



Background

Pediatric patients recovering from oral and nasal surgeries are uniquely vulnerable to airway obstruction, oxygen desaturation, and secretion-related complications in the immediate postoperative period, hence **postoperative positioning becomes a critical, nurse-driven factor in promoting airway stability and safe recovery.**

Despite its importance, there was limited evidence guiding which positions best reduced complications or minimized the need for clinical interventions. Nurses in the post-anesthesia care unit (PACU) frequently initiated actions such as repositioning, oxygen administration, and escalation to pediatric anesthesia providers when airway concerns arose—yet the relationship between initial positioning and these interventions had not been systematically evaluated.

Research & Methods

The Joe DiMaggio Children's Hospital (JDCH) perianesthesia nursing team, initiated a nurse-led study to explore the question how **immediate postoperative positioning affected the incidence of airway-related complications requiring intervention in pediatric patients** following oral and/or nasal surgery performed by pediatric otorhinolaryngologist (ENT). By evaluating outcomes, the study sought to identify positioning strategies that **optimize airway protection, enhance recovery safety, and strengthen evidence-based postoperative care.**

This prospective, observational, **single-center study included 496 pediatric patients, ages 6 months to 18 years, who underwent oral and/or nasal procedures over a 6-month period.** The analysis focused specifically on children who received a tonsillectomy, adenoidectomy, or combined tonsillectomy and adenoidectomy. PACU nurses collected key data elements, including patient age, procedure type, recovery position, head-of-bed elevation, and any airway complications observed during recovery.

