



## Manchula Navaratnam

Clinical Associate Professor, Anesthesiology, Perioperative and Pain Medicine

### CLINICAL OFFICES

- **LPCH Cardiac Anesthesia**

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### Bio

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### CLINICAL FOCUS

- Pediatric Anesthesia
- Pediatric cardiac anesthesia
- Anesthesia

### ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Anesthesiology, Perioperative and Pain Medicine
- Member, Cardiovascular Institute

### PROFESSIONAL EDUCATION

- Board Certification: Anesthesia, The Royal College of Anaesthetists (2007)
- Residency: South East Scotland School of Anaesthesia (2007) Scotland
- Fellowship: Westmead Children's Hospital (2006) Australia
- Residency: South East Scotland School of Anaesthesia (2001) Scotland
- Residency: South Manchester NHS Trust (1999) UK
- Residency: Trafford General Hospital (1999) UK
- Residency: St John's Hospital at Howden (1998) UK
- Internship: South Manchester NHS Trust (1997) UK
- Medical Education: Edinburgh University (1997) UK

### Research & Scholarship

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### CLINICAL TRIALS

- Effects of Different Tidal Volume Ventilation Strategies on Fontan Flow and Hemodynamics, Not Recruiting
- The Hemodynamic Effects of Vasopressin in Patients With Fontan Physiology, Not Recruiting

## Teaching

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### COURSES

#### 2023-24

- Mending a broken heart: The Anatomy, Physiology and Psychology of congenital heart disease: ANES 74Q (Win, Spr)

#### 2022-23

- Mending a broken heart: The Anatomy, Physiology and Psychology of congenital heart disease: ANES 74Q (Win)

#### 2021-22

- Mending a broken heart: The Anatomy, Physiology and Psychology of congenital heart disease: ANES 74Q (Spr)

## Publications

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### PUBLICATIONS

- **Acute Hemodynamics in the Fontan Circulation: Open-Label Study of Vasopressin.** *Pediatric critical care medicine : a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies*  
Adamson, G. T., Yu, J., Ramamoorthy, C., Peng, L. F., Taylor, A., Lennig, M., Schmidt, A. R., Feinstein, J. A., Navaratnam, M.  
2023
- **Coming Soon to an OR Near You: a Child with a Ventricular Assist Device** *CURRENT ANESTHESIOLOGY REPORTS*  
Kleiman, Z., Navaratnam, M.  
2023
- **In Response.** *Anesthesia and analgesia*  
Navaratnam, M., Boothroyd, D., Zhang, S., Williams, G. D.  
2023; 136 (6): e40-e41
- **Multidisciplinary Stroke Pathway for Children Supported with Ventricular Assist Devices.** *ASAIO journal (American Society for Artificial Internal Organs : 1992)*  
Lee, S., Ryan, K. R., Murray, J., Chen, S., Grant, G. A., Wilkins, S., Yarlagadda, V. V., Wintermark, M., Dodd, R., Rosenthal, D., Teuteburg, J., Navaratnam, M., Lee, et al  
2023
- **Activated 4-Factor Prothrombin Complex Concentrate as a Hemostatic Adjunct for Neonatal Cardiac Surgery: A Propensity Score-Matched Cohort Study.** *Anesthesia and analgesia*  
Navaratnam, M., Mendoza, J. M., Zhang, S., Boothroyd, D., Maeda, K., Kamra, K., Williams, G. D.  
2022
- **ISHLT consensus statement: Perioperative management of patients with pulmonary hypertension and right heart failure undergoing surgery.** *The Journal of heart and lung transplantation : the official publication of the International Society for Heart Transplantation*  
McGlothlin, D. P., Granton, J., Klepetko, W., Beghetti, M., Rosenzweig, E. B., Corris, P. A., Horn, E., Kanwar, M. K., McRae, K., Roman, A., Tedford, R., Badagliacca, R., Bartolome, et al  
2022; 41 (9): 1135-1194
- **Intraoperative epicardial echocardiography or transoesophageal echocardiography in CHD: how much does it matter?** *Cardiology in the young*  
Stauffer, K. J., Brabender, J., Reddy, C. D., Selamet Tierney, E. S., Lopez, L., Maeda, K., Navaratnam, M., Pun, R.  
2022: 1-8
- **Impact of a clinical pathway on acute kidney injury in patients undergoing heart transplant.** *Pediatric transplantation*  
Algaze, C. A., Margetson, T. D., Sutherland, S. M., Kwiatkowski, D. M., Maeda, K., Navaratnam, M., Samreth, S. P., Price, E. P., Zook, N. B., Yang, J. K., Hollander, S. A.  
2021: e14166
- **Intraoperative and Postoperative Hemodynamic Predictors of Acute Kidney Injury in Pediatric Heart Transplant Recipients** *JOURNAL OF PEDIATRIC INTENSIVE CARE*  
Hollander, S. A., Chung, S., Reddy, S., Zook, N., Yang, J., Vella, T., Navaratnam, M., Price, E., Sutherland, S. M., Algaze, C. A.

