

# Kathleen A. Noorbakhsh

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## BIOGRAPHICAL INFORMATION

[REDACTED]	[REDACTED]	<b>Work Address:</b>	4401 Penn Ave Pittsburgh, PA 15224
[REDACTED]	[REDACTED]	<b>Business Phone:</b>	412-692-7692
<b>Email Address:</b>	Katie.Noorbakhsh@chp.edu	<b>Business Fax:</b>	412-692-7464

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## EDUCATION AND TRAINING

### Undergraduate Education

The College of William and Mary	08/1999-05/2003
Bachelor of Arts - Government	Williamsburg, VA

### Graduate Education & Training

Eastern Virginia Medical School	08/2004-05/2008
Doctor of Medicine	Norfolk, VA

University of Pittsburgh	07/2018-05/2020
Masters of Clinical Research	Pittsburgh, PA

### Postgraduate Training

Eastern Virginia Medical School	07/2008-06/2009
Pediatric Medicine Internship	Norfolk, VA

*Program Director – C.W. Gowen, MD*

Eastern Virginia Medical School	07/2009-06/2011
Pediatric Medicine Residency	Norfolk, VA

*Program Director – C.W. Gowen, MD*

Eastern Virginia Medical School	07/2011-06/2012
Pediatric Residency Program, Chief Resident	Norfolk, VA

*Program Director – C.W. Gowen, MD*

University of Pittsburgh Medical Center	07/2016-06/2019
Pediatric Emergency Medicine Fellowship	Pittsburgh, PA

Point-of-Care Ultrasound Track

*Program Director – Noel S. Zuckerbraun, MD, MPH*

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**APPOINTMENTS**
**Academic**

Children's Specialty Group Children's Hospital of the King's Daughters <i>Associate Instructor of Pediatrics</i>	07/2011 – 06/2013 Norfolk, VA
EMCare, Inc. Sinai Hospital of Baltimore <i>Clinical Instructor of Pediatrics</i>	08/2013 – 08/2014 Baltimore, MD
University of Pittsburgh Physicians Magee Women's Hospital and Children's Hospital of Pittsburgh <i>Clinical Instructor of Pediatrics</i>	12/2014 – 06/2016 Pittsburgh, PA
University of Pittsburgh Physicians Children's Hospital of Pittsburgh <i>Clinical Instructor of Pediatrics</i>	07/2019 - Current Pittsburgh, PA

**Non Academic**

Emergency Medicine Associates INOVA Alexandria Hospital <i>Emergency Department Pediatrician</i>	02/2014 – 08/2014 Alexandria, VA
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**CERTIFICATION & LICENSURE**
**Specialty Certification**

American Board of Pediatrics, General Pediatrics	2011 – Current
American Board of Pediatrics, Pediatric Emergency Medicine	<i>Board Eligible</i>

**Medical Licensure**

Pennsylvania State Medical License	Current
Maryland State Medical License, inactive	2016
Virginia State Medical License, inactive	2015

**Certification**

Neonatal Resuscitation Program	2008 – 2016
Pediatric Advanced Life Support	2008 – Current
Pediatric Advanced Life Support Instructor	2016 – Current
Advanced Trauma Life Support	2016 – Current
Advanced Cardiac Life Support	2008 – Current

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**MEMBERSHIP IN PROFESSIONAL SOCIETIES**

American Academy of Pediatrics	2008 – Present
AAP, Section on Emergency Medicine	2016 – Present
Society of Academic Emergency Medicine	2015 – Present
P2 Network for Pediatric Emergency Medicine Point of Care Ultrasound	2017 – Present
Pennsylvania Medical Society	2017 – Present
Allegheny County Medical Society	2017 – Present
Society of Medical Decision Making	2019 – Present
AAP, Council on Communications and Media	2013 – 2016

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## RESEARCH

**Research Funding**

NIH T32 Training Grant (1T32HL134615-01)

