

## The Incidence and Nature of Allergic and Anaphylactic Reactions during Pediatric Procedural Sedation: A Report from the Pediatric Sedation Research Consortium

Authors: JH Hertzog<sup>1</sup>, K Preisberga<sup>2</sup>, S Penfil<sup>3</sup>

Affiliation: <sup>1</sup>Nemours/Al duPont Hospital for Children, Wilmington, DE, <sup>2</sup>Texas Children's Hospital, Houston, TX, <sup>3</sup>Samuelson Children's Hospital at Sinai, Baltimore, MD

**Introduction:** Anaphylaxis is a rare but life threatening event. In the peri-operative period, the incidence of anaphylaxis during general anesthesia in adults is estimated to be 1:10,000 to 1:20,000 cases. The incidence of anaphylaxis during pediatric procedural sedation outside of the operating room is unknown. We utilized data from the Pediatric Sedation Research Consortium (PSRC) to determine the incidence and nature of allergic and anaphylactic reactions in this practice, hypothesizing that the incidence of anaphylaxis would be lower than that reported in the peri-operative period.

**Methods:** A retrospective observational study of prospectively obtained information collected in the PSRC's multi-center database was performed, using data entered from 11/10/11-1/6/17. Cases where the complication "allergic reaction" was noted were identified. Since "anaphylaxis" is not a listed complication in the PSRC database, all cases where "allergic reaction" was noted were reviewed for the occurrence of other complications or interventions that would suggest at least 2 organ system derangements consistent with anaphylaxis, as well as for practitioner commentary stating the occurrence of anaphylaxis. Descriptive analysis of demographic information was performed.

**Results:** 224,703 cases were entered into the PSRC database during the study period. 54 cases noted a complication of "allergic reaction" (incidence 1:4,161 cases), with 6 of these cases being consistent with anaphylaxis (incidence 1:37,451 cases). Demographic information is provided in the table. All cases where anaphylaxis occurred were scheduled for MRI. Anaphylaxis was recognized prior to MRI in 4 cases and during MRI in 2 cases (gadolinium use unknown). 5/6 anaphylaxis cases received propofol as the primary sedative, while methohexital was the primary sedative in 1 case. In addition, topical numbing agents were used in 3 cases, IV lidocaine in 2 cases, and fentanyl in 1 case. There were no mortalities.

**Discussion:** Allergic reactions and anaphylaxis during pediatric procedural sedation are rare. In the PSRC, the incidence of anaphylaxis is less than that reported for adults in the peri-operative period.

Ref: Lieberman et al., Ann Allergy Asthma Immunol 2015

	ALLERGIC (n = 46)	ANAPHYLAXIS (n = 6)
Age (yr)	7.6 ± 4.9	6.2 ± 5.2
Wt (kg)	31.0 ± 18.8	27.6 ± 18.8
Female	45.8%	50%
ASA		
1	28%	0
2	52%	67%
3	17%	33%
Principle Dx		
Neurologic (other)	18.8%	50%
Heme/Onc (other)	14.6%	16.7%
Orthopedic	14.6%	0
GI	12.5%	0
S/P Trauma	0	33.3%