

BIOGRAPHICAL SKETCH

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NAME: Shah, Manish I

eRA COMMONS USER NAME (credential, e.g., agency login): MISHAH

POSITION TITLE: Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of California-Davis; Davis, CA	BS	03/1997	Physiology
University of California-Irvine; Irvine, CA	MD	06/2001	Medicine
Harvard and Boston University; Boston, MA	(residency)	06/2004	Pediatrics
Baylor College of Medicine, Houston, TX	(fellowship)	06/2007	Pediatric Emergency Medicine
University of Texas-Medical School; Houston, TX	MS	05/2015	Clinical Research

A. Personal Statement

The translation of knowledge into practice is essential to optimize emergency care for children. My research is focused on improving evidence-based practices for pediatric prehospital care by utilizing the National Prehospital Evidence-Based Guideline (EBG) Model Process to develop pediatric-relevant guidelines, implement these EBGs in Emergency Medical Services (EMS) agencies, and evaluate their effectiveness after implementation. Specifically, I have focused much of this work on pediatric seizures, since this is one of the most common reasons why an ambulance is called for a child. I have experience in studying pediatric prehospital management, and my involvement in this work began through my participation in the pilot project sponsored by the National Highway Traffic Safety Administration to use the Prehospital EBG Model Process to create a pediatric seizure guideline. I was also the Principal Investigator (PI) on a grant that created and implemented pediatric prehospital EBGs in Houston and New England, including the implementation of a pediatric seizure guideline in those regions. As a clinical researcher in pediatric emergency medicine who has been conducting multi-center pediatric prehospital research as the site PI for the Charlotte, Houston, and Milwaukee Prehospital (CHaMP) research node of the Pediatric Emergency Care Applied Research Network (PECARN), I have expertise in successfully conducting research in both the prehospital and hospital-based settings and effectively linking data across the emergency care continuum. The qualitative and quantitative multi-center pilot studies on pediatric seizures that I have led in PECARN have demonstrated the necessity for doing the Pediatric Dose Optimization for Seizures in EMS (PediDOSE) study and equipped me to be a subject matter expert on the topic. I have been leading the PediDOSE trial for the past 2 years, and I look forward to completing the trial as I go through a professional transition from Baylor College of Medicine to Stanford University.

Ongoing and recently completed projects that I would like to highlight include:

U01 NS114042

Shah (PI)

08/01/21 – 11/30/26

Pediatric Dose Optimization for Seizures in Emergency Medical Services (PediDOSE)

U03MC33154

Shah (PI)

09/01/23 – 08/31/27

Charlotte, Houston, and Milwaukee Prehospital (CHaMP) Research Node

UG3HL165019

Wang (PI); Role: Co-Investigator

09/01/23 – 08/31/27

Pediatric Prehospital Airway Resuscitation Trial (Pedi-PART)

B. Positions, Scientific Appointments, and Honors

Positions (Academic/Clinical/Professional)

12/2023- Professor of Emergency Medicine, Stanford University School of Medicine, Stanford, CA
11/2023- Licensed Physician, Medical Board of California
02/2022-12/2023 Professor of Pediatrics and Attending Physician in the Pediatric Emergency Center, Texas Children's Hospital (Baylor College of Medicine), Houston, TX
06/2016-1/2022 Associate Professor of Pediatrics and Attending Physician in the Pediatric Emergency Center, Texas Children's Hospital (Baylor College of Medicine), Houston, TX
10/2011-10/2014 Chair, American Academy of Pediatrics (AAP) EMS Committee
05/2010-03/2019 Member, American College of Emergency Physicians (ACEP), including Pediatrics Committee, EMS Committee
05/2010- Member, National Association of EMS Physicians (NAEMSP) including Pediatrics Committee
03/2009- American Board of Pediatrics, Board Certification in Pediatric Emergency Medicine
07/2007-05/2016 Assistant Professor of Pediatrics and Attending Physician in the Pediatric Emergency Center, Texas Children's Hospital (Baylor College of Medicine)
10/2004-12/2014 American Board of Pediatrics, Board Certification in General Pediatrics
07/2004-06/2007 Fellow in Pediatric Emergency Medicine and Clinical Instructor, Texas Children's Hospital and Ben Taub General Hospital (Baylor College of Medicine), Houston, TX
06/2004- Licensed Physician, Texas Medical Board
06/2001- Member, American Academy of Pediatrics (AAP) Section of Emergency Medicine, and Chair, EMS Committee (10/11-10/14)

