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APSF Awards 2026 Grant Recipients

by Yan Xiao, PhD

Over the past 40 years, the APSF grant programs have been key to the mission of APSF to support and advance anesthesia patient safety culture, knowledge, and learning. The programs stimulate and fund studies to improve patient safety and lead to prevention of mortality and morbidity resulting from anesthesia mishaps. Through the programs, APSF has supported more than 140 anesthesiologists and other researchers with nearly \$14 million in funding. The programs have played an essential role in establishing and enhancing careers of many anesthesia and other professionals in conducting safety research and education. The 2025 Mentored Research Training Grant (MRTG) program, jointly funded with the Foundation for Anesthesia Education and Research (FAER), received five letters of intent from four organizations. Full proposals from two principal investigators were invited. One full proposal was received, but it was not recommended for funding after review by the joint FAER/APSF review team. The 2025–2026 APSF investigator-initiated research (IIR) grant program received 29 letters of intent from 21 organizations in the United States and Canada. The multidisciplinary Scientific Evaluation Committee (SEC) reviewed these letters, with the assistance of external statistical experts. Six teams were invited to submit full proposals, which were reviewed and discussed by the SEC for their potential impact on anesthesia patient safety and scientific rigor in a hybrid meeting on October 11, 2025. Two proposals were recommended for funding to the APSF Board of Directors and received unanimous support. This year's recipients are Alexander Nagrebetsky, MD, MSc, from Massachusetts General Hospital and Asad Siddiqui, MD, from the Hospital for Sick Children, Toronto, Canada. The principal investigators provided the following description of their proposed work.



Alexander Nagrebetsky, MD, MSc

Assistant Professor, Massachusetts General Hospital

Dr. Nagrebetsky's project is entitled "*The Million Anesthesia Cases Study (MACS)—a multicenter registry-based study assessing the incidence, severity, and clinical effects of prolonged preoperative fasting.*"

Background: The American Society of Anesthesiologists (ASA) guidelines emphasize that "fasting duration is often substantially longer than recommended and prolonged fasting has well-described adverse consequences."¹ However, there are no large, methodologically robust studies quantifying the incidence and the effects of prolonged preoperative fasting.²

Clinicians worldwide are concerned about excessive fasting for clear liquids due to the loss of both water and calories with potential adverse effects on metabolism and patient well-being.^{2,3} Despite the low grade of evidence on the incidence and harm of prolonged fasting for clear liquids, considerations of such harm led to the emerging practice of unrestricted clear liquids until surgery.⁴ Some high-profile publications call for "the removal of fasting requirements prior to...procedures that require conscious sedation."⁵ The heightened interdisciplinary focus on the potential adverse effects of preoperative fasting creates an opportunity for anesthesiologists to lead patient safety efforts by addressing the substantial evidence gap in this area. A large, high-quality study on the clinical effects of preoperative fasting is required to guide policymaking, patient care, and definitive trial design.

Aims: The Million Anesthesia Cases Study aims to estimate the incidence and severity of prolonged preoperative fasting for clear liquids in a large and diverse sample of clinical settings, procedures, and patients. We will use these data to quantify adherence to the national guidelines¹ We will also test for an association between the duration of preoperative clear liquid fasting and (a) perioperative volume- and glycemia-related events and (b) the risk of perioperative pulmonary aspiration.

Implications: The study will set the foundation for improving fasting guideline adherence by quantifying nonadherence and its impact. Furthermore, our results will expand the evidence base for fasting recommendations by assessing the objective outcomes of intraoperative hypotension, kidney injury, myocardial injury, and dysglycemia that have not been sufficiently studied in this context. Our epidemiological data will contribute to clinician, patient, and societal knowledge of the prevalence and impact of unnecessarily prolonged preoperative clear liquid fasting. Such improved understanding will address the current lack of awareness of the negative effects of prolonged clear liquid fasting—a major driver of nonadherence to guidelines that encourage clear liquid intake until two hours before surgery.

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Funding: \$199,469 (January 1, 2026–December 31, 2027). The grant was designated as the APSF/American Society of Anesthesiologists (ASA) President’s Research Award, and was also designated as the APSF Ellison C. Pierce, Jr., MD, Merit Award with \$10,000 unrestricted research support.



Asad Siddiqui, MD

Assistant Professor of Anesthesiology, The Hospital for Sick Children, Toronto, Canada

Dr. Siddiqui’s project is entitled “*High-Frequency Physiologic Data for Predictive Modeling of Hypotension in Pediatric Patients in the Operating Room.*”

Background: Intraoperative hypotension (IOH) is a significant concern in anesthesia and perioperative medicine and is associated with major adverse outcomes including acute kidney injury, major cardiac or cerebrovascular events, and increased mortality.¹ IOH also contributes to longer hospital stays, higher readmission rates, and greater health care costs. One analysis estimated that improved IOH management in a 10,000-case surgical population could save \$1.2–4.6 million annually by preventing hypotension-related complications.² Thus, IOH is both a patient safety priority and an important driver of health care resource utilization.

In pediatrics, however, the definition, thresholds, and consequences of IOH are less clearly understood. Data from the GAS study demonstrated that hypotension during anesthesia in infants and young children is common: 87% experienced a mean arterial pressure (MAP) <45 mmHg, and 49% had MAP <35 mmHg while under sevoflurane anesthesia.³ Prior work suggests these MAP values are associated with reduced cerebral blood flow and oxygenation in infants.⁴ Yet, few studies link IOH in children to postoperative organ injury, and existing findings are mixed. Although age and sex-specific blood pressure reference ranges exist, these do not define thresholds or durations of hypotension that lead to clinically significant hypoperfusion. Consequently, meaningful definitions of IOH in children remain uncertain and likely differ from adult thresholds.

In adults, IOH is strongly linked to organ injury, and machine learning based prediction tools have been developed to proactively identify and prevent hypotension.⁵ One randomized trial demonstrated that an AI-driven alert system significantly reduced time spent in hypotension compared with standard care.⁵ However, no comparable predictive models exist for pediatric surgical patients. Our proposal will utilize a large local physiologic waveform repository to leverage high-frequency data to define IOH patterns and develop predictive models tailored to children.

Aims: The primary objective of this study is to develop an AI-based prediction tool for IOH in pediatric surgical patients using high-frequency physiologic waveform data. **Aim 1:** Determine the prevalence and characteristics of IOH in pediatric surgical patients using established pediatric BP reference ranges, and assess clinician intervention patterns in response to hypotension. **Aim 2:** Develop and validate an AI model that predicts imminent IOH based on high-frequency physiologic waveform data.

Implications: This project will further elucidate the prevalence and clinical response pat-

terns associated with IOH in children, while demonstrating that physiologic waveform data can be used to predict hypotension. An effective prediction tool will provide clinicians with early warning, enabling more timely interventions and reducing the risk of hypoperfusion-related injury. Ultimately, this project has the potential to substantially improve perioperative patient safety for all pediatric surgical patients, with opportunities for broader translation to other clinical environments, including critical care and general hospital wards.

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Funding: \$198,022 (January 1, 2026–December 31, 2027). The grant was designated as the APSF/Medtronic Research Award.

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