Mental Health and Reoffending Outcomes of Jail Diversion Participants With a Brief Incarceration After Arraignment

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Objective: **Jail diversion programs strive to divert offenders with mental illness from prosecution and into mental health treatment. Participants sometimes spend a short time in jail after arraignment, either because treatment resources are not immediately available or because judges want to increase their motivation for treatment. This study explored the effects of short jail stays before jail diversion ("jail first") on participants' postdiversion service use and reoffending.** ***Methods:*** **The data were merged administrative records from public behavioral health and criminal justice systems in Connecticut for 712 adults with serious mental illness who participated in the jail diversion program during fiscal years 2005–2007. The effects on treatment receipt, crisis-driven service use, and reoffending during the six months postdiversion among jail first participants (N=102) versus a propensity-matched sample of participants who were diverted immediately (N=102) were estimated.** ***Results:*** **Jail first participants had greater improvements in receipt of psychotropic medication during the follow-up compared with their counterparts who were diverted immediately. However, compared with participants who were immediately diverted, they did not have greater reductions in crisis-driven service use or reoffending and the time to reincarceration was shorter.** ***Conclusions:*** **Short stays in jail before diversion did not appear to be associated with improved mental health and reoffending outcomes, even though they appeared to improve receipt of psychotropic medication. Further research is needed to better understand the relationships between jail first, receipt of psychotropic medication, and broader health and offending outcomes, with a focus on identifying missing links that address criminogenic risks and participants' more intensive social service needs. (*Psychiatric Services* 65:1113–1119, 2014; doi: 10.1176/appi.ps.201300286)**

Two million people with serious mental illness enter U.S. jails each year (1). Furthermore, psychiatric assessments of jail inmates have demonstrated that at least 15% of men and over 30% of women in U.S. jails have current serious mental illness (1) and that 50%–75% of inmates with a serious mental illness also have co-occurring substance use disorders (2,3)—far higher prevalence rates than are seen in the general population. In response to this public health problem, there has been growing use of the policy of jail diversion, a legal practice in which people with serious mental illness are diverted from the criminal justice system into treatment. Evidence for the effectiveness of jail diversion programs (including mental health courts) has demonstrated that participants with mental illness are less likely to be reincarcerated. If they are later incarcerated, they spend fewer days in jail. However, the effects of jail diversion on mental health and substance abuse outcomes have been mixed (4–9).

Connecticut is one of only two states with statewide jail diversion, which mainly occurs in arraignment courts. In the state's innovative program (10), clinicians from community mental health agencies are based in the courts and work with police, prosecuting attorneys, and judges to identify people with serious mental illness and, in many cases, co-occurring substance use disorders who are appropriate candidates for diversion into community treatment. [Details about the program are available online as a data supplement to this article.]

There is a growing awareness that around the United States, it is not uncommon for jail diversion participants to spend some time in jail after their arrest and before they are diverted into community services, even though the mission of the programs is to divert

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clients as swiftly as possible (11). This "jail first" circumstance may occur for various reasons, including a lack of immediately available treatment resources in the community and judicial discretion related to the severity or repeated nature of some clients' cases. Anecdotal reports from diversion clinicians in Connecticut's program have suggested that judges may also opt to let some individuals stay in jail for a short time before presenting them with the diversion opportunity in an effort to enhance their motivation for entering treatment and improve their chances of avoiding a conviction and possible jail sentence.

One argument might be that brief incarcerations before diversion may encourage defendants to fully engage in community treatment by increasing their motivation to participate in treatment and stay out of jail. Incarceration also may have a stabilizing effect by establishing or reestablishing access to needed psychotropic medications, allowing time for transition planning, providing respite from homelessness, and facilitating detoxification from alcohol or drugs—all of which may improve health and public safety outcomes of jail diversion. Conversely, jail time before diversion—whether used by judges as a means for averting more protracted justice involvement or as a function of lack of community treatment resources—may not impart any benefit or even may be associated with worse outcomes. In fact, little is known about how the mechanisms of legal interventions, such as jail diversion, contribute to desired public health outcomes (12).