Results

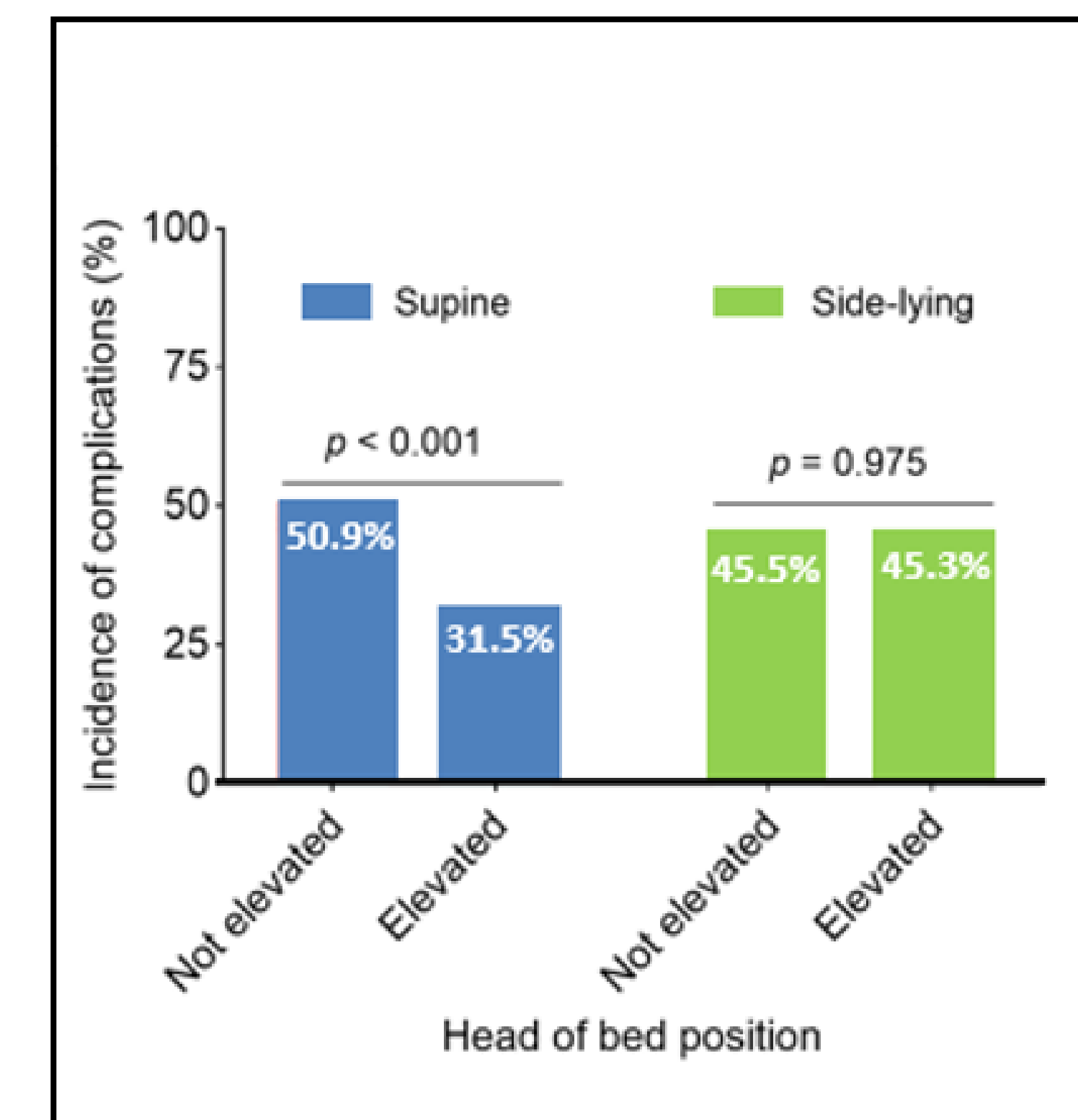
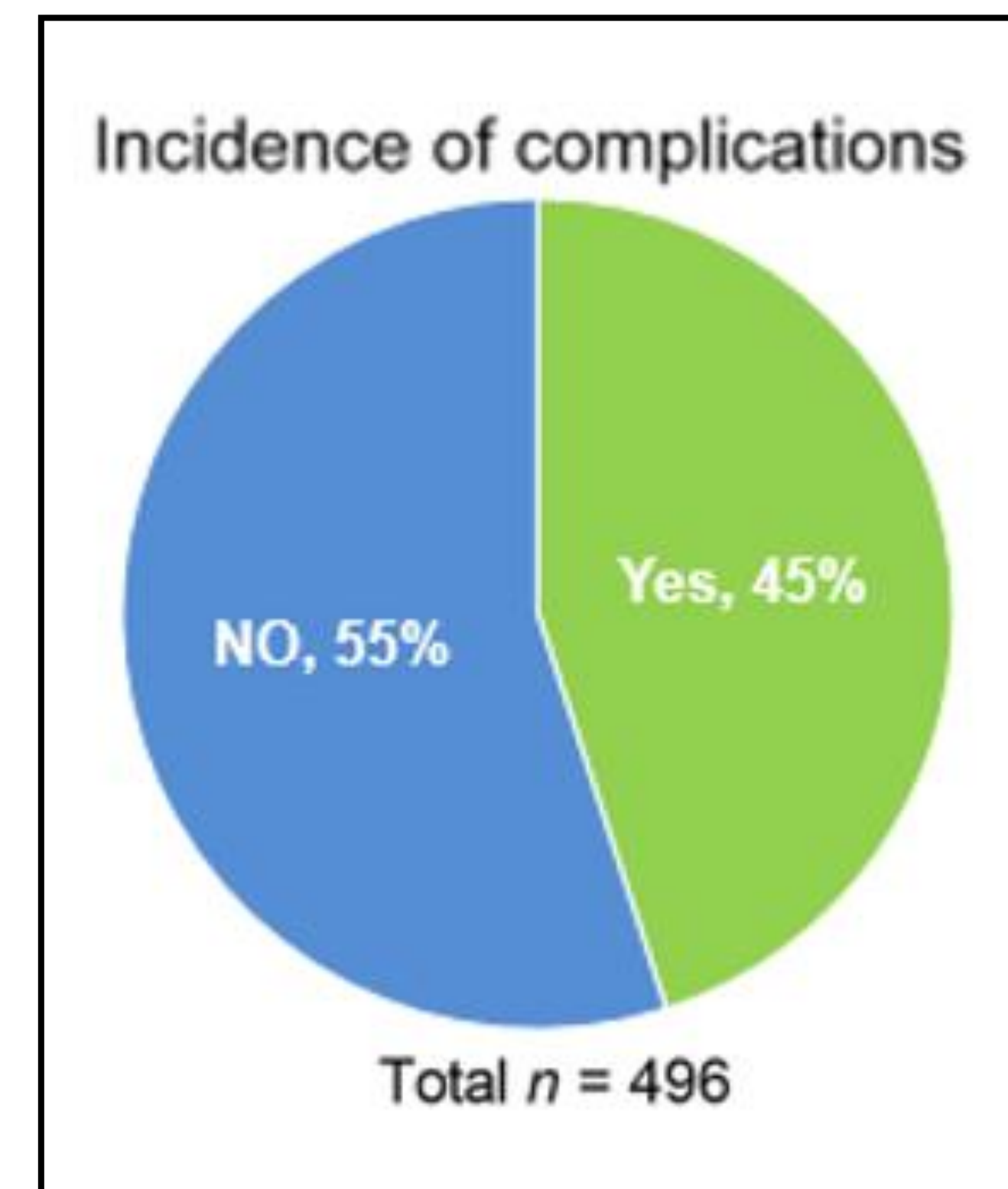


