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Curriculum Vitae
Gautam K. Singh, MD, DCH, MRCP, FACC, FASE

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Present Position:

Professor of Pediatrics
Central Michigan University School of Medicine
Chief of Pediatric Cardiology
Children's Hospital of Michigan

Education:

1970	BSc, St. Xavier's College, (Ranchi University) Ranchi, India
1977	MBBS, Rajendra Medical College, (Ranchi University) Ranchi, India
1982	MD, Patna Medical College, (Patna University), Patna, India.
1985 – 1991	Residency in Pediatrics: Queen Charlotte and Hammersmith Hospital, London; East Birmingham Hospital, Birmingham; St. Peter's General Hospital, Chertsey; all in the U.K. Residency in Pediatric Cardiology: The Hospital for Sick Children, Great Ormond Street, London, U.K. Senior Residency (Fellowship) in Pediatric Cardiology: Southampton General Hospital of University of Southampton, Tremona Road, Southampton, U.K.
1991 - 1995	Fellowship, St. Christopher's Hospital for Children (Temple University), Erie Avenue at Front Street, Philadelphia, PA
1992 - 1993	Residency, St. Christopher's Hospital for Children (Temple University), Erie Avenue at Front Street, Philadelphia, PA
1993 - 1994	Postdoctoral Research, "Gene regulation in fetal sheep heart under hemodynamic overload", Temple University, Philadelphia, PA

Academic Positions/Employment:

1983 - 1985 Attending Pediatrician, Pediatrics, Central Hospital of Coal India Ltd., Katras, Dhanbad, India
1991 - 1995 Clinical Instructor, Pediatrics/Pediatric Cardiology, St. Christopher's Hospital, Temple University School of Medicine, Erie Avenue at Front Street, Philadelphia, PA 19134
1995 - 1999 Assistant Professor, Pediatrics, Saint Louis University School of Medicine, Cardinal Glennon Children's Hospital, 1465 South Grand Blvd. St. Louis, MO 63104
1995 - 2003 Director, Echocardiography Laboratory, Cardinal Glennon Children's Hospital
1995 - 2003 Director, Fetal Cardiac Services, Cardinal Glennon Children's Hospital
1996 - 2003 Director, Lipid Clinics, Cardinal Glennon Children's Hospital
1999 - 2003 Associate Professor, Pediatrics, Saint Louis University School of Medicine, Cardinal Glennon Children's Hospital, 1465 South Grand Blvd. St. Louis, MO 63104.
2003 – 2012 Associate Professor of Pediatrics
Director of Non-invasive Imaging Research
Co-Director of Echocardiography Laboratory
Director of Preventive Cardiology
Washington University School of Medicine, St. Louis, MO
2012 – 2020 Professor of Pediatrics
Director of Non-invasive Imaging Research
Co-Director of Echocardiography Laboratory
Director of Preventive Cardiology
Washington University School of Medicine, St. Louis, MO
2014 - 2020 Director of Clinical and Translational Research for Heart Center, St. Louis Children's Hospital
2020 – pres Professor of Pediatrics
Central Michigan University School of Medicine
Chief of Pediatric Cardiology
Children's Hospital of Michigan

Appointments and Committees:

1997 - 2003 Housestaff Advisory Committee, Cardinal Glennon Children's Hospital, Saint Louis University, St. Louis, MO.
1997 - 2003 Pediatric Intensive Care Committee, Cardinal Glennon Children's Hospital, Saint Louis University, St. Louis, MO.
1998 - 2003 Faculty Development Committee, Department of Pediatrics, Saint Louis University, St. Louis, MO.

2007 - 2012 Continuing Review Committee (CRC), Washington University Human Research Protection Office (IRB), St. Louis, MO
2007 - 2020 Cardiac Bioelectricity and Arrhythmia Center (CBAC), Department of Biomedical Engineering, Washington University, St. Louis, MO
2007 - 2020 Scholarship Oversight Committee, Department of Pediatrics, Washington University, St. Louis, MO.
2020 – pres Strategic planning committee, Children's Hospital of Michigan, Detroit Medical Center
2020 – 2021 Co-chair Search committee for the recruitment of Chief of Cardio-thoracic surgery at Children's Hospital of Michigan /Central Michigan University..
2020 – pres Member of the Fetal Care Center Steering Committee for establishing destination center for fetal and neonatal critical and complex care in metro Detroit.
2021 – pres Member of the Ambulatory Enhancement Committee to enhance Children's Hospital of Michigan clinic access and operations to build destination for critical and complex care within the neonatal and pediatric space in metro Detroit.
2021 – pres Member of the Children's Hospital of Michigan 2021 Strategic Priorities – for Cardiology & CV Surgery Growth.
2021 – pres Co-Chair of the committee to establish and certify a Center of Excellence for the Adults with Congenital Heart Disease at Children's Hospital of Michigan /Central Michigan University.

Hospital Affiliations

1995 - 2003 Attending Staff Pediatrician and Pediatric Cardiologist, Cardinal Glennon Children's Hospital, St. Louis, MO
1995 - 2003 Attending Pediatric Cardiologist, St. Mary's Health Center, St. Louis, MO
2000 - 2003 Attending part-time Pediatric Cardiologist, St. Elizabeth's Hospital, Belleville, IL
2003 - Pres Attending Pediatric Cardiologist, St. Louis Children's Hospital, St. Louis, MO
2004 - 2020 Attending Pediatric Cardiologist, Boone Hospital, Columbia, MO.
2004 - 2020 Attending Pediatric Cardiologist, Barnes Jewish Hospital, St. Louis, MO.
2020 – pres Attending Pediatric Cardiologist, Children's Hospital of Michigan, Detroit Medical Center
2021 – pres Attending Pediatric Cardiologist, Mott Children's Clinic, Flint, MI.

