalities: Pediatric and Adult Interventional Cardiac Symposium, San Diego, CA
- 9/19 Speaker: 3D imaging Pre-, Peri-, and Post-TPVR: How, When, and Why?: Pediatric and Adult Interventional Cardiac Symposium, San Diego, CA
- 10/19 Speaker: Echocardiography and MRI in Tetralogy of Fallot: Adult Congenital Heart Disease in the 21st Century: Children's National Health System and MedStar Washington Hospital Center joint symposium, Bethesda, MD
- 10/19 The Annual William B. Strong lectureship, Medical College of Georgia at Augusta University
- 9/19 Visiting Professor Lectureship; The University of Texas Southwestern Medical Center
- 12/19 Moderator: Outcomes Prediction Based on Cardiovascular Imaging, EACVI, Vienna, Austria
- 12/19 Speaker: Multimodal Imaging of Hypertrophic Cardiomyopathy. Speaker: Department of Cardiac Imaging, Heart Hospital, Doha, Qatar
- 2/20 Moderator: Hands on session 1: Cardiac Extended Reality: Test Drive Hardware, SCMR scientific sessions, Orlando, FL (accepted)
- 4/20 Annual meeting of South China Cardiac Imaging, Guangzhou, China April 10-12, 2020 (Speaker: accepted)
- 4/20 Speaker and Session chair: “VT ablation before structural interventions in TOF: Con”: 11th EuroGUCH meeting, Leuven, Belgium (accepted)
- 4/20 Speaker: Heart Health Life Trajectory Project: Speaker: Heart Hospital, Doha, Qatar
- 6/20 Speaker: Moving beyond Conventional Echo: Case-based Learning: The magic of microbubbles. American Society of Echocardiography (ASE) Scientific Sessions, Denver
- 6/20 Speaker: Following the Ultrasound Enhancing Agents (Contrast) Guidelines: Break Out the Bubbles! - Should I or Shouldn't I? - Safety, Pediatrics and Pregnancy, Speaker. American Society of Echocardiography (ASE) Scientific Sessions, Denver (virtual)
- 8/20 21st Annual Feigenbaum Lecture, American Society of Echocardiography (ASE) Scientific Sessions, Denver (virtual)
- 11/20 68th Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand CSANZ 2020, Gold Coast, Australia Aug 13-16, 2020 (Speaker: virtual)

OTHER PROFESSIONAL ACCOMPLISHMENTS

Courses

Virtual | Human and Mammalian Genetics and Genomics: The 61ST McKusick Short Course

