Incarceration and Psychotropic Drug Use by Youth
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Objective: To determine changes in psychotropic medication use before and after juvenile justice incarceration, contrasting stays in long-stay commitment facilities and short-stay detention facilities.

Design: Statewide administrative data (July 1, 1998, through June 30, 2003) from the Florida Department of Juvenile Justice and Florida Medicaid. Medication prescriptions filled before entry and after release from facilities were determined based on paid claims. Psychotropic medication was categorized by drug class based on the National Drug Code.

Setting: General community services.

Participants: All of the Medicaid-enrolled youth aged 11 to 17 years identified as having a stay in a juvenile justice facility. The total sample included 67,819 detention stays and 59,918 commitment stays.

Main Exposure: Incarceration in juvenile commitment and detention facilities.

Main Outcome Measure: Filled prescriptions for psychotropic medication by class 30 and 90 days before and after incarceration.

Results: Ninety days prior to detention, 3666 youth (5.4%) had psychotropic drug claims. Among these, 2296 (62.6%) had any psychotropic medication claims in the 30 days after release. Among commitment cases, 29.6% continued medication use after release. Onset of medication use after release from detention and commitment facilities was relatively uncommon (1.7% and 1.9%, respectively). Youth in commitment facilities were less likely than youth in detention facilities to resume their medication use across drug classes after 30 days ($\chi^2=6.28; P=.04$) and after 90 days ($\chi^2=7.62; P=.02$).

Conclusions: The results find greater support for a disruption effect than a discovery effect from incarceration. The findings suggest several areas for further investigation and improvement of services for incarcerated youth.

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MENTAL HEALTH DISORDERS are extremely common and severe among youth in the juvenile justice system, particularly incarcerated youth.1 A growing awareness of these disorders and their importance to leaders in the correctional field has created an “ethos of mental health care” in the justice system.2

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Each year, the juvenile justice system handles 330,000 cases where youth are held in detention facilities for short-term periods during case processing and another 150,000 cases where youth are incarcerated in commitment facilities for long-term custody and placement.3 The 2 types of facilities have differing health care standards as established by the American Correctional Association. The American Correctional Association recommends a broad set of services for youth in commitment facilities, where youth serve longer sentences, and somewhat less stringent standards for detention centers, where youth are held for shorter periods. In detention centers, the emphasis is on rapid screening for illicit drug use and injuries. In addition to the American Correctional Association standards, the American Academy of Child and Adolescent Psychiatry has outlined a set of practice parameters that span entry, incarceration, and release into the community to assist with treatment planning for youth who have psychiatric disorders.

Despite the fact that the juvenile justice system is being called on to provide or coordinate extensive mental health services, few studies have addressed how placement in a juvenile justice facility affects service use patterns for youth with mental disorders. A study4 of jail inmates found declines in mental health service use when comparing use at intake with use in a follow-up period in the community. Another study5 found that among youth detainees with major mental disorders, 15.4%...
received treatment in the facility and 8.1% received treatment in the community by the time of case disposition or 6 months, whichever came first.

Investigators have argued that the handoff from one service system provider to another, such as from the justice system to the community mental health system, represents a place where disruptions in care may occur. However, the recent increase in mental health screening efforts by juvenile justice facilities could lead to greater discovery of disorder and more treatment. Whether the disruption or discovery effect dominates for youth who traverse the juvenile justice system is unknown. Answers to these questions could result in policy and program changes such as greater health insurance coverage or service systems coordination. Our study of Medicaid-enrolled youth in Florida who were placed in juvenile detention and commitment facilities attempts to address these issues. We examine the effect of justice placement on the use of community behavioral health services, focusing on psychotropic medications. We hypothesize that short-stay detention facilities will be less likely than long-term commitment facilities to demonstrate either a discovery or disruption effect. Overall, we hypothesize that both types of facilities will demonstrate declines in prescription medication use on return to the community.

