

# Multicenter Variation in Supraglottic Airway Device Use and Pulmonary Complications

*Focus on the Obese Population*

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# Research Support



NIH T32 Postdoc Research Fellowship



FAST-CaR Seed Grant



RAP Grant for Ongoing NIH T32 Project



**Study Relevance**



**Study Design**



**Main Results**



**Lessons Learned**



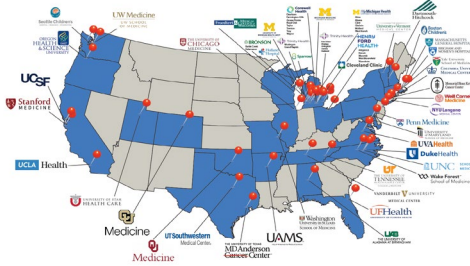
**SGA: Supraglottic Airway**  
**ETT: Endotracheal Tube**

# Study Relevance

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# Study Design



## Multicenter Retrospective Observational and Cross-sectional Analysis

From 01/01/2019 to 12/31/2022



**AIM 1:** Describe the Practice Patterns across MPOG Institutions of **SGA** among **Obese patients** undergoing **General Anesthesia**



**AIM 2:** Evaluate **adjusted associations** between **clinician- and institution-level SGA practice patterns** and **pulmonary complication and 30-day mortality** of obese patients