Honors and Awards:

1968 - 1977 National Merit Scholarship Awards for Academic Achievements, India
1988 Outstanding Competent and Compassionate Junior Physician, St. Peter's General Hospital, Chertsey, UK
1994 The Angelo M. DiGeorge Teaching Award, St. Christopher's Hospital for Children, Philadelphia, PA

Member of Editorial and Scientific Statement Writing committees:

2000 - Pres Section Editor, Pediatric and Congenital Heart Disease Section of *Current Treatment Options in Cardiovascular Medicine*, Springer Publication, Philadelphia.
2011 - 2016 Member of the AHA writing group for the Scientific Statement on "*Chronic Heart Failure in Congenital Heart Disease: Scope, Challenges, and Future Directions*."
2011 - 2014 Member of the AHA writing group for the Scientific Statement on "*Long-Term Cardiovascular Monitoring through Young Adulthood of Children Who Receive Chemotherapy: Current Knowledge.*"
2020 – pres Co-chair, American Society of Echocardiography Pediatric Cardio-Oncology Writing Group

<u>Reviewer</u>

Abstract reviewer: AHA Scientific Meetings
Cardiology in the Young
Circulation
Indian Journal of Pediatrics
Journal of Pediatrics
Journal of American Society of Echocardiography
Pediatrics
The Journal of American College of Cardiology
Ultrasound in Medicine and Biology

Professional Societies and Organizations Membership:

American College of Cardiology
American Heart Association
Council on Cardiovascular Disease in Young
American Society of Echocardiography
Midwest Pediatric Cardiology Society
NASCI - North American Society for Cardiac Imaging
American Medical Association (inactive)
British Cardiac Society (inactive)
Royal College of Physicians of London, UK (1988-1998)

Member in National Professional Committees

Member of the Pediatric Cardiac Imaging Committee, North American Society of Cardiac Imaging 2008 – 2018.
American Society of Echocardiography Pediatric Cardio-Oncology Writing Committee, 2020

Regional and National Meeting Organization

Member organizer of International Symposium on Cantu syndrome: Genetics, Physiology, and Clinical Experience, St. Louis, MO, , 2013 - current.

Co-chair of Pediatric Cardiovascular Imaging conference at the Annual North American Society for Cardiovascular Imaging Scientific Meeting 2012, Pasadena, CA

Member organizer of Pediatric Cardiovascular Imaging conference at the Annual North American Society for Cardiovascular Imaging Scientific Meetings: 2007 - 2018

Principal organizer of Midwest Pediatric Cardiology Society 31st Annual Scientific Sessions, St. Louis, MO, September 20-21, 2007.

Member organizer of International Conference on Kawasaki Disease, St. Louis, MO., 2001.

Member organizer of update on Pediatric Cardiology of St. Louis Chapter of MWPCS, St. Louis, MO., 1996.

Research Support:

Ongoing Research Support

3U24HL 135691-03S3 (PI J Newburger): Long-TerM OUtcomes after the Multisystem Inflammatory Syndrome In Children (MUSIC) study. Funded by Pediatric Heart Network, National Heart, Lung, and Blood Institute the National Institute of Allergy and Infectious Diseases.
Site PI: Central Michigan University 10/2020 – 7/2025.

NHLBIU01- HL068270 (PI: B McCrindle): Dyslipidemia of Obesity Intervention in Teens DO IT! Multi-center, randomized, double-blind, placebo-controlled clinical trial of a 2 year treatment with Pitavistatin

Site PI at Washington University 7/2018-6/2020..

NIH/NHLBI (PI: J Kemp) Physiologic Biomarkers Predicting Ventilatory Instability and Hypoxemia in Premature Infants *7/01/17 – 6/30/2021.
Co-Investigator for cardiac phenotype of prematurity part of the study

Completed

Institute of Clinical and Translational Sciences (PI: Singh) 4/1/2017- 3/31/2018
$25,000.00
Fgf2 As A Biomarker of Pediatric Pulmonary Hypertension

Children's Discovery Institute Award (PI: Colin G. Nichols) 1/15 – 12/17.
Co-investigator, 1.2 calendar $ 150,000 (Annual Direct Cost)
"Cantu Syndrome: A translational approach to mechanisms and treatment"

1U01 HL101465 (PI: A. Hamvas) 3/01/11 - 6/30/17 Co-investigator, 0.60 calendar
NIH/NHLBI $ 350,000 (Annual Direct Cost)
"Influence of the enteric microbiome on the genesis of bronchopulmonary dysplasia"

R01HL033343-24 (PI: Y. Rudy) 3/01/08 – 6/30/17 Consultant
NIH/NHLBI
"Inverse and Forward Problems in Electrocardiography"

Industry supported: "A Multicenter Clinical Evaluation of Safety and Efficacy of LumasonTM/ as a Contrast Agent in Pediatric Echocardiography"
PI at Washington University/ St. Louis Children's Hospital 2015-17.

1R21HL106417 (PI: J. G. Miller) 03/01/2012 - 12/30/2014 0. 3 calendar
NIH/NHLBI $275,000 (Annual Direct Cost)
"Bayesian Enhancement of Echocardiographic Strain Assessment"
The objective of this study is to apply Bayesian analysis methods to improve cardiac strain measurements.

Thrasher Research Foundation (PI: W. Todd Cade) 7/11 – 12/14
Co-investigator, 1.2 calendar $231,656
"Maternal lipid metabolism and neonatal heart function in diabetes mellitus"

AHA (PI: M.R. Holland) 03/01/2011 - 03/01/2012 Co-investigator
$127,000 (Annual Direct Cost)

"Echocardiographic Assessment of Myocardial Fiber Structure In Individual Hearts"

Project: "A Study of the Safety, Tolerance and Efficacy of Pulivizumab (Medi-493), Synagis Prophylaxis of Respiratory Syncytial Virus in Children with Congenital Heart Disease" - a multicenter trial. Principal Investigator at CGCH/SLU Center, 1999-2002, ($91,500).