Posters

1. **Kutty S**, Duncan BW, Rosenthal GL, Yeager M, Mee RBB, Drummond-Webb JJ, Hrisant MRK, Young JB, Smedira NG, McCarthy PM. Chronic Ventricular Assist Device Support for Pediatric and Congenital Heart Disease. International Conference on Heart Failure in Children, December 2004
2. **Kutty S**, Mumtaz MA, Duncan BW, Mee RBB Early surgery for Ebstein's anomaly increases the likelihood of valve repair without replacement. Society of Thoracic Surgeons Meeting 2004
3. **Kutty S**, Prieto LR, Haldeman SJ, Latson LA. Long term follow up of patients after closure of large coronary artery fistulae. 8th Pediatric Interventional Cardiac Symposium and ENTICHS, Sept 2004
4. **Kutty S**, Greenberg RK, O'Neill S, Latson LA Aneurysms after coarctation repair-a novel therapeutic solution. Society of Cardiac Angiography and Intervention, Annual Scientific Sessions, May 2005
5. **Kutty S**, Prieto LR, Preminger TJ, Latson LA. Pediatric Cardiologist catheterization and management of adults with congenital heart disease-experience from a unique model of care. 4th World Congress of Pediatric Cardiology and Cardiac Surgery, Sept 2005
6. Srinath GT, **Kutty S**, Ebeid M, Latson LA. Congenital and acquired left pulmonary artery stenosis in patients undergoing transcatheter patent ductus arteriosus. Fourth World Congress of Pediatric Cardiology and Cardiac Surgery, Buenos Aires, Argentina Sept 2005
7. **Kutty S**, Asnes J, Preminger TJ, Prieto LR, Latson LA. The straight side-hole delivery sheath modification for improved positioning of Amplatzer ASD occluder. Society of Cardiac Angiography and Intervention Annual Scientific Sessions, May 2006.
8. **Kutty S**, Qureshi A, Brown K, Rhodes JF, Latson LA, Recurrent Focal Neurologic Events after Transcatheter Closure of patent Foramen Ovale with the CardioSEAL Septal Occluder. Society of Cardiac Angiography and Interventions, Annual Scientific Sessions, May 2006
9. **Kutty S**, Deatsman S, Lockman J, Frederick D, Rock H, Russell D, Miller E, Frommelt PC. Assessment of Right Ventricular Velocities, Strain and Displacement in Normal Children Using Velocity Vector Imaging. J Am Soc Echocardiogr 2007; 20: 585
10. **Kutty S**, Brown K, Latson LA. Maximal Potential Patent Foramen Diameter Does Not Predict Type or Frequency of Cryptogenic Neurologic Event Prior to Closure. Cathet Cardiovasc Intervent 2008; 71:7 S1-S26
11. **Kutty S**, Whitehead K, Natarajan S, Harris M, Wernovsky G, Fogel MA. Echocardiographic assessment of semilunar valve incompetence useful as screening tool but unreliable in quantification: correlation with cardiac MR velocity mapping. Journal of Cardiovasc Magnetic Resonance 2008, 10(Suppl 1): A187
12. **Kutty S**, Urbach S, Sandene EK, Fletcher SE, Gumbiner CH, Danford DA. Does Modification of Doppler Measurement Techniques Improve Prediction of Severity of Aortic Stenosis in Children and Young Adults? Correlation of Peak and Maximal Modal Velocities with Catheterization Results. 12th Annual Cardiovascular Research Symposium, Omaha, NE
13. Kwon EN, Yan K, **Kutty S**, Gorentz J, Danduran MJ, Cava JR, Simpson PM, Frommelt PC, Samyn MM. Global and regional right ventricular function and exercise capacity in postoperative tetralogy of Fallot: An echocardiographic and cardiac magnetic resonance imaging study American Society of Echocardiography sessions June 6-11, 2009.
14. **Kutty S**, Danford C, Fletcher SE, Erickson CC, Danford DA, Kugler JD, Olson J, Porter TR. Safety and efficacy of intravenous ultrasound contrast in evaluating surgically corrected congenital heart disease patients with difficult windows. J Am Coll Cardiol. 2010 March; Volume 55, issue 10A, A42.E402
15. **Kutty S**, Kaul S, Danford C, Scott S, Urbach U, Danford DA. Main Pulmonary Artery Dilation in Association with Congenital Bicuspid Aortic Valve in the Absence of Pulmonary Valve Abnormality. American Society of Echocardiography Scientific Sessions, June 12-15, 2010
16. **Kutty S**, Frommelt MA, Danford DA, Tweddell JS. Medium Term Outcomes of Kawashima and Completion Fontan Palliation in Single Ventricle Heart Disease with Heterotaxy and Interrupted Inferior Vena Cava. Pediatric Research Forum, University of Nebraska, May 2010
17. Maloney A, Polak A, Fletcher S, Danford DA, **Kutty S**. Right Atrial Volume as a Diagnostic Discriminator between Stretched Patent Foramen Ovale and Small Secundum Atrial Septal Defect in Neonates and Infants. Pediatric Research Forum, University of Nebraska, May 2010
18. **Kutty S**, Alabi O, Danford CJ, Kaul S, Danford DA. Greater Accuracy When Interpreting Key Aortic Dimensions in the Pediatric Population by Adjusting for Somatic Growth Using Lower Order Exponential Functions of Body Surface Area. Pediatric Research Forum, University of Nebraska, May 2010

