

## Nil per os (NPO) Times and Pulmonary Complication Rates in Pediatric Sedation: Results from the Pediatric Sedation Research Consortium (PSRC)

Beach M, Chapman J, Cohen D, Cravero J, Gallagher S, Havidich J, Leder M, Lubisch N, Rhoades M, Smith T, Webb S.

**Background:** Limited evidence has been published on the risk of aspiration in children during pediatric sedation and in particular the role of pre-procedural fasting guidelines.

**Objective:** This study evaluates adherence to fasting guidelines and examines its relationship to pulmonary complications.

**Methods:** The PSRC consists of multiple sedation providers in 24 participating institutions, including: 8 free-standing children's hospitals, 7 children's hospitals within hospitals, 6 general hospitals/medical centers and 3 community hospitals. PSRC members submit detailed records on 100% of sedations. From 7/14/2004 to 11/15/2005, 30,037 sedations were recorded. Patients were considered NPO if intake for solids was greater than 8 hours and intake for liquids was greater than 2 hours. Primary outcomes were pulmonary aspiration or pulmonary complication (defined as: apnea, aspiration, desaturation, emergency anesthesia consult, bag-mask ventilation or intubation). We adjusted for ASA level, emergency status, provider type, and age using generalized linear models to estimate relative risk (RR)

**Results:** No pulmonary aspirations were recorded. NPO status was known for 28,941 patients. Pulmonary complications were more common when NPO guidelines were violated for solids but not liquids, however this difference did not persist in multivariate models (see Table). Age less than 6 months (RR=1.82; 95% CI 1.38-2.41), ASA classification greater than II (RR=2.41; 95% CI 1.93-3.02), and provider specific differences ( $p < 0.0001$ ) remained statistically significant, while emergency status was not a statistically significant predictor of risk.

**Discussion:** NPO status is not associated with pulmonary aspiration. Risk Stratification for Pediatric Procedural Sedation based on age, ASA status and provider type may be more useful predictors of risk than NPO status.

Table: Pulmonary Complications by NPO Status

	N	Risk	Unadjusted RR	Adjusted RR
NPO	22,130	1.94%	Reference	Reference
Solids >= 8hr Liquids <2 hr	278	1.08%	0.55 (0.18-1.71)	0.80 (0.26-2.46)
Solids < 8 hr	6,533	2.40%	1.24 (1.03-1.49)	1.14 (0.92-1.43)

RR=relative risk

Table: Adjusted model for Pulmonary complications for Solids less than 8 hours

	Variable	Relative Risk	95% CI	p-value
Liquids	Less than 2hours	1.13	( 0.90 - 1.41)	0.30
Age	Less than 6 months	ref		
	6 months-2years	0.69	( 0.51 - 0.94)	0.02
	More than 2years	0.48	( 0.35 - 0.64)	0.00
Provider	Anesthesiologist	ref		
	APRN/PNP/PA	1.16	( 0.73 - 1.84)	0.52
	ER MD	1.89	( 1.35 - 2.63)	0.00
	Fellow	1.98	( 1.05 - 3.75)	0.04
	Housestaff	0.56	( 0.08 - 4.08)	0.57
	Intensivist	3.15	( 2.32 - 4.27)	0.00
	Pediatrician	1.35	( 0.82 - 2.21)	0.24
	Radiologist	1.46	( 0.66 - 3.23)	0.36
Other	3.79	( 1.69 - 8.48)	0.00	
Emergency		0.58	( 0.36 - 0.93)	0.02
ASA >II		2.64	( 2.12 - 3.30)	0.00