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*Real-time Prediction of Adverse Outcomes after Anesthesia*

**Abstract**

There has been a recent surge in the published literature on artificial intelligence (AI) and machine learning (ML) in medicine, and studies have shown patient care improves when provider expertise is augmented by ML. Unfortunately, implementing published ML models to inform clinical care is not trivial, as many obstacles exist. We have developed an innovative platform called Opal and methods for coding real-time anesthetic data to match retrospective data. We will apply this new technology to predict in real-time acute kidney injury (AKI) after surgery, building upon a retrospective model we have developed. Postoperative AKI is a major public health problem affecting up to 47% of patients. AKI is consistently associated with adverse outcomes, including progression to chronic kidney disease, major adverse cardiovascular events (MACE), and death. We expect our ML model and implementation strategies will offer actionable feedback to anesthesia providers to reduce post-operative AKI and associated adverse outcomes.