19. Jantzen DA, Aldoss O, Sanford B, Fletcher SE, Danford DA, **Kutty S**. Is combined Atrial Volumetrics by Two-dimensional Echocardiography a Suitable Measure for Quantitative Assessment of the Hemodynamic Significance of Patent Ductus Arteriosus in Neonates and Infants? American Society of Echocardiography Scientific Sessions, June 12-15, 2010
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218. Backhaus SJ, Metschies G, Zieschang V, Erley J, Zamani SM, Kowallick JT, Lapinskas T, Pieske B, Lotz J, **Kutty S**, Hasenfuß G, Kelle S, Schuster A. Performance of different myocardial tissue tracking algorithms and acquisition-based Strain Imaging to characterize myocardial pathology. ISMRM Scientific sessions 2020.
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220. Jani VP, Bliamptis J, Xie E, Shade J, Gaur L, Schuster A, Sarikouch S, Diller G, Beerbaum P, Kachenoura N, Redheuil A, Manlhiot C, Lima JAC, **Kutty S**, Ambale-Venkatesh B. Deep learning segmentation and cluster-based phenotyping of the main and branch pulmonary arteries in tetralogy of Fallot: The German Competence Network (EACVI Machine learning sessions, London, 2020)
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222. Fox KR, Hardy RY, Moons P, Kovacs AH, Luyckx K, Apers S, Cook SC, Veldtman G, Fernandes SM, White K, **Kutty S**, Jackson JL. Negative Illness Perceptions Predict Smoking Status among Adult Congenital Heart Disease Survivors in the United States (American Heart Association Scientific Sessions, November 14-16, 2020)

223. Xie E, Kalu N, Ambale-Venkatesh B, Barr RG, Wu C, Chamera E, Bluemke DA, Heckbert SR, **Kutty S**, Lima JAC. Longitudinal Change and Remodeling in the Right Atrium: The Multi-Ethnic Study of Atherosclerosis (MESA) (American Heart Association Scientific Sessions, November 14-16, 2020)
224. Backhaus SJ, Metschies G, Zieschang V, Erley J, Zamani SM, Kowallick JT, Lapinskas T, Pieske B, Lotz J, **Kutty S**, Hasenfuß G, Kelle S, Schuster A. Performance of different myocardial tissue tracking algorithms and acquisition-based Strain Imaging. *European Heart Journal* 41(Supplement_2) DOI: 10.1093/ehjci/ehaa946.0237
225. Schuster A, Lange T, Backhaus SJ, Strohmeier C, Boom PC, Matz J, Kowallick JT, Lotz J, Steinmetz M, **Kutty S**, Bigalke B, Gutberlet M, de Waha-Thiele S, Desch S, Hasenfuß G, Thiele H, Stiermaier T, Eitel I. Fully Automated Cardiac Assessment for Diagnostic and Prognostic Stratification Following Myocardial Infarction. *European Heart Journal Cardiovascular Imaging* 22(Supplement_1) DOI: 10.1093/ehjci/jeaa356.260
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228. Backhaus SJ, Metschies G, Zieschang V, Erley J, Zamani SM, Kowallick JT, Lapinskas T, Pieske B, Lotz J, **Kutty S**, Hasenfuß G, Kelle S, Schuster A. Cardiovascular magnetic resonance deformation imaging: method comparison and considerations regarding reproducibility. *European Heart Journal Cardiovascular Imaging* 22(Supplement_1) DOI: 10.1093/ehjci/jeaa356.269

