

**Ryan Barbaro**  
**Clinical Associate Professor in Pediatrics**  
**barbaror@umich.edu**

**Education and Training**

**Education**

08/2000-05/2004      BS, University of North Carolina, Chapel Hill, NC  
08/2004-05/2008      MD, University of North Carolina School of Medicine, Chapel Hill, NC  
07/2013-08/2014      MS, University of Michigan Rackham Graduate School, Ann Arbor, MI

**Postdoctoral Training**

06/2008-06/2011      Residency, Pediatrics, University of North Carolina, Chapel Hill, NC  
07/2011-06/2014      Clinical Fellow, Peds Critical Care, University of Michigan, Ann Arbor, MI  
07/2013-06/2015      Research Fellow, Pediatric Health Services Research, University of Michigan, Ann Arbor, Michigan

**Professional Training**

02/2023-06/2023      Adaptive Leadership by Jill Hufnagel and Tim Steffensmeier of Kansas Leadership Center at the University of Michigan, Ann Arbor, MI  
03/2019-09/2019      Leadership Academy University of Michigan, Ann Arbor, MI

**Certification And Licensure**

**Certification**

07/2008-07/2015      American Heart Association, Pediatric Advanced Life Support  
07/2011-07/2014      American Heart Association, Advanced Cardiovascular Life Support  
07/2011-07/2014      American Heart Association, Pediatric Advanced Life Support Instructor  
10/2011-12/2020      American Board of Pediatrics, General Pediatrics  
11/2014-11/2024      American Board of Pediatrics, Pediatric Critical Care Medicine

**Licensure**

04/2011-Present      Michigan, Medical License  
04/2011-Present      Michigan, Controlled Substance  
05/2011-Present      Michigan, DEA License

**Work Experience**

**Academic Appointment**

07/2014-10/2017      Clinical Lecturer in Pediatrics - Intensive Care, University of Michigan, Ann Arbor  
10/2017-09/2021      Clinical Assistant Professor in Pediatrics - Intensive Care, University of Michigan, Ann Arbor  
09/2021-Present      Clinical Associate Professor in Pediatrics - Intensive Care, University of Michigan, Ann Arbor

**Administrative Appointment**

08/2014-02/2018      Pediatric ECMO Co-Director, Department of Pediatrics, University of Michigan, Ann Arbor

03/2018-Present Pediatric ECMO Director, Department of Pediatrics, University of Michigan, Ann Arbor  
09/2021-Present Service Chief, Pediatric Critical Care, University of Michigan, Ann Arbor  
09/2022-Present Associate Director of the Susan B. Meister Child Health Evaluation and Research (CHEAR) Center, University of Michigan, Ann Arbor

### **Academic Center/Institute Appointment**

07/2015-Present Core Faculty, Department of General Pediatrics, Child Health Education and Research (CHEAR), Ann Arbor  
05/2016-Present Member, Institute for Healthcare Policy and Innovation, Ann Arbor  
05/2016-Present Member, Michigan Center for Integrative Research in Critical Care (MCIRCC), Ann Arbor

### **Clinical Appointments**

07/2014-Present Attending Staff Physician, University of Michigan Health System, Ann Arbor

### **Research Interests**

My research has focused on improving extracorporeal membrane oxygenation (ECMO) support in children and seeking to better understand and improve the neurodevelopmental outcomes for children receiving ECMO support.

### **Clinical Interests**

Extracorporeal Membrane Oxygenation (ECMO) Support for Respiratory Failure; Pediatric Acute Respiratory Distress Syndrome; Long-Term Neurodevelopment and Quality of Life Outcomes after Critical Illness and ECMO Support

### **Clinical Track Scholarly Contribution**

#### **Clinician-Research Scholar**

My scholarly contributions have focused on improving ECMO support in children. ECMO is a form of advanced life support that can be used in children with refractory or cardiac failure. Within ECMO, my research has focused on three broad categories: developing risk adjustment models for ECMO-supported patients, analyzing how hospital structure and processes of care influence patient outcomes and studying the neurodevelopmental outcomes of ECMO survivors.

