

**Ryan Barbaro, M.D., M.S.**  
Clinical Lecturer  
Pediatric Critical Care Medicine  
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## **EDUCATION**

<i>Undergraduate</i>	BS, <i>summa cum laude</i> University of North Carolina Chapel Hill, North Carolina Major: Biology and Psychology	08/2000 - 05/2004
<i>Professional</i>	MD University of North Carolina School of Medicine Chapel Hill, North Carolina	08/2004 - 05/2008
	MS University of Michigan Rackham Graduate School Ann Arbor, Michigan Master's: Health and Health Care Research	07/2013 – 08/2014

## **TRAINING**

<i>Residency</i>	Pediatrics North Carolina Children's Hospital University of North Carolina Chapel Hill, North Carolina	06/2008 - 06/2011
<i>Fellowship</i>	Pediatric Critical Care Medicine C.S. Mott Children's Hospital University of Michigan Ann Arbor, Michigan	07/2011 – 06/2014
	Pediatric Health Services Research Child Health Evaluation and Research Unit University of Michigan Ann Arbor, Michigan	07/2013 – 06/2015

## **CERTIFICATE AND LISCENSURE**

- 2008 – Present      Pediatric Advanced Life Support (PALS), Certified
- 2011 – Present      Advanced Cardiovascular Life Support (ACLS), Certified
- 2011 – Present      Pediatric Advanced Life Support (PALS) Instructor, Certified
- 2011 - Present      State of Michigan Medical License, Permanent ID 4301098022
- 2011 – Present      Diplomate of the American Board of Pediatrics  
General Pediatrics, Certificate Number 99484
- 2014 – Present      Diplomate of the American Board of Pediatrics  
Pediatric Critical Care Medicine Sub-board, Certificate Number 2146

## **ACADEMIC, ADMINISTRATIVE, AND CLINICAL APPOINTMENTS**

- 07/2014 – Present    Clinical Lecturer, Department of Pediatrics, University of Michigan
- 07/2014 – Present    Attending Staff Physician, University of Michigan Health System

## **RESEARCH INTERESTS**

My research work focuses on understanding the structure, process and outcomes of critically ill children requiring extracorporeal membrane oxygenation (ECMO) support. I am also working to develop a severity of illness measure for children requiring respiratory ECMO. Accounting children's severity of illness prior to ECMO will allow me to better understand how structure and process may relate to improved ECMO outcomes. This work has been facilitated by a collaborative and maturing relationship with an international registry, the Extracorporeal Life Support Organization.

## **GRANTS**

- 01/2014 – 12/2015    *Principal Investigator*, Developing and Applying an Extracorporeal Membrane Oxygenation Severity of Illness Index Score  
Extracorporeal Life Support Organization Research Grant  
Total Cost: \$4,700

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

07/2013 – 06/2015 *Trainee*, Training Grant for Pediatric Health Services Research  
(Principal Investigator: Matt Davis)  
NICHD, NIH T32 (F025206 - 064171) Grant

## **HONORS AND AWARDS**

2003 Phi Beta Kappa

2003 Volunteer of the Year Award for Interfaith Council

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

2011 Evening of Scholarship Merit Award

2012 Making a Difference Award

2014 Travel Awards Program for Young Investigator's, Pediatric Academic Society

2014 Young Investigator Award, Euro Extracorporeal Life Support Organization

## **Membership in Professional Societies**

2008 - Present Fellow, American Academy of Pediatrics

2011 - Present Society of Critical Care Medicine

2012 - Present Society of Pediatric Research

## **EDITORIAL POSITIONS, BOARDS, AND PEER REVIEW**

12/2013 - Present Reviewer, *Perfusion Journal*

## **TEACHING ACTIVITIES**

### *Lectures*

- 2012-Present 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
  - Blood Product Transfusion
  - Sedation and Neuromuscular Blockade

### *Simulation*

2013 – Present Twice monthly simulate mock codes with pediatric resident trainees and medical students

### *Journal Club*

2014 – Present I oversee pediatric critical care fellows in selecting, interpreting and understanding statistical and research journals for fellow presentation of journal club

### *Teaching Rounds*

2014 – Present 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.

## **COMMUNITTEE, ORGNIZATIONAL, AND VOLUTEER SERVICE**

### *Departmental*

- 2013 – 2014 Pediatric Critical Care Medicine Representative for EPIC/MiChart Implementation. Mott Children & Women’s Hospital Quality & Safety Committee, University of Michigan
- 2014 – Present Fellowship Scholarly Oversight Committee Member

### *Health System*

2014 – Present Pediatric Critical Care Medicine Representative for Clinical ECMO Management, University of Michigan

### *National*

March 2012 Advocates for Youth Internship, Washington D.C.

