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Recidivism and mortality after in-jail buprenorphine treatment for opioid use disorder

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ABSTRACT

Background: Buprenorphine is an effective medication for opioid use disorder (MOUD) when offered in community-based settings, but evidence is limited for incarcerated populations, particularly in relation to recidivism. In Massachusetts, Franklin County jail (FCSO) was among the first to provide buprenorphine; adjacent Hampshire County jail (HCHC) offered it more recently. These jails present a natural experiment to determine whether outcomes are different between individuals who did and did not have the opportunity to receive buprenorphine in jail.

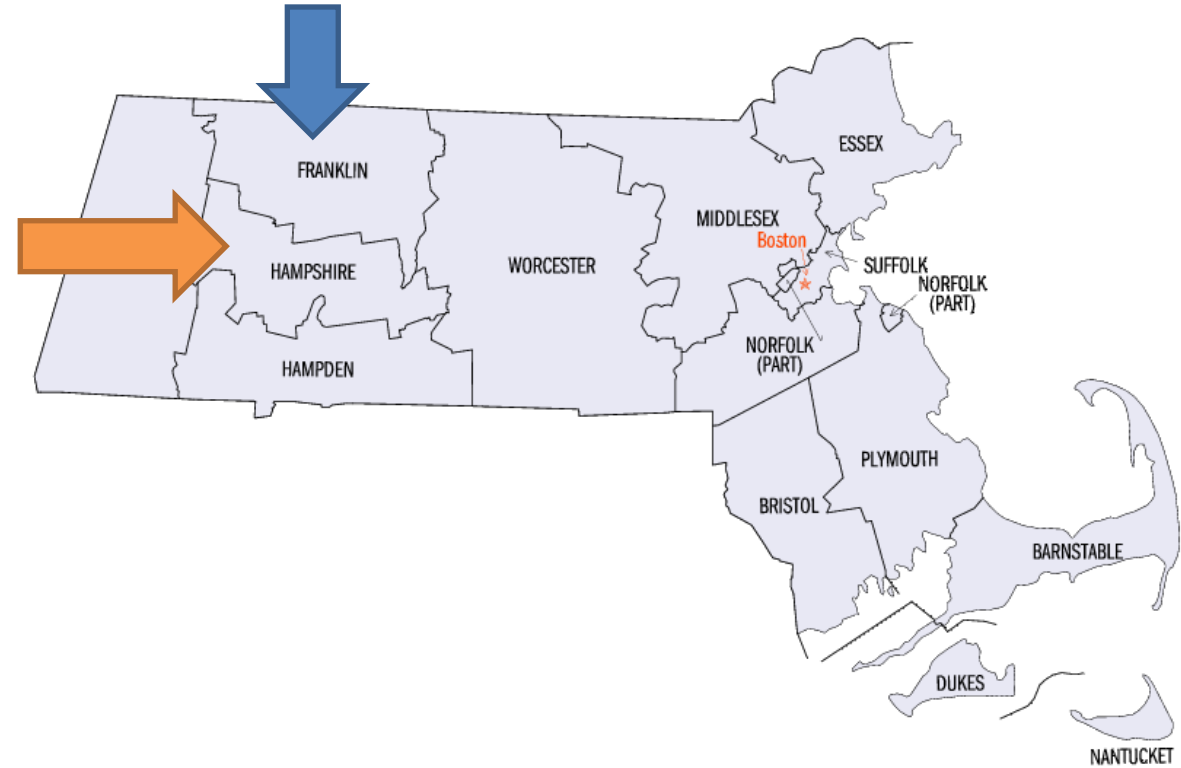
Methods: We examined outcomes of all incarcerated adults with opioid use disorder ($n = 469$) who did (FCSO $n = 197$) and did not (HCHC $n = 272$) have the opportunity to receive buprenorphine. The primary outcome was post-release recidivism, defined as time from jail exit to a recidivism event (incarceration, probation violation, arraignment). Using Cox proportional hazards models, we investigated site as a predictor, controlling for covariates. We also examined post-release deaths.

Results: Fewer FCSO than HCHC individuals recidivated (48.2% vs. 62.5%; $p = 0.001$); fewer FCSO individuals were re-arrested (36.0% vs. 47.1%; $p = 0.046$) or re-incarcerated (21.3% vs. 39.0%; $p < 0.0001$). Recidivism risk was lower in the FCSO group (hazard ratio 0.71, 95% confidence interval 0.56, 0.89; $p = 0.003$), net of covariates (adjusted hazard ratio 0.68, 95% confidence interval 0.53, 0.86; $p = 0.001$). At each site, 3% of participants died.

Conclusions: Among incarcerated adults with opioid use disorder, risk of recidivism after jail exit is lower among those who were offered buprenorphine during incarceration. Findings support the growing movement in jails nationwide to offer buprenorphine and other agonist medications for opioid use disorder.

Natural experiment

- Two Houses of Corrections in Western Massachusetts (HOC, jail), mostly rural.
 - In 2015, Franklin County HOC began providing buprenorphine, in addition to naltrexone.
 - Buprenorphine induction and continuation at jail entry.
 - Initially focused on sentenced individuals, later included pre-trial individuals.
 - At the same time, Hampshire HOC was providing naltrexone, mostly at HOC exit, and no buprenorphine.



Franklin County House of Corrections (HOC)



- Population ~73,000
- Franklin County is the only Federally Designated Rural County in Massachusetts
- Jail average daily population of 210 pre-COVID and 160 currently
- County Sheriff & District Attorney are elected; Appointed Judges
- 2 District Courts and 1 Superior Court
- Economically depressed area with extensive opioid use



Healthcare capacity – Franklin HOC

Medical Exam Room



Pharmacy and Methadone Safe



Buprenorphine dispensing protocols



Photo credit Elise Amendola, Associated Press 2018

Our study

- Research questions
 - What are the post-release outcomes of individuals who
 - received MOUD while incarcerated (pre-release MOUD condition)
versus
 - did not receive MOUD while incarcerated (controls)?
 - Which individual characteristics and treatment factors are associated with post-release MOUD access, utilization, and outcomes among study participants who did and did not receive MOUD while incarcerated?