This study explored the effects of brief incarcerations before jail diversion on participants' postdiversion outcomes, including outpatient treatment engagement, use of crisis-driven health care, and reoffending.

Methods

We conducted quasi-experimental observational analyses of adults with serious mental illness in Connecticut who participated in a statewide jail diversion program during state fiscal years (SFYs) 2006 and 2007. We used repeated-measures regression models to estimate the effect of brief incarceration after arraignment on use of outpatient treatment, use of crisis-driven health care, and criminal reoffending over time during the six-month follow-up period among participants who were subsequently diverted as compared with outcomes for individuals who were diverted straight to the community at arraignment.

We used merged administrative records from several criminal justice and behavioral health state agencies in Connecticut for 25,133 adults ages 18 or older with a schizophrenia spectrum or bipolar disorder who were served in the public mental health system during SFYs 2006 or 2007. [Full methodological details of the originating data set are reported in a recent study of the costs of justice involvement among adults in this population (13).] The data were configured in a person-month structure, yielding 24 months of observation for each individual. Participants' outcomes were observed for the first six months following diversion.

The study sample included 712 people who participated in jail diversion and were Medicaid recipients during the study period. We also ran sensitivity analyses of all study models after removing the Medicaid-receipt restriction but did not find that it improved the models. Among the 712 diversion participants, 102 (14%) had a brief incarceration before being diverted (jail first), and 610 (86%) were diverted straight to the community.

The Connecticut Department of Correction (DOC), a unified system including jails and prisons, provided data on days incarcerated during the study window, and the Department of Public Safety provided matching arrest records. The Department of Mental Health and Addiction Services (DMHAS) provided date of diversion, clinical diagnoses, and records for outpatient service utilization and state psychiatric hospitalizations. The Department of Social Services provided Medicaid service claims for outpatient service utilization, emergency visits, and psychiatric hospitalizations in general hospitals.

These data were matched, merged, and deidentified according to HIPAA compliance requirements, using a unique identifier for each person in the study population. We received protocol approval from the Duke University Medical Center Institutional Review Board (IRB) and the DMHAS IRB.

Measures

Dependent variables. We examined three sets of postdiversion outcomes: utilization of outpatient mental health and substance abuse treatment (psychotropic medication and a range of outpatient treatment services), crisis-driven service use (psychiatric hospitalizations and emergency visits), and reoffending (arrest and incarceration). We estimated probability of each outcome in a given month by using binary indicators for any versus none. We measured the frequency of each outcome in a given month by using count variables, for example, number of days incarcerated and number of arrests.

Receipt of psychotropic medication was estimated by using a medication possession ratio (MPR), the proportion of days in a month in which an individual had a supply of psychotropic medication appropriate for his or her primary psychiatric diagnosis, consistent with existing research using MPRs (14–18). Probability of any versus no MPR was estimated, as was the level, or continuous measure, of MPR.

Psychiatric hospitalizations were operationalized as number of nights in a state or community inpatient psychiatric facility for mental health or substance abuse treatment. Outpatient treatment was defined as the number of core outpatient mental health or substance abuse services either paid by Medicaid or paid and provided by the DMHAS. Postdiversion reoffending was defined as either a new arrest or incarceration in a DOC facility.

Independent variables. The jail first condition was operationalized as a dichotomous indicator of any versus no prediversion jail days in a DOC facility. These brief incarcerations in DOC were distinct from any nights that were spent in police department lockups after the index arrest that preceded diversion. Primary psychiatric diagnoses and co-occurring substance use disorder diagnoses, as indicated in DHMAS client records, were each operationalized as static dummy variables. Demographic variables included sex, age, and race-ethnicity.

Analysis

We applied propensity-score matching methods to identify a balanced comparison group of participants with

no jail time before diversion. We included the following predictors in a logistic regression to estimate propensity scores: demographic characteristics, clinical diagnoses, jail diversion case volume at the respective courts throughout the state in which program participants' cases were managed (to control for variation in some court and geographic areas), recent treatment involvement (within three months prior to diversion), and recent offending (arrests and incarcerations). Using the propensity scores, we applied a case-control match created with a local optimal, or "greedy," algorithm (19) to identify matching pairs for each study group, in which each jail first participant was matched in sequential order to the comparison group participant with the closest propensity score.