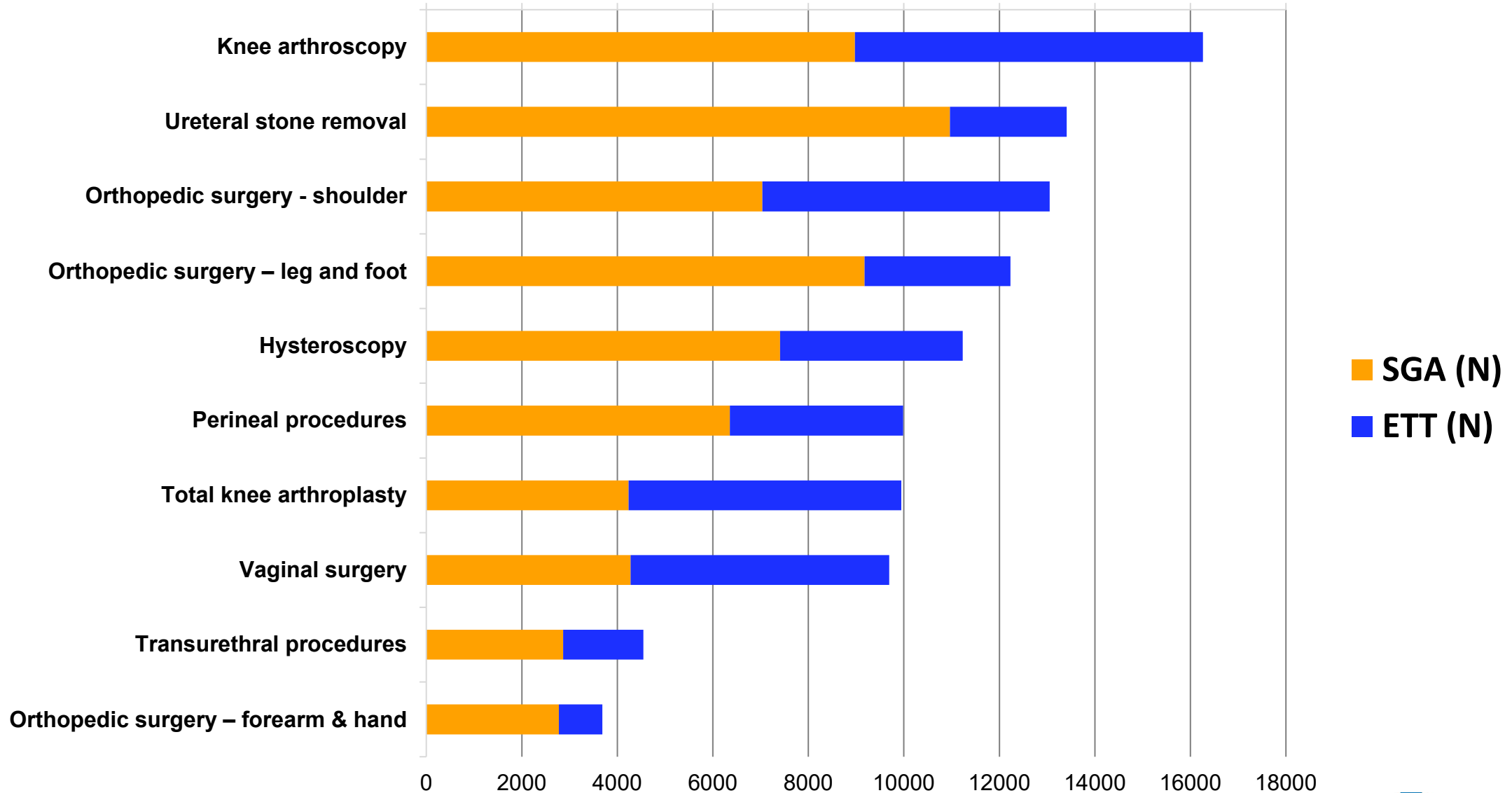


## Adult Patients