1-4 year follow-up of 500 adults with OUD, exited jail Jan 2015-Apr 2019:

n=250 received MOUD while at Franklin HOC

n=250 did not receive MOUD while at Hampshire HOC

Master list & initial contact

Contracted jail staff will identify sample, locate (deceased, incarcerated, alive), conduct initial contact

Follow-up interview

Research staff will conduct interview by telephone

Biological samples

Research staff will collect saliva/blood from sub-sample (n=50) and test for substance use and infectious disease (HIV/HCV/syphilis)

Securing administrative data

If available and accessible, obtain electronic records on all prospective participants (n=500)

•National Death Index

- Date & cause of death (ICD-10)

•Jail records

- MOUD and other addiction treatment
- Criminal justice system
- Health records

Outcomes

Primary: opioid use trajectories 1-4 years post-release from jail

Secondary: mortality, MOUD access and utilization in the community, recidivism, infectious disease

MOUD: medications for opioid use disorder

Defining the sample

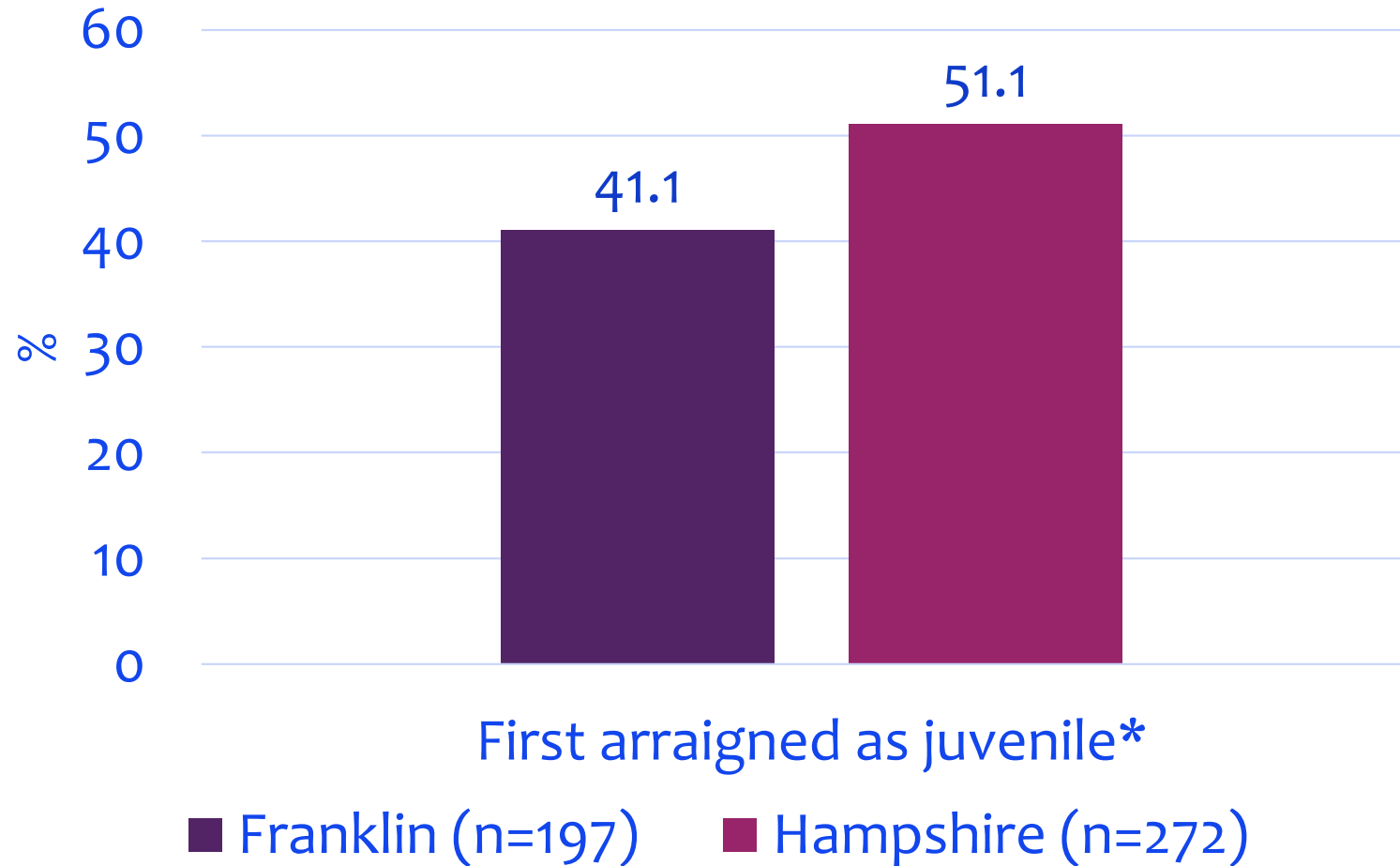
- Goal: all adults with OUD who exited the two participating jails Jan 2015 – April 2019.
- Record review August 2018 – Sept 2020.
- Analyzed administrative data to identify all adults with OUD who exited in time frame.
- Verified information by hand, cross-checking on EMR with other criminal justice records:
 - has OUD
 - whether received MOUD while in jail
 - date of jail exit
 - other information
- Extracted indicators of recidivism by hand from criminal justice records:
 - Covers events occurring in Massachusetts.
 - Data extracted in Oct 2019. Verified in Sept 2020.
- Total n=469; all have ≥ 1 year of observation after jail exit.

Demographics at baseline (jail exit)