### **Grants**

#### **Current Grants**

Building REgional Alliances to Advance Treatment and Health Equity in respiratory failure (BREATHE)  
Co-I (Principal Investigator: Joseph Kohne- Faculty Mentee)  
University of Michigan Research Scouts  
01/2024-01/2026  
100,000

The effect of obesity in adolescents and young adults supported with ECMO for COVID-19  
Co-I (Principal Investigator: Cecilia Gallego Suarez- Fellow Mentee)  
Department of Pediatrics Resident and Fellow Research Grant Program, University of Michigan  
12/2023-06/204  
5,000

Evaluating Lung injury through Exhaled Volatile compounds and redox potential to predict ARDS and its Trajectory in childrEn (ELEVATE)  
PI  
Weil Institute's Kahn Grand Challenge, University of Michigan

06/2023-06/2024  
\$100,000

TRAPPARDS- TRAjectory Prediction in Pediatric ARDS  
Co-I (Principal Investigator: Joseph Kohne- Faculty Mentee)  
MICHR K12 Mentored Clinical Scientist Career Development Award, National Center for Advancing  
Translational Sciences (NCATS)  
5/2023-8/2025  
\$250,000

W81XWH2210301: Trial of Indication-based Transfusion of Red Blood Cells in ECMO:  
Site PI (Principal Investigator: Lynn Sleeper)  
Army-DoD-US-SubK sourced funding through Children's Hospital Corporation  
07/2022 - 06/2024  
\$192,260

UH3HL159134: Pediatric Influence of Cooling duration on Efficacy in Cardiac Arrest Patients (P-ICECAP)  
Site PI: (Principal Investigator: Frank Moler)  
NIH-DHHS-US  
09/2021-08/2028

R01NS133142: Predicting ECMO NeuroLogIcal Injuries using mAchiNe Learning (PELICAN):  
Site PI (Principal Investigator: Lakshmi Raman)  
NIH-DHHS-US -SubK sourced funding through Children's Hospital Corporation  
07/2023 - 05/2028  
\$50,000

R01HL153519:ASCEND (ARDS in Children and ECMO initiation strategies impact on Neuro-Development):  
PI  
NIH-DHHS-US  
09/2020 - 06/2025  
\$3,423,802

**Submitted - Not Funded**

Monitoring of respiratory disease progression in children using vibrational signature of cardiopulmonary  
activity and a privileged machine learning approach:  
PI  
NSF-US sourced funding through CardioSounds, LLC  
02/2022 - 01/2023  
\$80,226

K23HD102590:Measuring the long-term consequence of pediatric severe sepsis:  
Consultant on (Principal Investigator: Erin Carlton)  
NIH-DHHS-US  
04/2021 - 03/2026  
\$837,000

K23HD102590:Measuring the long-term consequence of pediatric severe sepsis:  
Consultant on (Principal Investigator: Erin Carlton)  
NIH-DHHS-US  
07/2020 - 06/2025  
\$837,000

**Submitted - Open**

R01:A Novel Nitric Oxide Donor for Surface Anticoagulation:

Co-I (Principal Investigator: Orsolya Lautner-Csorba)  
NIH-DHHS-US  
07/2024 - 06/2028  
\$3,105,753

### **Past Grants**

Following Outcomes after Critical Illness: (FOCI)  
Co-I (Principal Investigator: Joseph Kohne- Faculty Mentee)  
CHEAR, University of Michigan  
09/2020 - 08/2021  
\$25,000

Socioeconomic Status as a Predictor of Pediatric Sepsis Morbidity and Mortality:  
Co-I (Principal Investigator: Kayla Phelps- Fellow Mentee)  
Diversity Equity and Inclusion (DEI) Trainee Grant, Department of Pediatrics  
09/2020 - 08/2021  
\$5,000

Supporting PARDS with Restricted versus Unrestricted Candidacy for ECMO (SPRUCE):  
PI  
Charles Woodson Pilot Research Award  
12/2018 - 12/2019  
\$35,000

K12HL138039: Training to Advance Care Through Implementation Science in Cardiac And Lung Illnesses  
(TACTICAL):  
Co-I  
NIH-DHHS-US  
09/2017 - 06/2023  
\$3,111,296

R01HD015434: Pediatric Implantable Artificial Lung:  
Co-I (Principal Investigator: Ronald Hirschl)  
NIH-DHHS-US  
09/2017 - 05/2023  
\$2,972,255

Automated Diagnosis of Pediatric Acute Respiratory Distress better than Clinical Recognition?:  
PI  
Charles Woodson Pilot Research Award  
07/2017 - 07/2018  
\$15,000

Development of a Case-Mix Adjustment Index to Compare Standardized Mortality Rate for Children  
Requiring Extracorporeal Membrane Oxygenation:  
PI  
Extracorporeal Life Support Organization (ELSO)  
02/2016 - 07/2019  
\$10,000