2021

- **Neurosurgical intervention in children with ventricular assist devices: A single center case series review.** *Paediatric anaesthesia*  
Yu, J., Murray, J., Ramamoorthy, C., Chen, S., Lee, S., Ryan, K., Maeda, K., Navaratnam, M.  
2021
- **Impact of Modified Anesthesia Management for Pediatric Patients With Williams Syndrome.** *Journal of cardiothoracic and vascular anesthesia*  
Schmidt, A. R., Collins, R. T., Adusumelli, Y., Ramamoorthy, C., Weng, Y., MacMillen, K. L., Navaratnam, M.  
2021
- **Adverse Events Associated with Cardiac Catheterization in Children Supported with Ventricular Assist Devices.** *ASAIO journal (American Society for Artificial Internal Organs : 1992)*  
Power, A., Navaratnam, M., Murray, J. M., Peng, L. F., Rosenthal, D. N., Dykes, J. C., Yarlagadda, V. V., Maeda, K., Almond, C. S., Chen, S.  
2021
- **Comparison of combined heart#liver vs heart-only transplantation in pediatric and young adult Fontan recipients.** *The Journal of heart and lung transplantation : the official publication of the International Society for Heart Transplantation*  
Sganga, D., Hollander, S. A., Vaikunth, S., Haeffele, C., Bensen, R., Navaratnam, M., McDonald, N., Profita, E., Maeda, K., Concepcion, W., Bernstein, D., Chen, S.  
2020
- **Management of a Pediatric Patient With a Left Ventricular Assist Device and Symptomatic Acquired von Willebrand Syndrome Presenting for Orthotopic Heart Transplant.** *Seminars in cardiothoracic and vascular anesthesia*  
Flannery, K. M., Kamra, K., Maeda, K., Shuttleworth, P., Almond, C., Navaratnam, M.  
2020: 1089253220949386
- **Pectoral Nerve Blocks Decrease Postoperative Pain and Opioid Use After Pacemaker or Implantable Cardioverter-Defibrillator Placement in Children.** *Heart rhythm*  
Yang, J. K., Char, D. S., Motonaga, K. S., Navaratnam, M., Dubin, A. M., Trela, A., Hanisch, D. G., McFadyen, G., Chubb, H., Goodyer, W., Ceresnak, S. R.  
2020
- **Evolution of Single Ventricular Assist Device Support for the Failing Bi-directional Glenn Patient.** *The Annals of thoracic surgery*  
Maeda, K., Nasirov, T., Yarlagadda, V., Hollander, S. A., Navaratnam, M., Rosenthal, D. N., Dykes, J. C., Kaufman, B. D., Almond, C. S., Reinhartz, O., Murray, J., Chen, S.  
2020
- **The use of prothrombin complex concentrate as a warfarin reversal agent in pediatric patients undergoing orthotopic heart transplantation.** *Paediatric anaesthesia*  
Sisti, D., Williams, G. D., Ding, V., Long, J., Maeda, K., Chen, S., Navaratnam, M.  
2020
- **Bridge to Transplant with Ventricular Assist Device Support in Pediatric Patients with Single Ventricle Heart Disease** *ASAIO JOURNAL*  
Chen, S., Rosenthal, D. N., Murray, J., Dykes, J. C., Almond, C. S., Yarlagadda, V. V., Wright, G., Navaratnam, M., Reinhartz, O., Maeda, K.  
2020; 66 (2): 205–11
- **Peri-operative right ventricular dysfunction—the anesthesiologist’s view.** *Cardiovasc Diagnosis Therapies*  
Navaratnam, M., DiNardo, J. A.  
2020; 10 (5): 1725-1734
- **Pediatric ventricular assist devices: Bridge to a new era of perioperative care** *PEDIATRIC ANESTHESIA*  
Navaratnam, M., Maeda, K., Hollander, S. A.  
2019; 29 (5): 506–18
- **Preoperative Laboratory Studies for Pediatric Cardiac Surgery Patients: A Multi-Institutional Perspective** *ANESTHESIA AND ANALGESIA*  
Jones, S. E., Jooste, E. H., Gottlieb, E. A., Schwartz, J., Goswami, D., Gautam, N. K., Benkwitz, C., Downey, L. A., Guzzetta, N. A., Zabala, L., Latham, G. J., Faraoni, D., Navaratnam, et al  
2019; 128 (5): 1051–54
- **Preoperative Laboratory Studies for Pediatric Cardiac Surgery Patients: A Multi-Institutional Perspective.** *Anesthesia and analgesia*  
Jones, S. E., Jooste, E. H., Gottlieb, E. A., Schwartz, J., Goswami, D., Gautam, N. K., Benkwitz, C., Downey, L. A., Guzzetta, N. A., Zabala, L., Latham, G. J., Faraoni, D., Navaratnam, et al

