



# Pediatric Emergency Medicine Fellowship

Lauren A. McNickle  
and Robert P. Olympia

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## A Brief History of Pediatric Emergency Medicine (PEM)

The field of PEM originated in the 1970s, when discussions regarding the optimization of care for critically ill and injured infants and children began among general pediatricians. The goal of PEM was to improve and ensure the quality of patient care, teaching, and research in this new field of pediatric medicine. In the 1980s, sections of PEM were established in the American Academy of Pediatrics (AAP) and American College of Emergency Physicians (ACEP). The 1980s also introduced specialized certification for the management of critically ill and injured infants and children [including Pediatric Advanced Life Support (PALS), a module for injured children in Advanced Trauma Life Support (ATLS), and Advanced Pediatric Life Support (APLS)] and the first PEM-dedicated journal, “Pediatric Emergency Care.”

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L. A. McNickle

Department of Emergency Medicine, Baystate Medical Center,  
Springfield, MA, USA

e-mail: [lauren.mcnickle@baystatehealth.org](mailto:lauren.mcnickle@baystatehealth.org),  
[lmcnickle@pennstatehealth.psu.edu](mailto:lmcnickle@pennstatehealth.psu.edu)

R. P. Olympia (✉)

Department of Emergency Medicine & Pediatrics, Penn State Hershey  
Medical Center, Hershey, PA, USA

e-mail: [rolympia@hmc.psu.edu](mailto:rolympia@hmc.psu.edu)

The dissemination of PEM research is well represented at both regional and national scientific assemblies, including the AAP National Conference & Exhibition, Pediatric Academic Societies (PAS) meeting, ACEP Scientific Assembly, and Society for Academic Emergency Medicine (SAEM) meeting. Research in the field of PEM is often published in high-impact factor journals, most recently including topics such as pain management, asthma, procedural sedation, bronchiolitis, ultrasound, resuscitation, and simulation [1].

Pediatric emergency departments (PEDs) were first described in the 1960s. Currently, 70% of PEDs are located in large urban areas affiliated with or located within university teaching hospitals, with 50% of the PEDs population under the age of 3 years and the greatest pediatric volume presenting to the PED between 3 pm and midnight. While most PEDs are prepared to manage the acutely ill or injured infant or child, often presenting with respiratory distress, abnormal mental status, abnormal rhythm or perfusion, ingestions/poisonings, and acute surgical conditions, the most common PEDs diagnoses are acute febrile illness, acute respiratory illness, otitis media, viral infection, and asthma exacerbation, and the most common diagnoses in adolescents are acute headache, nonspecific abdominal pain, and psychiatric-related complaint [2].

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## So Why Should You Choose a Career in PEM?

1. *Organized chaos.* The fast-paced atmosphere with a variety of ages and chief complaints hits you like a hurricane. Every day is a different day, making for an exciting career. If you dislike the monotony of inpatient rounding, then PEM is perfect for you. PEM physicians are frontline diagnosticians, under time constraints to solve each undifferentiated patient that comes through the door. We love the adrenaline rush.
2. *Flexibility.* Often you can choose how many shifts you work per month, days or nights, and weekdays or weekends. On average, PEM physicians work 10.6 shifts a month that are 8.9 hours in duration. When looking at the total hours per week, PEM physicians work 26.7 hours fulfilling clinical duties and 42.7 when accounting for all clinical and nonclinical responsibilities [3]. Bunch your ED shifts up for an instant vacation. Purely work clinical ED shifts, or add research,

education, and administration to your responsibilities. The PEM world is your oyster.