Project: "A Multicenter, Placebo-controlled, 8-Month Study of the Effect of Twice Daily Carvedilol in Children with Congestive Heart Failure Due to Systemic Ventricular Systolic Dysfunction". Principal Investigator at CGCH/SLU Center, 2000-2002, ($ 7,800).

Fleur-de-Lis Award: Project: "Gene Regulation in Fetal Sheep Heart Under Hemodynamic Overload". Principal Investigator, 1996-98, ($25,000).

Project: "VenPro Contegra Pulmonary Valve Conduit Phase II Trial (Study # 9202-99c)", Co-investigator, 2002-2003.

Project: "Differential Expression of mRNAs in Fetal Sheep Hearts Under Hemodynamic Overload". American Heart Association, Co-investigator, 1993-94, ($18,000).

Work in Progress/ Completed

- 3 D Printing of congenital heart defects model : application in customizing and improving cardiac surgery in children
- MRI Assessment of Myocardial Fibrosis and Ventricular Strain Indices and its Prognostic Significance in Post Fontan Patients.
- Optimization of Pediatric Cardiac MR Congenital Heart Disease Protocols on 3T MRI with Comparison to 1.5 T Imaging.
- Cardiovascular Structure and Function in Overweight Adolescents with Non-Alcoholic Fatty Liver Disease.
- Myocardial Function and Structure in HIV-Negative Neonates Exposed to HIV and HAART *in Utero*.
- Prematurity and Respiratory Outcomes (PROP) Study- (U01) RFA-HL-10-007).
- Bayesian Enhancement of Echocardiographic Strain Assessment**.**

- Alterations in Myocardial Structure and Function in Adolescents with Metabolic Syndrome

- Myocardial Strain and Strain Rate in Fetuses of Diabetic Mothers; as Predictors of Cardiac Outcome.

Industry support:

Consultant to Biomedical Systems. 2015 -2018

Lectures, Didactics, and Presentations

Intramural Lectures and Didactics

Medical Students

1995 - 2003 Noon lectures on congenital heart disease for 3rd & 4th year medical students of Saint Louis University.
1996 - 2003 Organization and participation in teaching in pediatric cardiology electives of 1st and 2nd year medical students of Saint Louis University.
2004 - 2004 Lead a group discussion on Congenital Heart Disease Case Studies for medical students of Washington University School of Medicine.

Residents, Fellows & Faculty (CME didactic Lectures)

1992 - 1993 Critical Care Courses for ICU nurses. St. Christopher's Hospital for Children, Philadelphia, PA.
1993 - 1995 Noon lectures and attending rounds series for residents at St. Christopher's Hospital for Children, (Temple University), Philadelphia, PA.
1995 - 2003 Noon lectures on Kawasaki disease, congenital and acquired heart disease, pulmonary hypertension at Cardinal Glennon Children's Hospital, St. Louis
1995 - 2003 Participant in PL-1, 2 and 3 teaching and attending rounds, Cardinal Glennon Children's Hospital, St. Louis
2003 – Pres Didactic lectures (weekly) on cardiac imaging, St. Louis Children’s Hospital, St. Louis.
1996 Noon lectures on fetal arrhythmia and fetal heart defects. St. Mary's Hospital (St. Louis University), St. Louis
1997 Cardiac involvement in Hypothyroidism, Cardinal Glennon Children's Hospital, St. Louis
1997 Cardiac Arrhythmias for Transport Nurses. Cardinal Glennon Children's Hospital, St. Louis

1999	Aberrant Coronary Artery Anomalies, Cardinal Glennon Children's Hospital, St. Louis
2001	Supraventricular Tachycardia in Fetuses, Infants and Children, Cardinal Glennon Children's Hospital, St. Louis
2004	Case conference lecture on Prinzmetal's Angina, St. Louis Children's Hospital, St. Louis
2004	Didactic Conference Lecture on Doppler Echo, Pressure Gradients, Assessment of Severity of Valvular Lesions, St. Louis Children's Hospital, St. Louis
2005	Application of Cardiac MR and CT Imaging in Pediatric Cardiology, St. Louis Children's Hospital, St. Louis
2006	Management of Hyperlipidemia and Metabolic Syndrome in Children and Adolescents, St. Louis Children's Hospital, St. Louis
2006	Fetal Arrhythmias: Diagnosis and Treatment, Barnes Jewish Hospital
2008	Acute Chest Pain in Children, St. Louis Children's Hospital, St. Louis
2008	An Unusal Presentation of Acute Rheumatic Heart Disease, St. Louis Children's Hospital, St. Louis
2009	Congenital Heart Block and Fetal Tachyarrhythmias, St. Louis Children's Hospital, St. Louis
2009	Echocardiographic Evaluation of Ventricular Diastolic Function: Application and Implication, St. Louis Children's Hospital, St. Louis
2010	Diastology for Pediatric Heart Diseases, St. Louis Children's Hospital, St. Louis.
2011	Diastology for Pediatric Heart Diseases, St. Louis Children's Hospital, St. Louis.
2012	Echocardiographic Evaluation of Ventricular Diastolic Function: Application and Implication, St. Louis Children's Hospital, St. Louis
2013	Mechanism of tricuspid regurgitation in hypoplastic left heart syndrome
2014	Anomalies of coronary arteries. St. Louis Children's Hospital, St. Louis. Prenatal determinant and natural course of outflow tract lesions, St. Louis Children's Hospital, St. Louis Principles of Ultrasonic Imaging, St. Louis Children's Hospital, St. Louis
2015	Diastolic Function evaluation and Clinical Implications in Pediatric Heart Patients, St. Louis Children's Hospital, St. Louis. Principles of Ultrasonic Imaging, St. Louis Children's Hospital, St. Louis
2016	Didactic lecture series: Principles of Ultrasonic Imaging, St. Louis Children's Hospital/ Washington University, St. Louis.
2017	Didactic lecture series: Principles of Ultrasonic Imaging, St. Louis Children's Hospital/ Washington University, St. Louis
2018	Cardiac Mechanics, series 1-3. St. Louis Children's Hospital/ Washington University, St. Louis.
2019	Didactic lecture series: Principles of Ultrasonic Imaging, St. Louis Children's Hospital/ Washington University, St. Louis.
2020	Cardiac Morphogenesis: Children's Hospital of Michigan./CMU, Detroit, MI
2020	Cardiac mechanics- evaluation ventricular systolic and diastolic function part I: Children's Hospital of Michigan./CMU, Detroit, MI

