Mental Health and the Justice System in Durham County: Interactions with Duke Health *and* The Impact of Cash Bail Reform

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Does a Visit to the Duke Emergency Department Signal Risk of Re-Arrest?

Background
Mental Illness is over-represented in the incarcerated population. Although people with mental illness are not more likely to commit crimes, once involved in the criminal justice system, they tend to be re-arrested more frequently. Previous research from our group has shown that there is a great deal of overlap between those in Durham County who are frequently re-arrested and those who frequently visit the Duke Emergency Department. Those with mental illness are over-represented in this sub-group and mental illness symptoms are among the most common reasons for ED presentation.
Thus, we wondered whether a visit to the Duke ED might be a signal that the person is experiencing a crisis or otherwise de-stabilized due to lack of shelter, emotional support, or other adverse experiences.
Specifically, we hypothesized that a visit to the Duke ED might predict a re-arrest within a short time after the ED visit. To test this hypothesis, we used Generalized Estimating Equations (GEE), a form of linear regression that allows us to examine time as a factor.

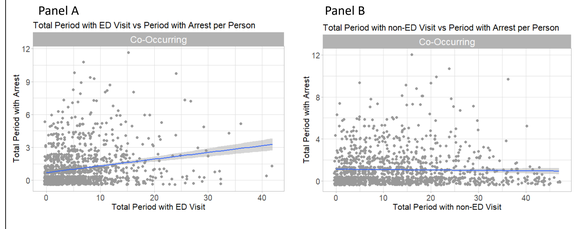
Research Questions
- Which social factors may increase someone's odds of re-arrest?
- How do mental health status and health care utilization affect someone's odds of re-arrest?

Data sources: January 1st, 2014 to January 31st, 2021
- Durham County Detention Facility: demographic, booking-level information
- Duke Health: diagnoses, healthcare encounter-level information
- American Community Survey: census tract median income

Subset Selected for Analysis (low-level offenders)
- Data in both the healthcare and justice system datasets
- First arrest in the dataset between January 2014 and January 2017 (to allow 4 years of follow-up observational time)
- Census tract median income information available
- Not confined for longer than 30 days at a time
- Not transferred to federal facilities; does not pass away

⇒ 6,921 individuals*
⇒Large potential for initiatives and interventions

Figure 1. Exploratory Analysis



Each point represents an individual person. The x-axis displays the total number of periods (months) out of the 4 years after their index arrest in which that person had a visit to the Duke ED (Panel A) or to a non-ED Duke clinic (Panel B). The y-axis displays the total number of periods (months) out of the 4 years in which they were re-arrested. As shown by the blue lines, there is a small, positive correlation between number of ED visits and number of re-arrests, but no correlation between non-ED visits and re-arrests. Thus, we proceeded to the examine how ED visits and arrests were related to each other in time, using longitudinal modeling.

Results: GEE Modeling
A Generalized Estimating Equations (GEE) model was used to understand the association between diagnosed mental illness, health care utilization, and odds of re-arrest, after adjusting for demographic co-variates.

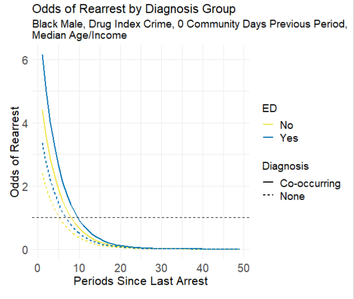
Holding all else constant,
- **Substance Use Disorder Diagnosis**: Odds of re-arrest = **1.62** times the odds of no diagnosis
- **Co-Occurring (SUD + Serious Mental Illness) Diagnosis**: Odds of re-arrest = **1.83** times the odds of no diagnosis

Holding all else constant,
- **Having an ED Visit in the previous month**: Odds of re-arrest = **1.40** times the odds of no ED visit
- **Having a Non-ED Visit in the previous month**: Odds of re-arrest = **0.902** times the odds of no non-ED visit

Table 1. Covariates associated with changes in odds of re-arrest at the p<0.05 significance level.

Associated with **Increased** Odds of Re-arrest	Associated with **Decreased** Odds of Re-arrest
Behavioral Health: SUD, Co-Occurring Diagnoses [vs None]	Race: Hispanic, White (Non-Hispanic), Other [vs Black]
Duke ED Visit	Sex: Non-Male [vs Male]
	More Community Days in Prior Month
	Higher Census Tract Median Income
	More Periods Since Last Arrest
	Older Age
	Duke Non-ED Visit

Figure 2. Visualization of Model Results
The x-axis displays periods (months) since last arrest. The y-axis displays odds of re-arrest for those with co-occurring SUD and SMI diagnoses (solid lines) or no diagnosis (dashed lines). The horizontal dashed line represents odds of 1, equally likely to be re-arrested as not. The blue lines represent those who had an ED visit in the period prior to their arrest, and the yellow lines represent those who did not have an ED visit in the prior period. The graph shows that the longer someone remains out of jail, the less likely they are to be re-arrested, and also that those with co-occurring diagnoses, especially when they are utilizing the Duke ED, are slower to achieve an odds of re-arrest below 1.



Conclusions
- The longer someone stays out of jail, the less likely they are to be re-arrested.
- A visit to the Duke Emergency Department is associated with a higher risk of re-arrest in the next 30 days.
- A visit to a Duke outpatient clinic is associated with a lower risk of re-arrest in the next 30 days.
- Other Demographic characteristics associated with re-arrest:
  - Race
  - Substance Use Disorder
  - Co-occurring SUD and serious mental illness
  - Poverty (below median income)

How has Cash Bail Reform Affected Re-Arrest in Durham County?

