

Procedural Training and Competency Assessment for Pediatric Emergency Medicine Physicians

Rebekah Burns¹, Neil G. Uspal¹

1. Pediatrics, Seattle Children's Hospital - University of Washington School of Medicine, Seattle, USA

✉ **Corresponding author:** Rebekah Burns, rebekah.burns@seattlechildrens.org

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Abstract

Background

Many procedures identified by the Accreditation Council for Graduate Medical Education as essential to the practice of pediatric emergency medicine (PEM) are rarely performed by PEM physicians.¹ Physicians feel that their opportunities for procedural practice are inadequate.² There are currently no procedural training or procedural competency guidelines for PEM attendings.

Research Questions

What are current practices for providing procedural training and competency assessment for U.S. and Canadian PEM attendings?

Methods

Web-based survey to members of the PEM Fellowship Directors and Associate Fellowship Directors listserv, representing 91 PEM programs.

Results

82 of 146 recipients (56.2%) responded. Three did not provide data on specific procedures. 63.4% of respondents work in EDs in free-standing Children's Hospitals. 64.6% are part of a Department of Pediatrics. 58.5% of responders report that their divisions offer procedural training to attendings while 14.6% report assessment of procedural skills. No one reported assessment without training. The most common procedure for which training and assessment are offered are orotracheal intubation (53.4% and 7.5%, respectively) with high fidelity simulation being the most common method for both (37/43 and 5/6, respectively). Frequencies of training for other procedures include: Intraosseous line placement (43%), central line placement (36.7%), chest tube placement (35.4%), defibrillation/cardioversion (33.8%), cricothyroidotomy (27.8%), pericardiocentesis (16.5%), paracentesis (2.5%), pleurocentesis (2.5%). High fidelity simulation and task trainers are the two most common methods reported for training of all procedures except intubation (high fidelity and certification course), defibrillation/cardioversion (high fidelity and certification course), pericardiocentesis (lecture

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and high fidelity), pleurocentesis (task trainer and lecture). High fidelity simulation and task trainers are the most common methods of assessment for all procedures. 50.6% identify cost as a barrier to training with lack of faculty interest and lack of standardized guidelines the next most common barriers (36.4% each). Lack of standardized guidelines is the most common barrier for assessment (51.9%) followed by cost (43%) and lack of faculty interest (38%).

Discussion

Practices in procedural training and competency assessment vary widely throughout PEM programs in Canada and the U.S. Simulation, including high fidelity and task trainers, is the most common methods for training and assessment for most procedures. Identifying cost-effective models and establishing guidelines for training and assessment programs may help decrease barriers to implementation.

References

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Procedural Training and Competency Assessment for Pediatric Emergency Medicine Physicians

Rebekah Burns, MD and Neil Uspal, MD
Seattle Children's Hospital, Seattle, WA, USA



Background

- Many procedures identified as essential to the practice of pediatric emergency medicine (PEM) by the Accreditation Counsel for Graduate Medical Education are rarely performed by PEM physicians.^{1,2}
- Physicians feel that their opportunities for procedural practice are inadequate.³
- There are currently no procedural training or procedural competency guidelines for PEM attendings.
- Simulation offers the opportunity to practice infrequently required procedures in a controlled environment and allows for deliberate practice.

Objectives

- Describe current practices in training and assessment for nine critical procedures for PEM attendings in the United States and Canada
- Describe perceived barriers to procedural training and assessment for PEM attendings

Methods

- Cross-sectional survey design
- Web-based anonymous survey to members of the PEM Fellowship Directors and Associate Fellowship Directors listserv, representing 91 PEM programs.
- Eligible participants included 146 individuals representing 85 institutions in the United States and six within Canada

Results

- 82/146 recipients (56.2%) responded; 3 incomplete
- Characteristics of responders' clinical sites
 - 63.4% of respondents work in EDs within free-standing children's hospitals
 - 35.4% work in independent pediatric EDs within a general ED
 - 1.2% work in an integrated ED without a specific pediatric site
- Availability of training and assessment for PEM attendings
 - 59% of responders report that their division offers procedural training
 - 14.6% reported assessment of procedural skills
 - No one reported assessment without training

Table 1. Procedural Training Practices

Procedure	% Providing Training	% Didactic Training	% Task Trainer	% High Fidelity Simulation	% Cert Course	% Other
Orotracheal intubation*	53.8	32.6	25.0	46.3	32.5	2.5
Defibrillation/Cardioversion*	33.8	17.6	6.3	27.5	21.3	0
Central Line*	36.7	30.4	20.3	19.0	13.9	2.5
Chest Tube*	35.4	26.5	17.7	22.8	7.6	5.1
Cricothyroidotomy*	27.8	15.2	15.2	15.2	5.1	2.5
Intraosseous Line*	43.0	21.6	26.6	25.3	24.1	2.5
Paracentesis*	2.5	2.6	2.5	1.3	0	0
Pericardiocentesis*	16.5	17.8	2.5	7.6	6.3	0
Pleurocentesis*	2.5	1.3	2.5	0	0	0

* n= 80
* n= 79

Results Continued

- Patients were used for training of orotracheal intubation at 21.3% of sites
- One responder reported that patients outside the ED were used to assess intubation skills and one reported using patients within the ED for assessment
- Actual patients were not reported to be used for assessment of any other procedural skills

Table 2. Procedural Assessment Practices

Procedure	% Providing Assessment	% Using Observation with Task Trainer	% Using Observation with High Fidelity Simulation
Orotracheal intubation*	7.5	5.0	6.3
Defibrillation/Cardioversion*	3.8	1.3	3.8
Central Line*	6.3	3.8	3.8
Chest Tube*	5.1	2.5	3.8
Cricothyroidotomy*	3.8	1.3	2.5
Intraosseous Line*	3.8	3.8	1.3
Paracentesis*	1.3	1.3	0
Pericardiocentesis*	2.5	1.3	1.3
Pleurocentesis*	1.3	1.3	0

* n= 80
* n= 79

Table 3. Perceived Barriers to Training and Assessment

Factor	% Reporting as Barrier to Training (n=79)	% Reporting as Barrier to Assessment (n=79)
Cost/lack of financial resources	50.6	43.0
Absences of resources within the emergency department	32.9	34.2
Absence of resources outside of the emergency department	24.1	20.3
Not felt to be necessary	25.3	29.1
Lack of interest from faculty	36.7	38.0
No available guidelines/methods for training	36.7	51.9
Concern for liability issues	N/A	21.5
No barriers perceived	7.6	12.7
Other*	20.3	11.4

* Other barriers to training included lack of models available to procedure, time constraints, absence of funding for provider time, performance anxiety on part of provider, absence of educators trained in procedure. Other barriers to assessment included lack of adequate models available to procedure, lack of time, and difficulty in defining competency.

Conclusions

- Practices in procedural training and competency assessment vary widely throughout PEM programs in Canada and the U.S.
- Simulation, including high fidelity and task trainers, is the most common method for training and assessment for most procedures.
- Identifying cost-effective models and establishing guidelines for training and assessment programs may help decrease barriers to implementation.

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