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| **Title of Study** | The Association of Guideline Directed Prophylaxis with the Incidence of Postoperative Nausea and Vomiting in Pediatric Patients: A Multicenter Retrospective Observational Cohort Study |
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| **Primary Institution** | Duke University School of Medicine |
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| **Primary Author** | Benjamin Y. Andrew, MD, MHS (Duke) |
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| **Co-Authors** | Lucy Everett, MD (MGH); T. Wesley Templeton, MD (Wake Forest); Timothy T. Houle, PhD (MGH); Lisa N. Vitale, MD (Michigan); Vikas O’Reilly-Shah, MD, PhD (U of Washington); Meredith Bailey, MSN, RN (MPOG); Vijay Krishnamoorthy, MD, PhD (Duke); Ashraf Habib, MBBCh, MHS (Duke); Brad Taicher, DO, MBA (Duke) |
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| **Statisticians** | Benjamin Y. Andrew with support from Timothy T. Houle and Vijay Krishnamoorthy |
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| **Type of Study** | Retrospective, observational |
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| **Data Source** | MPOG database only |
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| **IRB Number** | Duke University Health System IRB (Pro00112464) with Brad Taicher as PI |
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| **Aim** | Primary aim: estimate the causal effect of compliance with guideline directed PONV prophylaxis (as defined by PONV-04) on the incidence of PONV (as defined by PONV-03) in pediatric patients undergoing general anesthesia. |
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| **Number of Patients** | Data Direct query on 05/11/2023: range from 1,130,173 to 1,546,639 for cohorts with varying exclusions. |
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| **Power Analysis** | In the setting of our proposed Bayesian outcome models we used a simulation based approach to estimate the effect of sample size on the precision of our estimates. See full text for details - assuming some further exclusion from 1.1 - 1.5 million patients the sample size will be more than sufficient to generate precise effect estimates under our modeling assumptions. |
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| **Statistical Approach** | We will use a pseudo-Bayesian propensity score weighting approach whereby we first estimate a multilevel propensity score model and then use overlap and inverse probability of treatment weights generated from this model to estimate the effect of prophylaxis compliance using a Bayesian outcome model for PONV. See full text for modeling details and justification. Several sensitivity analyses are proposed, including alternative modeling approaches and alternative prior distribution specifications. |
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| **Resources** | The primary author will be a clinical fellow in pediatric anesthesiology at Duke beginning August 1, 2023, with one day of dedicated non-clinical time per week. |

Last updated: Monday, May 24, 2023

Replication materials for this proposal and project are available at: <https://github.com/andrew10043/mpog_peds_ponv>.