Applied Healthcare Quality Improvement Analytics - Advanced Syllabus

Training Objective
The primary objective of the training program is to increase the knowledge and skills of the hospital quality analyst in a manner that notably enhances the organization’s quality improvement initiatives by facilitating decision making based on sound data analysis.

Training Topics
- Multiple Linear Regression
- Multiple Logistic Regression
- Predictive Modeling
- Matched Data Analysis
- Quality Improvement Analytics
- Evaluate Physician Performance
- Trend Analysis
- Analyzing HCAHPS Data

Training Topic Description

Multiple Linear Regression
Participants will conduct analysis to determine which factors are significantly associated with the continuous outcome variable of interest. This type of analysis evaluates the impact of multiple factors simultaneously on the outcome variable of interest, thereby providing a more comprehensive view of the process generating the outcome. Practical applications to healthcare will be covered through examples and class exercises.

Multiple Logistic Regression
Participants will conduct analysis to determine which factors are significantly associated with the binary outcome variable of interest. This type of analysis evaluates the impact of multiple factors simultaneously on the outcome variable of interest, thereby providing a more comprehensive view of the process generating the outcome. Practical applications to healthcare will be covered through examples and class exercises.

Predictive Modeling
The building of predictive models using regression analysis will be covered using the R caret package. Predictive models are used to assess what is likely to occur in the future based on past data and are utilized in population health as well as readmission and complication analysis.

Matched Data Analysis
Matching cases and controls for subsequent analysis will be demonstrated. This method is useful for conducting mortality reviews as well as complication and patient safety analysis.
**Quality Improvement Analytics**
Process capability analysis and control plans are powerful quality improvement analytical methods that are covered in this lecture.

**Evaluate Physician Performance**
Developing a physician performance measurement system that has enhanced reliability and utility is demonstrated. Other fundamental concepts of physician performance measurement will also be discussed.

**Trend Analysis**
Conducting analysis of time series data to identify non-random patterns is demonstrated.

**Analyzing HCAHPS Data**
Identifying focal points for improving patient satisfaction by analyzing patient survey data is discussed and demonstrated.

**Capstone Project**

**Project Overview**
The capstone project ensures that the participants apply what they learn in their workplace setting: Thereby facilitating learning through active learning and providing tangible organizational value of the training experience.

During the course of the program each student is required to complete and present an analytics project that is relevant to their work situation. On the last class of the program each student will present their project to the class. Each participant should come to the program with a proposed analytics project.

**Project Content**
The project should entail analyzing data using any of the inferential analytical techniques taught in the program. Note that just producing descriptive statistics does not meet the intent of the project - one or more of the inferential techniques must also be utilized.

**Project Topic**
The analytical topic can be anything that is relevant to the participant's job. Ideally the analytics project pertains to a project the participant currently working on.

**Project Presentation**
The length of the presentation should not exceed ten minutes. The presentation format is a PowerPoint presentation.