Appointments (Scientific/Scholarly/Advisory)

10/2023- Executive Committee Member, Pediatric Emergency Care Applied Research Network (PECARN)
09/2023- Associate Editor for *Prehospital Emergency Care*
10/2020-01/2022 NAEMSP representative and co-investigator for the NASEMSO Prehospital Pain Management Evidence-Based Guideline Technical Expert Panel
06/2019- Editorial Board Member for *Prehospital Emergency Care*
09/2015-12/2017 Executive Committee Member representing the AAP for the Prehospital Guidelines Consortium, convened by the NAEMSP and National Highway Traffic Safety Administration's (NHTSA) Office of EMS
05/2015-08/2017 Appointed member to the United States Department of Transportation's National EMS Advisory Council (NEMSAC)
09/2013- Steering Committee Member, Pediatric Emergency Care Applied Research Network (PECARN)
01/2013-09/2017 Representative for the AAP for the National Association of State EMS Officials (NASEMSO) Model Clinical EMS Guidelines project

Honors

05/2023 Dr. Marianne Gausche-Hill Pediatric Emergency Medicine Mentorship Award in Teaching, Society for Academic Emergency Medicine (SAEM)
05/2021 Norton Rose Fulbright Faculty Excellence Award for Educational Research, Baylor College of Medicine

11/2019	Research Mentorship Award, Baylor College of Medicine, Department of Pediatrics
06/2015	Dr. Joan E. Shook Excellence in Leadership Award, Baylor College of Medicine, Department of Pediatrics, Section of Emergency Medicine
05/2015	Fulbright and Jaworski Faculty Excellence Award for Teaching and Evaluation, Baylor College of Medicine
06/2013	Pediatric Emergency Medicine Fellowship Outstanding Teacher Award, Baylor College of Medicine
06/2010	Dr. Milton H. Nirken Excellence in Teaching Award, Baylor College of Medicine, Department of Pediatrics, Section of Emergency Medicine
10/2000	Alpha Omega Alpha Medical Honor Society, University of California, Irvine

C. Contributions to Science

1. Pediatric Prehospital Seizures

The care that people receive on ambulances is often based on consensus, especially for children. The Institute of Medicine (IOM), the Federal Interagency Committee on EMS (FICEMS), and the National EMS Advisory Council (NEMSAC) all identify the need to address gaps in knowledge through research and the importance of integrating knowledge into practice through evidence-based guidelines (EBG). By developing, implementing, and studying an EBG on pediatric prehospital seizures, I have identified which strategies are effective at enhancing guideline adherence for seizure management. Using qualitative methodology by interviewing paramedics, I have identified opportunities to address existing barriers to guideline adherence at a systems level. Selected publications relevant to this contribution are noted below:

- Shah MI**, Ostermayer DG, Browne LR, Studnek JR, Carey JM, Stanford C, Fumo N, Lerner EB. Multicenter Evaluation of Prehospital Seizure Management in Children. *Prehosp Emerg Care*. 2021; 25(4): 475-486. Epub 2020 Jul 17 PMID: 32589502.
- Carey JM, Studnek JR, Browne LR, Ostermayer DG, Grawey T, Schroter S, Lerner EB, **Shah MI**. Paramedic-Identified Enablers of and Barriers to Seizure Management: A Multicenter, Qualitative Study. *Prehosp Emerg Care*. 2019; 23(6): 870-881. PMID: 30917730
- Shah MI**, Carey JM, Rapp SE, Masciale M, Alcanter WB, Mondragon JA, Camp EA, Prater SJ, Doughty CB. Impact of High-Fidelity Pediatric Simulation on Paramedic Seizure Management. *Prehosp Emerg Care*. 2016; 20(4): 499-507. PMID: 26953677
- Shah MI**, Macias CG, Dayan PS, Weik TS, Brown KM, Fuchs SM, Fallat ME, Wright, JL, Lang ES. An Evidence-Based Guideline for Pediatric Prehospital Seizure Management Using GRADE Methodology. *Prehosp Emerg Care*. Jan 2014; 18 (Suppl 1): 15-24. PMID: 24298939