**METHODS**

The study used statewide administrative data from July 1, 1998, through June 30, 2003, from the Florida Department of Juvenile Justice and the Florida Medicaid program. We only observed health care use for youth enrolled in Medicaid. Youth aged 11 to 17 years throughout the study period were included because Medicaid and other insurers may change coverage after age 17 years. Florida state Medicaid enrollment data were linked to the state juvenile justice data based on name, sex, birth date, and identification number. Of the 723,017 youth identified in the Medicaid enrollment files, 133,733 (18.3%) matched with youth in the juvenile justice system data.

In addition to sex, Medicaid enrollment data also include race/ethnicity and category of Medicaid eligibility (data not shown). Of the justice-involved youth, 36.5% were female and 63.5% were male. The Florida Medicaid data do not distinguish race from ethnicity. Based on the reported categories, 41.7% of the justice-involved youth were white, 41.7% were black, 11.3% were Hispanic, and 5.3% were of other race/ethnic background. In addition, 13.5% were eligible for Medicaid owing to disability, 18.0% owing to foster care status, and 68.5% owing to low income or related eligibility.

The Florida Department of Juvenile Justice data document each youth’s name, age, sex, date of offense, and type of offense. The justice data also document the processing of the case, including dates of detention and commitment, where applicable. Only cases involving stays in detention and commitment facilities were included. Given the low number of youth placed in residential treatment facilities (n=130), these cases were excluded.

We hypothesized that facility type would predict service patterns. Youth in long-stay facilities are predicted to experience greater changes in medication use than youth in short-stay facilities. Consequently, we divided youth into those who stayed in detention facilities and those who stayed in commitment facilities. Cases with detention stays longer than 30 days (12.5% of detention stays) and cases with commitment stays shorter than 31 days (8.5% of commitment stays) were excluded. We further limited our sample to youth who were enrolled in the Medicaid program 90 days before and 90 days after their detention or commitment stays. Of the detention and commitment stays, 12.6% and 12.9%, respectively, were excluded because the youth were not enrolled in Medicaid 90 days after release. Consequently, the total sample from the justice system included 127,737 cases, of which 67,819 were detention cases and another 59,918 were commitment cases.

We then obtained data from the Medicaid claims and encounter files for all of the Medicaid-enrolled youth to examine service use. For each case, we determined medication prescriptions filled before and after the facility stay based on paid claims. Federal law prohibits Medicaid payments for care during incarceration at state correctional facilities. Medication is reported by the National Drug Code and was categorized into antidepressants, typical and atypical antipsychotic drugs, and stimulants. We also created an “any psychotropic drug” category, which included the former 3 categories plus benzodiazepines, sedatives, mood stabilizers, anxiolytics, and drugs for substance use disorders such as methadone.

We first examined the use of any psychotropic medication before and after the facility stay. We defined youth as having psychotropic medication use before incarceration if they had at least 2 claims for any psychotropic medication in the 90 days before the facility stay to avoid including claims that were filled once but did not represent ongoing medication use. All of the other youth were defined as nonusers. For both users and nonusers, we then assessed how many youth had any psychotropic medication claims in the 30 days after reentry into the community.

Subsequently, we examined psychotropic medication use for specific drug classes, including stimulants, antidepressants, and antipsychotic drugs. Stimulants and antidepressants were chosen because they are the most commonly prescribed psychotropic medications for children and adolescents. We also included antipsychotic drugs because they are often used to treat aggressive behavior in this population and their use is rapidly growing. For these subanalyses, we excluded youth who received more than 1 type of psychotropic medication, ie, polypharmacy use, before their facility stay. Among the remaining youth, we then determined what proportion had at least 1 psychotropic medication claim within 30 days after release or 2 claims within 90 days after release.

The study received approval from the institutional review boards of Florida State University, Columbus Children’s Research Institute, and Columbia University.

**RESULTS**

The Figure shows the total number of youth detention cases in our sample. Among the 67,819 detained youth, only 3666 (5.4%) had 2 or more claims for psychotropic drugs in the 90 days prior to detention. Among these 3666 cases, 2296 (62.6%) had any psychotropic medication claims in the 30 days after release. Regarding new onset of psychotropic drug use, we found that among the 64,153 cases with no prior psychotropic medication claims, only 1073 (1.7% of previous nonusers) had claims in the 30 days after release from detention. Of 4739 total psychotropic drug users among detainees, 22.6% began receiving psychotropic drugs after incarceration.