2021 Cardiac mechanics- evaluation ventricular systolic and diastolic function part II: Children's Hospital of Michigan./CMU, Detroit, MI.
2021 Anomalies of coronary arteries: Children's Hospital of Michigan./CMU, Detroit, MI.
2021 Cardiac Segmental analysis: Children's Hospital of Michigan./CMU, Detroit, MI.

Grand Rounds

1996 Fetal echocardiography, Cardinal Glennon Children's Hospital, St. Louis
1997 Transesophageal Echocardiography, Cardinal Glennon Children's Hospital
1998 Hyperlipidemia in Children, Cardinal Glennon Children's Hospital, St. Louis
1999 Sudden Death in Children: A Cardiologist Perspective, Cardinal Glennon Children's Hospital, St. Louis
2000 Atherosclerosis in the Young, Cardinal Glennon Children's Hospital, St. Louis
2001 Chromosome 22.q11 deletion: Cardiovascular defects, Cardinal Glennon Children's Hospital, St. Louis
2002 Morphogenetic Insight in the Prenatal Evolution of Congenital Heart Defects, Cardinal Glennon Children's Hospital, St. Louis
2003 Safety and efficacy of Pulivizumab (Synagis) prophylaxis against respiratory syncytial viral infection in children with congenital heart disease: results of the multicenter study; Cardinal Glennon Children's Hospital, St. Louis
2005 Looking at the Heart: Yesterday, Today and Tomorrow; Department of Pediatrics, Washington University School of Medicine, St. Louis Children's Hospital, St. Louis.
2005 Advances in Fetal Cardiac Diagnosis and Management, Washington University School of Medicine, Department of Obstetrics & Gynecology, St. Louis
2009 Advances in Fetal Cardiac Diagnosis and Therapy, University of Missouri School of Medicine, Department of Pediatrics, Columbia, MO
2010 Obesity and Alterations in Cardiac Structure and Function in Children and Adolescents, Department of Pediatrics, Washington University School of Medicine, St. Louis Children's Hospital, St. Louis.
2018 Cardiac Phenotype of Prematurity. ; Department of Pediatrics, Washington University School of Medicine, St. Louis Children's Hospital, St. Louis.
2020 Fetal Cardiac Evaluation and Management: Division of MFM, Huron Valley Hospital, Detroit Medical Center, Detroit.
2021 Fetal Cardiac Evaluation and Management: Department of OB&GYN and MFM, Henry Ford Hospital, Wayne State Medical School, Detroit.
2021 Cardiac Involvement in Children with COVID-19: Outcomes and Long Covid; Children's Hospital of Michigan, Central Michigan University

Extramural Lectures at Regional, National, and International Scientific Meetings:

1996	Extracardiac fetal anomalies: indications for fetal cardiac evaluation, Regional Obstetrics Conference, St. Mary's Health Center, St. Louis, MO
1997	Faculty Lecture, Fetal cardiac problems and management, CME course for pediatricians and obstetricians. Mt. Vernon, IL
1997	Physician Assistant Lecture, Congenital Heart Disease, College of Physician Assistant, St. Louis, MO
1997	Fetal Echocardiography, Regional Obstetrics Conference, St. Joseph Hospital, St. Charles, MO
1998	Pediatric Cardiac Arrhythmias: Diagnosis & Management PACT & PAL Course
1998	Hypoplastic left heart syndrome: Prenatal diagnosis and postnatal management, Neonatal CME course, St. Mary's Health Center, St. Louis, MO
1999	Faculty Lecture, Prenatal diagnosis of congenital heart disease: Postnatal implications, continuing medical education for pediatrician and obstetrician, Belleville, Illinois
1999	Faculty Lecture, Hyperlipidemia in Children, Continuing Medical Education for Pediatricians. DePaul Heath Center, St. Charles, MO
2001	Faculty Lecture, Atherosclerosis in Children and Young Adults. Continuing Medical Education for Pediatricians and Family Practitioners, Belleville, IL
2001	Guest Lecture, Fetal Cardiac Evaluation, Continuing Medical Education for Cardiac Sonographers, St. Louis, MO
2002	Morphogenetic Insight: the Prenatal Evolution of Congenital Heart Defects, Cardinal Glennon Children's Hospital, St. Louis, MO
2004	Hyperlipidemia and Atherosclerosis in Children. Anderson Hospital, Maryville, IL
2004	COPE Faculty Development Seminar on Hyperlipidemia and Metabolic Syndrome in Children and Teenagers: Real Issues and Management, St. Louis, MO
2004	Hyperlipidemia and Atherosclerosis in Children, Clinical Pediatric Update, St. Louis Children's Hospital, St. Louis, MO
2004	Kawasaki Disease: Long term cardiac outcomes and management, Regional Pediatric Seminar, Boone Hospital Center, Columbia, MO
2005	Diagnosis, Treatment, and Long-Term Management of Kawasaki Disease: An Update, Regional Pediatric Seminar, Fitzgibbon Hospital, Marshall, MO
2006	MRI Assessment of Pediatric Heart Failure: Seminar on Emerging Therapies for Pediatric Heart Failure, Washington University School of Medicine, St. Louis, MO

