

## Propofol Utilization in Emergency Department Pediatric Procedural Sedation

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**Introduction:** While indications and demand for pediatric procedural sedation (PPS) in the ED continue to expand, many providers have not expanded their armamentaria beyond ketamine. Practice preferences and level of experience using other agents, particularly propofol, are inconsistent even among providers in our own ED. Benefits of propofol include decreased post-procedure events, faster recovery time, and potential improved satisfaction rates. We sought to characterize PPS practice habits of ED providers nationally to identify barriers to propofol use.

**Methods:** Pediatric Emergency Medicine (PEM) Listserv subscribers were invited to complete a 10-question web-based survey (Fig 1). Questions pertained to PPS preferences with a focus on propofol utilization. Statistical analysis was performed using SPSS v16 (Chicago, IL, USA).

**Results:** Respondents totaled 387 with 331 having PEM fellowship backgrounds (86%). Most practiced in dedicated Pediatric EDs (94%) and within academic medical centers (83%). Single-agent ketamine was the preferred regimen for 79%, with most respondents reporting propofol use in <10% of cases. Factors associated with preference for propofol included practice experience >5 years ( $p<0.01$ ) and employment where providers perform PPS outside the ED ( $p<0.01$ ). The most frequently cited reasons for avoiding propofol included lack of familiarity or formal training in its use. Hospital policies regarding setting of care, provider specialty, or trainee supervision were frequently noted barriers to utilization.

**Discussion:** Propofol utilization in ED PPS is uncommon. PPS is a core EM competency, but ED PPS training beyond ketamine is lacking. When safety can be ensured through proper patient selection, indication, and monitoring, propofol may enhance PPS quality and benefit patients, families, and providers. Instituting a standard ED-based curriculum for trainees may be a next step toward consistent high-quality PPS in the ED.

1. How many years ago did you complete training?

- I am still in training
- 0-5
- 6-10
- 11-15
- 16+

2. Select your training background

- Pediatrics residency
- Pediatric residency and Pediatric EM fellowship
- Emergency Medicine residency
- Emergency Medicine residency and Pediatric EM fellowship
- Other (please specify)

3. Where are you primarily employed?

- Academic Medical Center
- Community Medical Center

4. Where do you practice Pediatric EM?

- Dedicated Peds ED in a freestanding Children's Hospital
- Dedicated Peds ED within an academic medical center
- Dedicated Peds ED at a community hospital
- General ED
- Other (please specify)

5. Does your hospital allow sedation by providers who are not Anesthesia-trained?

- Yes
- No

6. Do Pediatric EM physicians provide sedation outside of the ED?

- Yes
- No

7. What is the drug or combination you use most often for procedural sedation?

- Ketamine
- Propofol
- Propofol and ketamine
- Fentanyl and midazolam
- Other (please specify)

8. In what percentage of your pediatric procedural sedation cases in the ED do you use propofol?

- <10%
- 10-25%
- 26-50%
- 51-75%
- 76-100%

9. Which of the following are reasons you have avoided using propofol in pediatric procedural sedations in the ED? Please check all that apply.

- Lack of familiarity with propofol
- Lack of formal training with propofol
- Concern for respiratory depression
- Concern for hemodynamic instability
- Propofol lacks analgesic activity and is insufficient as a single agent for pediatric procedural sedation in the ED.
- I prefer to use a single agent with sedative and analgesic activity.
- The addition of propofol to a regimen is not more efficacious than a single agent alone.
- Hospital policy prevents use of propofol in the ED.
- Hospital policy prevents use of propofol by non-anesthesia providers.
- Hospital policy requires additional staffing and/or monitoring during a procedure with propofol.
- It is not clinically necessary to blunt the hemodynamic effects of ketamine with propofol.
- Propofol does not significantly improve ketamine-induced nausea or emergence agitation.
- None of the above:** I routinely use propofol for pediatric procedural sedation in the ED as a sole agent
- None of the above:** I routinely use propofol with ketamine for pediatric procedural sedation in the ED
- Other (please specify)

10. Several publications have reported increased satisfaction among patients, caregivers, nurses, and physicians when propofol is combined with ketamine for ED pediatric procedural sedation. What do you view as the largest barrier to the use of propofol at your institution?

- Physician education
- Hospital policies
- Medication availability
- Nursing education
- Inadequate staffing
- None of the above:** I do not believe propofol warrants an increased role in pediatric emergency procedural sedation.
- Other (please specify)

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