



Reporting Adverse Events in Children Undergoing General Anesthesia Using An Electronic Database

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INTRODUCTION

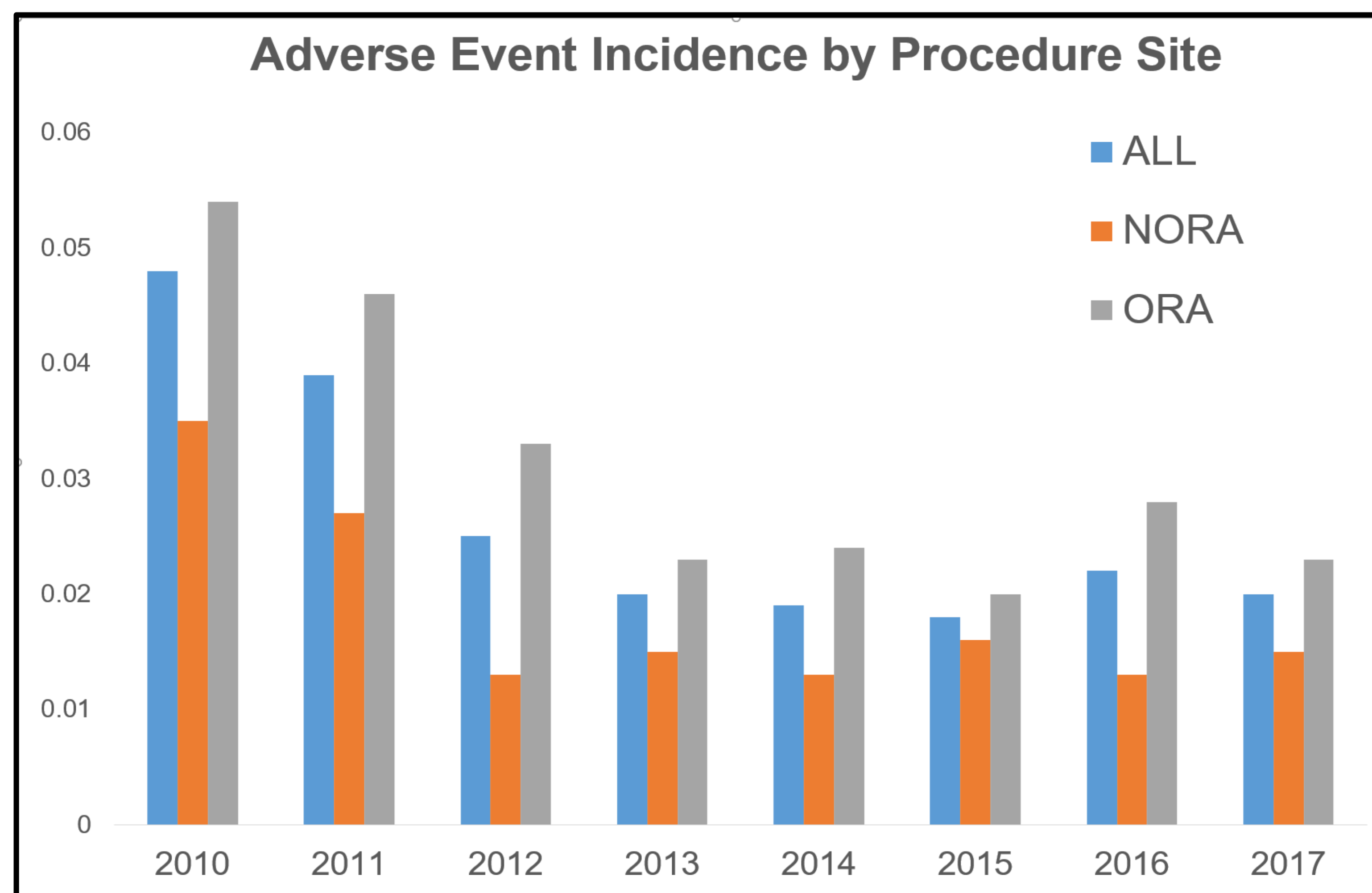
We have previously reported peri-procedural adverse events (AE) incidence to be 3.5% in children undergoing general anesthesia (from 5/1/2006-9/30/2007) in and outside the operating room (OR) (1). Since this initial report, we have revised and improved the data reporting mechanism.

