

# Does Juvenile Detention Impact Health?

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## Abstract

Youth involved in the juvenile justice system represent a medically underserved population. Recidivist youth have poorer health outcomes compared to youth detained for the first time. This study determined differences in immunization history, substance use, mental health symptoms, and sexual behavior between recidivist youth and first-time detainees following improvements in intake screenings at a large, urban juvenile detention center in the Southeastern United States. Multi-variable logistic regression analysis found that recidivist youth had significantly higher acellular pertussis immunization rates compared with first-time detainees (odds ratio [OR] = 3.3;  $p = .02$ ), and recidivist males were less likely to test positive for chlamydia (OR = 0.6;  $p = .03$ ) after controlling for age and Black race. There was no significant difference for most other outcomes between recidivist youth and first-time detainees after controlling for age.

## Keywords

recidivism, juvenile detention clinics, adolescent health, detained youth

## Introduction

In 2013, the detention rate for youth in Texas correctional facilities was 65 per 100,000 youth compared to a U.S. rate of 57 per 100,000 youth (Office of Juvenile Justice and Delinquency Prevention, 2015). The recidivism rate reported for detained youth in Texas over a 3-year period starting in 2008 ranged between 51% and 65% (State of Texas Legislative Budget

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Board, 2013). There is no uniform definition or standard measure for recidivism (Herrera, 2014); however, the State of Texas Legislative Budget Board (2013) defined recidivism as “a return to criminal or delinquent activity after previous criminal or delinquent involvement.” Predictors of juvenile recidivism include substance use, traumatic experiences, and mental illness (Becker, Kerig, Lim, & Ezechukwu, 2012; White & Aalsma, 2013; Willis, Best, & Aalsma, 2013).

Over the past few decades, only a few studies have looked at the relationship between juvenile recidivism and health outcomes. Their findings demonstrated that compared to youth detained for the first time, those with a history of prior detention were more likely to engage in behaviors that put their health at risk and to have poorer health outcomes (Ganzer & Sarason, 1973; Golzari, Hunt, & Anoshiravani, 2006; Lederman, Dakof, Larrea, & Li, 2004).

The National Commission on Correctional Health Care (NCCHC, 2014) recommends that all males and females aged 25 years and younger should be tested for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* at the time they are admitted to correctional facilities and that those who test positive should be screened for other sexually transmitted infections (STIs) such as HIV or *Trichomonas vaginalis*. The American Academy of Pediatrics (AAP) published a recommendation that youth be screened for mental health, sexual health, and substance use at intake into detention centers (Committee on Adolescence, 2011). In addition to intake screenings, AAP recommends that youth released from detention be connected to medical homes in their communities (Committee on Adolescence, 2011).

This study focuses on the most common health issues found among youth in the juvenile justice system, including mental illness, substance abuse, and sexual health (Golzari et al., 2006). Additionally, we examined immunization status specifically for the recommended adolescent vaccines (human papillomavirus [HPV], acellular pertussis [Tdap], and meningococcal meningitis [MCV4]) at the time of admission to the juvenile justice center. Our objective is to determine differences in immunization status, prior substance use, mental health symptoms, and reported sexual behavior between recidivist youth and first-time detainees.

## Method

### Participants

This was a cross-sectional study using a convenience sample of 301 youth aged 12–18 years detained at a large, urban juvenile detention center in the Southeastern United States. Information was obtained using interviewer-administered surveys and medical records. We created the survey based on a template that was used by the detention center in the past and modified it to include open-ended questions.

Detained youth who presented to the clinic for intake screening or for a medical complaint during the time of data collection were invited to take part in the study. Informed assent was obtained and parental consent was waived, as the survey provided no more than minimal risk to the participants and included questions protected under confidentiality laws (Texas Family Code §§ 32.003, 2013). This study was approved by the institutional review board at the university and the juvenile justice center. No incentives were offered to the participants.