2008 Acute Myocarditis and Pericarditis in Children: 36th Annual Scientific Meeting of North American Society for Cardiac Imaging, Scottsdale, AZ, Oct. 11-14, 2008

2008 Segmental Approach to Diagnosis of Congenital Heart Disease, 36th Annual Scientific Meeting of North American Society for Cardiac Imaging, Scottsdale, AZ, Oct. 11-14, 2008

2009 Cardiac Magnetic Resonance Imaging Evaluation of Single Ventricle Physiology after Fontan Operation: Applications and Implication. 11th Annual Scientific Meeting of Paediatric Cardiology Society of India, Chandigarh, India, Oct. 23 – 25, 2009

2009 Intraoperative TEE Evaluation in the management of Complex Congenital Heart Disease Surgery. 11th Annual Scientific Meeting of Paediatric Cardiology Society of India, Chandigarh, India, Oct. 23 – 25, 2009

2009 Echocardiographic Evaluation of Ventricular Diastolic Function: Application and Implication. 37th Annual Scientific Meeting of North American Society for Cardiac Imaging, Orlando, FL from October 3 – 6, 2009

2009 A Novel Method for the Non-Invasive Assessment of Homograft Function in Children. 37th Annual Scientific Meeting of North American Society for Cardiac Imaging, Orlando, FL from October 3 – 6, 2009

2010 Hyperlipidemia and Metabolic Syndrome in Children and Adolescents: Real Issues and Management at Institute of Family Health, St. Louis, MO, July 1, 2010

2010 Application of Tissue Doppler and Speckle Tracking Echocardiography in Clinical Cardiac Practice and Cardiac Resynchronization Therapy; Cardiac Bioelectricity and Arrhythmia Center (CBAC), Washington University, St. Louis, MO

2010 Segmental Analysis: From Veins to Ventricles; 38th Annual Scientific Meeting of North American Society for Cardiac Imaging, Seattle, Washington, October 4–6, 2010

2010 Complications in Adults After Fontan Procedure; 38th Annual Scientific Meeting of North American Society for Cardiac Imaging, Seattle, Washington, October 4–6, 2010

2011 Opportunities for Ultrasonic Tissue Characterization: Relationships between Obesity, Insulin Resistance, and Type 2 Diabetes Mellitus and the Potential Effects on Cardiac Structure and Function. 36th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 13 – 15, 2011.

2011 Segmental Analysis: From Ventricles to Arteries; 39th Annual Scientific Meeting of North American Society for Cardiac Imaging, Baltimore, Maryland, September 24-27, 2011.

2012 “Novel Methods for Assessment of Cardiac Structure and Function” invited lecture at Pediatric Academic Societies Annual Meeting, April 28 – May 1, 2012, Boston, MA

2012 Fetal Imaging and Natural History of LVOT Obstruction; 40th Annual Scientific Meeting of North American Society for Cardiac Imaging, Pasadena, CA, October 13-16, 2012.

2012 Advanced Cardiovascular Imaging Techniques, Session chair and speaker; 40th Annual Scientific Meeting of North American Society for Cardiac Imaging, Pasadena, CA, October 13-16, 2012.

2013 Cardio-vascular Consequences of Obesity in Children and Adolescents. Annual Pediatric Update Seminar, Washington University School of Medicine and St. Louis Children's Hospital, St. Louis, MO, May 10, 2013.

2013 The Univentricular vs. Biventricular Heart: Embryology of the Lesions and Prenatal Predictors. 41st Annual Scientific Meeting of North American Society for Cardiac Imaging, Atlanta, GA, September 28 - October 1, 2013.

2013 Childhood Obesity: A Systemic Malady. WEIGHING IN: The Public Health Impact and Promise of Science in Addressing Obesity Conference, Washington University Institute of Public Health, October 15-16, 2013.

2014 Alterations in Cardiovascular Structure and Function in Children with Obesity. The 5th Congress of Asia Pacific Pediatric Cardiology Society Meeting, New Delhi, India, March 6 – 9, 2014.

2014 Cardiovascular manifestation in Cantu syndrome: experience from Cantu syndrome clinics, at the International Symposium on Cantu syndrome: Genetics, Physiology, and Clinical Experience, St. Louis, MO,

2014 Anomalies of coronary arteries: vasculogenesis and diagnostic modalities. 42st Annual Scientific Meeting of North American Society for Cardiac Imaging, New Orleans, LA, September 20 – 23, 2014.

2015 Tetralogy of Fallot - factors affecting pulmonary valve replacement timing. 43rd Annual Scientific Meeting of North American Society for Cardiac Imaging, San Diego, CA, September 26 – 29, 2015.

2015 Cardio-vascular Phenotype in Cantu Syndrome at "Towards treatment of Cantu Syndrome International CantuTreat Meeting", Utrecht, Netherland, September 9-11, 2015.

2016 Cardio-vascular Phenotype in Cantu Syndrome at symposium on "Annual Cantu Syndrome Research Clinics" St. Louis Children's Hospital/Washington University. June 23, 2016.

2016 Myocarditis - Diagnosis and Follow Up Imaging. 43rd Annual Scientific Meeting of North American Society for Cardiac Imaging, Baltimore, October 15-18, 2016.