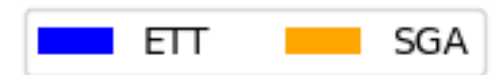
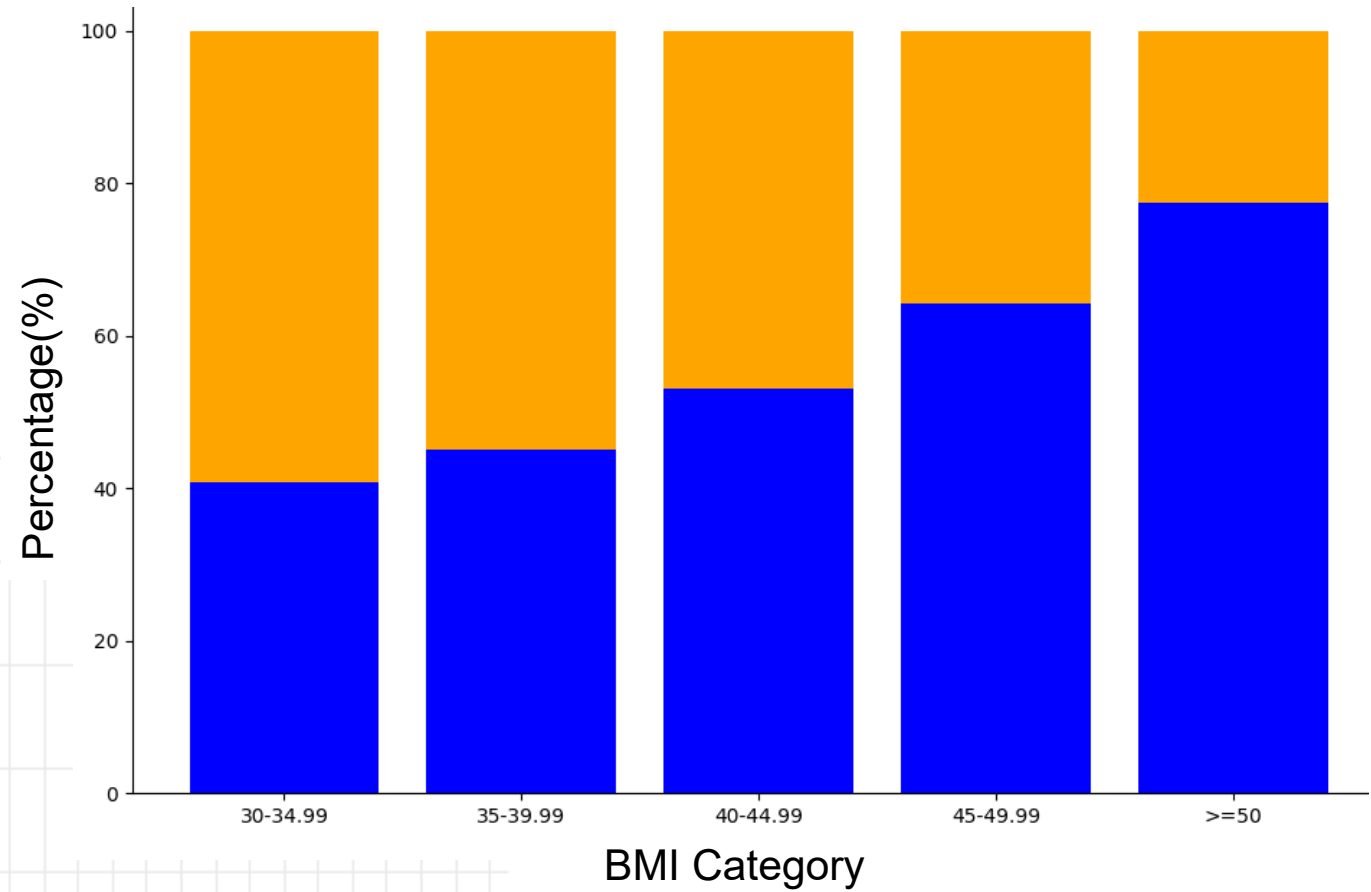