To determine the effect of jail first over time during the six-month follow-up period, we then conducted a series of generalized estimating equations (GEEs) for binary outcomes (20) or mixed-effects, mixed-distribution models for count data (21) to account for the nonindependent observations for the repeated measures and for a large proportion of person-month observations with no observed outcome events. We generated models for each of the following outcomes: receipt of psychotropic medication, outpatient service use, psychiatric hospitalization, emergency visits, arrest, and incarceration. Each mixed-effects, mixed-distribution model included main effect variables for study group and time (each of the six months of follow-up), as well as a study group × time interaction term. We included a measure of monthly community tenure, defined as the proportion of days in each month during which individuals were not incarcerated and, thereby, were eligible to use community-based services or the proportion of days in each month that individuals were not hospitalized and, thereby, were eligible for arrest or incarceration. Postdiversion MPRs and outpatient treatment utilization were also used as covariates in models that estimated crisis-driven service use and reoffending outcomes.

We next used a latent growth curve model (22) to estimate the mediating effects of targeted use of treatment services between the jail first condition and the main outcomes of crisis-driven service use and reoffending. Finally, we employed Cox proportional hazard models (23) to estimate differences between study groups in time to postdiversion crisis-driven service use and reoffending, controlling for the covariates described above.

We used SAS (24) for propensity and GEE regression analyses, SPSS (25) for Cox regression analyses, and Mplus (26) for latent growth curve models.

Results

Table 1 presents demographic and clinical characteristics, use of services, and history of offending at the time of arraignment for the individuals in both study groups before and after propensity matching. A series of t and chi square tests revealed that the propensity-matched samples were balanced on all background variables; none showed statistically significant group differences. Table 2 presents unadjusted, aggregate postdiversion outcomes for the jail first and comparison groups during the six-month follow-up period. There were no statistically significant differences between the study groups in the proportion of individuals with some use of psychotropic medication or in time to use of outpatient services or rearrest.

The mixed-effects, mixed-distribution models showed greater improvement in the probability of receipt of medication during the follow-up period (coefficient=.43, 95% confidence interval [CI]=.26–.60) as well as greater improvement in level of medication receipt (coefficient=.05, CI=.00–.10) among the jail first group compared with the comparison group (Table 3). However, there was no statistically significant difference between the groups in the probability of use of outpatient services over time. Neither were there significant differences between study groups over time in the probability of or number of days of psychiatric hospitalization nor in the probability of or number of jail days (Table 4). No significant differences were found between the groups for emergency visits and arrests (data not shown.) When the models included postdiversion medication receipt and outpatient service use as covariates, the analyses showed that medication receipt was significantly associated with reduced probability of incarceration and number of jail days as well as reduced number of hospital days. Outpatient service use was associated with reduced probability of incarceration and also with reduced probability of and number of days of hospitalization.

Given that jail first was associated with better improvements over time in postdiversion receipt of medication compared with the comparison group, we expected that relationship to potentiate larger reductions in crisis-driven service use and reoffending for this group. The growth curve model indicated, however, that there was no statistically significant mediating effect of medication receipt in the relationship between study group and main outcomes (data not shown).

The results of the Cox regression analyses for time to postdiversion service use and reoffending, however, demonstrated that individuals in the jail first group had markedly worse reoffending outcomes than their counterparts (Table 5). Specifically, the hazard of incarceration was 237% higher for individuals in the jail first group than for individuals in the comparison group (hazard ratio=3.37, CI=2.14–5.32).

Discussion

Identifying eligible adults with serious mental illness for jail diversion is a challenging and coordinated effort between diversion program clinicians and court personnel, and many variables factor into deciding if and when to divert a person to treatment in the community. In Connecticut, although the program policy is to divert straight to the community at arraignment whenever possible, some program participants first spend some time in a DOC jail before being diverted. Although there were no administrative data available indicating exactly why individuals in the jail first group were incarcerated prior to diversion, we gained important insights into this circumstance from a set of in-person, semistructured interviews with several court and jail diversion personnel in Hartford.