2017 Update on Cardio-vascular Phenotype in Cantu Syndrome at symposium on "Annual Cantu Syndrome Research Clinics" St. Louis Children's Hospital/Washington University. June 16, 2017.

2017 Fetal Arrhythmias-When to refer at Annual Fetal Cardiac Screening Conference, September 23, 2017.

2017 Segmental analysis and implications for cardiac imaging and surgical planning at 44rd Annual Scientific Meeting of North American Society for Cardiac Imaging, San Antonio, TX, October 9-10, 2017.

2018 Cardiac Phenotype of Prematurity: Ohio State University, Nationwide Children's Hospital, Columbus, OH. May 18, 2018.

2019 Alterations in Myocardial Structure and Function in Adolescents with Metabolic Syndrome. Children's Hospital of Michigan, Wayne State University, School of Medicine, July, 2019.

2020 Pediatric Update 2020: Regional Symposium, Children's Hospital of Michigan, Central Michigan University.

2021 Fetal Cardiac Evaluation and Management: Regional Symposium, Children's Hospital of Michigan, Central Michigan University.

"Visiting Professor" Lectures

2007 "Intricacies of Echocardiographic Imaging of Congenital Heart Disease" at Pediatric Cardiology and Congenital Cardiac Surgery Unit, Indraprastha Apollo Hospital and Research Institute, New Delhi, India

2008 "Abnormal Contractile Mechanics in Single Ventricle after Fontan Operation: Implication for Long-term Survival" at Wessex Cardiothoracic Centre, Southampton General Hospital, Southampton University, U.K

2008 "Cardiovascular Involvement in Children and Adolescents with Obesity and Metabolic Syndrome" at Comer Children's Hospital, University of Chicago, IL

2009 "Advances in Fetal Cardiac Diagnosis and Therapy.", at University of Missouri School of Medicine, Department of Pediatrics, Columbia, MO, Oct. 30, 2009

2010 "Single ventricle physiology in S/p Fontan procedure patients – cardiac mechanics and evaluation." at Post Graduate Institute of Medical Sciences, Chandigarh, India – Department of Pediatrics, Pediatric Cardiology, October 23, 2009

2010 "Obesity and Alteration in Cardiac Structure and Function In children and Adolescents" at University of Cork, Cork, Ireland - Clinical Investigational Unit, Department of Paediatrics and Child Health, October 11, 2010.

2012 "Alterations in Cardiac Structure and Function in Children with Obesity." Wake Forest University Medical Center, Brenner Children's Hospital, Winston Salem, NC, August 23, 2012.

2014 "Evolution of the Practice of Pediatric Cardiology In India". Rajendra Institute of Medical Sciences, Ranchi, India, March 5, 2014.

2019 "Cardiac Phenotypes of Prematurity: An Unfolding Story" Nationwide Children's Hospital, Columbus, OH.

Teaching Titles and Responsibilities

Ph.D. Dissertation Committee, Washington University School of Medicine:

Allyson Gibson, Department of Physics, Washington University, STL

Christopher Andrews, Department of Biomedical Engineering, Washington University, STL.

Research Support and Mentoring of Fellows in Cardiology, St. Louis Children's Hospital/Washington University School of Medicine

Byron Holt, M.D.: Research guidance and support in the project on "Prinzmetal Angina in an Adolescent: Adjunctive Role of Tissue Synchronization Imaging."

Steve Lorch, M.D.: Research guidance and support in the project on 1. "Maturational and Growth-Related Changes in Left Ventricular Longitudinal Strain and Strain Rate." 2. "Strain and Strain Rate as Predictor of Myocardial Hypertrophy in Fetuses of Insulin Dependent Mothers." 3. "Cardiac Strain and Strain Rate during Acute Rejection and Following Resolution of Rejection in Pediatric Heart Transplant Recipients."

Pei-Ni Jone, M.D.: Research guidance and support in the project on "Myocardial Strain and Strain Rate in Pediatric Cardiac Patients on Extracorporeal Membrane Oxygenation as Predictor of Outcome."

Agnieszka Kulikowska, M.D.: Research guidance and support in the project on "Measurements of Left and Right Heart Cyclic Variation of Backscatter in Fetal Human Hearts at Mid-gestation"

Steve Muyskens, M.D.: Mentoring and research guidance and support in the project on "Non-invasive Assessment of Homograft Function in Children after Reconstructive Congenital Cardiac Surgery: A Doppler Echo, CT Angiography, and Catheterization Correlative Study"

Jason Wollmuth, M.D.: Research guidance and support in the project on "MRI Strain Measurements in Single Ventricle After Fontan Operation."

Sudhir Vashist, M.D.: Mentoring and research guidance and support in the project on "MRI Characteristics of Acute Myocarditis in Pediatric Patients for Prediction of Outcomes."

Seth Goldstein, M.D.: Research guidance and support in the project on "Alterations in Cardiac Structure and Function in Children and adolescents with Metabolic Syndrome."

Patrick Broderick, M.D. Research guidance and support in the project on "MRI Assessment of Myocardial Fibrosis and Ventricular Strain Indices and its Prognostic Significance in Post Fontan Patients."

Georgeann Groh, M.D. Mentoring and research guidance and support in the project on
“The Accuracy of Doppler Echocardiographic Estimation of Right Ventricular Pressure in Children.”

Sanmit Basu, M.D. Research guidance and support in the project on “Myocardial scarring and Strain Assessment in Single Ventricle after Fontan Operation.”

Aura Sanchez, M.D. Mentoring and research guidance and support in the project on “Alterations in Cardiac Structure and Function in Children and adolescents with Obesity.”