2019

- **Bridge to Transplant with Ventricular Assist Device Support in Pediatric Patients with Single Ventricle Heart Disease.** *ASAIO journal (American Society for Artificial Internal Organs : 1992)*

Chen, S., Rosenthal, D. N., Murray, J., Dykes, J. C., Almond, C. S., Yarlagadda, V. V., Wright, G., Navaratnam, M., Reinhartz, O., Maeda, K.

2019

- **Pediatric ventricular assist devices: Bridge to a new era of peri-operative care.** *Paediatric anaesthesia*

Navaratnam, M., Maeda, K., Hollander, S. A.

2019

- **Epoprostenol Therapy for a Pediatric Patient With Subacute Heparin-Induced Thrombocytopenia and a Ventricular Assist Device Undergoing Heart Transplant: A Case Report** *A & A PRACTICE*

Navaratnam, M., Williams, G. D., Shuttleworth, P., Almond, C., Maeda, K.

2018; 11 (12): 329–31

- **Bilateral automatized intermittent bolus erector spinae plane analgesic blocks for sternotomy in a cardiac patient who underwent cardiopulmonary bypass: A new era of Cardiac Regional Anesthesia.** *Journal of clinical anaesthesia*

Tsui, B. C., Navaratnam, M. n., Boltz, G. n., Maeda, K. n., Caruso, T. J.

2018; 48: 9–10

- **LVOT-VTI is a Useful Indicator of Low Ventricular Function in Young Patients.** *Pediatric cardiology*

Navaratnam, M., Pun, R., Ramamoorthy, C., Tacy, T. A.

2017

- **Perioperative management of pediatric en-bloc combined heart-liver transplants: a case series review.** *Paediatric anaesthesia*

Navaratnam, M., Ng, A., Williams, G. D., Maeda, K., Mendoza, J. M., Concepcion, W., Hollander, S. A., Ramamoorthy, C.

2016; 26 (10): 976-986

- **Surgical Reconstruction of Tracheal Stenosis in Conjunction With Congenital Heart Defects** *Basic Science Forum of the 58th Annual Meeting of the Southern-Thoracic-Surgical-Association*

Mainwaring, R. D., Shillingford, M., Davies, R., Koltai, P., Navaratnam, M., Reddy, V. M., Hanley, F. L.

ELSEVIER SCIENCE INC.2012: 1266–73

- **Pediatric pacemakers and ICDs: how to optimize perioperative care** *PEDIATRIC ANESTHESIA*

Navaratnam, M., Dubin, A.

2011; 21 (5): 512-521