The results for the 59,918 commitment cases were similar except that the proportion of cases with continued
medication use after release was even smaller. Only 2649 commitment cases (4.4%) had 2 or more claims for psychotropic drugs in the 90 days prior to entry. Among these 2649 cases, only 783 (29.6%) had a psychotropic medication claim in the 30 days after release. Onset of medication use after release from commitment facilities was relatively uncommon. Only 1108 cases (1.9% of previous nonusers) had claims 30 days after commitment release. Of 3757 total psychotropic medication users among commitment cases, 29.5% began using the medication after incarceration.

PREVALENCE OF MEDICATION USE BY TYPE OF PSYCHOTROPIC MEDICATION

We examined medication use prior and subsequent to a facility stay more closely by drug class. The Table shows youth who had 2 or more claims for a particular drug class only and no other psychotropic drug use in the 90 days before entry into a facility.

![Table. Cases With Psychotropic Medication Use Prior to Facility Stay Only](image)

<table>
<thead>
<tr>
<th>Facility Type and Psychotropic Medication</th>
<th>Psychotropic Medication Use Prior to Facility Stay, No.</th>
<th>Psychotropic Medication Use Within 30 d After Release, No. (%)</th>
<th>Psychotropic Medication Use Within 90 d After Release, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detention</td>
<td>Antidepressant only</td>
<td>96 (56.2)</td>
<td>42 (43.8)</td>
</tr>
<tr>
<td></td>
<td>Stimulant only</td>
<td>352 (48.9)</td>
<td>180 (51.1)</td>
</tr>
<tr>
<td></td>
<td>Antipsychotic only</td>
<td>100 (46.0)</td>
<td>54 (54.0)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>548</td>
<td>272 (50.4)</td>
</tr>
<tr>
<td>Commitment</td>
<td>Antidepressant only</td>
<td>105 (78.1)</td>
<td>23 (21.9)</td>
</tr>
<tr>
<td></td>
<td>Stimulant only</td>
<td>235 (75.3)</td>
<td>58 (24.7)</td>
</tr>
<tr>
<td></td>
<td>Antipsychotic only</td>
<td>88 (84.1)</td>
<td>14 (15.9)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>428</td>
<td>333 (77.8)</td>
</tr>
</tbody>
</table>

*Defined as having 2 or more claims for a particular drug class only and no other psychotropic drug use in the 90 days before entry into a facility.

![Figure. Psychotropic medication use by Medicaid enrollees before and after juvenile incarceration.](image)

The study includes youth enrolled in Medicaid 90 days before incarceration and 90 days after release. Medication prior is defined as 2 or more psychotropic prescription claims in the 90 days prior to incarceration; medication after is defined as any psychotropic prescription claims within 30 days after incarceration.
The Table illustrates that the effects varied by facility type. Youth in commitment facilities were less likely than youth in detention facilities to resume their medication use across groups after 30 days ($\chi^2=6.28; P=.04$) and after 90 days ($\chi^2=7.62; P=.02$).

Among the antipsychotic-only group, only 15.9% resumed use of any psychotropic medication within 30 days of release, compared with 21.9% for the antidepressant-only group ($\chi^2=1.11; P=.29$) and 24.7% for the stimulant-only group ($\chi^2=2.84; P=.09$). Within 90 days, 20.5% of the antipsychotic-only group had a claim for some psychotropic use, which was lower than among the antidepressant-only group at 30.5% ($\chi^2=2.50; P=.11$) and the stimulant-only group at 33.6% ($\chi^2=5.29; P=.02$).

