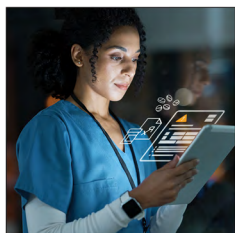


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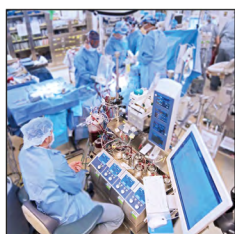
186 **Best Practice Alerts Informed by Inpatient Opioid Intake to Reduce Opioid Prescribing after Surgery (PRIOR): A Cluster Randomized Multiple Crossover Trial**

Although in-hospital opioid intake before discharge is a reliable predictor of opioid intake after discharge, opioid prescriptions after surgery are often driven by local practice conventions. The hypothesis that a best practice alert based on recorded in-hospital opioid intake will reduce the quantity of opioids prescribed to surgical patients at discharge was tested in a cluster randomized multiple crossover trial that included 21,689 patients over a 48-week period during which a state-wide opioid education and awareness campaign was in place. Four hospitals were randomized to alternate between active and inactive alert conditions for four 8-week periods, each separated by a 4-week washout interval. During active alert periods, an alert was displayed when the opioid prescription exceeded that recommended based on in-hospital opioid intake. The median (interquartile range) opioid dose prescribed at discharge was 75 (0 to 225) oral morphine milligram equivalents when the alert was active and 100 (0 to 225) oral morphine milligram equivalents when it was inactive. The ratio of geometric means (active alert/inactive alert) for opioids prescribed at discharge was 0.95 (95% CI, 0.80 to 1.13). See the accompanying Editorial on [page 119](#). (Summary: M. J. Avram. Image: A. Johnson, Vivo Visuals Studio.)



143 **Attributable Perioperative Cost of Frailty after Major, Elective Noncardiac Surgery: A Population-based Cohort Study**

Frailty is a state of vulnerability to adverse health outcomes resulting from accumulation of multidimensional age- and disease-related deficits. The association of preoperative frailty with adverse postoperative patient outcomes is well established. This retrospective population-based cohort study sought to identify postoperative healthcare costs attributable to preoperative frailty. A validated, multidimensional frailty index was used to identify older patients (at least 66 yr old) with and without preoperative frailty having elective, major noncardiac surgery between 2012 and 2018. Validated health system cost ascertainment methods were used to estimate the total perioperative costs (expressed in 2018 Canadian dollars) attributable to frailty in the year after their operations. Of 171,576 older patients, 23,219 (13.5%) were identified with preoperative frailty. After adjustment for confounders, the ratio of means for costs at 1 yr in patients with frailty compared to those without was 1.53 (95% CI, 1.51 to 1.56), which was equivalent to an absolute mean adjusted cost difference of \$11,828 (95% CI, \$11,805 to \$11,850) attributable to the presence of preoperative frailty. (Summary: M. J. Avram. Image: Adobe Stock.)



122 **Patient-, Clinician-, and Institution-level Variation in Inotrope Use for Cardiac Surgery: A Multicenter Observational Analysis**

Inotropes may improve a patient's hemodynamics or oxygen delivery to end organs during cardiac surgery, but they also expose patients to potentially severe unintended consequences and are associated with 1- to 3-day prolongations of hospital and intensive care unit lengths of stay, all of which contribute to variable practice patterns. This retrospective, multilevel, observational cohort study tested the hypothesis that potentially meaningful variation in inotrope use occurs at the clinician and institution levels, and that characteristics influencing the likelihood a patient will receive intraoperative inotropes spans multiple perioperative data types. Inclusion criteria were met by 51,085 nonemergent cardiac surgeries with cardiopulmonary bypass between 2014 and 2019 across 611 anesthesiologists and 29 hospitals. Of the included cases, 27,033 patients (52.9%) received intraoperative inotropes. Within the adjusted model, 35.1% of the variation in inotrope use was attributable to the institution, 9.2% to the anesthesiologist, and 55.6% to the patient. The adjusted median odds ratio for a patient receiving inotropes was 1.73 for two randomly selected clinicians and 3.55 for two randomly selected institutions. (Summary: M. J. Avram. Image: J. P. Rathmell.)



153 **Postoperative Transfusions after Administration of Delayed Cold-stored Platelets versus Room Temperature Platelets in Cardiac Surgery: A Retrospective Cohort Study**

Platelets are typically stored at 20° to 24°C for 5 to 7 days (room temperature platelets). After 5 days of room temperature storage, pathogen-reduced room temperature platelets can be stored at 1° to 6°C for up to an additional 9 days (delayed cold-stored platelets). The hypothesis that use of delayed cold-stored platelets in cardiac surgery would be associated with decreased postoperative platelet count increments but similar transfusion and clinical outcomes compared to room temperature-stored platelets was tested in a retrospective study of 713 adults who underwent elective cardiac surgery with intraoperative administration of at least 1 unit of platelets. Room temperature platelets were administered in 529 cases and delayed cold-stored platelets in 184 cases. The adjusted odds ratio (95% CI) of allogeneic transfusion in the first 24 h postoperatively for patients receiving delayed cold-stored platelets intraoperatively compared to those receiving room temperature platelets was 1.65 (1.13 to 2.39). Posttransfusion platelet counts were modestly lower in the delayed cold-stored platelets group without an increased rate of reoperation for bleeding or higher chest tube output. (Summary: M. J. Avram. Image: Adobe Stock.)