Oral/Podium Abstract Presentations

1. **Kutty S**, Zahn EM, Zakheim RM, Nykanen DG; Stent Implantation for Aortic coarctation and recoarctation: Medium term follow up and results of redilation. *Cathet Cardiovasc Intervent* 2004; 59:143
2. **Kutty S**, Burke RP, Hannan RL, Zahn EM; A new hybrid procedure for treatment of Aortic obstruction after Stage 1 Norwood palliation: *Cathet Cardiovasc Intervent* 2004; 59:144
3. **Kutty S**, Nykanen D, Zahn EM. Early experience with a New Simplified Technique for Transcatheter Closure of Patent Foramen Ovale. Society of Cardiac Angiography and Interventions Annual Scientific Sessions, May 2004
4. **Kutty S**, Latson LA. "Don't use a snare you aren't familiar with". Society of Cardiac Angiography and Interventions Annual Scientific Sessions, May 2005
5. **Kutty S**, Deatsman SL, Russell D, Nugent ML, Simpson PM, Frommelt PC. Pulmonary Valve Replacement Improves but Doesn't Normalize Right Ventricular Function in Children with Repaired Congenital Heart Disease: A Comparative Assessment Utilizing Velocity Vector Imaging. *J Am Soc Echocardiogr*. May 2008
6. **Kutty S**, Xie F, Gao S, Drvol LK, Lof J, Fletcher SE, Danford DA, Hammel JM, Porter TR. Sonothrombolysis of Intra-Catheter Aged Venous Thrombi In-Vitro Using Microbubble Enhancement and Guided Three-Dimensional Ultrasound Pulses. *American Society of Echocardiography Scientific Sessions 2010 May*; 23(5):B2-3
7. Abu Hazeem A, Brown K, Konstantinopoulos P, Worley S, Sandene EK, Danford C, **Kutty S**, Latson LA. Five to 16 Year Outcomes of Transcatheter and Surgical ASD Closure: Device Closure Protects against Arrhythmia When Compared to Surgical closure in High Risk Patients. *Pediatric & Adult Interventional Cardiac Symposium (PICS-AICS)*, July 18-21, 2010
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10. Padiyath A, Gribben P, Danford DA, **Kutty S**. Maturation of left and right atrial systolic and diastolic performance in infants, children and adolescents. Insights from two-dimensional speckle tracking. *American Academy of Pediatrics Annual Conference and Exhibition* 2011
11. **Kutty S**, Gao S, Xie F, Drvol L, Therrien SL, Danford DA, Lof J, Hammel JM, Porter TR. Microbubble Enhanced Sonothrombolytic Therapy Facilitates Reduction of Central Venous Catheter Associated Thrombi In Vivo. *Circulation*. 2011; 124: A9841

