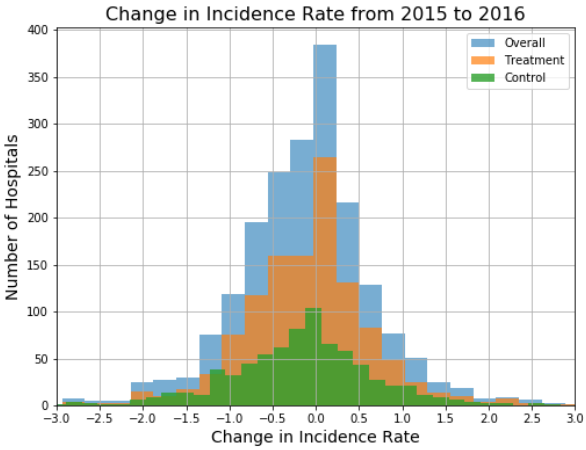
Friday, June 14, 2019

MPR Team Members,

We have completed an initial analysis of data representing hospitals that participated in a policy intervention in 2016, compared with those that did not take part. The policy intervention was designed to improve patient safety, and to reduce central-line associated blood stream infections (CLABSIs), with a lower rate of incidence the desired outcome of the intervention. The intervention was implemented at the beginning of 2016, and our goal with this initial evaluation was to identify factors impacting the effectiveness of the intervention, as well as to see if there were significant changes in CLABSI rates. In the process of this initial data analysis, we found some interesting results that should be impactful to research moving forwards. There are also some areas we feel could be beneficial to examine in more depth, but we would need more time, as well as information from the intervention coordinators who have a greater understanding of the data.

According to the Centers for Disease Control and Prevention (CDC), CLABSI causes thousands of deaths yearly along with billions of dollars to the United States healthcare system, and yet the infections are preventable. Some of the main areas of emphasis the CDC references in order to help minimize incidents of CLABSI include proper hygiene and treatment of the insertion site, as well as regular cleaning and monitoring of the line to make sure no infections occur. With this information in mind, we attempted to see if there was any data-driven evidence showing that improved treatment was effectively reducing the incidence rate.



As demonstrated in the graphic on the left along with the table below, for hospitals that participated in the treatment intervention (shown in orange), the change in the incidence rate of CLABSI drops an average of 0.119 , while for the groups that are not part of the trial, they drop an average of 0.167. These changes are intriguing and something to examine with more time and information. The hospitals that did not partake in the intervention had a greater drop in incidence rate, but they were also benefitting from a larger volume of patients, a higher wage index (an indicator of salary and pay range for employees), as well as a higher resident to bed ratio (indicates more treatment for each patient within the hospital. All of these factors could potentially mean that while the non-participant hospitals may not have had the added benefit of the intervention protocols and procedures, they were also benefitting from an improved medical staff, more medical staff available to treat patients, and a higher volume of patients to the hospital on a yearly basis. All of these factors could potentially be aiding in the improvement in the treatment of CLABSI at hospitals that did not participate in the intervention.

Averages	Total	Intervention	Control
# of Hospitals	3,263	2,056	954
Incident Change	-0.138	-0.119	-0.167
Annual Volume	2,962	2,971	3,654
Wage Index	0.978	0.977	1.001
Resident to Bed	0.064	0.046	0.114

The information here is a basic breakdown of the key indicators that could impact research now and into the future on treatment plans regarding CLABSI. However, we have also identified a few key areas we feel would be good to look into with more time and information. Some of those areas include:

- Increase information about the CLABSI rate
- Look at differences in policy & procedure for intervention vs non-intervention hospitals
- Look at value of medical professionals to see if there is a way to improve tracking and assessing their value
- Identify ways of finding or replacing missing values in the incident rate column (~35-40% of data missing)

Thank you very much for your consideration of these findings, and I appreciate any and all questions and comments regarding our process and work flow. We look forward to beginning a deeper analysis soon.