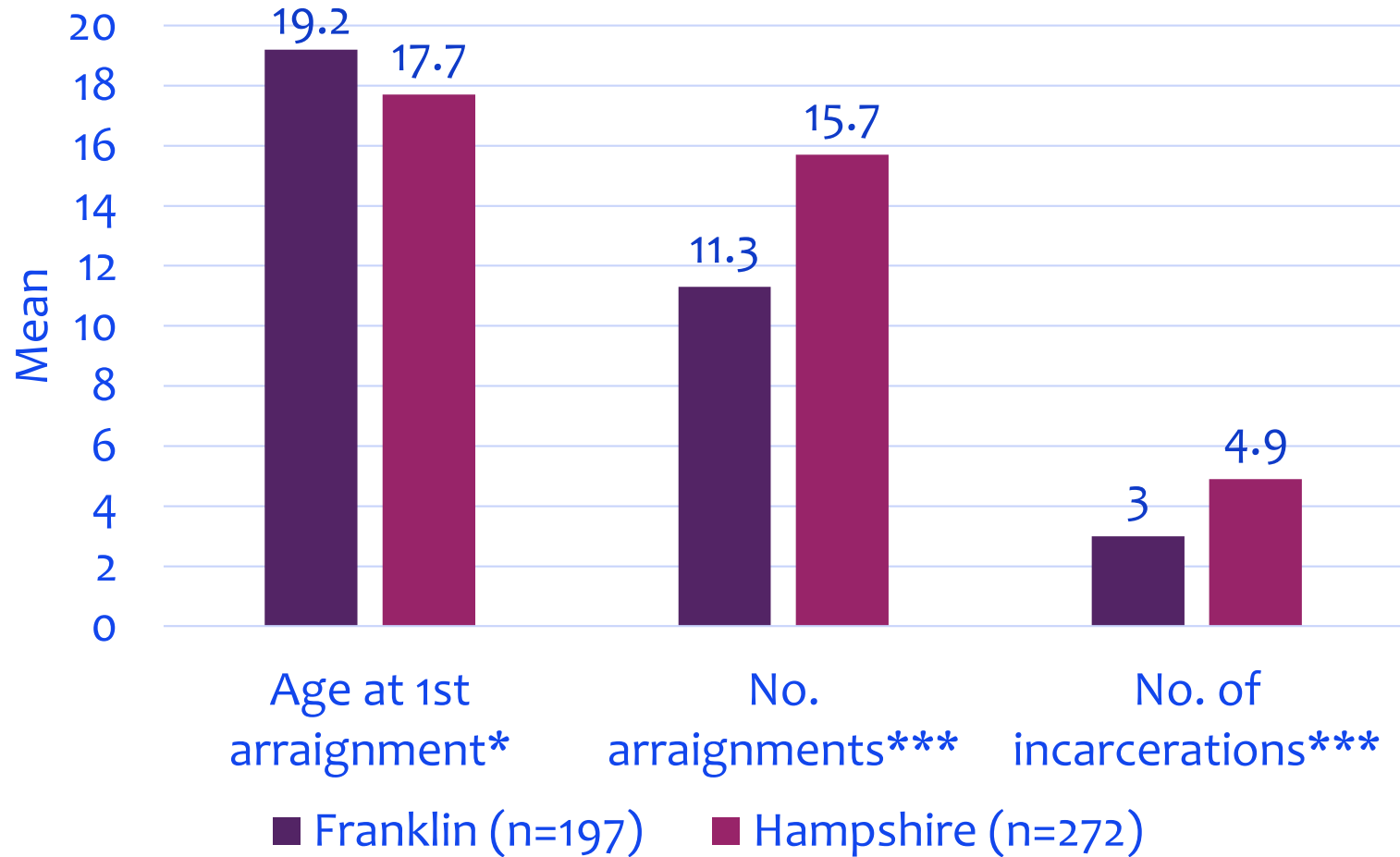
	Total (n=469)	
	Franklin (n=197; 42%)	Hampshire (n=272, 58%)
Male, %***	91.9	100
Race/ethnicity, %		
White	96.0	96.0
Black	4.0	4.0
Other	<1	<1
Age, mean	34.5	35.1

* p<0.05, ** p<0.01, ***p<0.001; t-test for continuous variables and chi square for categorical variables.

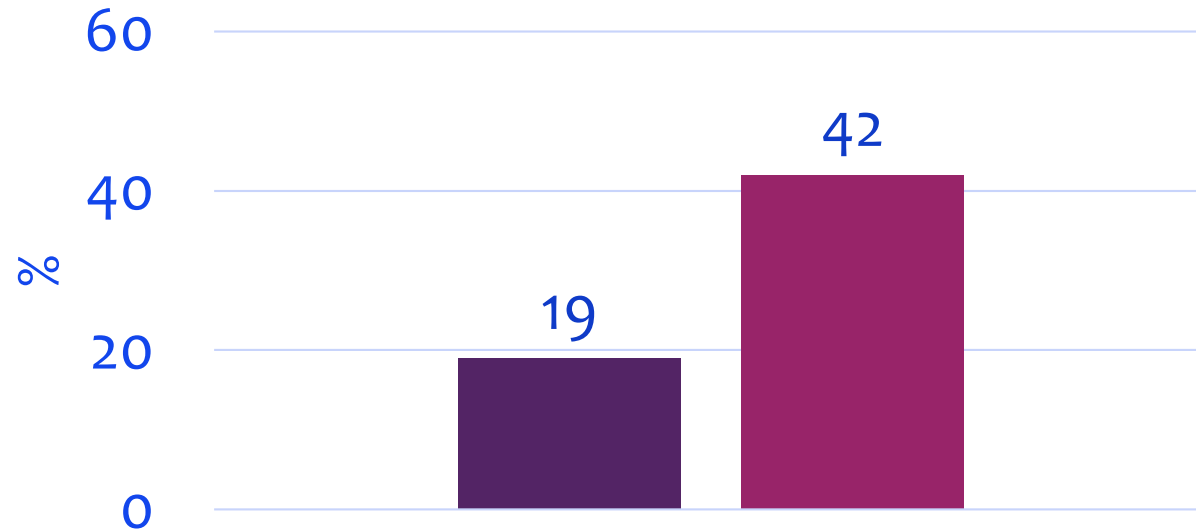
Interactions with the criminal justice system before jail entry on index episode