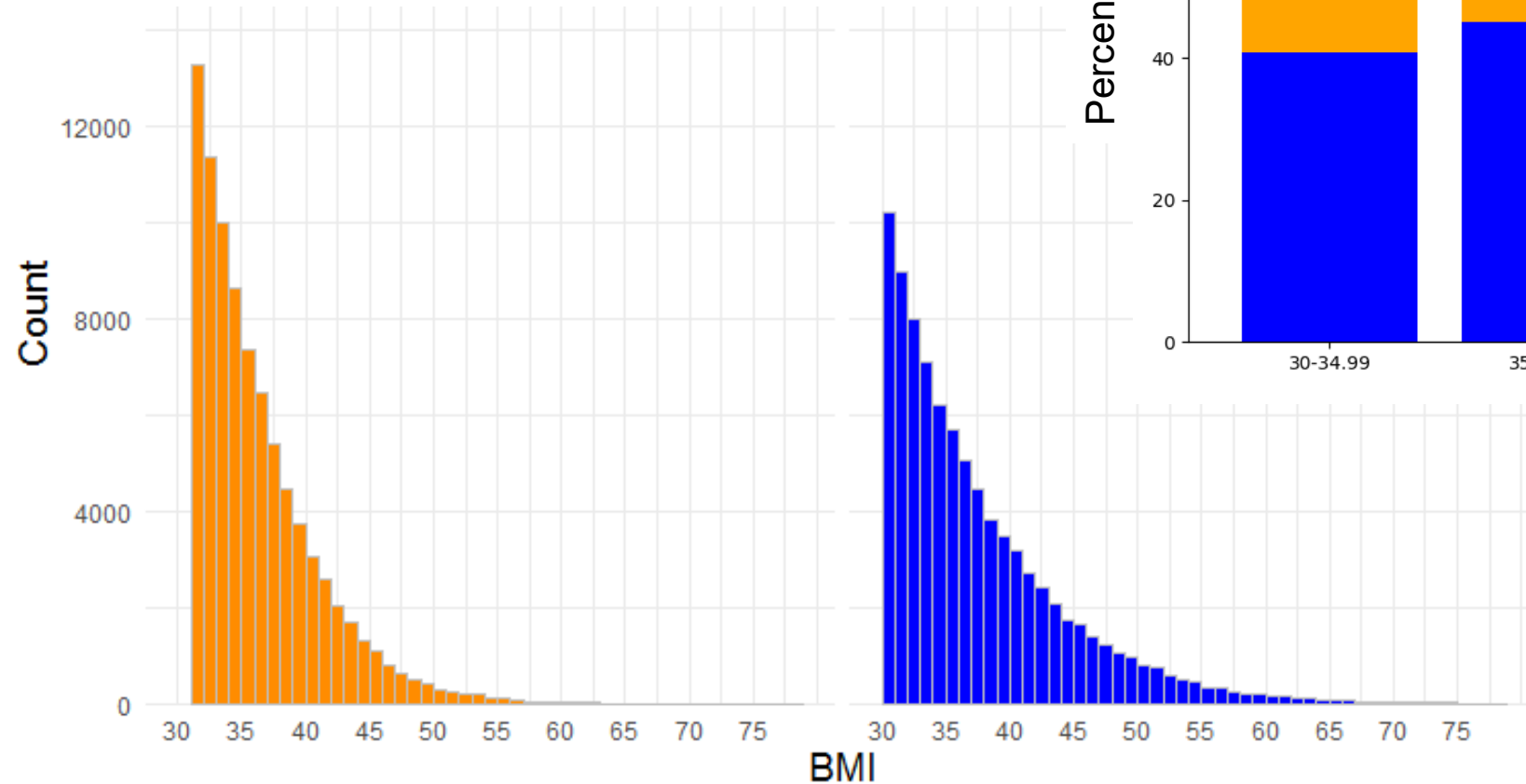
**BMI  $\geq$  30 kg/m<sup>2</sup>**

