2020

IMPROVE AKI Cluster-Randomized Trial (IMPROVE-AKI)

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Statistical Analysis

We estimated the effect of both the implementation strategy and information support interventions, as well as their interaction, using hierarchical logistic regression models for 7-day postprocedural AKI. Models were fit using patient-level data with and without adjustment for the 20 patient-level characteristics in the VA-derived AKI risk prediction model underlying the Surveillance dashboard.23 To account for site-level variation, observations were clustered at the site level, and models included a site-level random effect and controlled for site baseline risk-adjusted performance (observed to expected outcome ratio) in the 12 months before the study period. The decision to adjust for site baseline risk adjusted performance and other patient characteristics was prespecified. We implemented Satterthwaite small-sample correction because of the small number of clusters. Interim analyses and stopping criteria were not performed when determining sample size. In all models, the key features of interest were the interaction between implementation strategy and information support interventions, as well as differences across the four intervention combinations, with Assistance specified as the reference intervention. We estimated odds ratios (ORs) and 95% confidence intervals for pairwise comparisons of each combination of interventions and applied the Bonferroni correction for multiple comparisons. Analyses were run for the entire population and separately within the CKD subset. Corresponding sensitivity analyses modeled 30-day postprocedural AKI. Analyses were conducted using R 4.1.2.26