* Slide 1: Quick intros
* Slide 2: DOJ Data Challenge
  + (Jess) Challenge.gov hosts federal government crowdsourcing competitions. Earlier this year, the Department of Justice opened a Data Challenge with the Guiding Question: How can DOJ data, in combination with other public health data, better inform our nation’s public safety response specific to drug overdoses? We were excited to contribute to the challenge using public UDS data.
  + (Bailey) Process
    - In Phase I, we submitted a 2-page proposal on the datasets and variables we wanted to explore
    - Once we were selected for Phase II, we obtained and cleaned the data, conducted the analysis, and wrote up a 10 page report.
    - Finally, we were selected as finalists and presented our research to a panel of judges including the DOJ Chief Information Officer, DEA Chief Data Officer and FBI Chief Data Officer.
    - Our win was announced on social media on Overdose Awareness Day.

Bailey: (Slide 3)

* Much of the research we found focused on individual level impacts, such as rates of drug use, treatment options, and drug overdose rates
* We wanted to see if there was a way to evaluate the work FQHCs are doing to address the opioid epidemic
  + Been a priority of the Biden-Harris administration
  + March 2024 millions of dollars were committed for treatment and recovery initiates through FQHCs

Jess:

* Slide 4: Impact Measures
  + Focused on Comparing these impact measures in our project
  + To measure Individual impact we explored the overdose death rate
    - Which is included in much of the Existing research on policy interventions to address the opioid epidemic
    - We isolated drug overdose deaths from the National Center for Health Statistics' NCHS Underlying Cause of Death dataset
    - Included all deaths with a drug overdose as cause of death (opioid not specified)
  + To measure Community impact we explored the Drug Enforcement Administration DEA's state lab reports positive for opioids
    - National Forensic Laboratory Information System NFLIS public data
    - this variable is the total number of positive reports for opioids as identified by national forensic labs. They test unknown substances confiscated by law enforcement officers during investigations. While not a perfect measure of the total number of opioids within a community, we theorize that higher number of positive reports for opioids in a given year represents a greater availability and demand for opioids within that state
    - We chose to study state lab reports because we believed that these reports could more accurately represent persistent habitual opioid use in communities compared to drug overdose deaths
    - We identified opioids defined in the NFLIS 2022 annual report as narcotic ann-ul-gee-zics to determine which substances to include from the NFLIS public datasets
* Slide 5- Map: overdose
  + Figure 1 shows drug overdose deaths by state between 2015 and 2022, which were the first and last years that we studied
  + The overall drug overdose death rate nearly doubled between these years from 22.6 deaths per 100 thousand to 43.8
* Slide 6- Map: opioid labs
  + Figure 2 shows total opioid reports from NFLIS drug laboratories between the 2015 and 2022
  + This number also drastically increased between 2015 and 2022, actually more than doubling from approximately 2,500 to 5,200 reports
  + This Similar rate of increase to drug overdose deaths Gave us additional impetus to consider these opioid reports as an alternative measure for the impact of the opioid epidemic
* Slide 7- Community Health Measures
  + Drawn from UDS ~~HRSA's Health Center Program Uniform Data System which collects data annually from FQHCs about their patients served and services rendered~~
  + Patients with substance use disorder
  + Visits associated with substance use disorder
  + Patients receiving medication assisted treatment for substance use disorder
* Slide 8- Methodology
  + Explore the relationships between community health measures and impact of the opioid crisis using a year-state fixed effects regression model with both single and multivariate models
  + Tested fixed effects models on both drug overdose rates and NFLIS opioid lab reports, measuring their relationship to substance use patients and visits, and medication-assisted treatment patients at FQHCs
  + Included year-state control variables from the Census American Community Survey to control for social, economic and demographic characteristics that vary between states and across years

Bailey:

**Slide 9:**

* Really exciting results
  + Our State Labs Positive for Opioids measure performed better than the drug overdose death rate in all our models. Not only were more of our FQHC variables statistically significant, but our r-squared was better across each of our corresponding models
  + The number of patients receiving medication assisted treatment is our best performing community health measure. It the only one to be statistically significant in both our drug overdose death rate and state labs positive for opioids models, and had the strongest relationship with the dependent variable
  + Finally we found that there is an inverse relationship between the number of patients receiving MAT and state labs positive for opioids in our multi-variate model. This shows the potential for this treatment program to related to fewer traces of opioids within communities. It also had a mitigating effect on our other two FQHC variables, reducing the magnitude of the relationships in our multi-variate model than when those variables were in models alone

**Slide 10:**

* While our results are very positive, there are a few limitations in our study
* We ran into several issues with data quality and availability
  + First, not all the data points were able to be drilled down to specifically target opioid use rather than drug use generally. We had this issue with our UDS variables and the drug overdose rate
  + Second, we had issues with data completeness across several resources. For example, we had hoped to also look at FQHC funding data, but it was too sparse to use due to privacy suppressions. The NFLIS public data is also only limited to the top 60 drugs in a given year, even though the Annual Reports report on all of them
  + Both of these introduce bias into our models
* We also are unable to establish causal linkages in our models
  + Fixed-effects is great for assessing panel data, like we had, but it does not completely eliminate bias
  + The data quality issues also introduced bias and limited our ability to definitively make causal claims
* Slide 11: Recommendations
* End/Questions