3. *Location, location, location.* In the past, most PEM attending positions were located in urban areas affiliated with academic institutions. Not anymore. Since many community hospitals and academic institutions are opting to have PEDs staffed by board-certified specialists, PEM physicians can be more selective on where to establish their careers.
4. *A career of scholarship.* The volume of patients, the variety of disease processes, and new technologies and innovations in the field of PEM, such as simulation, ultrasound, and point-of-care diagnostic testing, allow the PEM physician a multitude of opportunities to perform research and quality improvement projects, with the goal of promotion and improving the care of children.
5. *The jack of all trades, the master of many.* One minute, you are the pediatric surgeon running a traumatic resuscitation and placing a chest tube, and the next minute you are the anesthesiologist intubating a postoperative congenital heart infant. Procedural sedations, fracture reductions and casting, lumbar punctures, complex laceration repairs, and central venous lines are some of the procedures we routinely perform. Complex medical patients and acutely ill or injured surgical patients are some of those we care for. The variety of patients and procedures is exhilarating.
6. *The ultimate team sport.* Whether it's a cardiorespiratory arrest or a traumatic resuscitation, status epilepticus or septic shock, or nonurgent chief complaints, the success of your patients depends on an entire team working as a synchronous unit. Resident physicians and medical students, PED nurses and technicians, registration and environmental services, diagnostic and laboratory technicians, social workers, chaplains, transport, child life, and subspecialty services all need to work hand-in-hand. And the PEM physician is the coach of the team.
7. *Get out in the community and serve.* Whether it's injury prevention, school-based health, emergency and disaster preparedness or community education on immunizations, gun violence, teen distracted driving, alcohol/drug abuse, or bullying, PEM physicians feel an innate desire to impart knowledge to the community it serves. It's about making a difference in the lives of children.

8. *Gaining acceptance is our challenge.* Parents bring their children to the PED, usually stressed, fearful, and vulnerable. They are often unfamiliar with those who will make, at times, life-saving decisions on behalf of their loved ones. We must listen attentively, communicate clearly, and gain their trust unconditionally. It is a challenge that we as PEM physicians accept willingly.
9. *The PEM family is tight.* Whether it's scanning the medical literature, running into PEM colleagues at conferences and scientific assemblies, or listening to social media podcasts or webcasts, PEM physicians are well represented. We are a small, tight-knit community, where everyone knows your name. We work hard and play hard, and we have fun fighting as a united front for the health and wellness of infants and children.
10. *Money doesn't buy happiness, but it sure does help.* Financial compensation is on the higher end compared with other pediatric subspecialties, and if you work within a Department of Emergency Medicine, your salary may be comparable to other general EM physicians.



Photo of emergency medicine colleagues during Dr. Olympia's first year of PEM fellowship, Children's Hospital at Montefiore, Bronx, NY

## PEM Fellowship: The Next Steps

PEM certification requires the completion of a 3-year fellowship for pediatric residency graduates and 2-year fellowship for emergency medicine residency graduates, often the completion of a research and quality improvement requirement, and the passing of an initial PEM board certification examination, followed by subsequent PEM recertification examinations.

There are currently 81 PEM fellowship programs in the United States, with 199 first-year positions offered in the 2019 match [4]. In addition to ED shifts in the PED and general ED, rotations may include critical care, anesthesia, trauma, toxicology, orthopedics, child abuse, pre-hospital care, OB/GYN, transport medicine, general surgery and other surgical subspecialties, radiology, ultrasound, simulation, and global health. Complementing medical and surgical topics, didactic curriculum often includes topics on research and quality improvement, administration and business, and teaching and education.

Based on data from the National Resident Matching Program (NRMP), PEM is considered one of the most competitive fellowships within the field of pediatrics. For applicants in the 2019–2020 PEM fellowship pool, the match rate was 77.1%; the match rate for other pediatric subspecialties exceeded 90% [4]. Although these numbers may seem daunting, do not let these statistics deter you from your desire to pursue a career in PEM. With strategic planning, one can work to create an exceptional application.

Paramount to the PEM application process is building your curriculum vitae (CV). Search for opportunities that mirror your professional interests (what areas of PEM are you really passionate about?): (1) Seek out educational opportunities at your medical school, residency, or even outside your institution (other nonpediatric residency programs, grand rounds at other institutions, or with community outreach programs). Turn every lecture into a review article or book chapter. (2) Get involved in research and quality improvement opportunities, but choose projects that you can complete during the first 2 years of residency, usually during less stressful rotations. Consider taking research electives to collect and analyze data, and write up abstracts and manuscripts. Retrospective studies and case reports work well within

your time constraints. Turn every research and quality improvement project into a lecture, an abstract to present at a regional or national scientific assembly, and a peer-reviewed journal manuscript submission. (3) Participate in committees within your residency program, your hospital and institution, your medical school, your profession (such as AAP, PAS, ACEP, or SAEM), and your community. Demonstrate leadership and ability to work within a team structure.