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13. Hong Z, **Kutty S**, Zhang HJ Toth PT, Marsboom G, Rehman J, Archer SL. Dynamin Related Protein 1 mediated Mitochondrial Fission Is Required For Oxygen-sensing In The Ductus Arteriosus. AHA scientific sessions 2011
14. **Kutty S**, Venkataraman J, Rangamani S, Schuster A, Li L, Fletcher SE, Beerbaum P, Danford DA. Reduced Global Longitudinal And Radial Strain With Normal Left Ventricular Ejection Fraction Late After Effective Repair Of Aortic Coarctation - A CMR Feature Tracking Study. *J Cardiovasc Magn Reson*. 2012, 14(Suppl 1):O59
15. Xie F, Wu J, Sayyed S, Liu J, Powers J, Shi W, Vignon F, **Kutty S**, Porter T. Effect of Guided High Mechanical Index Impulses and Intravenous Microbubbles on Infarct Size and Systolic Function Assessed by Cardiac Magnetic Resonance Imaging Following Acute Myocardial Infarction. *Circulation*. 2012; 126: A10752
16. Hammel JM, **Kutty S**. Left Ventricular Rehabilitation for Biventricular Outcome in Hypoplastic Left Heart Syndrome. Midwest Pediatric Cardiac Society Meeting, September 20, 2013.
17. Steinmetz M, Alt SC, **Kutty S**, Sohns JM, Unterberg-Buchwald C Hasenfuß G, Paul T, Lotz J, Lamata P, Schuster A. Quantification of intra and inter-ventricular dyssynchrony in Ebstein's anomaly using cardiovascular magnetic resonance myocardial feature tracking. Society for Cardiovascular Magnetic Resonance Scientific Sessions, 1/14.
18. House AV, Hasan R, Danford DA, Spicer RL, **Kutty S**. Impact of Clinical Follow-Up and Diagnostic Testing on Intervention for Tetralogy Of Fallot. Midwest Pediatric Cardiac Society Meeting, Sep 2014
19. Olive MK, **Kutty S**, Fraser CD, McKenzie ED, Hammel JM, Krishnamurthy R, Maskatia SA. The Right Ventricular Infundibular Sparing Approach for the Repair of Tetralogy of Fallot Results in Better Intermediate-Term Right Ventricular and Left Ventricular Systolic Function as Assessed by Cardiac MRI AHA scientific sessions Nov 2014
20. Danford DA, Karels Q, Hussain A, Kulkarni A, Xiao Y, **Kutty S**. Investment In Inpatient Fatality in Congenital Heart Disease - Variability by Lesion and Institutional Volume. ACC sessions 2015
21. Konecny F, Hammel JM, Fernandes JF, Xiao Y, Shang Q, Lof J, Goubergrits L, Kuehne T, **Kutty S**. Influence of Right Ventricular Remodeling on Biventricular Systolic and Diastolic Function in Porcine Models of Pulmonary Regurgitation Vs. Stenosis. SCMR annual scientific meeting 2016.
22. Rauser-Foltz K, Kugler J, Anderson J, **Kutty S**. Trends in the Timing of Stage II Single Ventricle Palliation from 2009 to 2014: A Study from the National Pediatric Cardiology Quality Improvement Collaborative Midwest Pediatric Cardiac Society Meeting, September 2015.
23. **Kutty S**, Craft M, Li L, Hess R, Olson J, Pedrizzetti G, Porter TR. Intraventricular Flow Profile in the Single Left Ventricle Palliated with Fontan Using Echocardiographic Contrast Particle Imaging Velocimetry. Submission to AAP annual scientific meeting 2016.
24. Apers S, Kovacs A, Luyckx K, Alday L, Berghammer M, Budts W, Callus E, Caruana M, Chidambarathanu S, Cook SC, Dellborg M, Enomoto J, Eriksen K, Fernandes SM, Fieuws S, Jackson JL, Khairy P, **Kutty S**, Mattson E, Menahem S, Rempel G, Sluman MA, Soufi A, Thomet C, Veldtman G, Wang J, White K, Moons P, on behalf of the APPROACH-IS consortium and the International Society for Adult Congenital Heart Disease (ISACHD). Quality of life in adults with congenital heart disease in 15 countries: Integrating population measures and cultural dimensions in quality-of-life research. AHA annual scientific sessions 2015.
25. **Kutty S**, Craft M, Shoiab I, Kelly C, Nalty K, Shostrom V, Porter TR. Clinical outcomes of patients with inducible microvascular disease during real time perfusion echocardiography in the absence of angiographic coronary disease. ACC annual scientific sessions 2016.
26. Varghese J, **Kutty S**, Abdullah I, Hall S, Shostrom V, Hammel JM. Immediate extubation after neonatal cardiac surgery: predictive factors and impact on post-operative ICU length of stay and costs. AATS annual scientific sessions 2016.
27. Craft M, Li L, Klas B, Sedlmeier A, Baumann R, Danford DA, **Kutty S**. Right Ventricular Quantification in Pediatric and Congenital Heart Disease: Preliminary Observations with the 4DRV 2.0 Analysis Algorithm. ASE annual scientific sessions 2016
28. **Kutty A**, Homer P, Krohn C, Craft M, Klas B, Danford DA, **Kutty S**. Expert vs. novice comparison of machine learning-enabled automatic image analysis of left ventricular function. ASE annual scientific sessions 2016
29. Patel S, Li L, Craft M, Danford DA, **Kutty S**. Feasibility of Deriving Right Atrial Pressure in Infants and Young Children Non-Invasively. Midwest Pediatric Cardiac Society Annual Sessions 2016
30. **Kutty S**, Jones P, Karels Q, Joseph N, Spertus J, Chan PS. Effect of Medical Emergency Teams in Pediatric Hospitals on Hospital Mortality. American Heart Association sessions 2016