Of the 311 youth invited to participate in the survey, 10 declined. Thirty-six percent of those who participated in the survey were in the clinic for medical complaints, most of which were minor. All data collection was conducted within the clinic space of the detention center medical clinic between November 2015 and March 2016. Once collected, data were de-identified and entered into a Microsoft Excel sheet and exported to Stata/SE 14 software for analysis.

## Measures

Recidivism was defined as a history of at least one prior detention and was determined by one question on the interviewer-administered survey: "Have you ever been detained before?" We verified the survey data with the medical chart with 93% agreement. We chose to use the survey data to measure recidivism, as some youth may have been detained in other facilities previously.

Results of tests for chlamydia, gonorrhea, syphilis, and HIV, as well as immunization history (HPV, Tdap, and the first dose of MCV4) were obtained from medical records at the detention center. Information about substance use, mental health symptoms (suicidal ideation, anxiety, aggression, and insomnia) at the time of admission, and sexual behavior (ever had sex, sexual orientation, condom use at last sexual encounter, previous pregnancy/ever got a girl pregnant, pregnant on admission, and on birth control) were abstracted from intake screening exams. All youth undergo a standardized intake history and physical exam conducted by a pediatrician within 2 weeks of admission to the juvenile justice center.

For substance use, some youth reported the use of drugs by their street names, which were classified in the intake screening records under the "other" category. For our analysis, we recoded these other drugs to their more common name (Table 3). For example, individuals who reported using marijuana by one of its street names, such as "weed" and "reggie," were recoded to marijuana. Pain medications included hydrocodone, codeine, the combination of codeine and promethazine ("lean drink" or "lean"), and the combination of pain medications and muscle relaxants like "soma" (carisoprodol). Synthetic marijuana included users of "serenity" or "kush."

## Data Analysis

The variables were described using frequency distributions in tabular forms showing counts and percentages and expressed as proportions. We used logistic regression models to determine the relationship between recidivism (independent variable) and each of the dependent variables described above: substance use, mental health symptoms at the time of admission, and sexual behavior. Recidivism (independent variable) was coded 1 and 0 for yes and no, respectively. Each of the health and substance use outcomes (the dependent variables) was also coded 1 and 0 for yes and no, respectively. The models were adjusted for age, which is a factor that could be associated with recidivism, as well as the health and behavior outcomes. Odds ratios (*OR*) determined the association between the independent and dependent variables. We used two-tailed tests and set the level of significance at  $p < .05$ .

We tested many variables for this study; therefore, we controlled for the false discovery rate of significant  $p$  values using the methods described by Benjamini and Hochberg (1995).

## Results

### Recidivism

For recidivism, 59% of our sample had been detained at least once before (61% of males and 55% of females). The number of previous detentions ranged between 1 and 12 (Table 1). Among those who had been detained before, the average number of previous detentions was 2 times. Fifty-two percent of males and 46% of females had been detained at least 2 times before.

The mean age of our study participants was 16 years with a standard deviation of 1.2 years. Fifty-six percent of our sample was Black, 25% were Latino, and 19% were White. Males made up 75% of the sample, and they were not more likely to have been detained in the past when compared with females ( $OR = 0.8$ ;  $p = .3$ ). The demographic composition of our study population mirrored the overall population in the juvenile justice center. White youth were significantly less likely to

**Table 1.** Study Participants by Number of Previous Detentions and Race/Ethnicity.

Number of Previous Detentions <sup>a</sup>	Black	Latino	White	Total	%
0	68	23	31	122	40.8
1	47	26	14	87	29.1
2	27	13	7	47	15.7
3	10	8	4	22	7.4
4–6	14	4	0	18	6
>6	2	0	1	3	1.0
Total	168	74	57	299	100

<sup>a</sup>No response for 2 participants.

**Table 2.** Comparison of Sexually Transmitted Infections, Mental Health Symptoms, Substance Use, and Sexual Behaviors of Recidivist Youth and First-Time Detainees at the Time of Detention.