Procedures under  
**General Anesthesia**  
for which **SGA** would be  
considered an option

# TOP 10 Procedures

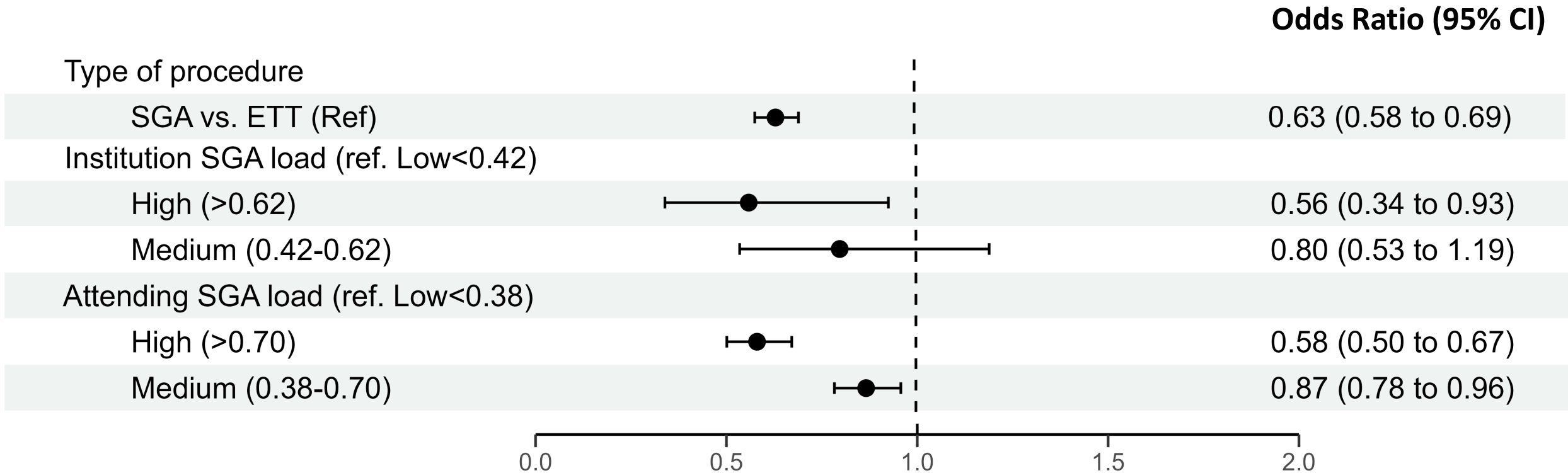


# ETT and SGA Procedures by BMI

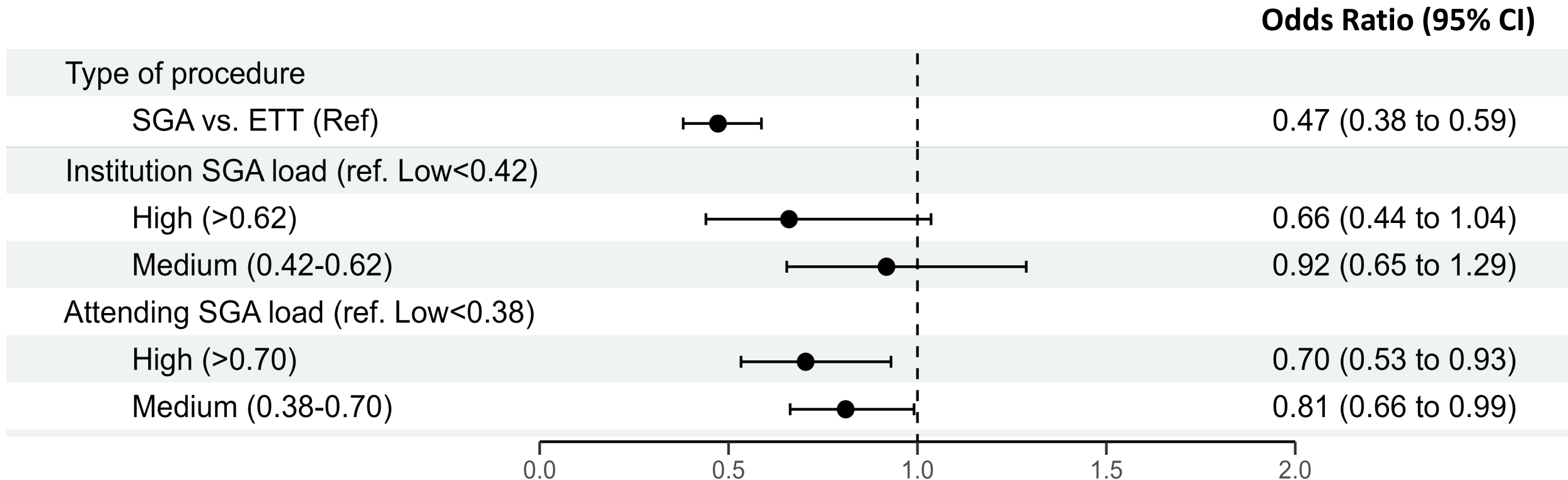




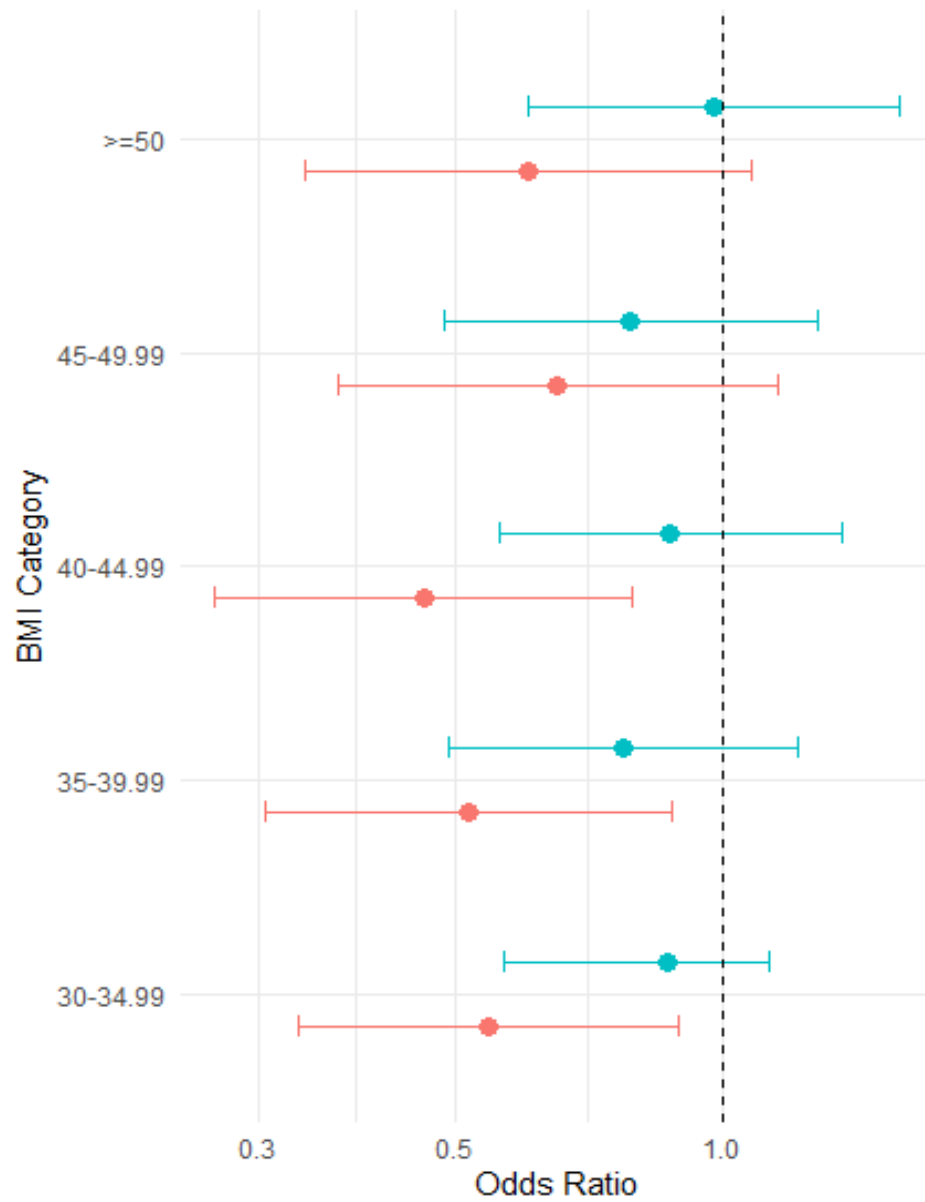
# Pulmonary Complication



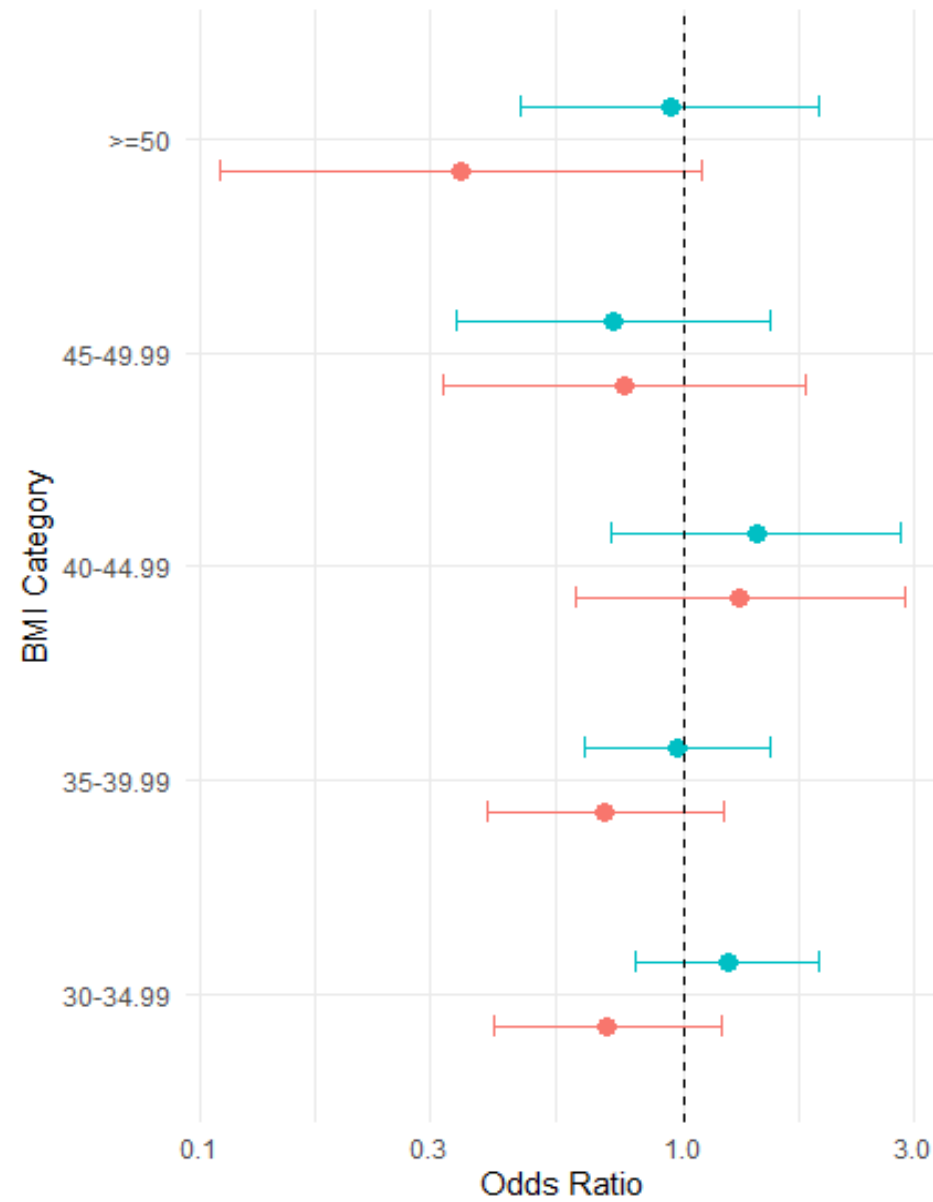