Interactions with the criminal justice system before jail entry on index episode

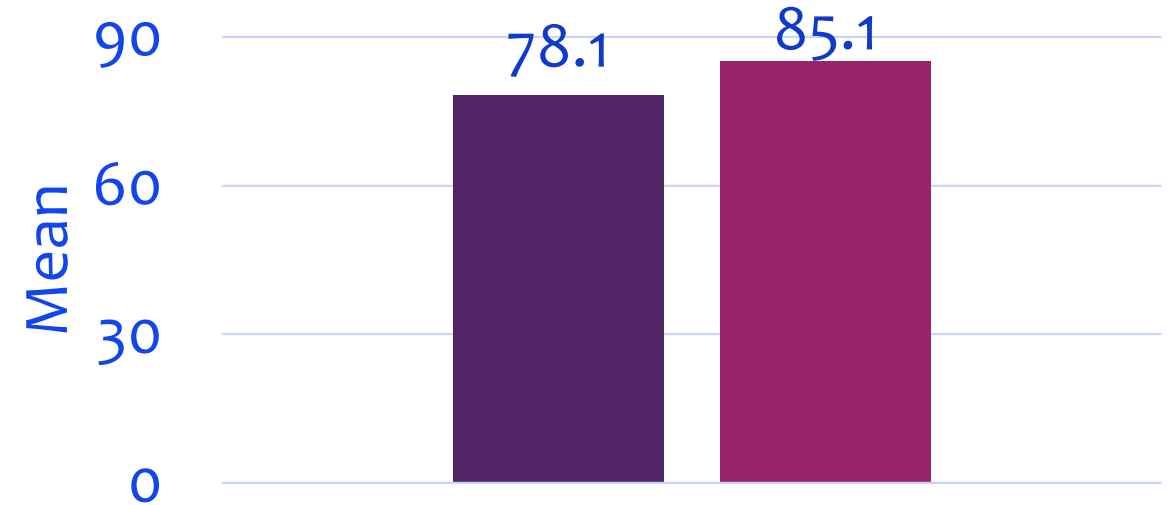


Criminal justice system status on index jail episode



Sentenced***

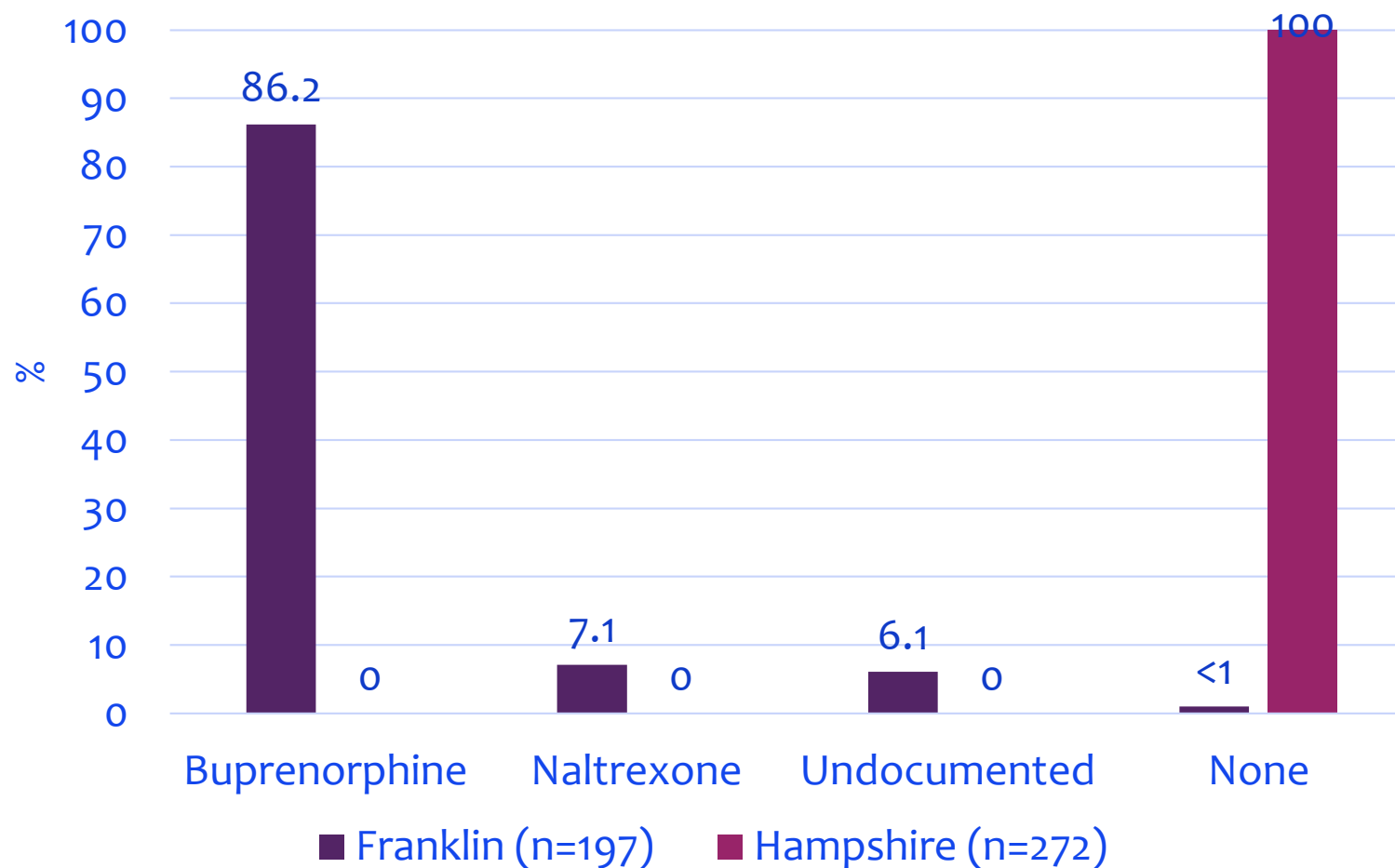
■ Franklin (n=197) ■ Hampshire (n=272)