The reasons for prediversion incarceration are varied and complex, but the interviewees' comments suggested some themes, including acute

Table 1

Characteristics of jail first and immediately diverted participants of a jail diversion program before and after propensity matching[a]

	Before propensity matching				After propensity matching			
	Jail first (N=102)		Immediately diverted (N=610)		Jail first (N=102)		Immediately diverted (N=102)	
Characteristic	N	%	N	%	N	%	N	%
Age (M±SD)	34.6±10.0		35.6±10.6		34.6±10.0		34.9±11.1	
Sex								
Male	63	62	376	62	63	62	57	56
Female	39	38	234	38	39	38	45	44
Race-ethnicity								
White	50	49	341	56	50	49	47	46
African American	25	25	175	29	25	25	31	30
Hispanic	24	24	82	13**	24	24	21	21
Other	3	3	12	2	3	3	3	3
Primary diagnosis								
Schizophrenia	53	52	336	55	53	52	48	47
Bipolar disorder	49	48	274	45	49	48	54	53
Co-occurring substance use disorder	82	80	426	70*	82	83	75	76
Prediversion outpatient services[b]								
Medicaid paid	41	40	307	50	41	40	49	48
DMHAS	30	29	308	51**	30	29	35	34
Prediversion criminal justice contacts[b]	30	29	72	12**	30	29	35	34
Arrest	19	19	50	8**	19	19	23	23
Incarceration in jail	21	21	37	6**	21	21	21	21
Index arrest								
Felony	21	21	126	21	21	21	28	28
Misdemeanor	81	79	484	79	81	79	74	73
Length of index incarceration (M±SD days)	26.5±22.0		—		26.5±22.0		—	

[a] Jail first participants were briefly incarcerated before diversion.
[b] Use of services or criminal justice contacts in the three months before diversion. DMHAS, Department of Mental Health and Addiction Services
*p<.05, **p<.01

intoxication at the time of arrest or arraignment; a record of several past "failures to appear" for court dates; a history of passing through the court repeatedly (a "frequent flier"), often for low-level offenses; and a lack of immediately available community service slots. A short time in jail before diversion could have intended or unintended benefits for some clients, including to detoxify or generally stabilize them before reentering the community and engaging in treatment or to enhance their motivation to accept the program offer and fully engage in treatment once diverted. Because our analyses did not include directly observed data either on judges' reasons for imposing prediversion jail time or on its effects on defendants' treatment motivation in our analyses, we did not test those conditions explicitly; instead, we explored more broadly the effects of jail before diversion—for whatever reason—on participants' outcomes.

Table 2

Postdiversion outcomes among jail first and immediately diverted participants of a jail diversion program[a]

	Jail first (N=102)		Immediately diverted (N=102)	
Outcome	N	%	N	%
Psychotropic medication	70	69	80	78
Time to use of outpatient mental health services (M±SD months)	1.10±1.23		.84±1.02	
Time to arrest (M±SD months)	2.67±1.83		2.03±1.25	

[a] Jail first participants were briefly incarcerated before diversion. Outcomes are reported for a six-month follow-up period following diversion.

Our study results suggest that jail first participants functioned more poorly after diversion than their counterparts who were diverted straight to the community, even though their MPR improved more over the follow-up period. Not only were jail first participants no less likely over time to use crisis-driven health care or reoffend after diversion, but they also faced incarceration much more quickly than their counterparts. That said, it is possible that unmeasured differences in severity of illness or impaired functioning or in other unmeasured social-environmental variables, such as homelessness and poverty, could have influenced the time to reoffending. Overall, these data provided no evidence to support using brief, prediversion incarcerations to either motivate diversion program participation or achieve stabilization expressly as a means to improve participants' outcomes. Conversely, the results also suggest that immediate diversion was not associated with better improvements in outcomes over time, as one might expect if the jail first condition were not helpful in enhancing motivation or even were harmful by being traumatic or engendering distrust in the system.