## **EXTRAMURAL INVITED PRESENTATIONS**

03/2014 “Intersections of Extracorporeal Membrane Oxygenation (ECMO) and Hematopoietic Stem Cell Transplant”

- 09/2014 Pediatric Acute Lung Injury and Sepsis Investigators  
 “Hospital ECMO Volume and ECMO Mortality Rates: Analysis of the  
 ELSO Registry”  
 25<sup>th</sup> Anniversary ELSO Conference
- 02/2015 “Outcome in Extracorporeal Membrane Oxygenation”  
 31<sup>st</sup> Annual Children’s National Symposium: ECMO and the Advanced  
 Therapies for Respiratory Failure
- 02/2015 “When is Lung Injury Unrecoverable”  
 31<sup>st</sup> Annual Children’s National Symposium: ECMO and the Advanced  
 Therapies for Respiratory Failure

### **INTRAMURAL PRESENTATIONS**

- 01/2012 “Bronchiolitis and the Mechanical Ventilator: Lessons in Physiology”  
 Pediatric Resident Interest Group, University of Michigan
- 03/2012 “Postoperative Management in Liver Transplant Patients”  
 Joint Critical Care Lecture Series
- 06/2012 “Adjusting Our Humors: Part I Not Enough”  
 Pediatric Critical Care Didactic Lecture Series
- 03/2013 “Evidence for the Oscillator”  
 Pediatric Critical Care Didactic Lecture Series
- 11/2013 “Lactic Acidosis”  
 Pediatric Critical Care Didactic Lecture Series
- 12/2014 “Viral Induced Respiratory Failure”  
 Pediatric Surgery Didactic Lecture Series
- 01/2015 “The Best Path Forward in Pediatric ECMO”  
 Child Health Evaluation and Research (CHEAR) Unit Health Services  
 Research Seminar Series
- 03/2015 “A Path Forward in Pediatric ECMO”  
 University of Michigan Pediatric Grand Rounds

## **BIBLIOGRAPHY**

### *Peer-Reviewed Publications*

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 Behav* 2004; 3(5): 303–314.
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 Behav*. 2004;3(5): 287-302.
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. *Behav Brain Res*. 2007; 176(1): 4-20.
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*. 2015; 191(8): 894-901.

### *Non-Peer Reviewed Publications*

1. “A Comparison of Sociability and Social Preference in Three Inbred Strains of Mice” **R. Barbaro**. Honors essay: Dept. of Biology, University of North Carolina at Chapel Hill, 2003.

### *Manuscripts in Progress*

1. **R. Barbaro**, Y Kawai, M. Conte, M. Davis. Systematic Review of the Association between Hospital Volume and Mortality in Critically Ill Children. [under review PCCM]
2. **R. Barbaro**, R. Bartlett, A. Gebremariam, G. Annich, and M. Davis. Development and Testing of an Extracorporeal Membrane Oxygenation Severity of Illness Score for Neonates. [Manuscript in Progress]

### *Abstracts*

1. **Barbaro R**, Veit L, Munro B, and Redding-Lallinger R. “A Case of Sickle Cell Anemia, Vertebral Osteomyelitis, and a Decade of Follow Up” University of North Carolina Evening of Scholarship. March, 2011

2. **Barbaro R**, Seashore C, Bradford K, and Berkoff M. “Newborn Drug Screening at UNC: Evaluating Future Guidelines” University of North Carolina Evening of Scholarship. March, 2011
3. **Barbaro R**, Odetola F, Kidwell K, Paden M, Bartlett R, Davis MM and Annich G. “Association of Mortality with Hospital-Level Extracorporeal Membrane Oxygenation Patient Volume” Oral Presentation at the Society of Critical Care Medicine. San Francisco, CA. January, 2014
4. **Barbaro R**, Odetola F, Kidwell K, Bartlett R, Annich G, and Davis MM. “Mortality Association between Hospital-Level Annual Patient Volume and Respiratory Extracorporeal Membrane Oxygenation Cases” Oral Presentation at Pediatric Academic Society. Vancouver, British Columbia, Canada. May 3, 2014
5. **Barbaro R**, Odetola F, Kidwell K, Bartlett R, Davis MM and Annich G. “Association between Hospital Extracorporeal Membrane Oxygenation (ECMO) Volume and Mortality” Oral Presentation at European Extracorporeal Life Support Organization. Paris, France. May 3, 2014
6. **Barbaro R**, A Gebremariam, Annich G, and Davis MM. “Development and Testing of an Extracorporeal Membrane Oxygenation Severity of Illness Score for Neonatal and Pediatric Patients” Oral Presentation at Extracorporeal Life Support Organization Conference. Ann Arbor, Michigan September 15, 2014.
7. **Barbaro R**, Gebremariam A, Annich G, Davis MM. “Development and Testing of an Extracorporeal Membrane Oxygenation Severity of Illness Score for Neonatal and Pediatric Patients” Oral Presentation at University of Michigan Pediatric Research Symposium. Ann Arbor, Michigan. October 7, 2014.
8. **Barbaro R**, Jarboe M, Gadepalli S, Cornell TT, Ostwani W, Custer J, Annich GM. When is Lung Injury Unrecoverable? Oral Presentation at the 31<sup>st</sup> Annual Children’s National Symposium: ECMO and the Advanced Therapies for Respiratory Failure, Keystone, CO 01/2015
9. **Barbaro R**, A Gebremariam, Annich G, and Davis MM. "Development and Testing of an Extracorporeal Membrane Oxygenation Severity of Illness Score for Neonates" Abstract Presentation at Pediatric Academic Society. San Diego, CA April 28, 2015.