Predictors of Extracorporeal Life Support Outcomes in Infant Pertussis:  
Co-I (Principal Investigator: Michelle Domico)  
Extracorporeal Life Support Organization Research Grant  
12/2014 - 12/2016  
\$5,000

Developing and Applying an Extracorporeal Membrane Oxygenation Severity of Illness Index Score:

PI  
Extracorporeal Life Support Organization (ELSO) Research Grant  
01/2014 - 12/2015  
\$4,700

T32 F025206-064171, NIH-09-PAF03051: Training Grant for Pediatric Health Services Research:  
National Institute of Child Health and Human Development  
07/2013 - 12/2015  
\$150,000

## **Honors and Awards**

### **International**

2014 Young Investigator Award, Euro Extracorporeal Life Support Organization

### **National**

2014 Travel Award Program for Young Investigators, Pediatric Academic Society

2017 Star Research Achievement Award, Society of Critical Care Medicine

2019 Presidential Citation, Society of Critical Care Medicine

2022 - present Fellowship, Extracorporeal Life Support Organization

### **Regional**

2008 David A Mayberry Award. Awarded for compassion and clinical scholarship in the care of children with cancer

2011 Evening of Scholarship Merit Award

### **Institutional**

2012 Making a Difference Award

### **Departmental**

2023 Excellence in Clinical or Health Services Research, 2023 Chair's Award, Pediatrics,

## **Study Sections, Editorial Boards, Journal & Abstract Review**

### **Study Sections**

#### **National**

2020 National Institutes of Health Surgery, Anesthesiology and Trauma, (Ad Hoc)

2021 - present Chair, Data Safety Monitoring Board for the NICHD funded randomized clinical trial Catheter-Related Early Thromboprophylaxis with Enoxaparin (CRETE) Studies, (Ad Hoc)

2021 Reviewer, National Institutes of Health Surgery, Anesthesiology and Trauma Study Section, (Ad Hoc)

2022 Reviewer, National Institutes of Health, Clinical Trials Review Study Section, (Ad Hoc)

#### **Institutional**

2021 - present Member, Data Safety and Monitoring Board, Fetal Endoscopic Tracheal Occlusion (FETO) Trial for Congenital Diaphragmatic Hernia (CDH), (Ad Hoc)

### **Editorial Boards / Journal & Abstract Reviews**

#### **Editorial Boards**

2023 - present Member, Editorial Board, Pediatric Critical Care Medicine

## **Journal Review**

2013 - present	Reviewer, Perfusion Journal (Ad Hoc)
2015 - present	Reviewer, Pediatric Critical Care Medicine (Ad Hoc)
2017 - present	Reviewer, Critical Care Medicine (Ad Hoc)
2017 - present	Reviewer, ASAIO (Ad Hoc)
2019 - present	Reviewer, Circulation (Ad Hoc)
2019 - present	Reviewer, New England Journal of Medicine Catalyst (Ad Hoc)
2020 - present	Intensive Care Medicine (Ad Hoc)
2020 - present	Reviewer, Critical Care (Ad Hoc)
2020 - present	Reviewer, American Thoracic Society

## **Teaching**

### **Mentorship**

#### **Resident**

07/2014-06/2017	Asaad Beshish, University of Michigan, Pediatric Critical Care Medicine fellow. Dr. Beshish authored manuscript #14, and abstract #13 was awarded Best Abstract at ECMO and the Advanced Therapies for Cardiovascular and Respiratory Failure Conference 2020. Currently, he is faculty at the Children's Hospital of Atlanta as a pediatric cardiac intensivist, Career Mentorship
07/2014-06/2017	Lauren Yagiela, University of Michigan, Pediatric Critical Care Medicine fellow. With my mentorship, Dr. Yagiela completed the University of Michigan health and healthcare masters program and authored manuscript #22. Currently, she is faculty at Detroit Medical Center. She has received a Career Mentorship Award from the NIH and is a Co-Investigator on R01 evaluating long-term outcomes after cardiac arrest.
07/2015-06/2018	Erin Carlton, University of Michigan, Pediatric Critical Care Medicine fellow. During fellowship, Dr. Carlton published manuscript #37. Currently, she is faculty at the University of Michigan, Pediatric Critical Care Division, Career Mentorship
07/2016-06/2019	Joseph Kohne, University of Michigan, Pediatric Critical Care Medicine fellow. During fellowship, Dr. Kohne completed a research project published. Currently, he is faculty at the University of Michigan, Pediatric Critical Care Division, Career Mentorship
07/2016-06/2019	Stephen Gorga, University of Michigan, Pediatric Critical Care Medicine fellow. During fellowship, Dr. Gorga published manuscript #40. Currently, he is faculty at the University of Michigan. He is the associate fellowship director of Pediatric Critical Care Division, Career Mentorship
07/2017-07/2021	Sarah Harding, University of Michigan, Pediatric Critical Care Medicine fellow. Dr. Harding is a faculty member at Upstate Golisano Children's Hospital, Career Mentorship
07/2018-07/2021	Rachel Clarke, University of Michigan, Pediatric Critical Care Medicine fellow. During fellowship, Dr. Clarke completed a prospective study evaluating consent in children receiving ECMO support. She is a faculty member at Upstate Golisano Children's Hospital, Career Mentorship
07/2019-08/2022	Kayla Phelps, University of Michigan, Pediatric Critical Care Medicine fellow. Dr. Phelps was awarded a department of pediatrics intramural Diversity Equity and Inclusion (DEI) Trainee Grant to study disparities in health care among critically ill children and published manuscript #71. She is currently faculty at Children's Hospital New Orleans, Career Mentorship
07/2020-06/2023	Michael Stevens, University of Michigan, Pediatric Critical Care Medicine fellow. Dr. Stevens has focused on implementation of a pediatric sepsis alert system,