The finding that the jail first condition was significantly associated with improved receipt of medication over time after diversion is puzzling, given its lack of longer-term benefits. Perhaps jail first clients were more likely to have been stabilized and to have

Table 3

Receipt of psychotropic medication and mental health outpatient services after diversion among jail first versus immediately diverted participants of a jail diversion program[a]

	Psychotropic medication				Mental health outpatient services			
	Probability of any receipt		Level of receipt		Probability of any use		Count of services used	
Independent variable	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI
Study group × time interaction	.43***	.26 to .60	.05*	.00 to .10	–.13	–.30 to .05	.03	–.04 to .10
Main effects								
Study group	–2.34***	–3.42 to –1.26	–.31**	–.52 to –.10	–.18	–1.33 to .97	–.28	–.71 to .15
Time	–.29***	–.41 to –.17	.01	–.02 to .04	–.05	–.17 to .07	–.01	–.04 to .04
Use of outpatient mental health services	.10***	.07 to .13	.01***	.00 to .02	—		—	

[a] Jail first participants were briefly incarcerated before diversion. Use was measured over a six-month follow-up period. The results represent predictions based on mixed-effects, mixed-distribution models that adjusted for postdiversion periods of incarceration. Receipt of psychotropic medication was estimated by using a medication possession ratio (MPR), the proportion of days in a month in which an individual has a supply of psychotropic medication appropriate for his or her primary psychiatric diagnosis. Level of medication receipt was a continuous measure of MPR. Count of services was the number of core outpatient mental health or substance abuse services either paid by Medicaid or paid and provided by the Connecticut Department of Mental Health and Addiction Services (DMHAS). Each study group consisted of 102 participants, for a total of 1,428 person-months.

*p≤.05, **p≤.01, ***p≤.001

had their medication regimens reestablished in jail before diversion. Jail diversion clinicians in Connecticut highlighted stabilization as a practical benefit of prediversion jail time for a minority of clients, even though the program procedures involve diversion at arraignment. However, the lack of relationship between study condition and main outcomes and also the lack of a mediating relationship between improved receipt of medication and reductions in crisis care and reoffending both suggest that improving medication receipt is not enough to achieve better outcomes in the end. Notably, other recent evidence suggests that psychotropic medication possession significantly reduced risk of arrest among a sample of Medicaid enrollees with serious mental illness (27).

A recent study suggested that the effectiveness of jail diversion interventions may be only partially attributable to the treatment services that are central to the intervention and that other, unmeasured mechanisms in the intervention process may also be important predictors of diversion outcomes

Table 4

Incarceration and hospitalization after diversion among jail first versus immediately diverted participants of a jail diversion program[a]

	Incarceration				Hospitalization[b]			
	Any jail		Jail days		Any hospitalization		Hospital days	
Independent variable	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI
Study group × time interaction	–.03	–.23 to .17	.03	–.10 to .15	–.06	–.48 to .37	.03	–.61 to .67
Main effects								
Study group	1.61**	.55 to 2.68	.06	–.41 to .53	1.38	–.46 to 3.23	–1.22	–2.72 to .27
Time	.11	–.06 to .27	.07	–.03 to .18	–.23	–.57 to .11	.31	–.65 to 1.27
Postdiversion hospital days	–.02	–.10 to .07	–.06*	–.10 to –.01	—		—	
Postdiversion psychiatric medication	–2.08***	–2.79 to –1.37	–.62**	–.99 to –.26	.00	–1.25 to 1.24	–1.49**	–2.38 to –.61
Postdiversion use of outpatient mental health services	–.08**	–.13 to –.03	–.02*	–.04 to .00	.07*	.01 to .12	–.03	–.09 to .03

[a] Jail first participants were briefly incarcerated before diversion. Use was measured over a six-month follow-up period. The results represent predictions based on mixed-effects, mixed-distribution models that adjusted for postdiversion periods of incarceration. Each study group consisted of 102 participants, for a total of 1,428 person-months.

