

Optimizing Responsiveness to Feedback About Antibiotic Prescribing: 2x2x2x2 Factorial Trial

SAP v1 October 13, 2020

The unit of analysis will be the physician. The primary analysis will use Poisson regression. The dependent variable will be counts of the number of antibiotics, number of unnecessary antibiotics, and number of prolonged antibiotics over the 6 month post-randomization period). The log of the total number of patient visits will be specified as an offset term. The model will adjust for the baseline prescription rate (one year pre-intervention). The model will include three terms indicating the presence (+) or absence (-) of each of the intervention components using effects coding. To examine immediate and long-term effects of the intervention, secondary repeated measures analyses will be conducted using the repeated prescription rates over intervals of 3 months (3 months, 6 months, 9 months, and 12 months). The model will be specified as above, but additionally include terms for time as well as the interaction between time and each of the intervention indicators. The effect of each intervention component will be expressed as Relative Risk (RR) and 95% confidence intervals. Robust standard errors will be used, with the correlation structure specified as Exchangeable. Pairwise comparisons between physicians with or without that intervention will be obtained from the model. Secondary analyses will examine two-way interactions between the intervention components. We will explore differences in effects by physician characteristics (sex, years in practice, volume, continuity of care score, proportion of emergency room practice, proportion nursing home practice, practice complexity score (SAMI), proportion of practice >85 years, rurality of practice address, neighborhood income quintile of practice address and baseline prescribing rates).