PI: Clifton W. Callaway, MD, PhD

**Peer Review***Pediatric Emergency Care*

2018-Current

University of Pittsburgh Clinical and Translational Science Institute

2020

COVID-19 Pilot Research Funding Program

**Current Studies**

1. **Noorbakhsh, KA**, Berger, RP, Smith, KJ. "Identification of abusive head trauma in high-risk infants: A cost-effectiveness analysis."  
*Markov model comparing a strategies to identify abusive head trauma in the emergency department. Manuscript submitted and currently under review.*
2. **Noorbakhsh, KA**, Ramgopal, SR. Rixe, N. Smith, KJ. "Febrile Infant risk stratification."  
*Markov model comparing established cost-effectiveness of febrile infant clinical prediction rules.*
3. **Noorbakhsh, KA**, Augustin, K, Callaway, CW, Carcillo, JA, Marin, JM. "Inter-rater Reliability of Uscom Measurements in Pediatric Emergency Patients with Abnormal Vital Signs."  
*Prospective evaluation of the inter and intra-rater reliability of Uscom measurements in children with abnormal vital signs using an EHR vital sign-based sepsis alert.*
4. Pediatric Emergency Medicine Collaborative Research Committee. "Neonatal Mastitis and Omphalitis." Site PI for Children's Hospital of Pittsburgh.

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## CURRENT RESEARCH INTERESTS

My research interest is enhanced risk-stratification and optimal applications of neuroimaging in the emergency care of children with head trauma and traumatic brain injury using decision modeling and cost-effectiveness analysis. This is a unique population in the emergency department and can be diagnostically challenging as physicians and patient families must weigh the risk of computed tomography radiation exposure against the potential consequences of missing clinically significant intracranial injury. My current research addresses the potential risks and benefits of incorporating newer risk-stratification modalities compared to current standard practice by:

- 1) Developing a decision analytic model to address the full scope of short- and long-term patient outcomes
- 2) Analyzing the impact of novel risk-stratification strategies including rapid magnetic resonance imaging and biomarkers of traumatic brain injury
- 3) Considering the spectrum disease and the varying risks by symptomatology and age group
- 4) Considering the management needs for a variety of ED settings as they vary in both patient population and resource availability

Future applications of this model include decision analysis in special populations that have been difficult to study in more traditional trials, for example, children with hemophilia and minor head injury.

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## HONORS & AWARDS

Lee B. Lusted Student Prize Award, Finalist, Society for Medical Decision Making	2019
American Academy of Pediatrics Emergi-Quiz Honorable Mention	2018
Ultrasound Fellow of the Year	2017 – 2018
Ultrasound Fellow of the Year	2016 – 2017
Monroe Scholar, The College of William and Mary	1999 – 2003

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## PUBLICATIONS

### Original peer reviewed publications

1. Perry MC, Yaeger SK, **Noorbakhsh KA**, Cruz AT, Hickey RW. Hypothermia in Young Infants: Frequency and Yield of Sepsis Workup. *Pediatric emergency care*. 2018 Nov.
2. **Noorbakhsh KA**, Williams AE, Langham JJ, Wu L, Krafty RT, Furtado AD, Zuckerbraun NS, Manole MD. Management and Outcomes of Spontaneous Pneumomediastinum in Children. *Pediatric emergency care*. 2019 Aug.
3. Ramgopal S, **Noorbakhsh KA**, Callaway CW, Wilson PM, Pitetti RD. Changes in the Management of Children with Brief Resolved Unexplained Events (BRUEs). *Pediatrics*. 2019 Sep 5:e20190375.
4. Ramgopal S, **Noorbakhsh KA**, Pruitt CM, Aronson P, Alpern EA, Hickey RW. Outcomes of Young Infants with Hypothermia Evaluated in the Emergency Department. *Journal of pediatrics*. In press.

### Other peer reviewed publications

1. **Noorbakhsh, KA**, Bell-Cheddar, YA, Marin, JR. "Focused Cardiac Ultrasound in Pediatric Pulmonary Hypertension." *Pediatric Emergency Care* 35.4 (2019): 316-318.

