Introduction
Durham county has taken significant steps to support people within the criminal justice system who suffer from mental illness (MI). Our project team is using data from Duke Health and the Durham County Detention Facility (DCDF) to evaluate the efficacy and costs of existing support measures, in hopes of developing more effective methods of supporting vulnerable members of our community.

Objective 1: Mental Illness & Incarceration
Evaluate the relationship between the timing of incarceration and receiving a mental illness diagnoses (MI)

Methods
(1) Segment the sample into status changes of interest
(2) Inference using McNemar’s test:
   a) Evaluate categorical outcomes (MI status changes) for paired data
(3) Logistic modeling for odds of undergoing a MI status change conditional on no MI diagnosis prior

Results

<table>
<thead>
<tr>
<th></th>
<th>No MI after</th>
<th>MI after</th>
</tr>
</thead>
<tbody>
<tr>
<td>No MI before</td>
<td>6273</td>
<td>778</td>
</tr>
<tr>
<td>MI before</td>
<td>0</td>
<td>2086</td>
</tr>
</tbody>
</table>

p-value: < 2.2e-16

Estimated Odds Ratios
Odds of developing a mental health condition post-incarceration

Conclusions and Next Steps
Evidence suggests that, among a population of people who undergo incarceration, the likelihood of being diagnosed with a mental illness is greater post-incarceration than pre-incarceration.

Evidence suggests that, compared to incarcerations of less than 24 hours, longer incarceration increases the likelihood of being diagnosed with a mental illness. Being female and white was also associated with higher likelihood of developing an MI diagnosis

Next Steps
- Begin a causal analysis
- Compare similar time frame without incarceration

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Objective 2: Cost Data Analysis
Describe the costs incurred by formerly incarcerated people with MI (mental illness) conditions in the Duke health system, in hopes of identifying policies that may reduce cost.

Methods
Descriptive analysis with cost data
a) Consolidate cost data by account, person, and encounter.
b) Add identifying flags to indicate mental illness status, appointment type, etc. for further analysis

Results

Total Duke Health Costs By Lifetime History of Diagnosed Mental Illness Faceted by Number of Bookings

Conclusions and Next Steps
1. Increasing number of bookings and increasing severity of mental illness increase variance in Duke Health cost.
2. Two datasets created - by Hospital Account ID & by Encounter ID - for further analysis
Next Steps- evaluating proportion of health cost and implementing familiar face identifiers