**Improving Inpatient Psychiatric Consultation Services by Electronic Health Record Case-Finding**

The primary aim of this project is to improve inpatient psychiatric consultation by identifying key words/phrases in electronic health records that better predicts when a psychiatric consultation is necessary.

The client includes improvement committees, psychiatrists, and psychiatric training residents in both University of Washington Medical Center (UWMC) and Harborview Medical Center (HMC).

We will use the University of Washington (UW) electronic medical record

archive, AMALGA as our only data source. AMALGA uses a t-sql database

which contains the information from ORCA which is the inpatient electronic

medical record. Using t-sql, we will extract data for those patients who

have had a psychiatric consultation evaluation note from 1/1/2015.

We will include all subjects with at least one inpatient medical hospitalization at HMC or UWMC from 1/1/2015 to the date of the data pull and have documentation indicating that they had been seen by the consultation-liaison psychiatry service during the corresponding stay will be eligible for inclusion into the study sample. We will exclude from the sample those patients who were under 18 years of age or who were incarcerated/prisoners during the hospitalization.

Once this population and their corresponding medical ‘blobs’ have been extracted, we will stratify by psychiatric consultation: those that did receive psychiatric consultation vs. those that did not. That is, psychiatric consultation will serve as our main outcome. We will then develop a model that controls for demographic characteristics such as age, gender, type of insurance, and race. We will then determine how well an empirical list of words and phrases predict psychiatric consultation during inpatient medical stays at the UWMC and HMC. As a follow-up, we will determine the top 10 words or phrases that best predicts psychiatric consultation during inpatient medical stays at the UWMC and/or HMC.

DELIVERABLES:

1. Mid-term
   1. Exploratory analysis of sampling population
      1. Demographics in aggregate
      2. Demographics by site(i.e. UWMC vs HMC)
   2. Collaborate with team to come up with empirical list of words/phrases to test.
2. Final
   1. Python code for natural language processing
   2. Classification report on model prediction
   3. Determine how well the empirical list of words/phrases predicts outcome.
   4. Identify top 10 words/phrases that predicts outcome.

\*This project has received IRB approval(IRB ID- STUDY00002313) as of May 23, 2017.