### Books

1. Chicella M, Chow J, Cottrill C, Dice J, **Noorbakhsh K**, Price J, Walker J, Wittenberg S, Woodruff E, Zaritsky A. "*Children's Hospital Of The King's Daughters Pediatric Medication Handbook*." Second Edition. Children's Hospital of the King's Daughters; Norfolk, VA. July 2012.

### Poster presentations and platforms

1. **Noorbakhsh, K**, Ramgopal, S, Rixe, N, Dunnick, J, Smith, K. (2020, May) "Risk-stratification of infant fever: A cost-effectiveness analysis." Accepted as Accepted as poster presentation for Pediatric Academic Societies Meeting. Meeting cancelled due to COVID-19.
2. Kaplan, R, Cruz, A, Michelson, K, McAneney, C, Blackstone, M, Pruitt, C, Dhah, N, **Noorbakhsh, K**, et al. (2020, May) "Neonatal Mastitis: Presentation, Outcomes, and Concurrent Serious Bacterial Infection." Platform presentation for Pediatric Academic Societies Meeting. Meeting cancelled due to COVID-19.
3. Kaplan, R, Cruz, A, Michelson, K, McAneney, C, Blackstone, M, Pruitt, C, Dhah, N, **Noorbakhsh, K**, et al. (2020, May) "Omphalitis: Presentation, Outcomes, and Concurrent Serious Bacterial Infection." Accepted as poster presentation for Pediatric Academic Societies Meeting. Meeting cancelled due to COVID-19.
4. **Noorbakhsh, K**, Berger, R, Smith, K. (2019, October) "Pittsburgh Infant Brain Injury Score: A cost-effectiveness analysis." Poster, Society for Medical Decision Making Annual Meeting; Portland, OR.
5. **Noorbakhsh, K**, Ramgopal, S, Callaway, C, Wilson, P, Pitetti, R. (2019, April) "National guideline related management changes for Brief Resolved Unexplained Events (BRUEs)." Poster presented at Pediatric Academic Societies Meeting; Baltimore, MD.
6. **Noorbakhsh, K**. (2018, October) "Toddler with abdominal pain." Emergi-Quiz Honorable Mention. American Academy of Pediatrics Meeting; Orlando, FL.
7. Rosen, J, Byers, P, Stevens, J, Degener, A, Melvin, J, Azhdam DB, **Noorbakhsh, K**, Lunoe, M. (2016, October) "Increasing Intranasal Fentanyl Use for Children with Painful Injuries Presenting to the Children's Hospital of Pittsburgh Emergency Department." Poster presented at National Healthcare Quality Week, Children's Hospital of Pittsburgh; Pittsburgh, PA.
8. **Noorbakhsh, K**, Zuckerbraun, N, Manole, M. (2016, May) "Management and Outcomes of Spontaneous Pneumomediastinum in Children." Oral presentation at Society of Academic Emergency Medicine Conference; New Orleans, LA.
9. Perry, M, Yaeger, S, **Noorbakhsh, K**, Cruz, A, Hickey, R. (2016, May) "Frequency of Detecting Serious Bacterial Infections in Infants Less Than 60 Days with Hypothermia." Poster presented at Pediatric Academic Societies Annual Meeting; Baltimore, MD.

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**PUBLICATIONS**
**Poster presentations and platforms**

10. Cottrill C, **Noorbakhsh K**, Walker, J. (2011, June) "Creating a Teaching Curriculum for Residents." Poster presented at Children's Hospital of the King's Daughters Research Day; Norfolk, VA.
11. **McPadden K**, Proud V, Rosenthal M, Kelly C. (2007, November) "Long chain 3-hydroxy acyl dehydrogenase deficiency and recurrent infection: A case report." Poster presented at AMA-MSS Joint Research Poster Symposium; Honolulu, HI.

