

Pediatric emergency medicine in Iran: milestones and future directions

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1. To the editor-in-chief

Pediatric emergency medicine (PEM) is a subspecialty of emergency medicine focused on the acute care of infants, children, and adolescents across prehospital services, emergency departments, and interfacility transport. Its scope includes resuscitation, trauma, toxicology, medical and surgical emergencies, and stabilization of critically ill children. PEM practice requires expertise in pediatric physiology, age-specific pharmacology, and diagnostics and procedures such as airway management, analgesia, procedural sedation, and point-of-care ultrasound (POCUS).

The emergence of PEM as a distinct discipline reflects recognition that children have unique physiological and psychosocial needs that differ from adults. Historically, pediatric emergencies were managed within general emergency departments; however, this approach proved insufficient due to lack of preparedness, competency and proper equipment (1,2). In response, the United States pioneered PEM fellowships in the early 1980s, followed by formal subspecialty recognition in 1992 by the American board of pediatrics and the American board of emergency medicine (3). Canada subsequently expanded PEM training and research infrastructure (4), and over the following decades, the subspecialty spread across Europe, Asia, and Australasia, establishing a global consensus on the need for specialized pediatric emergency care (5).

Within this international context, PEM was formally recognized in Iran in the early 2020s through a structured approval process. Between May 2022 and March 2023, after thorough evaluation of all aspects of the proposed idea - though the details have not been fully publicized - the subspecialty was approved, its curriculum developed and revised, and ultimately ratified by the Medical Education and Specialization Council. Training programs were launched at four major universities: Tehran University of Medical Sciences (Children's Medical Center Hospital), Shahid Beheshti University (Mofid Children's Hospital), Iran University of Medical Sciences (Aliasghar Children's Hospital), and Tabriz University of Medical Sciences (Zahra Mardani Azari Hospital) (6). Regarding an almost 20-year delay between establishment of EM as a specialty and PEM as a subspecialty, multiple factors - including the personal views of senior experts and the lack of sufficient

numbers of adequately trained faculty members - can be attributed to it. Also, it is noteworthy that the United States experienced a similar delay.

The ultimate goal of establishing the PEM subspecialty is not to supply workforce for merely specialized centers; rather, it is anticipated that graduates will be deployed across general emergency departments that receive a substantial volume of pediatric patients. Thus, the institutional support for PEM continues to expand. Recently, the ministry of health and medical education accredited Hakim Children's hospital as an official PEM training center, alongside Children's Medical Center hospital in Tehran. This expansion increases training capacity and reflects growing national recognition of PEM's importance.

Despite these advances, several challenges persist, including insufficient procedural opportunities leading to skill gaps and reduced confidence, excessive administrative duties that detract from clinical education, limited exposure to high-acuity cases, physical and emotional burnout, and declining interest in PEM among EM-trained physicians due to extended training duration and perceived financial drawbacks (7). Furthermore, Iranian studies highlight systemic weaknesses, including limited pediatric-specific equipment, training gaps, transport safety concerns, and insufficient preparedness of EMS personnel. Many general hospital emergency departments lack standardized pediatric protocols and subspecialty staffing, while post-discharge follow-up and continuity of care remain compromised by logistical and resource limitations (8,9). Addressing these challenges requires extending PEM development beyond clinical training alone. Establishing a national academic journal would promote dissemination of locally relevant research and guideline adaptations. A dedicated PEM research center could generate epidemiological data, support multicenter studies, and inform evidence-based policy. In parallel, forming a national academic PEM society would unify clinicians, educators, and researchers, promote standardized curricula, and strengthen national and international collaboration.

In conclusion, the recognition of PEM in Iran, approval of its curriculum, establishment of training programs, graduation of the first subspecialists, and accreditation of additional centers mark a historic turning point. Building on these foundations through coordinated academic, research,

and organizational initiatives will ensure sustainable growth of PEM and improved emergency outcomes for Iranian children.

2. Declarations

2.1. Acknowledgment

None.

2.2. Authors' contribution

All authors contributed to the manuscript equally.

2.3. Conflict of interest

None.

2.4. Funding

None.

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