# 30-day Mortality



### Pulmonary Complications



### 30-day Mortality



Comparison ● High vs. Low SGA ● Medium vs. Low SGA

# Lessons Learned from MPOG Research Fellow & Project



**Networking**

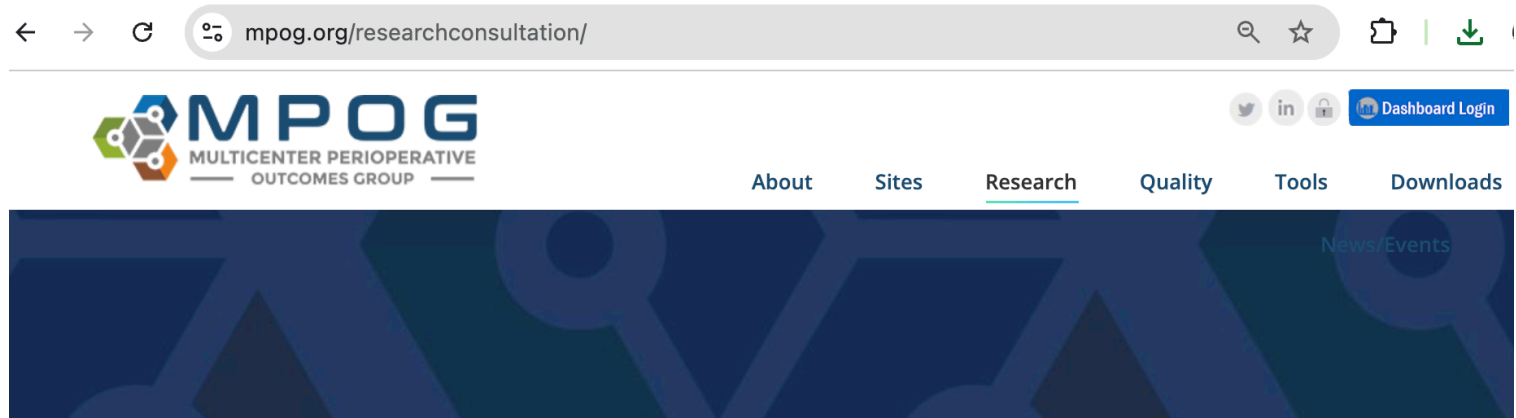


**"Behind the scene"  
discussions**

Phenotypes & Data Direct



**Research  
Consultation  
Meetings**



## Research Consultation

Schedule a meeting with MPOG research team members to discuss a current or proposed project.

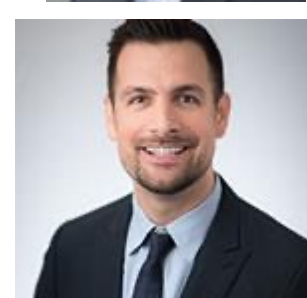
### Consultation Form



Please complete the [consultation form](#) to submit questions and request 1:1 meetings with MPOG research team members related to your research project. We require having yourself, your site Research PI, and potentially additional team members invited to this meeting..