Career Mentorship. Dr. Stevens is faculty at University of Illinois, College of Medicine in Peoria.

07/2023-Present Cecilia Gallego Suarez, University of Michigan, Pediatric Critical Care Medicine fellow. Dr. Gallego has focused on effects of obesity on ECMO survival using COVID-19 as a model, Career Mentorship. Dr. Gallego applied for and has been awarded a grant through the Pediatrics Resident and Fellow Research Grant Program.

### **Faculty Member**

07/2018-Present Erin Carlton, University of Michigan, Pediatric Critical Care Medicine faculty. With my mentorship, Dr. Carlton completed the health and healthcare masters program. I am a co-mentor for Dr. Carlton's implementation science career development award funded by National Institute of Heart, Blood, and Lung Institute (NHLBI). Dr. Carlton has been awarded multiple R03s from the Agency for Healthcare Research and Quality (AHRQ). She is the associated fellowship director for research.

07/2019-Present Joseph Kohne, University of Michigan, Pediatric Critical Care Medicine faculty. With my mentorship, Dr. Kohne completed the health and healthcare masters program and was awarded a CHEAR Center Program Grant and a K12 for which I am the senior investigator and mentor, Career Mentorship

07/2019-Present Stephen Gorga, University of Michigan, Pediatric Critical Care Medicine faculty. With my mentorship, Dr. Gorga primary completed the health and healthcare masters program, and I am currently mentoring his writing of an R01 grant for Early Stage Investigators. Career Mentorship

07/2022-Present Erica Andrist, University of Michigan, Pediatric Critical Care Medicine faculty. With my mentorship, Dr. Andrist has been awarded a masters in Biomedical Ethics and applied for and was awarded a supplement to ASCEND R01HL153519, named Terminal Decannulation from ECLS in the Pediatric Patient: A Normative and Empiric Analysis of Current Practice.

01/2023-Present Shubhi Kaushik, Icahn School of Medicine at Mount Sinai, Pediatric Critical Care Medicine faculty. With my mentorship, Dr. Kaushik has been awarded a awarded an ELSO Research Grant to study Bivalirudin versus Heparin use in Children on ECMO.

### **Teaching Activity**

#### **Institutional**

01/2012-Present The Department of Pediatrics, University of Michigan: Pediatric Critical Care Medicine Didactic Lecture Series, given to residents and fellows. Titles of lectures include: Bronchiolitis and the Mechanical Ventilator: Lessons in Physiology, Evidence for the Oscillator, Lactic Acidosis, ECMO Physiology, Statistics, University of Michigan

03/2012-03/2012 The Department of Pediatrics, University of Michigan: Joint Critical Care Lecture Series, "Postoperative Management in Liver Transplant Patients", University of Michigan

07/2012-06/2017 The Department of Pediatrics, University of Michigan: Lectures given monthly to resident and fellow trainees during their rotation through the PICU. Titles of lectures include: Extracorporeal Membrane Oxygenation, Rescue Therapies in Acute Respiratory Distress Syndrome, and Sedation and Neuromuscular Blockade., University of Michigan

07/2013-06/2016 The Department of Pediatrics, University of Michigan: Simulate mock codes, twice monthly, with pediatric resident trainees and medical students, University of Michigan