Meghna Patel, MD, Mentoring and research guidance and support in the project on “Myocardial Mechanics and Morphometric of Ventricles as Predictors of Chronic Lung Disease in Premature Infants.”

Hoang Nguyen, MD, Mentoring and research guidance and support in the project on “Implication of Noncompaction of the Left Ventricle for Single Ventricle Physiology.”

Abeer Hamdy, MD, Mentoring and research guidance and support in the project on “Pulmonary artery acceleration time: an accurate estimate of invasive pulmonary hemodynamics in children.”

Eda-Cristina Abuchaibe, DO. Mentoring and research guidance and support in the project on “Right ventricular and septal strain in preterm and term neonates: maturational changes and reference values”.

Manish Aggarwal, MD, Mentoring and research guidance and support in the project on “Corticosteroid treatment for pulmonary hypertension in premature infants”, “Novel Echocardiographic Markers of Disease Severity in Pediatric Pulmonary Hypertension”, and “Potts Shunt Improves Right Ventricular Function in Pediatric Patients with Suprasystemic Pulmonary Hypertension: Evaluation by Novel Echocardiographic Indices”.

Meagan Peek, MD. Mentoring and research guidance and support in the project on “Cardiac mechanics and function in fetuses and premature infants:Fetal TDI values compared to TDI values of premature infants”

Gloria Lehmann, MD. Mentoring and research guidance and support in the project on “Left Ventricular Mechanics in Preterm Infants with Chronic Lung Disease”.

Katie Mowers, MD. Mentoring and research guidance and support in the project on “Echo and cardiac cath correlative studies on pressure gradients across stenotic outflow track lesions”.

Hannah Kim, MD. Mentoring and research guidance and support in the project on “Right Ventricular Failure in Fontan Patients with Systemic Right Ventricle: A Failure of Adaptive Remodeling.”

Melanie Gropler, MD. Mentoring and research guidance and support in the project on “Myocardial scarring and Strain Assessment in Single Ventricle after Fontan Operation.”

Research Support and Mentoring of Fellows in Cardiology, Children’s Hospital of Michigan, Central Michigan Unversity

Amrit Misra, MD. Mentoring and research guidance and support in the project on “Cardiovascular Involvement of COVID-19 in children”.

Research Support and Mentoring of Fellows in Gastroenterology, St. Louis Children’s Hospital/Washington University School of Medicine
:

Bernadette Vitola, M.D.: Research guidance and support in the project on “Cardiac Function and Cardiac Steatosis in Overweight Adolescents with and without Non-Alcoholic Fatty Liver Disease.

Research Support and Mentoring of Fellow in Endocrine, St. Louis Children’s Hospital/Washington University School of Medicine
:

Nana-Hawa Yayah, M.D.: Research guidance and support in the project on “Study on Pulmonary Hypertension in Pediatric Patients with Hyper-thyroidism.”

Research Support and Mentoring of Fellows in Neonatology, St. Louis Children’s Hospital/Washington University School of Medicine:

Philip Thar Levy, M.D.: Mentoring and research guidance for the NIH supported project “Influence of the enteric microbiome on the genesis of bronchopulmonary dysplasia”

Eunice Torres, MD: Mentoring and research guidance for the project on “Ventricular diastolic dysfunction in preterm infants with and without chronic lung disease”

Research Support and Mentoring of Post Doctoral Fellow in Bio-Medical Engineering/Physics, Washington University School of Medicine

Allyson Gibson, PhD.: Research guidance and support in the project on "Tissue characterization by Measurement of Regional Variation in the Apparent Ultrasonic Backscatter of Fetal Pig Hearts."

Christopher Andrews: Research guidance and support in the project on "Coupling between electrical and mechanical activity in healthy adult hearts and in heart failure patients undergoing Cardiac Resynchronization Therapy."

Mentoring of Pediatric Resident/ Medical Graduates St. Louis Children's Hospital/Washington University School of Medicine

Betul Yilmaz, M.D.
Mriganka Singh, M.D.
Himanshu Singh, M.D.
Rabia Khan, M.D.

Mentoring of Medical Students, St. Louis Children's Hospital/Washington University School of Medicine:

Hala Adil
Alexandrea Armfield

Publications:

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98. Patel M, Levy PT, Sekarski T, Hamvas A, **Singh GK.** Longitudinal Maturational changes in pulmonary hemodynamics in premature infants assessed by pulmonary artery acceleration time: reference and predictive values. American College of Cardiology 65th Annual Scientific Session, Chicago, Illinois. April 2 - 4, 2016.
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103. Choudhry S, Patel M, Levy PT, Sekarski TJ, Hamvas A, Singh GK. Pulmonary Vascular Dysfunction Persists in Asymptomatic Preterm Infants Beyond Infancy: Assessment by Pulmonary Artery Acceleration Time. American Society of Echocardiography 27th Annual Scientific Sessions, Seattle, WA. June 10-14, 2016.
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American Heart Association Annual Scientific Sessions, New Orleans, Louisiana, Nov. 12–16 2016.