[b] Includes only hospitalizations in Connecticut Department of Mental Health and Addiction Services psychiatric hospitals

*p≤.05, **p≤.01, ***p≤.001

Table 5

Predictors of time to incarceration and psychiatric hospitalization among jail first versus immediately diverted participants of a jail diversion program[a]

	Time to incarceration		Time to psychiatric hospitalization	
Independent variable	HR	95% CI	HR	95% CI
Study group	3.37*	2.14–5.32	.82	.39–1.71
Postdiversion hospital days[b]	1.00	.99–1.01	—	
Postdiversion jail days	—		1.00	.99–1.01
Postdiversion use of outpatient mental health services	1.00	1.00–1.00	1.00	1.00–1.01

[a] Jail first participants were briefly incarcerated before diversion. Cox proportional hazard models were used to estimate differences between study groups in time to incarceration and psychiatric hospitalization during a six-month follow-up period. HR, hazard ratio

[b] Includes only hospitalizations in Connecticut Department of Mental Health and Addiction Services (DMHAS) psychiatric hospitals

*p≤.001

(28). For example, socioenvironmental factors, such as poverty and homelessness, may mediate the relationship between mental illness and offending, and factors such as age at first offense may moderate the relationship between mental illness and offending and diminish the extent to which mental health treatment interventions work to reduce offending. It may be that many of the adults in our sample, all of whom had a mental illness and a history of justice involvement, experienced criminogenic risks, such as antisocial attitudes and peers, substance abuse, lack of education, family problems, and poor employment, that linkages to mental health treatment in the jail diversion program do not address. As a result, their likelihood of reoffending did not decrease, even with better mental health symptom control associated with receipt of medication. Perhaps, too, there is still a lack of true comprehensive, wraparound social services available to meet the individual's basic human needs—stable housing, employment, and other social support services that can help them become more generally stable, avoid criminal offending, and be less likely to visit the emergency department or need hospitalization.

There were several limitations of these analyses. First, our study data did not allow us to measure the effects of jail first specifically on motivation for engaging in treatment; this would be an important avenue for future research. Furthermore, there were gaps in our administrative data; we did not have information about people who may have moved out of state or died in the study period. Also, the sample was small. With a larger sample we could have examined the effect of jail first for specific subgroups that may have responded differently to that condition—for example, people with felony versus misdemeanor charges at the index arrest, those with entrenched offending histories, and those with co-occurring disorders (to capture the important influence of substance abuse on risk of reoffending and also the extent of substance abuse treatment after diversion), and the effect of length of time in jail between subgroups of the jail first population to determine if there was any correlation, whether positive or negative, between length of incarceration and outcome.

In addition, it would be useful in future analyses to determine if psychotropic medication received by the individual was continuous during and after incarceration. A longer study window would also have been helpful both for observing postdiversion outcomes and for assessing offending history. That said, the first six months after diversion arguably are critically important in determining if someone will reoffend or otherwise revert to poor functioning. Also, although the comparison group was well-matched through propensity scoring, it is possible that there were some unmeasured, but important differences between the study groups. These differences could have yielded a comparison group that was systematically different from the jail first group. For example, individuals who are more hostile in the courtroom may be likely to be sent to jail rather than immediately diverted, but their demeanor could also indicate intractability of their offending patterns and resistance to entering treatment, which could influence their outcomes. Furthermore, although crisis-driven service use and reoffending variables are highly policy-relevant outcomes, they cannot completely replace clinical outcomes. Direct clinical measures or self-reported outcomes for mental functioning and use of substances during follow-up would also have been informative. Next steps in this line of research should examine the role of treatment adherence more closely to understand both how and why jail first participants had improved treatment adherence and also why that improvement did not translate to improved health and public safety outcomes over time.

Conclusions

These analyses offer an early but important indication that a brief incarceration before diversion to the community does not ultimately achieve the goals of the courts—reduced recidivism and improved public safety—whether by motivating participants to "get with the program," achieving precommunity-release stabilization, or otherwise. The larger issues of criminogenic risks and more comprehensive social service needs should be addressed in parallel with mental health and substance abuse treatment for a person-centered approach that will optimize outcomes.

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