2. Other Prehospital Evidence-Based Guidelines Research

Pediatric anaphylaxis, asthma and traumatic pain management are also common issues for which prehospital EBGs exist. By developing, implementing, and/or studying EBGs for these conditions, I have demonstrated that the National Prehospital EBG Model Process can be used to successfully create, implement, and study EBGs in multiple EMS agencies. My specific role in this contribution to the science has been as the Principal Investigator (PI) for two federal EMS for Children Targeted Issues grants and as the site PI for the Houston-based site of the Charlotte, Houston, and Milwaukee Prehospital (CHaMP) research node of the EMSC-funded Pediatric Emergency Care Applied Research Network (PECARN). Selected publications relevant to this contribution are noted below:

- Ostermayer DG, Camp EA, Langabeer JR, Brown CA, Mondragon J, Persse DE, **Shah MI**. Impact of an Extraglottic Device on Pediatric Airway Management in an Urban Prehospital System. *West J Emerg Med*. 2019; 20(6): 962-969. PMID: 316860396.
- Marino MC, Ostermayer DG, Mondragon JA, Camp EA, Keating EM, Fornage LB, Brown CA, **Shah MI**. Improving Prehospital Protocol Adherence Using Bundled Educational Interventions. *Prehosp Emerg Care*. 2018; 22(3): 361-369. PMID: 29364730.
- Nassif A, Ostermayer DG, Hoang KB, Claiborne MK, Camp EA, **Shah MI**. Implementation of a Prehospital Protocol Change for Asthmatic Children. *Prehosp Emerg Care*. 2018; 22(4): 457-465. PMID: 29351496.
- Browne LR, **Shah MI**, Studnek JR, Ostermayer DG, Reynolds S, Guse C, Brousseau DC,

Lerner EB. Multicenter Evaluation of Prehospital Opioid Pain Management in Injured Children. *Prehosp Emerg Care*. 2016; 20(6): 759-767. PMID: 27411064.

3. Global Health Prehospital Education

The Institute of Medicine (IOM) and the EMS for Children (EMSC) program have both identified the need to improve pediatric knowledge of the emergency care workforce. Through work that I have conducted, I have found that pediatric-focused prehospital continuing education programs can be successfully created and studied both in the United States (U.S.) and in countries with limited resources. There is significant variation in EMS systems across the world, and there is a need to educate prehospital professionals as EMS systems emerge in nations that have limited resources. My work implementing pediatric-focused prehospital education in the United States, including simulation-based education, led to an opportunity to serve as an educational research mentor to two global health fellows, Drs. Nicolaus Glomb and Adeola Kosoko. With mentorship from me and two other colleagues (Drs. Cara Doughty and Marideth Rus), our team created an adult and pediatric simulation-based educational curriculum for the Botswana Ministry of Health's EMS system. By mentoring Drs. Glomb and Kosoko to apply for a grant, design and implement their curriculum with input from local stakeholders, and study the impact of the education on learners, my faculty colleagues and I mentored Drs. Glomb and Kosoko in their scholarly work and contributed to global health education of prehospital professionals. Selected publications relevant to this contribution are noted below:

- a. Glomb NW, Rus MC, Kosoko AA, Saha S, Murphy K, Doughty CB, Galapi C, Laba B, **Shah MI**. Pediatric Simulation-Based Prehospital Training Course in Botswana. *J Educ Teach Emerg Med*. 2021; 6(3): C64-189. PMID: PMC10332686.
- b. Glomb NW, **Shah MI**, Kosoko AA, Doughty CB, Galapi C, Laba B, Rus MC. Educational Impact of a Pilot Paediatric Simulation-Based Training Course in Botswana. *BMJ Simul Technol Enhanc Learn*. 2020; 6(5): 279-283. PMID: PMC8936647.
- c. Kosoko AA, Glomb NW, Laba B, Galapi C, **Shah MI**, Rus MC, Doughty CB. Evaluating a Novel Simulation Course for Prehospital Provider Resuscitation Training in Botswana. *West J Emerg Med*. 2019; 20(5): 731-739. PMID: PMC6754192.
- d. Glomb NW, Kosoko AA, Doughty CB, Rus MC, **Shah MI**, Cox M, Galapi C, Parkes PS, Kumar S, Laba B. Needs Assessment for Simulation Training for Prehospital Providers in Botswana. *Prehospital and Disaster Medicine*. 2018; 33(6): 621-626. PMID: 30419999.