This report is a summary of the peri-procedural AEs at our institution from 1/1/2010 to 12/31/2017.

METHODS

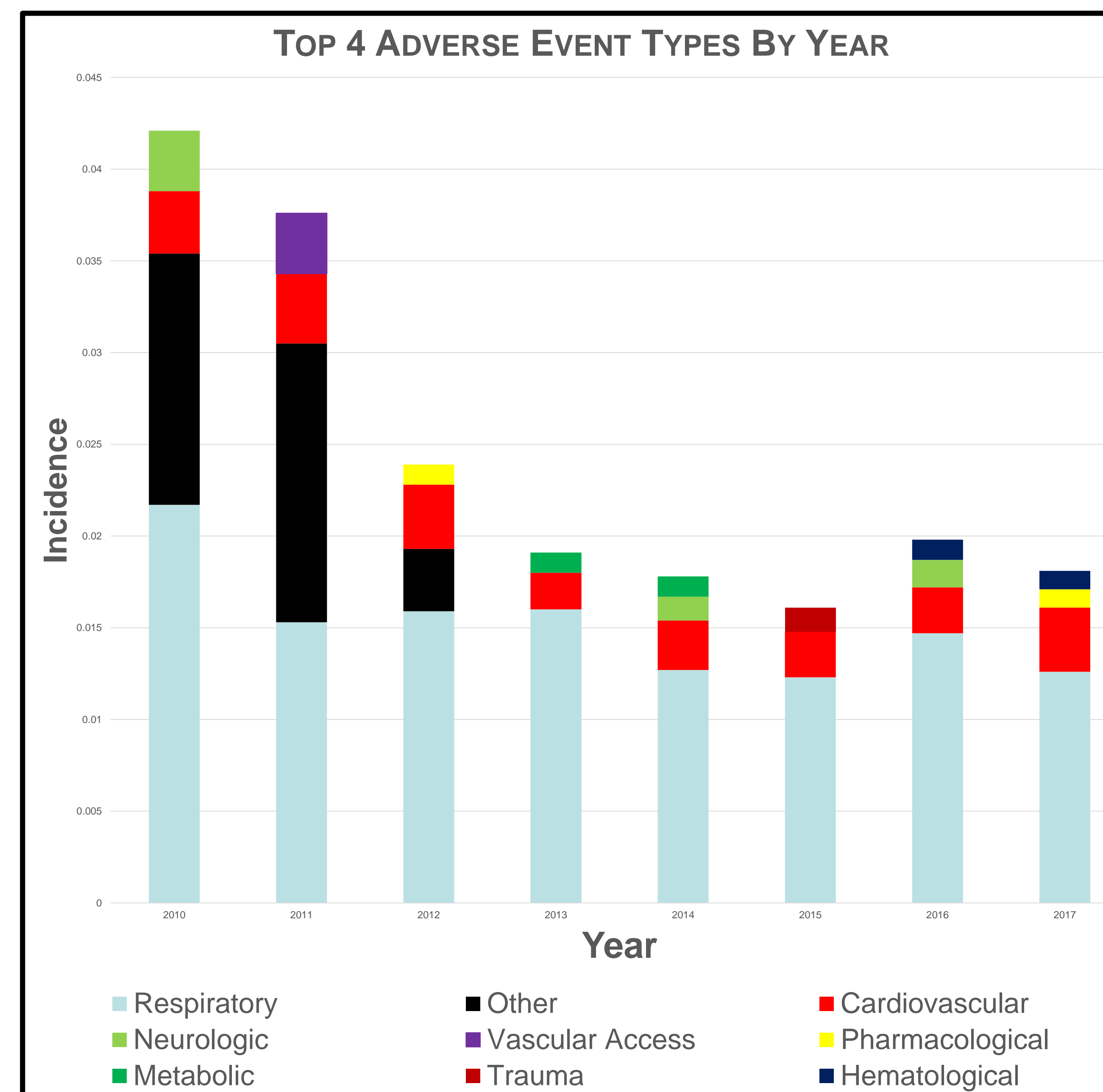
- After IRB approval, data were collected on every anesthetic performed at our institution from 1/1/2010 through 12/31/2017.
- Data acquisition was from both automated and end-user input.
- Exclusion criteria included: age over 21 years, incomplete information, and anesthetic not performed at our standard pediatric anesthetizing locations.
- Data were analyzed for surgical service, location, scheduled vs unscheduled procedure, age, ASA physical status, and presence and category of Adverse Events