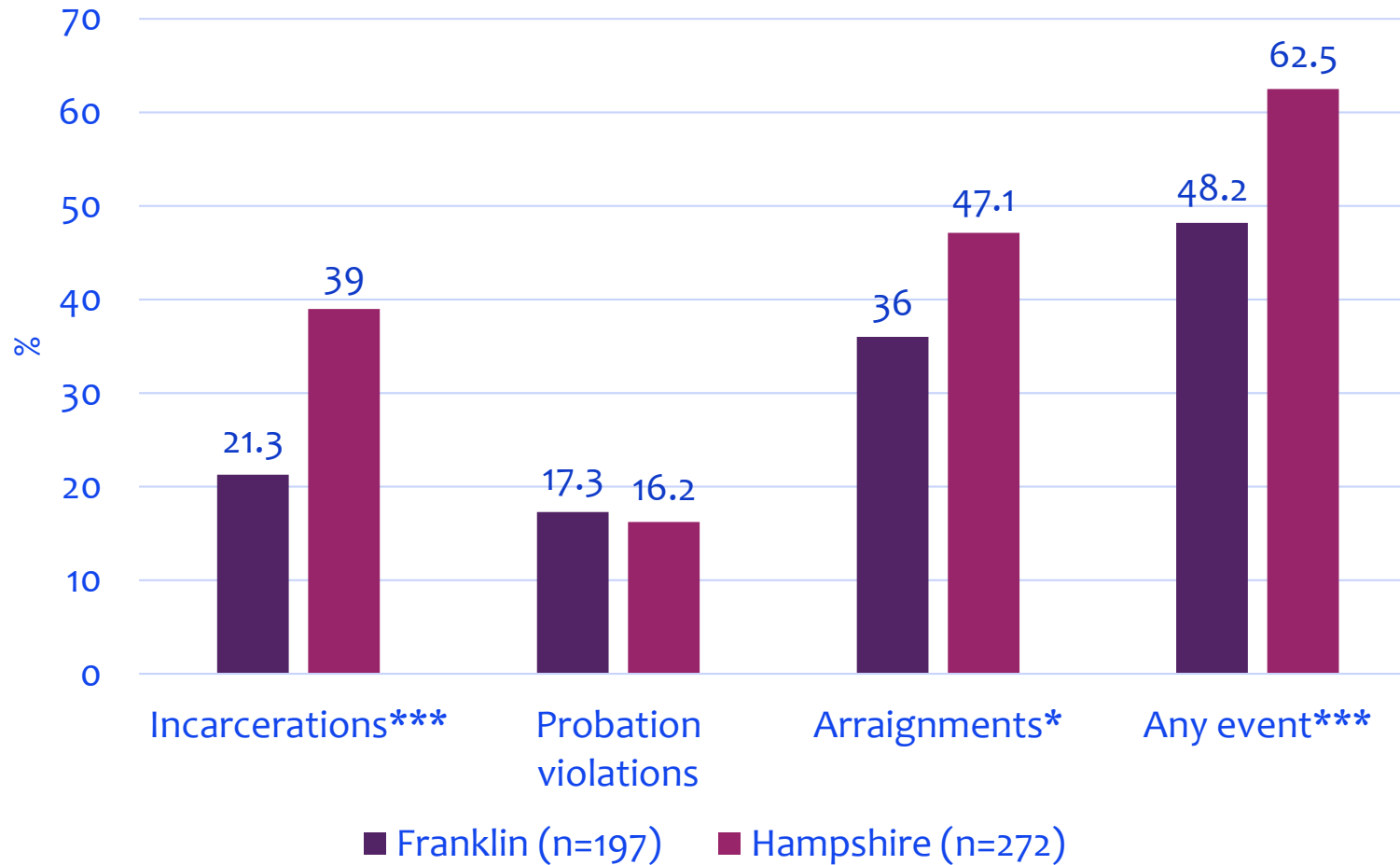
No. days incarcerated

■ Franklin (n=197) ■ Hampshire (n=272)

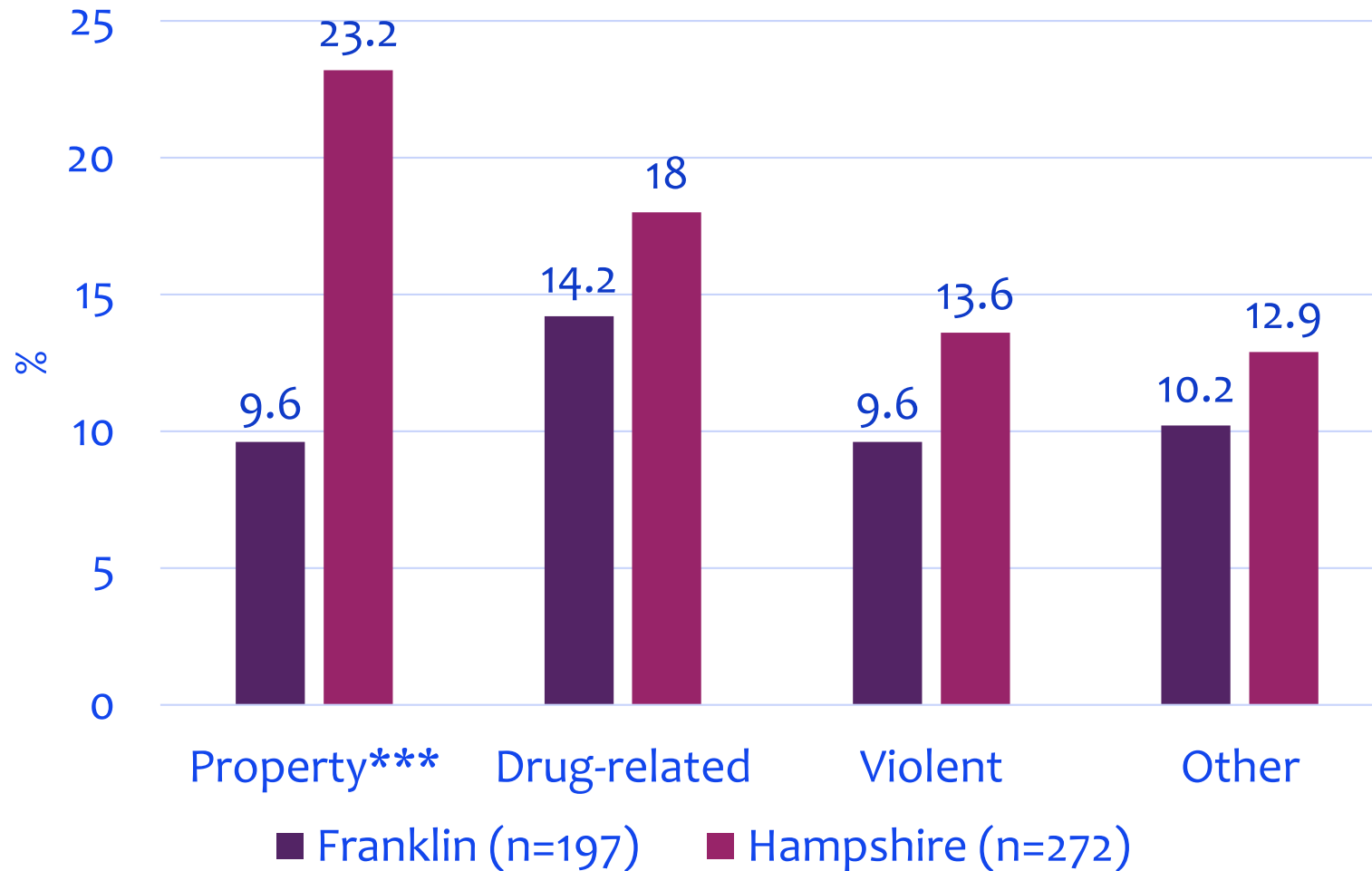
Medications for opioid use disorder while in jail