07/2014-Present The Department of Pediatrics, University of Michigan: As an attending physician, I supervise and actively teach during clinical rounds in the PICU for a week every

month. Learners include medical students, nurse practitioner students, nurses, residents and fellows., University of Michigan

01/2015-01/2015	The Department of Pediatrics, University of Michigan: Child and Health Evaluation and Research (CHEAR) Unit Health Services Research Seminar Series, "The Best Path Forward to Pediatric ECMO", University of Michigan
03/2015-03/2015	The Department of Pediatrics, The University of Michigan: Pediatric Grand Rounds, "A Path Forward in Pediatric ECMO", University of Michigan
07/2015-06/2018	The Department of Pediatrics, University of Michigan: Quarterly interdepartmental conferences involving pediatric surgery, pediatric critical care medicine and other invitees to discuss best practice in pediatric ECMO care., University of Michigan
06/2022-present	C.S. Mott Children's Hospital Michigan, Co-Lead of the Clinical ECMO Simulations. They are held every other month. Simulations are based in the ICU and include the multidisciplinary participation and use of a novel cannulation model.
07/2023-present	C.S. Mott Children's Hospital Michigan, Co-Lead of Pediatric ECMO Clinical Curriculum. The curriculum spans two years and aims to support the development of experts and leaders in the clinical application of ECMO services across pediatric populations. Trainees include pediatric residents or fellows, surgical residents or fellows, nurse practitioners, physician assistants, faculty, ECMO Specialists, Nurses, Respiratory Therapists and Pharmacists. Lectures delivered monthly from local and international experts.

## **Memberships in Professional Societies**

2008 - Present	Fellow, American Academy of Pediatrics
2011 - Present	Member, Society of Critical Care Medicine
2012 - Present	Member, Society of Pediatric Research
2016 - Present	Member, Extracorporeal Life Support Organization
2021 - Present	Member, American Heart Associate Cardiogenic Shock Registry

## **Committee/Service**

### **International**

2015 - present	Research Grants Committee, Extracorporeal Life Support Organization, Member
2016 - present	Registry Committee for Extracorporeal Life Support Organization, ELSO, Chair
2020 - present	Pediatric Acute Lung Injury Consensus Conference (PALICC2), an international committee aimed at updating the definition of pediatric acute respiratory distress syndrome and identifying consensus statements on best care, Pediatric Acute Lung Injury Consensus Conference, Member
2021	ELSO Conference Committee for ELSO's 32nd Annual Conference, ELSO Conference Committee, Member
2022 - present	PediECMO, Pediatric Acute Lung Injury and Sepsis Investigator, Co-Chair

### **National**

2017 - 2020	White Paper Task Force, Society of Critical Care Medicine and Extracorporeal Life Support Organization, Chair
2019 - present	Anticoagulation Collaborative (PEACE), Pediatric ECMO, Advisory Board
2021 - present	Cardiogenic Shock Registry, American Heart Association, Member
2021	National Heart, Lung, and Blood Institute (NHLBI): Implementation Science Capacity Building Workshop, NHLBI, Member

### **Institutional**



2013 - 2014	Quality & Safety Committee, Department of Pediatrics, University of Michigan, C.S. Mott Children's & Women's Hospital, Advisor
2014 - present	Clinical ECMO Management Committee, Department of Nursing ECMO Overhead, University of Michigan, ECMO, Advisor
2014 - 2016	Fellowship Oversight Committee, Department of Pediatrics, University of Michigan, Member
2016 - present	Clinical Competency Committee, Department of Pediatrics, University of Michigan, Member
2016 - present	ECMO, University of Michigan, Director
2020 - present	PICeW Committee, Department of Pediatrics, University of Michigan, Founder
2021 - present	Committee on Pediatric Trauma, Department of Pediatrics, University of Michigan, Board Liaison
2021 - 2022	Pediatric Critical Care Medicine Faculty Recruitment Committee, University of Michigan, Chair
2022 - present	Intramural Grants Program, Department of Pediatrics, University of Michigan, Member
2022 - present	Kahn Pediatric Critical Care Grand Challenge, Oversight Committee, Weil Institute, Member
2022 – present	Internal Advisory Board, The Max Harry Weil Institute for Critical Care Research and Innovation, Member
2023-2024	Susan B. Meister Child Health Evaluation And Research (CHEAR) Center Division Chief Faculty Recruitment Committee, University of Michigan, Member

