**Brief Research Phases and Analysis Plans.**

**Phase 1)**

Systematic review completed. The review was conducted to get familiar with the current literature on studies using observational electronic databases to identify associations of antidepressant with suicidal behaviours. The review identified 8 studies which collectively were not conclusive on the impact of antidepressants on suicidality among those with depression, adjusting for confounders. The studies were similar in design in general, but there were differences in methodology (e.g. definition of depression diagnosis, observation periods, selection of control group, selection of antidepressant groups to compare and confounders controlled for and age groups) which made quantitative analysis of the studies difficult. One study showed an increased risk of self-harm behavior among children and young people who started on higher doses of antidepressants. Another found Fluoxetine to be protective against completed suicide compared to Citalopram. However, almost all the studies found no association of the antidepressant exposure to suicidal behavior. A limitation common among all the included studies is the lack of control of symptoms experienced in the past. Brief summary of the results can be found [here](https://github.com/andreafernandes/Appendices-for-MHRUK-report).

Our study follows on from these studies and uses its capability to control for symptoms to provide a clearer association of antidepressants (the most common antidepressant user group) with suicidality.

**Phase 2)**

Understand the database (CRIS) and identify variables to utilize in analysis. The variables required for analyses after the current study is complete, are ready to be utilized. There are currently 11 sections to the dataset, each with a set of variables, which can be included in the analysis. These are:

1. Diagnosis
2. AD Medication use and date of use in the past year and current 6-month time frame
3. Demographics and non-compliance behaviour
4. Referral accepted date
5. HONOS scores
6. Psychotherapy sessions and date (current)
7. Antipsychotic and lithium medication use (current)
8. Psychotic symptom experience (binary and counts - past experience only)
9. Depressive symptom experience (binary and counts - past experience only)
10. Suicide attempt behaviour (recent and past)
11. Past and Current Benzodiazepine use

Preparing a suicide attempt and suicide ideation text mining and natural language processing paper with Dave Chandran.

**Phase 3)**

Identify what the most common antidepressant prescriptions are. Results can be found [here](https://github.com/andreafernandes/Appendices-for-MHRUK-report) for the most common antidepressant use in the year of 2015 and within the six month time frame of 1st of March 2014 and 31st August 2014.

**Phase 4)**

Identify what factors are associated with each of the most common antidepressant prescriptions ([work in progress](https://github.com/andreafernandes/SQL_queries_for_Antidepressant_Profiling)) and create mutually exclusive antidepressant user groups.

**Analysis plan:**

Data cleaning, identification of the most common antidepressants in a six-month time frame: 1st of March 2015 to 31st August 2015 and validation of multiple antidepressant user groups

Chi square test, t-test to explore unadjusted associations of antidepressant with each variable within each common antidepressant group.

Logistic regression to explore variables associated with each antidepressant user group, relative to the most common (the largest) antidepressant user group.

Paper to be drafted after analysis.

**Phase 5)**

Using propensity scores, To minimize the potential indication bias in prescribing different antidepressants to different patients.

Conduct analysis (Cox?? Or regression) to ascertain the association is of each of the common antidepressant prescriptions with suicide attempt and completed suicide.

**Analysis Plan:**

Generate propensity score using below R code. These estimations can be used to adjust for indication bias in survival analysis.

Generating propensity scores using R

data(my\_antidepressant\_dataset)

#

# Estimate the propensity model

# Conducting a logistic regression:

# Exposure:Potential variables that may influence # prescription/use of antidepressant (var1, # var2, var3, var4

# Outcome: Antidepressant User Groups

#

# model.1 <- glm(antidepressant\_user\_groups ~ var1 + var2 + var3 + var4,

# family=binomial, data= my\_antidepressant\_dataset)

#

# model.1$fitted (A matrix containing the variables we wish to match on:

# propensity scores)