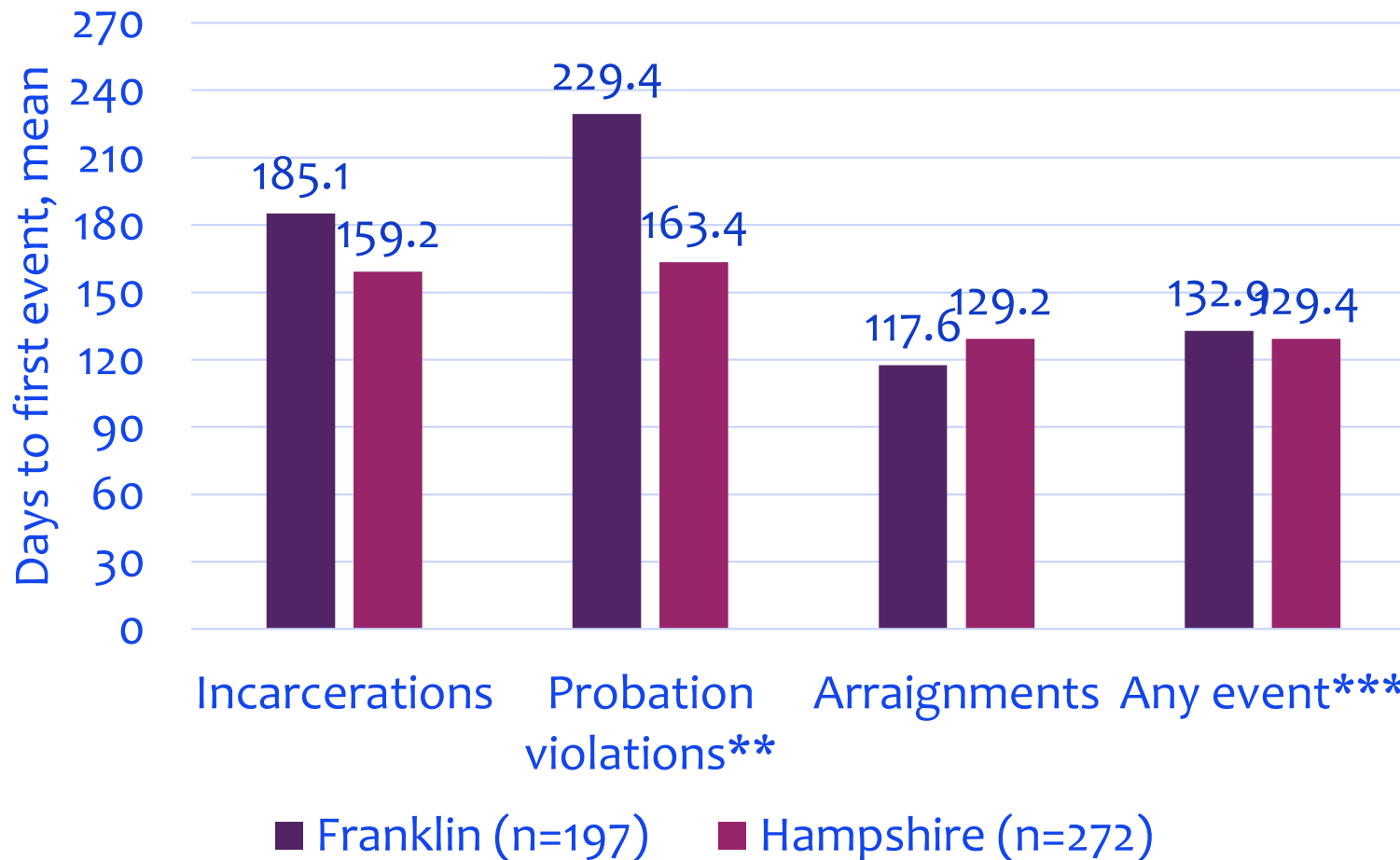
Recidivism after exit from index jail episode



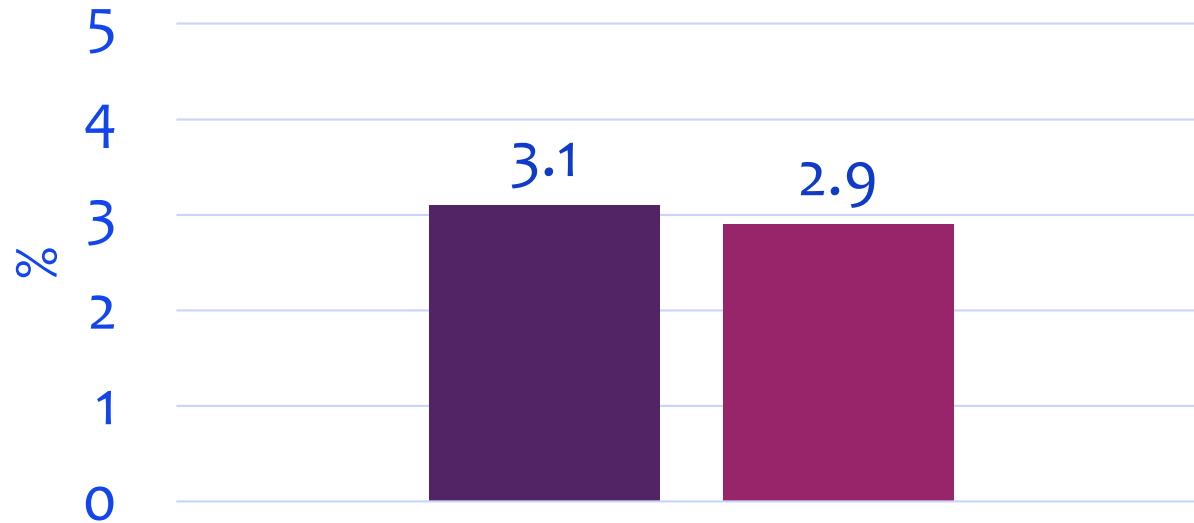
Charge on arraignment (first 3 events)