Outcome	OR (p)	Age-Adjusted OR (p)*
Chlamydia	<b>0.5 (.04)</b>	0.5 (0.1)
Gonorrhea	0.9 (0.8)	0.8 (0.6)
Suicidal ideation	1.2 (0.8)	1.2 (0.1)
Depression	1.0 (0.8)	1.1 (0.8)
Anxiety	0.9 (0.7)	0.9 (0.9)
Anger/aggression	0.9 (0.7)	0.9 (1.0)
Insomnia	<b>1.8 (.05)</b>	1.8 (0.2)
Cocaine	1.4 (0.5)	1.6 (0.1)
Benzodiazepines	1.7 (0.2)	1.8 (0.5)
Alcohol	1.4 (0.5)	1.6 (0.1)
Pain medications	1.1 (0.8)	1.2 (0.1)
Synthetic marijuana	<b>2.3 (.04)</b>	2.3 (0.09)
Cigarettes/tobacco	1.1 (0.8)	1.05 (0.7)
Ever had sex	<b>2.1 (.02)</b>	<b>2.0 (&lt;.001)</b>
Condom use at last sexual encounter	0.7 (0.2)	0.7 (0.2)
Birth control	0.7 (0.5)	0.7 (0.1)

Note. Referent group: first-time offenders.

\*False discovery rate corrected *p* values. Level of significance: *p* < .05.

have been detained before compared with non-White youth ( $OR = 0.5$ ;  $p = .03$ ). For most of the outcomes analyzed, we found no significant differences between recidivist youth and those detained for the first time (Table 2) after controlling for age.

### Sexual Health

Youth who had been detained before were more likely to report ever having had sex compared to those with no prior detention, after controlling for age; the *ORs* were 2.1 ( $p \leq .001$ ) and 1.8 ( $p = .002$ ) for males and females, respectively. They, however, had a lower prevalence of chlamydia compared to first-time detainees (14% and 21%, respectively) and were less likely to test positive for chlamydia compared with first-time detainees ( $OR = 0.5$ ;  $p = .04$ ), but this difference was not statistically significant after adjusting for age ( $OR = 0.5$ ;  $p = .1$ ). When stratified by sex, males who had been detained before were less likely to test positive for chlamydia ( $OR = 0.6$ ;  $p = .03$ ) compared with first-time detainees on multivariate analysis controlling for age and Black race.

**Table 3.** Substance Use Among Detained Youth by Gender.

Drug	Male	%	Female	%	Total	% <sup>a</sup>
Marijuana	159	70.3	46	61.3	205	68.1
Alcohol	70	31.5	20	27	90	30.4
Synthetic marijuana	30	13.3	8	10.6	38	12.6
Benzodiazepines	19	8.6	11	14.9	30	10.1
Cigarettes/tobacco	20	9	6	8.1	26	9
Cocaine	13	5.9	8	10.8	21	7.1
Pain medications	19	8.6	2	2.7	21	7.1
Ecstasy	5	2.2	4	5.4	9	3
Inhalants	2	0.9	1	1.3	3	1
Bath salts	3	1.3	0	0.0	3	1
Seroquel	1	0.4	0	0.0	1	0.3
Other (including acid, cough syrup)	4	1.6	0	0.0	4	1.2

<sup>a</sup>Does not add up to 100 because of multiple drug use.

### Mental Health

Mental health symptoms were a major health issue for detained youth in our sample. Within 2 weeks of admission to the detention center, 137 youth (47%) reported at least one of the following symptoms: suicidal ideation, anxiety, aggression, or insomnia during an intake history and physical exam. Twenty-two percent of youth reported depression, 22% aggression, 20% insomnia, 13% anxiety, and 3.8% suicidal ideations. Using recidivism as the independent variable for each outcome in separate models, bivariate logistic regression showed that youth who had been detained before were not more likely to have any of these mental health symptoms at the time of detention: depression ( $OR = 1.1$ ;  $p = .7$ ), suicidal ideation ( $OR = 1.3$ ;  $p = .09$ ), anxiety ( $OR = 0.9$ ;  $p = .8$ ), aggression ( $OR = 0.9$ ;  $p = .1$ ), or insomnia ( $OR = 1.8$ ;  $p = .1$ ).