Another important requirement for the PEM application are letters of recommendation (LOR). Similar to medical school, you want to find LOR writers who know you well [professionally (can comment on your clinical acumen, research and teaching abilities, service) and personally, if possible] and can write a strong letter on your behalf. Most PEM fellowships require 3–4 LORs, often one from your residency program director, at least one from a PEM attending physician, and at least one from a pediatric critical care attending. LOR writers who have connections to your top PEM choices will often improve your chances of success. If you are fortunate to be able to do an away PEM elective, attempt to obtain a LOR from a senior attending who can accumulate the comments from the physicians you worked with. In addition to LORs, having physicians from your institution contact PEM programs that you are interested in will benefit you in the long run. As the saying goes, sometimes it's who you know in addition to what you know.

The final step to a well-rounded PEM fellowship application includes a personal statement. Trying to describe yourself in words can be very difficult. As it is a personal statement, each individual's story will be unique. PEM faculty already appreciate the field of PEM, so focus your personal statement on traits that make you a unique candidate, highlighting things on your CV that you were truly passionate about and on what that program should expect from you during fellowship and beyond. Sell yourself, be honest, and let your words shine through.

As you begin to put your application together, it is also important to begin considering the programs you will apply to. On average, most applicants apply to approximately ten programs; however, this may vary by applicant circumstance [5]. When selecting programs, consider what is important to you: location,

fellowship size, research opportunities, teaching/supervisory responsibilities, advanced degree opportunities, moonlighting opportunities, etc. The American Academy of Medical Colleges (AAMC) website provides resources on applying for fellowship, a list of fellowships, and links to the Electronic Residency Application Service (ERAS) with deadlines for applications. Undertaking the process of applying to a PEM fellowship can be confusing and overwhelming at times. Remember to reach out to your mentors regularly throughout residency to help guide and encourage you along your pathway to success.



Dr. Olympia (orange cap) and Dr. McNickle (yellow cap) waiting for a pediatric resuscitation, Penn State Hershey Children's Hospital, Hershey, PA

## References

1. Spurkeland N, Rixe J, Glick J, Lehman E, Olympia RP. Publishing trends in the field of pediatric emergency medicine from 2004-2013. *Pediatr Emerg Care*. 2016;32(12):840–5.
2. Alpern ER, Stanley RM, Gorelick MH, Donaldson A, Knight S, Teach SJ, Singh T, Mahajan P, Goepp JG, Kuppermann N, Dean JM, Chamberlain JM. Pediatric Emergency Care Applied Research Network (PECARN). Epidemiology of a pediatric emergency medicine research network: The PECARN Core Data Project. *Pediatr Emerg Care*. 2006;22(10):689–99.
3. Gorelick MH, Schremmer R, Ruch-Ross C, Radabaugh C, Selbst S. Current workforce characteristics and burnout in pediatric emergency medicine. *Academic Emerg Med*. 2016;23(1):48–54.
4. National Resident Matching Program. National Resident Matching Program, Results and Data: Specialties Matching Service 2020 Appointment Year. [Internet]. Washington, DC: National Resident Matching Program; 2020 [updated 2020 Feb; cited 2020 Jun 6] Available from: <https://mk0nrmp3oyqui6wqfm.kinstacdn.com/wp-content/uploads/2020/02/Results-and-Data-SMS-2020.pdf>.
5. Wall J, Ford CJ. Pediatric emergency medicine [Internet]. Irving, TX: Emergency Medicine Residents' Association; 2018. [Cited 2020 Jun 9]. Available from: <https://www.emra.org/books/fellowship-guide-book/19-pediatric-em/>.