Days to recidivism event after exit from index jail episode

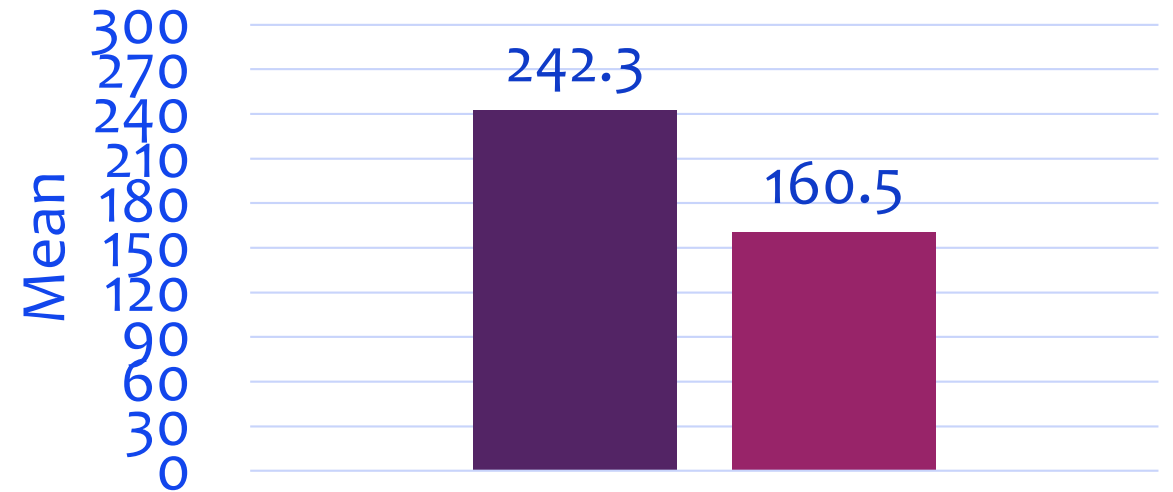


Mortality after exit from index jail episode



Died

■ Franklin (n=197) ■ Hampshire (n=272)



No. of days to death

■ Franklin (n=197) ■ Hampshire (n=272)

Predictors of recidivism

(adjusted logistic regression results)

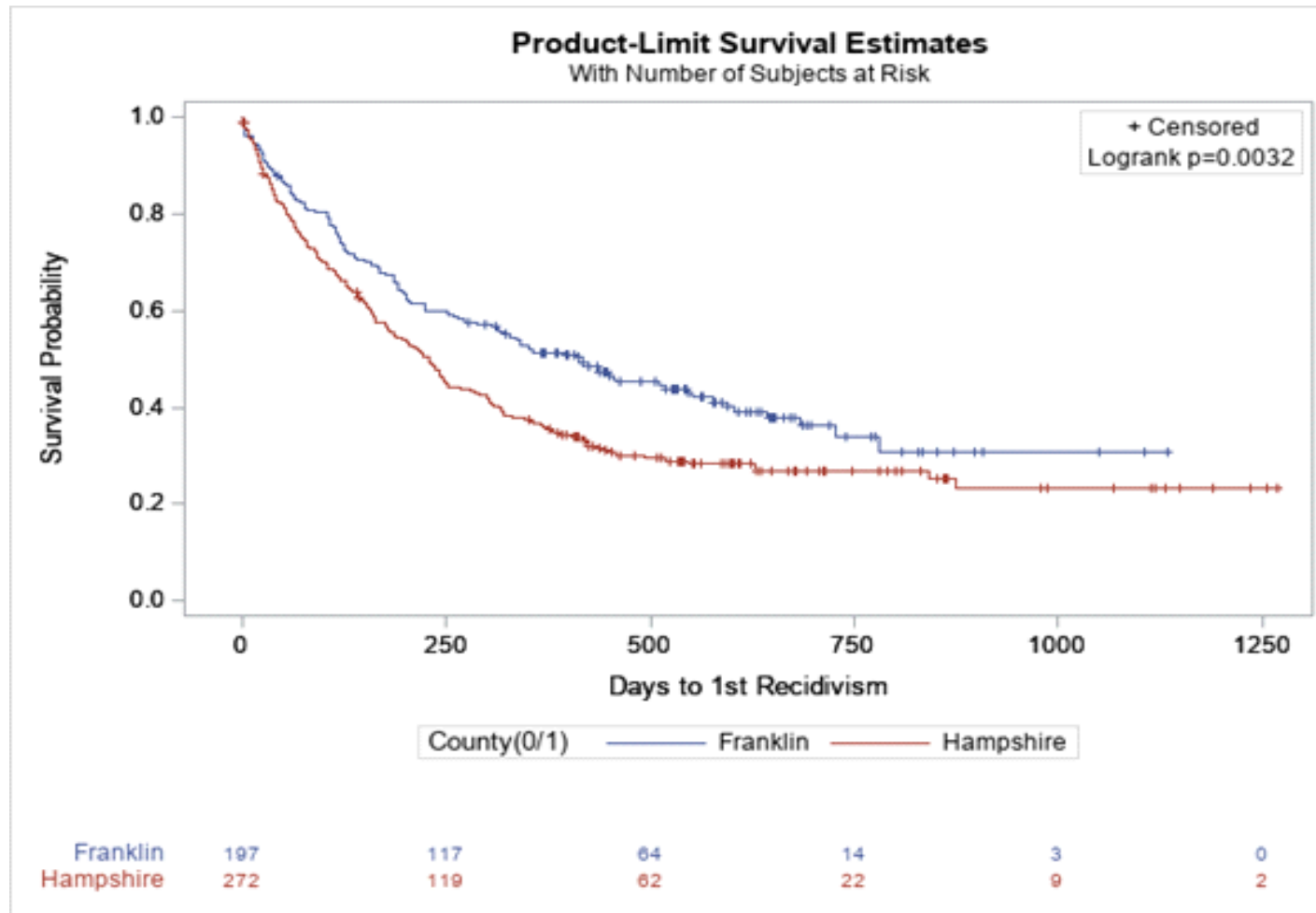
Predictor	Outcome Odds Ratio (95% Confidence Interval)							
	Recidivism (any)	Incarceration	Probation violation	Arrest (any)	Arrested: Drug	Arrested: Property	Arrested: Violent	Arrested: Other
County: Franklin (ref = Hampshire)	0.51 (0.35, 0.76)	0.37 (0.24, 0.58)	0.91 (0.55, 1.52)	0.67 (0.45, 0.99)	0.76 (0.45, 1.28)	0.39 (0.22, 0.69)	0.70 (0.38, 1.28)	0.79 (0.43, 1.44)
# of prior incarcerations	1.06 (1.02, 1.10)	1.03 (0.99, 1.07)	0.99 (0.95, 1.04)	1.06 (1.02, 1.10)	1.05 (1.00, 1.09)	1.05 (1.01, 1.09)	1.04 (0.99, 1.09)	1.02 (0.97, 1.07)
Jail status: pre-trial (index, ref = sentenced)	2.05 (1.35, 3.12)	2.24 (1.41, 3.56)	2.27 (1.23, 4.21)	1.26 (0.83, 1.90)	1.52 (0.87, 2.67)	0.96 (0.58, 1.62)	1.27 (0.68, 2.38)	1.06 (0.57, 1.97)



Recidivism is defined as any incarceration, probation violation, or arrest that occurred after exit from jail on index episode.