### Substance Use

Seventy-five percent of the participants reported the use of at least one illicit substance including alcohol and cigarettes. Marijuana and alcohol were the most used drugs (Table 3). Marijuana, tobacco, and alcohol use was similar for males and females. Overall, recidivist youth reported slightly higher substance use, but the result was not significant ( $OR = 1.6$ ;  $p = .09$ ).

### Immunization

Eighty-one percent of all youth had received Tdap and MCV4 (first dose) vaccines. Comparing immunization rates between recidivist youth and first-time detainees, 86% of recidivist youth had received Tdap compared to 64% of first-time detainees ( $OR = 3.4$ ;  $p = .01$ ), and 83% of recidivist youth had received MCV4 (first dose) compared with 76% of first-time detainees ( $OR = 1.6$ ;  $p = 0.3$ ). The overall HPV1 vaccine rate was 46% (44% of recidivists and 55% of first-time detainees); the  $OR$  for HPV1 was 0.7, and  $p$  was .6. Measures of association between recidivism and other outcomes were determined using logistic regression and are presented in Table 2.

### Discussion

Recidivism in our study referred to a lifetime history of at least one previous detention, regardless of the outcome of the previous adjudication, and our sample had a recidivism rate similar to that

reported for Texas. Our objective was to determine differences in immunization status, prior substance use, mental health symptoms, and reported sexual behavior between recidivist youth and first-time detainees.

Our study population may have underestimated “first-time detainees,” as we conducted the study in the medical clinic. Youth who were “locked up” for a few hours were excluded, as they did not present to the medical clinic. Unlike most studies on recidivism in the juvenile justice system, this study looked at recidivism as a predictor rather than an outcome.

Although prior research found that youth who had been detained before had significantly higher rates of behavior that puts them at risk of contracting STIs, substance use, and mental health symptoms than first-time detainees, we found that with a few exceptions, there was no significant difference for most outcomes between both groups in our sample. We found that in some cases, as with the Tdap vaccine, recidivist youth had significantly higher immunization rates than those detained for the first time. At the detention center clinic where we conducted this study, catch-up immunizations for required immunizations including Tdap and MCV4 are offered to postadjudicated youth while in detention. The Tdap and MCV4 (first dose) immunization rates were higher for recidivist youth unlike the HPV rates, as this vaccine is not required by the state for school enrollment and is not routinely offered in the detention center unless parental consent is obtained. A greater proportion of recidivist youth had received each one of Tdap and MCV4 (first dose) compared to those detained for the first time. However, although Tdap immunization rates were significantly higher for recidivist youth, we did not observe a significant difference for MCV4. This could be because a greater proportion of first-time detainees had received MCV4 than Tdap, but we have no explanation for why more youth will have received the first dose of MCV4 from health providers in the community and not Tdap as these are typically given together.

In 2002, our juvenile justice center began to provide routine urine gonorrhea and chlamydia testing along with standardized intake health screenings and immunizations to all detained youth. All youth are counseled on sexual health, condom use, and contraception during intake physical exams. Chlamydia was the most common STI in our sample, which is consistent with the literature, but we noted that recidivist males were less likely to test positive for chlamydia. Behaviors such as nonuse of condoms and substance use continue to be health issues for recidivist youth despite counseling at detention center clinics.

Our study has some limitations. First, we used a convenience sample of youth being seen in the detention center medical clinic. In addition, information on mental health symptoms, substance use history, sexual behavior, and detention history was all self-reported, which may be associated with some degree of underreporting or overreporting. Although these findings may affect the generalizability of our results to populations that are different from ours by race/ethnicity, they demonstrate the possible association between some improved health services and the health of detained youth. The cross-sectional design of our study limits our ability to infer a causal relationship between recidivism and health outcomes; therefore, we suggest longitudinal studies to follow and determine the health outcomes of youth after health interventions at the detention center clinics.

## **Conclusion**

Prior studies showed that recidivist youth were more likely to report a history of substance use, to have an STI, and to have mental health symptoms (Golzari et al., 2006; Lederman et al., 2004); however, our study found that there were no significant differences in substance use, STI rates, and mental health symptoms between recidivist youth and first-time detainees. Recidivist youth also had higher Tdap vaccination rates.