Our study found that both before and after contact with the juvenile justice system, few youth received psychotropic medications even in the face of prior research suggesting high levels of disorder. By comparison, a study of privately insured youth in 2000 found 15,993 of 473,954 individuals (3.4%) to have psychotropic drug use based on claims data. Although Medicaid-enrolled, justice-involved youth are at higher risk for psychopathology, the results of the current study indicate that only 4% to 5% of detained and committed adolescents receive psychotropic medication prior to justice involvement and even fewer receive medication on release. Moreover, following incarceration in a juvenile justice facility, there was a high rate of disruption of prior medication use, with only 30% to 63% of youth who were receiving a psychotropic medication prior to incarceration still using a medication within 30 days after release.

Despite lower-than-expected psychotropic medication use prior to incarceration, we also found that discovery of new cases was less than 2%. With the growing demands for use of standardized mental health assessments in juvenile justice facilities for screening and treatment planning, this finding is surprising. Furthermore, estimated prevalence rates of mental disorders are as high as 65%. Although some psychotropic medication use prior to entry may be inappropriate, it is unlikely that interruption on such a large scale is indicated unless the restrictive nature of incarceration causes dramatic improvements in many youth, a scenario that seems unlikely to account for the high number of disruptions in treatment. Another possibility is that youth receive some other intensive therapeutic intervention in the community in lieu of medication.

Because medication use declines over time even in the general population, we compared our juvenile justice sample to all of the nonincarcerated youth aged 11 to 17 years who were enrolled in the Florida Medicaid program on January 1, 2001. We defined users of psychotropic drugs as anyone who had 2 or more psychotropic drug claims within 90 days before our index day, ie, January 1, 2001. Among the 12,762 youth whom we identified as users of psychotropic drugs on the index day, 75.9% had at least 1 medication claim within 30 days (data not shown). Because we did not control for differences in sociodemographic and health characteristics, these results are only suggestive of the fact that declines in medication use in the general population may be substantially smaller than those observed among the incarcerated youth in our sample.

State and federal case law has established that incarcerated youth should receive some level of psychological services from trained staff, including professional evaluations, treatment plans, follow-up evaluation, and counseling. Juvenile justice facilities have expanded their provision of mental health screening and direct care services. In some cases, this expansion has been credited as a result of federal lawsuits. Since 1980, the Department of Justice has investigated conditions of confinement in more than 100 juvenile facilities in 16 states under the Civil Rights of Institutionalized Persons Act (42 USC §1997a et seq). The most recent complaint against a juvenile correctional facility was brought in December 2006 (United States v State of Oklahoma) and among other allegations cites inadequate management of psychotropic medication and inadequate provision of mental health services and transition planning.

**CLINICAL IMPLICATIONS**

Theoretically, one could pose different arguments as to why the justice system might either increase or decrease the use of psychotropic medications for youth who are incarcerated. Medication prescriptions may still be in effect with refills remaining for youth with very short stays, whereas this is less likely to be the case for long-stay youth, leading to decreases. Increases in psychotropic medication use after incarceration may result, for example, if there is a discovery effect in that routine screening or assessment in the justice system reveals previously untreated or undertreated mental disorders. New episodes of medication treatment could occur if psychotropic medications are initially used in justice facilities as chemical restraints and then continued in the community. Overcrowded facilities have been found to make greater use of control measures and restraints.

Our results find greater support for a disruption effect than a discovery effect. We suggest several possible reasons. First, while mental health assessment has become more widespread in juvenile justice facilities, the emphasis remains on emergent conditions such as suicide prevention rather than ongoing treatment. Despite this concern, there is evidence that facilities fail to meet even the basic recommendations for service provision. For example, fewer than a third of youth are in detention or correctional facilities that meet recommended suicide prevention measures. Further, only 56% of youth are housed in facilities that have mental health staff available daily, with even more limited access to child psychiatric care. Thirteen percent have no mental health staff available at all.

Second, the level of overcrowding in detention and commitment facilities makes it likely that treatment for chronic health and mental health conditions cannot be adequately maintained for many youth. Overcrowding makes it more difficult to identify youth in need of mental health services. A 2002 Juvenile Residential Facility...
Third, whether medication treatment is continued on release from the facility may depend on the adequacy of aftercare planning, including whether the youth has adequate health insurance coverage and can pay for medications or whether the young person and his or her family can forge linkages back to community providers. We suspect that overwhelmed facilities struggle to provide and implement appropriate aftercare plans.