**Multimedia and non-peer reviewed publications***Web-based publications*

1. **Noorbakhsh, KA**. (2015, Sept 14). Media Diet. Council on Communications and Media Blog. <https://cocm.blogspot.com>
2. **Noorbakhsh, KA**. (2015, Mar 7). Don't be scared: Let's see what's really in vaccines. <http://www.KevinMD.com>
3. **Noorbakhsh, KA**. (2013, Apr 15). The rise of ultimatums in medicine: Do they work? <http://www.KevinMD.com>
4. **Noorbakhsh, KA**. 2012-2016. Kathleen Noorbakhsh, MD. <http://www.mamakatemd.com>  
Series of family-centered, evidence-based medical writing.

*Audio publications*

1. **Noorbakhsh, KA**. Invited contributor. "Changes in the Management of Children with Brief Resolved Unexplained Events." The DTFB Podcast. 2019 Sept 10. <https://player.fm/series/series-2393441/the-dftb-podcast-changes-in-the-management-of-children-with-brief-resolved-unexplained-events>.
2. **Noorbakhsh, KA**. Invited contributor. "Brief Resolved Unexplained Events." Skeptics Guide to Emergency Medicine. 2019 Dec 7. <https://thesgem.com/2019/12/sgem-xtra-strange-brue/>.

*Video publications*

1. Ramgopal, S, **Noorbakhsh, KA**. "Changes in management of Brief Resolved Unexplained Events." Video Abstract. Pediatrics. 2019 Sept 5.

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**PROFESSIONAL ACTIVITIES**
**TEACHING****Medical Student Teaching**

University of Pittsburgh School of Medicine, Sonofest, Coach, Instructor 2019 – 2020

*Second through fourth year medical students, 3 students*

University of Pittsburgh, Pediatric Advanced Physical Exam, Small Group Instructor Spring 2016

*Second year medical students, 4 students*

Eastern Virginia Medical School, Pathophysiology Course, Small Group Instructor 2009 – 2010

*Second year medical students, 6 students*

Eastern Virginia Medical School, Introduction to the Patient, Small Group Instructor 2007 – 2008

*First year medical students, 8 students*

**Resident Teaching, Emergency Medicine**

Emergency Medicine Residency Journal Club, Facilitator 2017-2019

*Annual sessions with pediatric focus, 30 students*

Emergency Medicine Neonatal Resuscitation Course, Facilitator Spring 2016

*Emergency medicine residents, 12 students*

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**PROFESSIONAL ACTIVITIES**
**TEACHING****Resident Teaching, Pediatrics**

Pediatric point of care ultrasound, elective rotation, Instructor 2019 – Current  
*Pediatric residents, 2 students*

Emergency Medicine Pediatric Sedation Simulation, Facilitator Spring 2017  
*Senior pediatric residents, 16 students*

Pediatric Resident Mock Code and Simulation Instructor 2013 – 2014  
*Pediatric residents, 12 students*

Pediatric Code Management, Resident Workshops 2011 – 2012  
*Pediatric residents, 12 students*

Resident Monthly Journal Club, Facilitator 2011 – 2012  
*Pediatric residency program, 30-50 students*

**Fellow Teaching**

Children’s Hospital of Pittsburgh biweekly PEM POCUS conference, Facilitator 2019-present  
*Pediatric Emergency Medicine Fellows, 5 students*

Children’s Hospital of Pittsburgh ED/Anesthesia Annual POCUS conference, Instructor 2017-2018  
*Pediatric Emergency Medicine and Anesthesia Fellows, 15 students*

**Faculty Development Teaching**

Pediatric Emergency Medicine Biannual Faculty POCUS workshops, Instructor 2017-present  
*Children’s Hospital of Pittsburgh Faculty, 12 students*

**Multi-disciplinary Teaching**

Pediatric Advanced Life Support, 6 course sessions annually, Instructor 2016-present  
*Nurses, Advanced Practice Providers, Physicians, 4-8 students*

**Curriculum Development**

Pediatric Senior Resident Board Review series 2010 – 2011  
 Eastern Virginia Medical School Pediatric Residency Program Norfolk, VA  
*Restructured curriculum to an expert facilitated, resident driven model, emphasizing board-style questions and content*