Improvements in standardized screening tests, intake physicals, and immunizations as well as frequent contact with health care providers in the detention centers may all contribute to improved

health of recidivist youth. Juvenile detention centers, therefore, have a unique opportunity to improve the health of a medically underserved patient population, which may significantly impact public health in the future.

### Authors' Note

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### Declaration of Conflicting Interests

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### References

- Becker, S. P., Kerig, P. K., Lim, J.-Y., & Ezechukwu, R. N. (2012). Predictors of recidivism among delinquent youth: Interrelations among ethnicity, gender, age, mental health problems, and posttraumatic stress. *Journal of Child & Adolescent Trauma, 5*, 145–160.
- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, 57*, 289–300.
- Committee on Adolescence. (2011). Health care for youth in the juvenile justice system. *Pediatrics, 128*, 1219–1235. doi:10.1542/peds.2011-1757
- Ganzer, V. J., & Sarason, I. G. (1973). Variables associated with recidivism among juvenile delinquents. *Journal of Consulting and Clinical Psychology, 40*, 1–5.
- Golzari, M., Hunt, S. J., & Anoshiravani, A. (2006). The health status of youth in juvenile detention facilities. *Journal of Adolescent Health, 38*, 776–782.
- Herrera, R. (2014). *Juvenile specialty courts: An examination of rehabilitative justice in Texas and across the nation*. Houston, TX: Children at Risk. Retrieved from <http://childrenatrisk.org/wp-content/uploads/2013/05/Juvenile-Specialty-Courts-2014-web.pdf>
- Lederman, C. S., Dakof, G. A., Larrea, M. A., & Li, H. (2004). Characteristics of adolescent females in juvenile detention. *International Journal of Law and Psychiatry, 27*, 321–337.
- National Commission on Correctional Health Care. (2014). *Position statement: STD testing for adolescents and adults upon admission to correctional facilities*. Chicago, IL: Author. Retrieved from [http://www.ncchc.org/filebin/Positions/STD\\_Testing\\_for\\_Adolescents\\_and\\_Adults\\_Upon\\_Admission\\_to\\_Correctional\\_Facilities.pdf](http://www.ncchc.org/filebin/Positions/STD_Testing_for_Adolescents_and_Adults_Upon_Admission_to_Correctional_Facilities.pdf)
- Office of Juvenile Justice and Delinquency Prevention. (2015). *Statistical briefing Book. Juveniles in corrections/juvenile residential placement rates by state, 2013*. Retrieved from <http://www.ojjdp.gov/ojstatbb/corrections/qa08601.asp?qaDate=2013&text=yes>

- State of Texas Legislative Budget Board. (2013). *Statewide criminal justice recidivism and revocation rates* (ID: 684). Austin, TX: Author. Retrieved from [http://www.lbb.state.tx.us/Documents/Publications/Policy\\_Report/Statewide%20Criminal%20Justice%20Recidivism%20and%20Revocation%20Rates2012.pdf](http://www.lbb.state.tx.us/Documents/Publications/Policy_Report/Statewide%20Criminal%20Justice%20Recidivism%20and%20Revocation%20Rates2012.pdf)
- Texas Family Code §§ 32.003 (2013). Retrieved from <http://www.statutes.legis.state.tx.us/Docs/FA/htm/FA.32.htm>
- White, L. M., & Aalsma, M. C. (2013). Mental health screenings in juvenile detention centers: Predictors of recidivism and mental healthcare utilization among detained adolescents with mental illness. *Journal of Adolescent Health, 52*, S11–S12. doi: <http://dx.doi.org/10.1016/j.jadohealth.2012.10.032>
- Willis, A. C., Best, C. C., & Aalsma, M. C. (2013). Trauma experiences among detained youth: Predictors of recidivism. *Journal of Adolescent Health, 52*, S53–S54. doi: <http://dx.doi.org/10.1016/j.jadohealth.2012.10.126>