RESULTS



Effect	Point Estimate	95% Wald Confidence Limits	P-value
ORA vs NORA	1.890	1.702 2.098	<0.0001*
ASA 1 vs 3	0.639	0.561 0.729	<0.0001*
ASA 2 vs 3	0.705	0.633 0.785	<0.001*
ASA 4 vs 3	0.979	0.826 1.159	0.7929
ASA 5 vs 3	1.642	0.942 2.862	0.0802
Unscheduled vs Scheduled	1.079	0.934 1.247	0.3044
Age	0.966	0.958 0.974	<0.0001*

Demographics	Category	Total	No AE (n=73553) % (n)	1 or more AE (n=1976) % (n)	p-value (2 sided)
ASA	1	15,053	97.6 (14,699)	2.4 (354)	<0.0001*
	2	28,234	97.8 (27,606)	2.2 (628)	
	3	27,034	97.1 (26,240)	2.9 (794)	
	4	4,962	96.3 (4,776)	3.7 (186)	
	5	245	94.3 (231)	5.7 (14)	
Age	<1 month	1,956	97.2 (1,902)	2.8 (54)	<0.0001*
	1-12 months	7,940	96.6 (7,669)	3.4 (271)	
	1-6 years	26,263	96.7 (25,402)	3.3 (861)	
	6-12 years	18,627	98.0 (18,250)	2.0 (377)	
Emergency	Scheduled	67,436	97.4 (65,697)	2.6 (1,738)	0.0529
	Unscheduled	8,093	97.1 (7,855)	2.9 (238)	
Gender	Female	33,086	97.4 (32,228)	2.6 (858)	0.7269
	Male	42,443	97.4 (29,690)	2.6 (1,118)	
Location	NORA	30,233	98.2 (29,690)	1.8 (542)	<0.0001*
	OR	45,296	96.8 (43,862)	3.2 (1,434)	



RESULTS

- Overall AE incidence during the study period was **2.8%**.
- AE in OR was **3.3%** and AE outside the OR (NORA) was **1.9%**.
- AE incidence decreased from 2010 to 2013 and then appeared to plateau.
- Higher ASA Physical Status, Emergency or unscheduled status, & younger age were significant risk factors for AE.
- Respiratory events remain to be the most common type of AE.

DISCUSSION

- Overall AE incidence is similar to our previous reported incidence as well as those reported in other studies (1,2, 3).
- The cause for the reduction in AE incidence is not known definitively. Possible causes include improved safety measures, better teaching and training, and newer technology.
- We identified specific risk factors for adverse events, including ASA Physical Status, Emergency or unscheduled status, and younger age. Thus, future efforts should be directed to reduce AE in patients with these risk factors
- In children, respiratory events were the most common primary AE. This finding is similar to what has been reported by other studies.
- With standardized anesthesia care NORA AE was significantly lower than OR AE. Thus, surgery could be an additional risk factor.

REFERENCES: (1) Kakavouli, A, et. al. Pediatric Anesthesia 2009, 19: 732-739. (2) Murat, I. et al. Pediatric Anesthesia 2004; 14: 158-66. (3) Habre W, et. al. Lancet Respir Med 2017; 5: 412-25.