Residents as Teachers Series 2011 – 2012  
 Eastern Virginia Medical School Pediatric Residency Program Norfolk, VA  
*Monthly interactive sessions with pediatric interns using adult learning theory to introduce practical bedside teaching strategies and tackle challenging scenarios*

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**PROFESSIONAL ACTIVITIES****LECTURES****Local Presentations****Medical Students & Physician Assistant Students**

“Pediatric Cardiology.” K. Noorbakhsh. Feb 16, 2012; Eastern Virginia Medical School Physician Assistant Student Lecture. Norfolk, VA.

“Evaluation of the Newborn.” K. Noorbakhsh Feb 20, 2012; Eastern Virginia Medical School Physician Assistant Student Lecture. Norfolk, VA.

“Common Pediatric GI Problems.” K. Noorbakhsh. 2009-2010; Eastern Virginia Medical School Pediatric Clerkship lecture. Norfolk, VA.

**Emergency Medicine Residents**

“Remember That Kid? Cases with Nerve-wracking Twists.” K. Noorbakhsh. May 23, 2019; UPMC Emergency Medicine Educational Conference. Pittsburgh, PA.

“Don’t Eat That: Pediatric Toxicology Cases.” K. Noorbakhsh. Nov 16, 2017; UPMC Emergency Medicine Educational Conference. Pittsburgh, PA.

“Pediatric Orthopedic Infections.” K. Noorbakhsh. June 1, 2017; UPMC Emergency Medicine Educational Conference. Pittsburgh, PA.

**Pediatric Residents**

“Cardiac Emergency Cases.” K. Noorbakhsh. Nov 7, 2018; UPMC Pediatric Residency Program Noon Conference. Pittsburgh, PA.

“Don’t Eat That: Toxicology Cases for the Pediatrician.” K. Noorbakhsh. Jan 30, 2018; UPMC Pediatric Residency Program Noon Conference. Pittsburgh, PA.

“Altered Mental Status.” K. Noorbakhsh. Feb 8, 2017; UPMC Pediatric Residency Program Noon Conference. Pittsburgh, PA.

“Foreign Body Removal.” K. Noorbakhsh. Aug 31, 2015; UPMC Pediatric Resident Emergency Medicine Workshop. Pittsburgh, PA.

“Pediatric Trauma.” K. Noorbakhsh. April 4, 2014; Sinai Hospital Pediatric Residency Program Noon Conference. Baltimore, MD.

“Non-traumatic Orthopedic Emergencies.” Feb 21, 2014; Sinai Hospital Pediatric Residency Program Noon Conference. Baltimore, MD.

Chief Resident Morning Report Series. K. Noorbakhsh. 2011-2012. Eastern Virginia Medical School Pediatric Residency Program. Norfolk, VA.

Intern Morning Report Series. K. Noorbakhsh. 2011-2012. Eastern Virginia Medical School Pediatric Residency Program. Norfolk, VA.

“Environmental Toxins.” K. Noorbakhsh. Jan 25, 2010; Eastern Virginia Medical School Pediatric Residency Noon conference, Norfolk, VA

**Faculty & Fellowship Presentations**

“Morbidity & Mortality Monthly Case Review and Educational Update.” K. Noorbakhsh, N. Zuckerbraun. 2019-Ongoing; UPMC Pediatric Emergency Medicine Staff Meeting. Pittsburgh, PA.

“Case of Special Interest: Ruptured Meckels Diverticulum.” K. Noorbakhsh. Dec 5, 2018; UPMC Pediatric Emergency Medicine Faculty and Fellow Education Conference. Pittsburgh, PA.

“External Ear Injuries: Analgesia and Repair.” K. Noorbakhsh. Oct 31, 2018; UPMC Pediatric Emergency Medicine Procedure Workshop. Pittsburgh, PA.