4. Pediatric Prehospital Trauma Management

Traumatic injuries are the leading cause of death in children over 1 year of age. To minimize morbidity and mortality, it is essential that trauma care in the prehospital setting is timely and appropriate. In addition, it is necessary to transport children who require more extensive trauma-based resources in a timely manner. My prior work in developing an EBG for pediatric spinal care after trauma allowed me to collaborate on the development of a consensus statement on this issue. My work in trauma care has also identified criteria that are associated with trauma team activation when children are transported to a trauma center. This research has the potential to influence the destination of transport of patients from the prehospital setting to specific emergency departments with the capabilities to care for specific injuries. My role in contributing to this finding was as a co-investigator. I also wrote a review article summarizing best practices and available evidence on pediatric prehospital trauma management. Publications relevant to this contribution are noted below:

- a. Herman MJ, Brown KO, Sponseller PD, Phillips JH, Petrucelli PM, Parikh DJ, Mody KS, Leonard JC, Moront M, Brockmeyer DL, Anderson RCE, Alder AC, Anderson JT, Bernstein RM, Booth TN, Braga BP, Cahill PJ, Joglar JM, Martus JE, Nesiama JO, Pahys JM, Rathjen KE, Riccio AI, Schulz JF, Stans AA, **Shah MI**, Warner WC, Yaszay B. Pediatric Cervical Spine Clearance: A Consensus Statement and Algorithm from the Pediatric Cervical Spine Clearance Working Group. *J Bone Joint Surg Am*. 2019; 101(1):e1. PMID:30601421
- b. Lerner EB, Drendel AL, Falcone RA, Weitze KC, Badaway MK, Cooper A, Cushman JT, Drayna PC, Gourlay DM, Gray MP, **Shah MI**, Shah MN. A Consensus-Based Criterion Standard Definition for Pediatric Patients Who Needed the Highest-Level Trauma Team Activation. *J Trauma Acute Care Surg*. 2015; 78(3): 634-8. PMID: PMC4341956.
- c. **Shah, MI**. Prehospital Management of Pediatric Trauma. *Clinical Pediatric Emergency Medicine*.

5. Transport and System Readiness to Care for Children on Ambulances and in Emergency Departments

It is essential for the EMS system to be optimally utilized, such that patients requiring higher level pediatric resources are transported to facilities that have them in a timely manner. It is also important for all providers along the emergency care continuum to be ready to care for children, whether it is in an ambulance or in an emergency department, in the United States or abroad. My work in this area has involved ensuring that minimum standards for care of children are promoted in emergency departments and EMS systems. I have also used qualitative methodology to interview parents to understand the determinants that impact their decision to call or not call an ambulance for high-acuity conditions. My role in making this scientific contribution included studying EMS utilization among caregivers of children. Selected publications relevant to this contribution are noted below:

- a. Moore BR, **Shah MI (co-lead author)**, Owusu-Ansah S, Gross T, Brown KM, Gausche-Hill M, Remick K, Adalgais K, Lyng J, Rappaport L, Snow S, Wright-Johnson C, Leonard JC on behalf of the American Academy of Pediatrics, Committee on Pediatric Emergency Medicine and Section on Emergency Medicine EMS Subcommittee; American College of Emergency Physicians, EMS Committee; Emergency Nurses Association, Pediatric Committee; National Association of EMS Physicians, Standards and Clinical Practice Committee; National Association of Emergency Medical Technicians, Emergency Pediatric Care Committee -- Pediatric Readiness in Emergency Medical Services Systems; Policy Statement. Jointly published in *Ann Emerg Med.* 2020; 75(1): e1-e6. PMID: 31866028
- b. Hewes H, Ely M, Richards R, Busch S, **Shah MI**, Hert K, Pilkey D, Olson L. Ready for Children: A National Assessment of Pediatric Coordinators and Competency in EMS Agencies. *Prehosp Emerg Care.* 2018. PMID: 30380953.
- c. Lerner EB, Studnek JR, Fumo N, Banerjee A, Arapi I, Browne LR, Ostermayer DG, Reynolds S, **Shah MI**. Multicenter Analysis of Transport Destinations for Pediatric Prehospital Patients. *Acad Emerg Med.* 2019; 26: 510-516. PMID: 30343530
- d. Quinones C, **Shah MI**, Cruz AT, Graf JM, Mondragon JA, Camp EA, Reddy P, Sampayo EM. Determinants of Pediatric EMS Utilization in Children with High-Acuity Conditions. *Prehosp Emerg Care.* 2018; 22(6): 676-690. PMID: 29565717.

Complete List of Published Work in MyBibliography:

<https://pubmed.ncbi.nlm.nih.gov/?term=shah%20manish%20i>