Fourth, our findings suggest that the type of facility appears to play an important role. Rates of resumption were higher after detention stays despite the fact that screening and service delivery are less extensive in detention centers than in commitment centers and despite the fact that many states preclude compulsory treatment to such preadjudicated youth. Our study design included only youth enrolled in Medicaid after release; therefore, observed differences in our study between detention and commitment are not due to the greater discontinuation of Medicaid for committed youth.

However, it is possible that the higher level of structure in commitment facilities may provide behavioral benefits, thereby allowing more youth to discontinue their medication while in the commitment facilities. The medications may then not be resumed after the youth return to the community. Aftercare may be more challenging for youth exiting commitment facilities than for those exiting detention because lengths of stay are considerably longer on average and youths’ community ties are consequently more tenuous or difficult to reestablish. Involvement by probation or parole officers is more likely after commitments than detentions, although the role of such officers relative to community behavioral health care linkage and use is not clear.

Finally, this study finds differences in the degree of service resumption by medication class, indicating that following incarceration in a justice facility, the medication resumption may depend on the youth’s psychiatric disorder. For some youth with externalizing disorders, the high degree of structure in these facilities may obviate the need for medication to control symptoms. The effect also may depend on the type of medication. Some forms of stimulants, for example, are potentially subject to abuse and may lead justice facilities to curtail their use. In either instance, medication use may not resume once the youth returns to the community.

LIMITATIONS

This study of psychotropic medication use after juvenile justice system contact has a number of limitations. First, this study is based on data from Medicaid-enrolled youth in Florida and results may not generalize to the entire US population of juvenile offenders with mental illness. Second, our data on medications are based on claims paid by Medicaid. It is possible that youth received prescriptions after release that they did not fill, raising issues around patient compliance that we cannot address here. In addition, we do not have data on medication use in the facility. Although such data would not change the results of the study, it might inform us as to whether the service interruption began in the facility itself or whether it is a function strictly of postrelease planning and follow-up. Finally, this study is limited in its ability to determine the appropriateness of the medication treatment of youth in this sample. Further investigations are needed to determine whether youth in justice facilities are receiving guideline-based medication management and sufficient follow-up on release.

Although we are able to distinguish facilities by their length of stay, we are not able to measure or examine the effect of overcrowding, sentencing requirements, staffing patterns, services provided within the facilities, or combinations of these. To the extent that the service disruptions are a function of any of these items, additional study will be required.

CONCLUSIONS

The findings of this study suggest 3 main areas for further investigation and improvement of psychotropic medication services for incarcerated youth: appropriate psychiatric evaluation and treatment prior to detention or commitment, appropriate treatment while in justice facilities, and adequate follow-up on release. While in juvenile justice facilities, these high-risk youth are in need of thorough psychiatric evaluations that include assessment of the current medication treatment as well as the need for a new trial of psychotropic medications. Without appropriate treatment of psychiatric disorders, these youth remain vulnerable to potentially treatable conditions that may affect their recidivism in the justice system and their academic and social functioning.

Second, the health, mental health, and social service agencies in the community face a complex task of linking justice-involved youth to community services, especially for those being released from longer-stay facilities. In these facilities, medication discontinuity was much higher. Planning for multicomponent interventions for youth reentering the community is severely hampered by the challenges of coordination and reimbursement and by the willingness of the community and its social service agencies to care for youth who are seen as criminals. As in foster care institutions where systems have been developed to assist in the transfer of critical medication and allergy information, similar systems would seem important for youth in the justice system. Coordination with local mental health agencies will be an essential part of that process. At least as important is attention to financing and reimbursement to pay for those services, most likely through Medicaid.

This study sheds some light on problems in delivering psychotropic medications to youth after contact with the juvenile justice system. One of the greatest challenges in improving their care is the lack of systemic responsibility for youth reentering the community. Communities that do not develop coordinated plans will likely be subject to the psychiatric and criminal recidivism that seems inevitable when systems do not deliver effective services to severely disturbed youth.
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REFERENCES