## Scholarly Activities

### Presentations

#### Extramural Invited Presentation

##### Speaker

1. Extracorporeal Life Support, Cardiopulmonary Bypass Support Course, 06/2007, University of Iowa Hospitals
2. Intersections of Extracorporeal Membrane Oxygenation (ECMO) and Hematopoietic Stem Cell Transplant, Pediatric Acute Lung Injury and Sepsis Investigators (PALISI), 03/2014, San Diego, CA
3. Hospital ECMO Volume and ECMO Mortality Rates: Analysis of the ELSO Registry, 25th Anniversary ELSO Conference, 09/2014, San Diego, CA
4. Outcome in Extracorporeal Membrane Oxygenation, 31st Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, 02/2015, San Diego, CA
5. When is Lung Injury Unrecoverable?, 31st Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, 02/2015, San Diego, CA
6. ECMO Dilemmas, 32nd Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, 02/2016, San Deigo, CA
7. ECMO Outcomes, 27th Annual ELSO Conference, 09/2016, San Diego, CA
8. Long Term ECMO – How Long is Too Long?, 33rd Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, 03/2017, San Diego, CA
9. Extracorporeal Resuscitation Consortium Registry, ECPR Research Meeting, 04/2017, Ottawa, Canada
10. ELSO Registry: What's New?, 6th Annual International EuroELSO Congress, 05/2017, Maastricht, Netherlands

11. ELCS and Big Data: Driving Innovation and Outcome, 63rd Annual ASAIO Conference, 06/2017, Chicago, Illinois
12. Let's Measure the Quality of Your ECMO, 28th Annual ELSO Conference, 09/2017, Baltimore, MD
13. Success: Negotiating What You Need, Setting a Realistic Timeline, Competing Priorities (How and When to Say "no"), PALISI Faculty Course: Building your clinical research career, 09/2017, San Diego, CA
14. Data Governance, Oversight and Uses – What are the Challenges, Requirements and Important Next Steps, Federal Drug Administration Cardiac Device Coordinated Research Network Kick-off Event, 11/2017, Silver Spring, MD
15. ELSO Registry for the New Era, 34th Annual Children's National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, 02/2018, Keystone, CO
16. Hospital Variation in Pediatric In-patient ECMO Cost, 7th Annual International EuroELSO Congress, 05/2018, Prague, Czech Republic
17. ELSO as Research Infrastructure, 9th Annual World Congress on Pediatric Intensive and Critical Care, 06/2018, Singapore
18. What's New in The ELSO Registry, 29th Annual ELSO Conference, 09/2018, Scottsdale, AZ
19. Papers from The ELSO Registry, 29th Annual ELSO Conference, 09/2018, Scottsdale, AZ
20. Realizing the Value of the ELSO Registry, 6th Annual ELSO Conference, 11/2018, Santiago, Chile
21. Implementing Improvement with the ELSO Registry, 6th Annual ELSO Conference, 11/2018, Santiago, Chile
22. ECMO Volume and Outcome, 6th Annual ELSO Conference, 11/2018, Santiago, Chile
23. Risk Stratification and Outcomes in ECMO: Can We Identify High Risk Cardiac Patients?, 14th Annual Pediatric Cardiac Intensive Care Society, 12/2018, Miami, FL
24. ELSO Registry Update, 30th Bi-Annual ELSO Steering Committee Meeting, 02/2019, Denver, CO
25. ARDS in Children and ECMO initiation strategies' impact on Neuro-Development (ASCEND): a research proposal, Pediatric Acute Lung Injury and Sepsis Investigators Meeting, 03/2019, Snowbird, UT
26. ELSO Registry Update, 30th Annual ELSO Conference, 09/2019, Austin, TX
27. Early Venovenous ECMO Cannulation for Severe Pediatric ARDS, Society of Critical Care Medicine, 02/2020, Orlando, FL
28. Advancing Pragmatic Priorities & Pathways in Shock Research, Cardiac Safety Research Consortium, Cardiac Safety Research Consortium, 02/2020, National Harbor, MD
29. ARDS in Children and ECMO initiation strategies' impact on Neuro-Development (ASCEND), Pediatric Acute Lung Injury and Sepsis Investigators, 03/2020, New Orleans, LA
30. Data Matters: The ELSO Registry, ELSO COVID-19, ELSO, 06/2020, Virtual Webinar
31. Using the ELSO Registry to Improve Local Practice, 31st Annual ELSO Meeting, ELSO, 09/2020, Virtual Meeting
32. ECMO in COVID-19: An International Cohort Study of the ELSO Registry, 31st Annual ELSO Meeting, ELSO, 09/2020, Virtual Meeting
33. ELSO Registry Update, 31st Annual ELSO Meeting, ELSO, 09/2020, Virtual Meeting
34. ECMO in COVID-19, Jefferson Health COVID-19 and ECMO Webinar Series, 10/2020, Virtual Presentation
35. COVID in Adult and Pediatric ECMO per the Registry, The 37th Annual Children's National Symposium: ECMO & Advanced Therapies for Cardiac & Respiratory Failure, 02/2021, Virtual Presentation

