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 PREDICT (Paediatric Research in Emergency Departments International Collaborative), PERN (Pediatric Emergency Research Network)

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## Background

- Pediatric emergency physicians have low exposure to critically ill children.<sup>1,2</sup>
- This low exposure has led to concerns regarding maintenance of critical airway and non-airway procedural skills.<sup>3,4</sup>
- Endotracheal intubation – by far the most common critical procedure - occurs approximately once per 1,000 paediatric ED presentations in large tertiary centers.<sup>5</sup> Rates of non-airway critical procedures are presumably much lower, however, accurate data on their frequency is lacking.
- It is unknown how often critical non-airway procedures such as chest decompression, CPR, ED thoracotomy, defibrillation, pacing, and advanced vascular access techniques are performed by pediatric emergency clinicians.

## Objectives

- To determine the recent performance or supervision, and confidence for various pediatric critical non-airway procedures by senior paediatric emergency clinicians.

## Methods

### The PERN Critical Procedures Survey

Multicenter cross-sectional survey of senior pediatric emergency clinicians working in 101 emergency departments affiliated with the Pediatric Emergency Research Network (PERN) between August 2015 and July 2016.

- Each of the six networks contributing to PERN had at least one study investigator, who invited hospitals within their network to participate in the study.
- Information about the study and an invitation to participate was emailed to a nominated researcher at each hospital. If the site was able to participate, the researcher distributed a “clinician survey” to eligible staff at their hospital.

### Inclusion criteria

- Doctors who would be considered to be working in a supervisory / “senior” capacity in the ED at any time during their usual working week.
  - All attending / specialist staff
  - Trainees / residents working night shift without more senior supervision.

### Survey content

- Demographics, Training experience, Hours of work
- Current clinical exposure to pediatric emergency medicine practice
- Most recent performance or supervision of non-airway critical procedures.
  - <3 months, <6 months, <12 months (“less than one year”), <5 years, more than 5 years, never.
- Procedural confidence for non-airway critical procedures.
  - 5-point Likert scale (1=not at all confident, 3=somewhat confident, 5=confident)

### Survey distribution

- Initial email, then weekly reminders for two weeks.

## Results

The survey was distributed to 2446 clinicians at 101 hospitals.

- 1602 (65%) completed at least demographic details.
- 1503 (61%) provided information on suggested frequency of practice and preferred learning modalities for the listed critical procedures.

### Response rate by region

- Australia / New Zealand 184/283 (65%)
- England / Northern Ireland / Scotland / Wales 407/573 (71%)
- United States of America 613/1062 (58%)
- Canada 151/253 (60%)
- Europe 114/195 (58%)
- South America 34/80 (43%)
- **Overall 1503/2446 (61%)**

### Demographic details

- 55% female
- Specialist qualifications: 38% Pediatrics and PEM; 16% Pediatrics alone; 19% Emergency Medicine alone; 15% no specialist qualification; 5% PEM alone
- Median of 25 (IQR 18-32) clinical hours per week
- 53% worked in PEM 100% of clinical hours

### Figure 1. Non-airway critical procedures

- (a) Performance / most-recent performance OR supervision in last 12 months
- (b) Never performed / never performed OR supervised

