

Protecting Our Community - Data Analysis and Sample Size Considerations

Extracted from grant application_04Sep2020

Our prior work with passive strategies has produced a return rate of approximately 70%.##We view a relative increase of 20% (absolute increase of 14%) to be a meaningful impact associated with the effort involved in active outreach, and therefore we selected a sample with adequate power to detect such a difference. Specifically, with 400 total subjects (stratified by community) we have 90% power to detect an effect size associated with a rate ratio of 1.20, or an absolute difference of 14% (70% in passive, 84% in active). We evaluated our design for robustness to assumptions regarding the passive return rate, and we have > 80% power to detect an absolute difference of 14% (relative rate of 1.23) if the passive return rate is 60%. We make no correction for missing outcomes since the outcome is negative if no kit is returned. In addition, we explored the impact of using regression adjustment (logistic regression with an identity link) to account for community stratification, and our primary analysis maintains > 80% power for a range of passive rate differences across communities (ranging from 5% to 10%). All power calculations used the R statistical package and the PWR library and simulation method.