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108. Philip T. Levy, Meghna D. Patel, Swati Choudhry, Timothy J. Sekarski, Mark R. Holland, Aaron Hamvas, **Singh GK**. Emerging Echocardiographic Markers of Right Ventricular Performance in Preterm Infants with Pulmonary Hypertension. American Society of Echocardiography 28th Annual Scientific Sessions, Baltimore, ML, June 3-6, 2017.
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112. Collin T. Erickson, Philip T. Levy, Mary Craft, Ling Li, David A. Danford, **Singh GK.** Shelby Kutty. Maturational Changes in Right Ventricular Strain Mechanics from the Fetus to the Young Infant: Analysis of Longitudinal 2D Speckle Tracking Data from 450 Examinations. American Society of Echocardiography 28th Annual Scientific Sessions, Baltimore, ML, June 3-6, 2017.
113. Philip T. Levy, Collin T. Erickson, Timothy J. Sekarski, Mary Craft, Ling Li, David A. Sanford, Aaron Hamvas, **Singh GK**, Shelby Kutty. Right Ventricular Dysfunction in Asymptomatic Preterm Infants beyond Infancy. American Society of Echocardiography 28th Annual Scientific Sessions, Baltimore, ML, June 3-6, 2017.
114. Manish Aggarwal, Julia Kolodziej, **Singh GK**, Phil Levy, Georgeann Groh,Toby Rockefeller. Pulmonary Artery Acceleration Time is a Sensitive Marker forAssessing Pulmonary Artery Resistance and Capacitance in Pulmonary Hypertension. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.
115. Hannah S. Kim, Ginnie Abarbanell, Kathleen Simpson, Philip Levy, Aaron Abarbanell, Peter Manning, Pirooz Eghtesady, **Singh GK**. Right Ventricular Failure in Fontan Patients with Systemic Right Ventricle: A Failure of Adaptive Remodeling, an Echocardiographic Study. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.

116. Katie L. Mowers, Toby Rockefeller, Shabana Shahanavaz, Ramzi Nicolas, David Balzer, **Singh GK**. Pressure Recovery Corrected Doppler Gradients Accurately Predict Subsequent Catheterization Gradients in Congenital Pulmonic Valve Stenosis: Doppler Echocardiography and Cardiac Catheterization Correlative Study. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.
117. Philip T. Levy Collin Erickson, Megna Patel, Swati Choudhry, Karl Stessy Bisselou, Tim J. Sekarski, Mary Craft, Ling Li, David A. Danford, Aaron Hamvas, Shelby Kutty, **Singh GK**. Persistence of Right Ventricular Dysfunction and Morphometry in Preterm Infants through One Year of Age: Cardiac Phenotype of Prematurity. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.
118. Philip T. Levy, Collin Erickson, Kelvin Woo, Karl Stessy Bisselou, Mary Craft, Tim J. Sekarski, Ling Li, Amanda Hauck, Aaron Hamvas, Shelby Kutty, **Singh GK.** Abnormal Right Ventricular-Pulmonary Vascular Coupling Persists in Preterm Infants. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.
119. Gloria C. Lehmann, Philip T. Levy, Swati Choudhry, Hongji Gu, Aaron Hamvas, **Singh GK**. Postnatal Evolution of Left Ventricular Rotational Mechanics in Preterm Infants. American Society of Echocardiography 29th Annual Scientific Sessions, Nashville, TN, June 22-26, 2018.
120. **Singh GK,** Mowers KL, Marino C, Balzer D, Rao S. Effect of pressure recovery on pressure gradients in congenital stenotic outflow lesions in pediatric patients—clinical implications of lesion severity and geometry: a simultaneous Doppler echocardiography and cardiac catheter correlative study. Presented at American Society of Echocardiography 30th Annual Scientific Sessions, Portland, OR, June 22-25, 2019. J Am Soc Echocardiogr. 2019; Jun;32(6):B9.
121. Woo KV, Levy PT, Hauck A, Hamvas A, Ornitz D, **Singh GK**. Validation of echocardiographic indices of pulmonary hemodynamics and right ventricular performance in neonatal murine hypoxia: clinical implications for group 3 pulmonary hypertension. Presented at American Society of Echocardiography 30th Annual Scientific Sessions, Portland, OR, June 22-25, 2019. J Am Soc Echocardiogr. 2019; Jun;32(6):B128-129.
122. Levy PT, Woo KV, Groh G, Hauck A, Hamvas A, **Singh GK**. Altered right ventricle pulmonary arterial coupling in children with pulmonary hypertension: a novel approach to cardiopulmonary phenotyping in pediatrics. Presented at American Society of Echocardiography 30th Annual Scientific Sessions, Portland, OR, June 22-25, 2019. J Am Soc Echocardiogr. 2019; Jun;32(6):B7.

Community Service

- Interview with Channel 4, Detroit television station for educational and informational purpose on Heart involvement in COVID-19 in children, 6/3/2021.

- Interview with WDIV television station by Sarah Mayberry on our research on Cardiovascular involvement in COVID-19 in children., 6/2/2021.
- Interview with WWJ News radio by Deanna Lites for educational and informational purpose on Heart involvement in COVID-19 in children, 6/2/2021.
- Interview with Channel 4 on Heart Transplant in children at Children's Hospital of Michigan, Nov 22, 2020.
- Medpage Today, online medical journal coverage and commentary on my presentation "Insulin Resistance Tied to Early Heart Problems" at the America Society of Echocardiography Annual Scientific Meeting at Montreal, Canada, June 2011.
- Interviews and educational presentation on national (MSNBC) and local media (KMOV and KSDK televisions and Radios), magazine (Teen Vogue) and in local school (Ladue School).
- Belleville News Democrat, August 4, 2010, news paper article on "Universal Screening for cholesterol and drug treatment vs. no drug treatment in children."
- Post Dispatch, St. Louis news paper article on "The entire family must make effort to ward off obesity in children." published on June 3, 2010.
- Health education presentations and participation in local school: Ladue School.
- Health education presentations and participation in local Community health center: North Central Health Center, St. Louis.
- Participated with an international team of physicians from U.K., and India in delivering health care to children and older population by screening and management of congenital and acquired heart disease, malnutrition and tropical infection and infestation over a week period in November- December 2008 in a remote eastern part of India through "Life Line Express", which is an entire train converted and equipped as a transportable modern hospital, operated by an Indo-British Charitable Organization dedicated to provide health care to remote area population with no access to medical care.