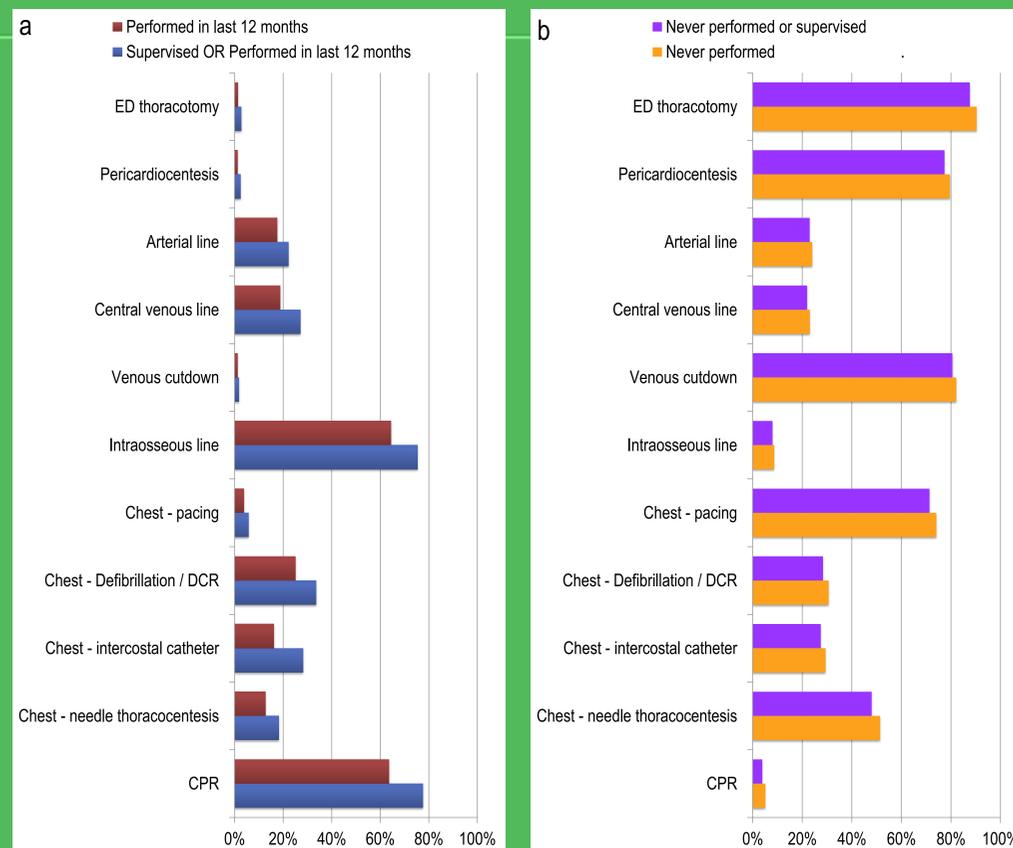
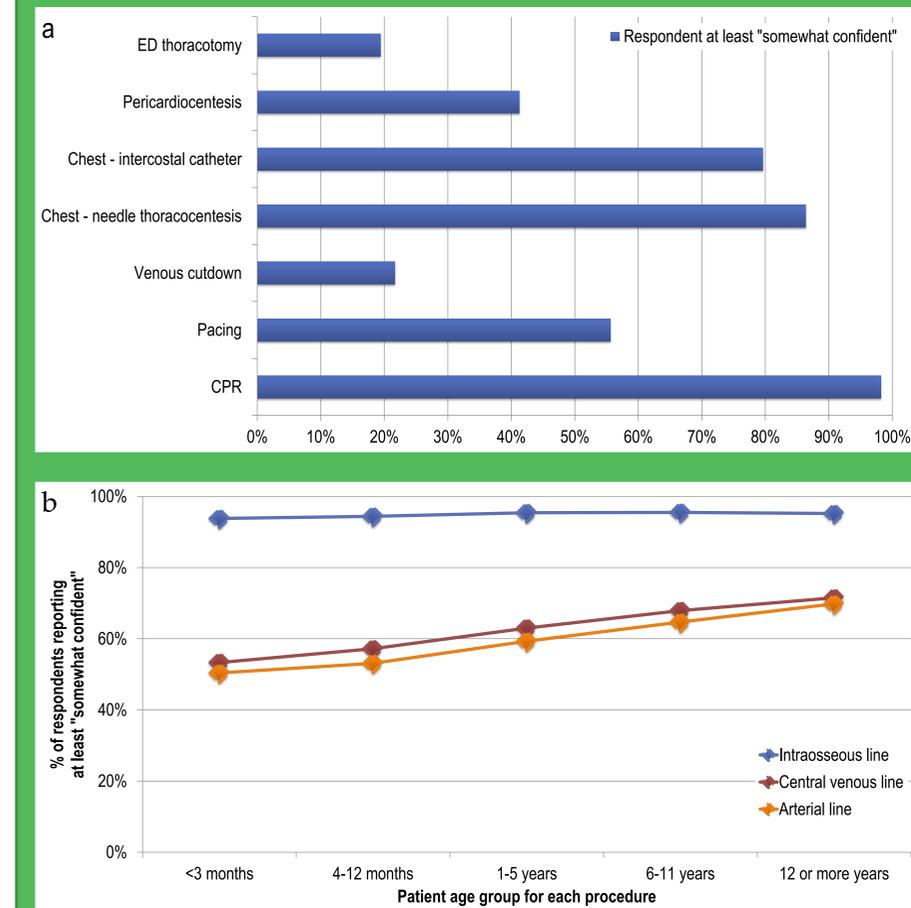


Figure 2. Confidence for non-airway critical procedures (a) At least “somewhat confident” for various chest procedures (b) Confidence by age for vascular access procedures



## Conclusion

- Intraosseous line and CPR are the most frequently performed non-airway critical procedures in children, with more than half of the pediatric emergency clinicians surveyed performing these skills within the last 12 months.
- Procedural confidence is higher for more frequently-performed procedures, while less common procedures are associated with less procedural confidence.
- Procedural confidence appears to increase with age of the child for central lines and arterial lines.

## References

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