Time from jail exit to first recidivism event

We found a 29% reduction in risk of recidivism, which reduced to 32% after adjusting for baseline history of interactions with the criminal justice system and index jail status.



Recidivated , %				
	Franklin		Hampshire	
	No	Yes	No	Yes
Day 0	100	0	100	0
Day 33	91.1	8.8	88.7	11.3
Day 104	79.4	20.6	68.5	31.5
Day ~207	61.8	38.2	50.7	49.3
Day 365	51.8	48.2	37.5	62.5

Cox proportional hazards model unadjusted hazard ratio (95% CI) 0.71 (0.56, 0.89), $p = 0.003$

Adjusted for number of prior incarcerations, index jail status is pre-trial vs. sentence HR 0.68 (0.53, 0.86), $p = 0.001$

Summary and current status

- Among incarcerated adults with opioid use disorder, the expected risk of recidivism one year after jail exit is lower among those that were offered MOUD during incarceration (Franklin) compared to those that were not (Hampshire).
- Associations remain after adjusting for prior incarcerations, current status (pre-trial vs. sentenced), and age.
- Due to a SAMHSA grant and Massachusetts Chapter 208, both jails expanded MOUD options and related services (starting in 2019).
 - All three FDA-approved types of MOUD; MOUD induction and continuation; community re-entry programming; Franklin County jail is a licensed OTP that provides methadone.
- Both jails are MassJCOIN sites – offers opportunity to examine recidivism and other outcomes among a larger and more diverse sample.

Implementation of MOUD in jail – Lessons learned



Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep



Journal of Substance Abuse Treatment

journal homepage: www.elsevier.com/locate/jsat



Legislatively mandated implementation of medications for opioid use disorders in jails: A qualitative study of clinical, correctional, and jail administrator perspectives

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ABSTRACT

Background: Individuals with legal involvement and opioid use disorders (OUD) are at an increased risk of overdose and premature death. Yet, few correctional systems provide all FDA approved medications for OUD (MOUD) to all qualifying incarcerated individuals. We report on the implementation of MOUD in seven Massachusetts' jails following a state legislative mandate to provide access to all FDA-approved MOUD and to connect with treatment upon release.

Methods/participants: Based on the Exploration, Preparation, Implementation, and Sustainment framework, 61 clinical, corrections, and senior jail administrators participated in semi-structured interviews and focus groups between December 2019 and January 2020. Qualitative analyses focused on external and internal contexts and bridging factors.

Findings: Participants detailed how the outer context (i.e., legislative mandate) drove acceptance of MOUD and assisted with continuity of care. Salient inner context factors included decision-making around administration of agonist medications, staff perceptions and training, and changes to infrastructure and daily routines. Leadership was critical in flattening standard hierarchies and advocating for flexibility. System-based characteristics of incarcerated individuals, specifically those who were pre-sentenced, presented challenges with treatment initiation. Inter- and intra-agency bridging factors reduced duplication of effort and led to quick, innovative solutions.

Conclusions: Implementation of MOUD in jails requires collaboration with and reliance on external agencies. Preparation for implementation should involve systematic reviews of available resources and connections. Implementation requires flexibility from institutional systems that are inherently rigid. Accordingly, leaders and policymakers must recognize the cultural shift inherent in such programs and allow for resources and education to assure program success.

Uncommon and preventable: Perceptions of diversion of medication for opioid use disorder in jail

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ABSTRACT

Introduction: Correctional officials often cite diversion of medication for opioid use disorder (MOUD) treatment (e.g., buprenorphine) as a reason for not offering MOUD treatment in jails and prisons, but it is poorly understood whether these fears are justified. We aimed to understand staff perceptions of medication diversion from jail-based MOUD programs and the factors that contribute to and prevent diversion.

Methods: We conducted qualitative analyses of semi-structured in-depth interviews and focus groups performed in 2019–20 with 61 administrative, security, behavioral health, and clinical staff who implement MOUD programming in seven Massachusetts jails.

Results: Contrary to staff expectations, buprenorphine diversion was perceived to occur infrequently during MOUD program implementation. The MOUD program changed staff views of buprenorphine, i.e., as legitimate treatment instead of as illicit contraband. Also, the program was perceived to have disrupted the illicit buprenorphine market in jail and reduced related coercion. Proactive strategies were essential to prevent and respond to buprenorphine diversion. Key components of diversion prevention strategies included: staff who distinguished among different reasons for diversion; comprehensive and routinized but flexible dosing protocols; communication, education, and monitoring; patient involvement in assessing reasons for diversion; and written policies to adjudicate diversion consequences.

Conclusion: With appropriate protocols, buprenorphine diversion within correctional programs designed to provide MOUD treatment is perceived to be uncommon and preventable. Promising practices in program design help limit medication diversion and inform correctional officials and lawmakers as they consider whether and how to provide MOUD treatment in correctional settings.

Limitations and strengths

- Observational study, not a RCT
- Measures from administrative data.
 - Limited set of measures.
 - Recidivism indicator does not encompass events outside of MA, or crime.
- Two sites in a mostly rural setting in one state.
- Did not examine potential differences by site.
 - Provision of non-MOUD services.
 - Policing practices, court processes, other contextual factors.
- Capitalized on natural experiment.
- Measured outcomes on all individuals with OUD who exited jail during our time period.
- Examined recidivism post-exit from jail in relation to provision of MOUD in jail.

Thank you!

Baystate Health & UMass Medical School

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Hampshire County House of Corrections

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