31. Jone PN, Li L, Craft M, Mulvahill MJ, Ivy DD, **Kutty S**. Right Atrial and Right Ventricular Deformation are reflections of Right Ventricular Afterload in Predicting Outcomes in Pediatric Pulmonary Hypertension. American Heart Association scientific sessions 2016
32. Jazayeri MA, Vuddanda V, Li L, **Kutty S**, Lakkireddy D. Impact of Left atrial appendage occlusion on left atrial function. American College of Cardiology Scientific Sessions 2017.
33. Hsu H, Li L, Craft M, **Kutty S**. Combined Atrial Deformation Indices in the Human Fetus and Relation to Biventricular Cardiac Output. American Academy of Pediatrics Annual Sessions 2017.
34. Craft M, Casey C, Bisselou K, Erickson CC, Spicer RL, Danford DA, **Kutty S**. Associations of Vector Flow Derived Diastolic Indices with Traditional Indices of Left Ventricular Function in Children and Young Adults (European Association of Cardiovascular Imaging 2017)
35. Li L, Craft M, Varghese G, Joseph N, Klas B, **Kutty S**. Assessment of Right Ventricular Mechanics and Volumes in the Fetal Heart Using 3D Echocardiography. ASE annual scientific meeting 2017.
36. Menon V, Curzon C, Delaney JW, Craft M, Danford DA, **Kutty S**. Echocardiographic Surveillance after Catheter Mediated Secundum Atrial Septal Defect is More Intense than after Surgical Repair (American College of Cardiology Sessions 2018).
37. Kollar SE, Toro-Salazar OH, Hor KN, **Kutty S**, Tipton A. Two Cases of Isolation of the Left Subclavian Artery and One Case of Isolated Innominate Artery (Society for Cardiovascular Magnetic Resonance Sessions 2018)
38. Gertz RJ, Lange T, Kowallick JT, Backhaus S, Steinmetz M, Staab W, **Kutty S**, Hasenfuß G, Lotz J, Schuster A. Inter-vendor reproducibility of left and right ventricular cardiovascular magnetic resonance myocardial feature-tracking (Society for Cardiovascular Magnetic Resonance Sessions 2018)
39. Eitel I, Stiermaier T, Lange T, Rommel K-P, Koschalka A, Kowallick JT, Lotz J, Gutberlet M, Hasenfuß G, Thiele H, Schuster A, **Kutty S**. Cardiac Magnetic Resonance Myocardial Feature Tracking for Optimized Prediction of Cardiovascular Events Following Myocardial Infarction. Soc Cardiovascular Magnetic Resonance Sessions 2018.
40. Buddhe S, Sarikouch S, Schuster A, Beerbaum P, **Kutty S**; German Competence Network for Congenital Heart Defects Investigators. Differences in right ventricular-pulmonary vascular coupling between standard tetralogy of Fallot (TOF) vs. TOF with Pulmonary Atresia - association with other CMR and clinical indices (Society for Cardiovascular Magnetic Resonance Sessions 2018)
41. Ramesh A, **Kutty S**, Hammel JM, Ibrahimiyi A, Mysore M, Bisselou Moukagna K, Hunt P, Varghese J. Early results of immediate extubation after neonatal Total Anomalous Pulmonary Venous Connection repair (Society for Pediatric Anesthesia Annual Scientific Sessions 2018)
42. Sarikouch S, Buddhe S, Schuster A, Beerbaum P, **Kutty S**; Differences in right ventricular-pulmonary vascular coupling between standard tetralogy of Fallot (TOF) vs. TOF with Pulmonary Atresia - association with other CMR and clinical indices (German Society of Paediatric Cardiology, 50th Annual Conference of the DGPK 17th - 20th February 2018)
43. Khoury M, Portman MA, Manlhiot C, Fournier A, Dillenburg RF, Dancea AB, Renaud C, Greenway SC, **Kutty S**, Beaulieu E, McCrindle BW. Potential Utility and Safety of Empiric Statin Therapy for Long-Term Management of Patients with Coronary Artery Involvement (International Kawasaki Disease Symposium 2018)
44. Klas B, Craft M, **Kutty S**. Simultaneous all-4-chamber deformation assessment in Pediatric Cardiomyopathy. (European Association of CV Imaging Sessions 2018)
45. Erickson CT, Levy PT, Sekarski T, Craft M, Li L, Hamvas A, Singh GK, **Kutty S**. Persistence of Right Ventricular Dysfunction and Morphometry in Preterm Infants through One Year of Age: Cardiac Phenotype of Prematurity (American Society of Echocardiography Sessions 2018).
46. Martins JD, Zachariah JD, Tierney EA, Truong U, Morris SA, **Kutty S**, de Ferranti SD, Guarino M, Thomas B, Oliveira D, Marinho A, Antonio M, Gauvreau G, Jalles N, Geva T, Lock JE, Carmo M, Prakash A. Impact Of Treatment Modality On Vascular Function In Coarctation Of The Aorta: The LoveCoarct Study (American Heart Association Sessions 2018).
47. Erickson C, Meyers B, Li L, Craft M, Vlachos P, Danford DA, **Kutty S**. Color M-Mode Echocardiography Derived Left Ventricular Diastolic Indices in Infants (EACVI sessions 2018, Milano, Italy)
48. Krishnan AN, Jacobs M, Bhat A, Chelliah A, Chiu J, Cuneo B, Freire G, Hornberger L, Howley L, Husain N, Ikemba C, Kavanaugh-McHugh A, **Kutty S**, Lee C, Lopez K, Michelfelder E, Morris S, Peyvandi S, Pinto N, Schwartz R, Stern S, Taylor T, Thakur V, Wittlieb-Weber C, Donofrio M. Identifying Socioeconomic and Geographic Barriers to Prenatal Detection of Hypoplastic Left Heart Syndrome and Transposition of the Great Arteries. American College of Cardiology sessions, March 18, 2019.
49. Jani VP, Bliamptis J, Xie E, Shade J, Gaur L, Schuster A, Sarikouch S, Diller G, Manlhiot C, Lima JAC, Ambale-Venkatesh B, **Kutty S**. Automated aortic segmentation and assessment of aortic geometry in standard tetralogy of