Topics may include, but are not limited to, reviewing coversheets for project feasibility, finalizing proposals prior to scheduling a PCRC presentation, or troubleshooting DataDirect queries.

# Thank You



# Obrigada



# References

1. Frerk C, Mitchell VS, McNarry AF, Mendonca C, Bhagrath R, Patel A, O'Sullivan EP, Woodall NM, Ahmad I: Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. *British Journal of Anaesthesia* 2015; 115:827–48
2. Kheterpal S, Healy D, Aziz MF, Shanks AM, Freundlich RE, Linton F, Martin LD, Linton J, Epps JL, Fernandez-Bustamante A, Jameson LC, Tremper T, Tremper KK: Incidence, Predictors, and Outcome of Difficult Mask Ventilation Combined with Difficult Laryngoscopy. *Anesthesiology* 2013; 119:1360–9
3. Apfelbaum JL, Hagberg CA, Connis RT, Abdelmalak BB, Agarkar M, Dutton RP, Fiadjoe JE, Greif R, Klock PA, Mercier D, Myatra SN, O'Sullivan EP, Rosenblatt WH, Sorbello M, Tung A: 2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway. *Anesthesiology* 2022; 136:31–81
4. Shaw M, Waiting J, Barraclough L, Ting K, Jeans J, Black B, the Pan-London Peri-operative Audit and Research Network: Airway events in obese vs. non-obese elective surgical patients: a cross-sectional observational study. *Anaesthesia* 2021; 76:1585–92
5. Turna CK, Arslan ZI, Alparslan V, Okyay K, Solak M: Comparison of channelled videolaryngoscope and intubating laryngeal mask airway for tracheal intubation in obese patients: a randomised clinical trial. *Brazilian Journal of Anesthesiology (English Edition)* 2020; 70:118–24
6. Cullen A, Ferguson A: Perioperative management of the severely obese patient: a selective pathophysiological review. *Can J Anesth/J Can Anesth* 2012; 59:974–96
7. Pourciau DC, Hotard DP, Hayley S, Hayley K, Sutton C, McWhorter AJ, Fink DS: Safety and efficacy of laryngeal mask airway ventilation in obese patients with airway stenosis: LMA Ventilation in Obese Patients. *The Laryngoscope* 2017; 127:2582–4
8. Moser B, Keller C, Audigé L, Dave MH, Bruppacher HR: Fiberoptic intubation of severely obese patients through supraglottic airway: A prospective, randomized trial of the Ambu® AuraGain™ laryngeal mask vs the i-gel™ airway. *Acta Anaesthesiol Scand* 2019; 63:187–94
9. Wang H-X, Wan L, Tian M, Xue F-S: A safe strategy for anesthesia induction and airway management in morbidly obese patients. *Chinese Medical Journal* 2019; 132:1747–8
10. Ramachandran SK, Tremper KK: Predictors and Clinical Outcomes from Failed Laryngeal Mask Airway Unique™. *PERIOPERATIVE MEDICINE*
11. Simon LV, Torp KD: Laryngeal Mask Airway, StatPearls. Treasure Island (FL), StatPearls Publishing, 2023 at <<http://www.ncbi.nlm.nih.gov/books/NBK482184/>>
12. Merlo J: A brief conceptual tutorial of multilevel analysis in social epidemiology: using measures of clustering in multilevel logistic regression to investigate contextual phenomena. *Journal of Epidemiology & Community Health* 2006; 60:290–7
13. Lee E, Hong S. Adequate Sample Sizes for a Three-Level Growth Model. *Front Psychol.* 2021 Jul 1;12:685496. doi: 10.3389/fpsyg.2021.685496. PMID: 34276510; PMCID: PMC8282204.
14. Bartlett JW, Seaman SR, White IR, Carpenter JR, Alzheimer's Disease Neuroimaging Initiative\*: Multiple imputation of covariates by fully conditional specification: Accommodating the substantive model. *Stat Methods Med Res* 2015; 24:462–87