36. ECMO in COVID-19, Canadian Cardiovascular Critical Care Society (CANCARE), 02/2021, Virtual Presentation
37. Investigator Update ASCEND, PALISI, 03/2021, Virtual Presentation
38. Observational Registries: Successes, Pitfalls, What Can Be Fixed Now, and Future Collaborations, Cardiac Safety Research Consortium, 03/2021, Virtual
39. ECMO in COVID-19: The World Experience, ECMO-day for the International Symposium on Intensive Care and Emergency Medicine, 04/2021, Virtual
40. Benchmarking Paediatric ECMO in the Face of Practice Variations, American Society of Extracorporeal Technology (AmSECT) 59th International Conference (Virtual), 05/2021, Virtual
41. Late-Breaking Research from The Lancet: ECMO for COVID-19: Evolving Outcomes from the International ELSO Registry, Plenary Session, ELSO's 32nd Annual Conference, 09/2021, Virtual
42. Using Real-World Data for ECMO Regulatory Reports: Challenges and Potential Solutions, ELSO's 32nd Annual Conference, 09/2021, Virtual
43. ECLS strategies for lung failure in COVID-19, 35th Annual European Association for Cardio-Thoracic Surgery (EACTS), 10/2021, Barcelona
44. ECMO support in PARDS and COVID-19, Stanford Pediatric Critical Care Fellows Conference, 11/2021, Palo Alto, CA (Virtual)
45. Respiratory ECMO Support in Children, Children's Healthcare of Atlanta, Critical Care Medicine Seminar Respiratory ECMO Support in Children, 02/2022, Atlanta, Georgia
46. Will the Next Decade Bring Accelerating ECMO Utilization (as after 2009 H1N1 pandemic)?, 8<sup>th</sup> Annual SWAAC ELSO Conference, 02/2022, Riyadh, Kingdom of Saudi Arabia
47. Utilizing ELSO Registry to Improve Patient Outcomes and Update, 8th Annual SWAAC ELSO Conference 2022, 02/2022, Riyadh, Kingdom of Saudi Arabia
48. ECMO in PARDS- Is it worth it?, UK's Paediatric Critical Care Society (PCCS) Webinar, 03/2022, London, UK (Virtual)
49. ELSO Registry Update, Barbaro R, 33rd Annual ELSO Conference, 09/2022, Boston, MA
50. Real World Data for Regulatory Evaluation of ECMO: FDA, Device Developers and Registry, Barbaro R, 33rd Annual ELSO Conference, 09/2022, Boston, MA
51. Common Implementation Research Study Designs, Barbaro R, PALISI, 09/2022, Indianapolis, IN
52. How to Measure Comparative Outcomes Using ELSO Data, Barbaro R, ECMO and Advanced Therapies for Respiratory Failure Symposium, 02/2023, Keystone, CO
53. ECMO-Core Elements Needed for Trials Regulation And quality of Life (ECMO-CENTRAL): Adverse Events for Clinical Trials, Barbaro R, PALISI, 03/2023, Lake Tahoe, CA
54. Optimising outcomes VV-ECMO. Barbaro RP, 11<sup>th</sup> EuroELSO Conference 05/2023, Lisbon, Portugal
55. Tracheostomy in Pediatric ECMO. Barbaro RP, 11<sup>th</sup> EuroELSO Conference 05/2023, Lisbon, Portugal
56. ARDS in Children and ECMO initiation strategies impact on Neuro-Development (ASCEND) Overview and update. 11<sup>th</sup> EuroELSO Conference 05/2023, Lisbon, Portugal
57. Pediatric ECMO evolution, science, future. Grand Rounds. 08/2023, Advent Health for Children, Orlando Florida (Virtual)
58. Leveraging Registries to Support Your ECMO Work. 34<sup>th</sup> ELSO Conference 09/2023, Seattle, WA
59. ECMO-Core Elements Needed for Trials Regulation And quality of Life (ECMO-CENTRAL) 34<sup>th</sup> ELSO Conference 09/2023, Seattle, WA
60. Real world data analyses for ECMO device regulatory clearance Pediatric ECMO Anticoagulation