“Limited English Proficiency, Anxiolysis for Caregivers, and Coroner Cases: Root Cause Analysis and Discussion.” K. Noorbakhsh. June 21, 2017; Children’s Hospital of Pittsburgh Pediatric Emergency Medicine Morbidity and Mortality Conference. Pittsburgh, PA.

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**PROFESSIONAL ACTIVITIES****LECTURES****Local Presentations**

“Case of Special Interest: Bartonella Henselae Neuroretinitis.” K. Noorbakhsh. Nov 22, 2017; UPMC Pediatric Emergency Medicine Faculty and Fellow Education Conference. Pittsburgh, PA.

“Air Goes In and Out: Pulmonary Procedures and Monitoring.” K. Noorbakhsh. Oct 10, 2017; UPMC Pediatric Emergency Medicine Procedure Workshop. Pittsburgh, PA.

“Emergency Management for Sexual Assault Victims: Root Cause Analysis and Discussion.” K. Noorbakhsh. June 21, 2017; Children’s Hospital of Pittsburgh Pediatric Emergency Medicine Morbidity and Mortality Conference. Pittsburgh, PA.

“The Technology Dependent Child.” K. Noorbakhsh. May 17, 2017; UPMC Pediatric Emergency Medicine Procedure Workshop. Pittsburgh, PA.

“Case of Special Interest: Carbon Monoxide Poisoning.” K. Noorbakhsh. Feb 8, 2017; UPMC Pediatric Emergency Medicine Faculty and Fellow Education Conference. Pittsburgh, PA.

**Regional Invited Presentations**

“Shock: Recognition and Management for the Prehospital Provider.” K. Noorbakhsh. March 28, 2019. Emergency Medical Services Update. Champion, PA.

**National Invited Presentations**

“Risk-stratification in pediatric head injury.” K. Noorbakhsh. February 3, 2020. PECARN Future Investigators Meeting. Washington, DC.



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**SERVICE & VOLUNTEER ACTIVITIES**
**Administrative**

Radiology discordance resolution and quality assurance <i>Children's Hospital of Pittsburgh</i>	2016-2019
Pediatric Emergency Medicine Rotation, Resident Schedule <i>Children's Hospital of The King's Daughters</i>	2011-2012
Pediatric Senior Resident Call and Shift Schedule <i>Children's Hospital of The King's Daughters</i>	2011-2012
Pediatric Residency Educational Conferences, Coordinating Chief <i>Children's Hospital of The King's Daughters</i>	2011-2012

**Committees**

Morbidity and Mortality Committee, Division of Pediatric Emergency Medicine <i>Children's Hospital of Pittsburgh, Co-chair</i>	2019 – Current
Pediatric Quality Improvement Emergency Asthma Management Committee <i>Children's Hospital of Pittsburgh, Member</i>	2016- 2018
Pediatric Emergency Medicine Septic Shock Committee <i>Children's Hospital of Pittsburgh, Member</i>	2015- Current
Pediatric Emergency Medicine Quality Improvement Pain Management Committee <i>Children's Hospital of Pittsburgh, Member</i>	2015 – 2016
Clinical Competency Committee, Pediatric Residency Program <i>Sinai Hospital, Member</i>	2013 – 2014
Peer Review Committee, Department of Pediatrics <i>Sinai Hospital, Member</i>	2014
Medical Education Committee, Pediatric Residency Program <i>Children's Hospital of The King's Daughters, Appointed Member</i>	2011 – 2012
Medical Informatics Committee <i>Children's Hospital of The King's Daughters, Member</i>	2011 – 2012
Computerized Physician Order Entry Committee <i>Children's Hospital of The King's Daughters, Member</i>	2011 – 2012
Resuscitation Outcomes Committee, Department of Pediatrics <i>Children's Hospital of The King's Daughters, Member</i>	2011 – 2012
Pharmacy Committee <i>Children's Hospital of The King's Daughters, Member</i>	2010-2011

**Community Service**

Allegheny County Unsafe Sleep Review Committee, Member <i>Pittsburgh, PA</i>	2019-Present
College of William and Mary, Pre-medical student shadowing and mentorship	2019-Present