Table 2. Types of PACU complications requiring interventions in the study patients

Types of complications	Position upon arrival to PACU		p-value
	Supine (n = 342)	Side-lying (n = 154)	
Unplanned hospital admission	0 (0)	1 (0.7)	0.311
Unplanned ICU admission	1 (0.3)	1 (0.7)	0.525
Required supplemental oxygen	33 (9.7)	20 (12.9)	0.274
Required suctioning	115 (33.6)	53 (34.4)	0.864
Required repositioning	105 (30.7)	27 (17.5)	0.002
Required respiratory treatment	8 (2.3)	10 (6.5)	0.022
Required staff assist	5 (1.5)	2 (1.3)	> 0.999
Required OPA/NPA	13 (3.8)	9 (5.8)	0.307
Required other support*	23 (6.7)	16 (10.4)	0.161

Table 3. Univariate and multivariate logistic regression analysis of factors associated with PACU complications

Variables	Category	PACU complication Events/n (%)	Unadjusted		Adjusted	
			OR (95% CI)	p-value	aOR (95% CI)	p-value
Age	< 5 years	121/222 (54.5)	Reference		Reference	
	≥ 5 years	102/274 (37.4)	0.49 (0.35 - 0.71)	< 0.001	0.47 (0.31 - 0.71)	< 0.001
Types of surgery	Adenoidectomy	67/173 (38.7)	Reference		Reference	
	Tonsillectomy	6/22 (27.3)	0.59 (0.22 - 1.59)	0.300	1.15 (0.41 - 3.24)	0.795
	Tonsillectomy & adenoidectomy	120/251 (47.8)	1.45 (0.98 - 2.15)	0.065	1.86 (1.21 - 2.86)	0.005
	Tonsillectomy & adenoidectomy + BMT	30/50 (60.0)	2.37 (1.25 - 4.52)	0.008	2.48 (1.26 - 4.90)	0.009
Position upon arrival to PACU	Supine	153/342 (44.7)	Reference		Reference	
	Side-lying	70/154 (45.5)	1.03 (0.70 - 1.51)	0.882	0.91 (0.60 - 1.37)	0.647
HOB position	Not elevated	165/335 (49.3)	Reference		Reference	
	Elevated	58/161 (36.0)	0.58 (0.39 - 0.88)	0.006	0.62 (0.41 - 0.94)	0.023

Practice Change

After completing the study, the perianesthesia nursing team reviewed the results with leadership, anesthesia providers, and ENT surgeons. Based on the findings, the team recommended implementing a practice change in the department regarding the post-operative care of ENT patients. The recommendation was well received, and the following practice change was implemented for the post-operative recovery of ENT patients in the JDCH PACU:

Patients 5 years and younger:



Side-lying with head of bed elevated

Patients 6 years and Older:



Supine with head of bed elevated

Discussion

Based on the results of the study and the positive feedback from leadership, anesthesia providers, and ENT surgeons, the perianesthesia nursing team plans to **expand the study to additional sites and is exploring the inclusion of patients undergoing multiple dental extractions** to evaluate whether similar post-operative care practices can be applied to this patient population.