Fallot, and in types with pulmonary atresia and double outlet right ventricle using transfer learning: The German Competence Network for Congenital Heart Defects (SCMR 2020).

50. Xie E, Kalu N, Ambale-Venkatesh B, Barr RG, Wu C, Chamera E, Bluemke DA, Heckbert SR, Yeboah J, **Kutty S**, Lima JAC. Longitudinal Change and Remodeling in the Right Atrium: The Multi-Ethnic Study of Atherosclerosis (MESA) AHA sessions 2020.
51. Fox KR, Hardy RY, Moons P, Kovacs AH, Luyckx K, Apers S, Cook SC, Veldtman G, Fernandes SM, White K, **Kutty S**, Jackson JL. Negative Illness Perceptions Predict Smoking Status among Adult Congenital Heart Disease Survivors in the United States: APPROACH-IS consortium and ISACHD AHA sessions 2020.

Community Services

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| 2008-2018 | Volunteer, Complimentary medical care for children from Belize (Project of Omaha Downtown Rotary Club with Belize City Rotary Club) |
| 2008-2018 | Volunteer, Hope Medical Outreach Coalition |
| 2009-2013 | Volunteer, American Heart Association Heart Walk |
| 2013-2015 | Volunteer, Fundraising activity for Brownell Talbot School, Omaha |
| 2016-2019 | Volunteer, Fundraising activity for Children's Assistance Initiative, Omaha |
| 2018 | Volunteer, 2 nd Annual Team Hopkins Kids at the Baltimore Running Festival |
| 2019 | Volunteer, We give for the kids and 31 st Annual Radiothon at Johns Hopkins |
| 2019 | Volunteer, 3 rd Annual Team Hopkins Kids at the Baltimore Running Festival |
| 2020 | Volunteer, We give for the kids and 32 nd Annual Radiothon at Johns Hopkins |
| 2021 | Volunteer, We give for the kids and 32 nd Annual Radiothon at Johns Hopkins |