Background
Cash bail, the requirement to pay to be released from jail before one's trial, has been criticized for unfairly burdening low-income arrestees. Those who stay in jail because they cannot afford to pay are more likely to be Black, to plead guilty, and to serve longer sentences than those who are released on bond, controlling for crime severity. Many jurisdictions, including Durham County, have begun to allow low-level, non-violent arrestees to be released pre-trial. In Durham County, this policy change took effect between February and May of 2019, when both the District Court judges and the District Attorney's office announced that they would seek reform. (District attorneys make *recommendations*; judges *set* bail.)
A common argument against such reform is that offenders will re-offend and quickly be re-arrested. In Durham county, another argument against such reform is that the detention facility provides many valuable mental health services that help to stabilize arrestees, so quickly releasing those with mental illness will result in a return to an unstable environment, facilitating re-arrest.
We therefore examined re-arrests into the Durham County jail before and after the implementation of these policies, in arrestees both with and without mental health diagnoses from Duke Health.

Our Dataset:
All DCDF bookings Jan. 1, 2014 – Jan. 31, 2021
Duke Health and Lincoln Community Health Diagnoses
Subset selected for Analysis:
1) booked for the 1st time in our dataset either during the 6 months before or after the policy change (before: June 1, 2018 – December 31, 2018, after: June 1, 2019 – December 31, 2019)
2) Low-level charges:
   1) Misdemeanor (except for domestic violence)
   2) Felony class H or I
   3) Traffic or city/county ordinance violation
3) Release Reasons affected by policy:
   1) Secure bond
   2) Own Recognizance (unsecured bond, per judge, custody release, written promise)
   3) Not policy-Impacted (charges dismissed, transfer to prison, time served, etc. Used as baseline for comparison.)
4) Health match
   - *N* = 1,502 individuals

Outcome Measure:
Re-arrest within 90 days of release after index arrest (y/n)

Table 1. Characteristics of Arrestees before vs. after the policy change

	Before (n = 780)		After (n = 722)	
	n	(%)	n	(%)
Diagnosis				
None	311	(39.87)	333	(46.12)
SMI	46	(5.90)	46	(6.37)
SUD	264	(33.85)	225	(31.16)
Co-Occurring	159	(20.38)	118	(16.34)
Release Reason				
Secured Bond	282	(36.15)	230	(31.86)
Own Recognizance	348	(44.62)	377	(52.22)
Not Policy-Impacted	150	(19.23)	115	(15.93)
Rearrest				
Yes	92	(11.79)	95	(13.16)
No	688	(88.21)	627	(86.84)

Table 2. Demographics of Arrestees Before vs. After the Policy Change

	Before (n = 780)		After (n = 722)	
	n	(%)	n	(%)
Race				
Black	515	(66.03)	441	(61.08)
White	178	(22.82)	175	(24.24)
Other	87	(11.15)	106	(14.68)
Sex				
Male	462	(59.23)	460	(63.71)
Female	318	(40.77)	262	(36.29)

Figure 1. The way in which individuals were released from jail differed from before to after the policy change. The x-axis indicates the change in percentage of each release reason before vs. after the change. Secure Bond releases went down while Written Promise and Custody Release went up. The percentages of Per Judge and Unsecured Bond releases did not change much pre vs. post-policy change.

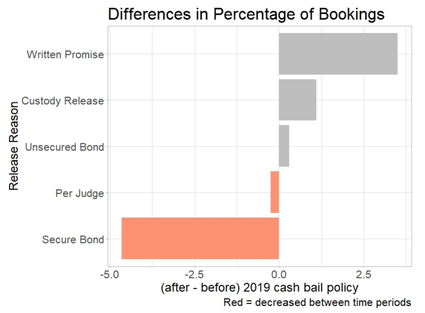


Table 3. Results of Logistic Regression assessing which factors affected likelihood of being re-arrested for a different crime after release from the index crime. Items in **BOLD** are statistically significant. (**Red**: reduced likelihood of re-arrest; **Black**: increased likelihood of re-arrest.) Note that the *period after the policy* is not significant.

Term	Odds Ratio	P-Value
(Intercept)	0.213	0.000
Race Other	0.679	0.166
Race White	1.202	0.318
Sex Female	**0.446**	**0.000**
Period After Policy	*1.359*	*0.303*
SMI Diagnosis	0.516	0.218
SUD Diagnosis	1.443	0.055
Co-occurring Diagnosis	**2.256**	**0.000**
Release on Own Recognizance	**0.458**	**0.006**
Release Reason Secure Bond	**0.544**	**0.030**
Interaction: Period After Policy and Release Reason Policy Impacted	0.961	0.921
Interaction: Period After Policy and Release Reason Secure Bond	0.751	0.489

Data not shown: A similar analysis was performed on the subset of people who were first arrested between June 1, 2018 and August 31, 2018 vs. those arrested between June 1, 2019 and August 31, 2019, so that they would have 180 days to be re-arrested. In this analysis, results were largely the same as above, with the exception that an SUD diagnosis became a significant predictor of re-arrest.

Conclusions
In this sample of low-level offenders,
- The change in cash bail policy was associated with an increase in people being released on their own recognizance, and a decrease in those required to pay bond.
- This change in policy was not associated with an increase in re-arrest for new crimes in the 90 - 180 days after release.
- Other Demographic characteristics associated with re-arrest, both before and after the policy change include:
  - Sex (male)
  - Substance Use Disorder
  - Co-occurring SUD and serious mental illness

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