Collaborative (PEACE) Research Priorities Meeting, 09/2023, Boston, MA

61. ECMO for COVID-19: evolving outcomes since 2020. 6<sup>th</sup> Asia-Pacific ELSO Seoul, South Korea, 11/2023.

62. Does the Timing of ECMO Cannulation Modify Patient Outcomes in Children Supported With ECMO for Respiratory Failure? 2024 Society of Critical Care Medicine (SCCM), 01/2024, Phoenix, AZ

63. Inova 2024 ECMO Symposium: Contemporary Concepts in Extracorporeal Life Support, 03/2024 Fairfax, VA

64. First Hours After ECPR, 12<sup>th</sup> EuroELSO Conference 04/2024, Krakow, Poland

65. Sepsis on ECMO, 12<sup>th</sup> EuroELSO Conference 04/2024, Krakow, Poland

66. Management of Traumatic Injuries with ECMO, 12<sup>th</sup> EuroELSO Conference 04/2024, Krakow, Poland

67. The ARC-Central Consensus, 12<sup>th</sup> EuroELSO Conference 04/2024, Krakow, Poland

### **Moderator**

1. ECMO and Anticoagulation, BloodNet and PALISI Sponsored Debates, 03/2021, Virtual

2. Making the Most of the ELSO Registry, ELSO's 32nd Annual Conference, 09/2021, Virtual

3. Neonatal and Pediatric ECMO Research, 12<sup>th</sup> EuroELSO Conference 04/2024, Krakow, Poland

### **Intramural Invited Presentation**

#### **Speaker**

1. A Path Forward in Pediatric ECMO, CME, Pediatric Grand Rounds, University of Michigan, 03/2015  
Anticoagulation and Pharmacologic Management, CME, ECMO Specialist Training Course, The

University of Michigan; these were for non-UofM affiliates, 10/2017, Ann Arbor, MI

2. ECMO for Respiratory Failure and VV ECMO, CME, ECMO Specialist Training Course, The University of Michigan; these were for non-UofM affiliates, 10/2017, Ann Arbor, MI

3. Anticoagulation and Pharmacologic Management, CME, ECMO Specialist Training Course, The University of Michigan; these were for non-UofM affiliates, 11/2017, Ann Arbor, MI

4. Anticoagulation and Pharmacologic Management, CME, ECMO Specialist Training Course, The University of Michigan; these were for non-UofM affiliates, 04/2018, Ann Arbor, MI

### **Publications/Scholarship**

(Co-First Author \*; Corresponding author \*\*; Co-Last author \*\*\*)

### **Peer-Reviewed**

#### **Journal Article**

1. Nadler JJ, Moy SS, Dold G, Trang D, Simmons N, Perez A, Young NB, **Barbaro RP**, Piven J, Magnuson TR, Crawley JN: Automated apparatus for quantitation of social approach behaviors in mice. *Genes, Brain and Behavior*.3(5): 303-314, 10/2004. PM15344923

2. Moy SS, Nadler JJ, Perez A, **Barbaro RP**, Johns JM, Magnuson TR, Piven J, Crawley JN: Sociability and preference for social novelty in five inbred strains: An approach to assess autistic-like behavior in mice. *Genes, Brain and Behavior*.3(5): 287-302, 10/2004. PM15344922

3. Moy SS, Nadler JJ, Young NB, Perez A, Holloway LP, **Barbaro RP**, Barbaro JR, Wilson LM, Threadgill DW, Lauder JM, Magnuson TR, Crawley JN: Mouse behavioral tasks relevant to autism: Phenotypes of 10 inbred strains. *Behavioural Brain Research*.176(1): 4-20, 01/2007. PM16971002

4. **Barbaro RP**, Odetola FO, Kidwell KM, Paden ML, Bartlett RH, Davis MM, Annich GM: Association of hospital-level volume of extracorporeal membrane oxygenation cases and mortality. Analysis of the extracorporeal life support organization registry. *Am J Respir Crit Care Med.*191(8): 894-901, 04/2015. PM25695688
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9. Thiagarajan RR, **Barbaro RP**, Rycus PT, McMullan DM, Conrad SA, Fortenberry JD, Paden ML: Extracorporeal Life Support Organization Registry International Report 2016. *ASAIO J.*63(1): 60-67, 01/2017. PM27984321
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