Behavioral Health Care Needs, Detention-Based Care, and Criminal Recidivism at Community Reentry From Juvenile Detention: A Multisite Survival Curve Analysis

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Objectives. We examined the provision of behavioral health services to youths detained in Indiana between 2008 and 2012 and the impact of services on recidivism.

Method. We obtained information about behavioral health needs, behavioral health treatment received, and recidivism within 12 months after release for 8363 adolescents (aged 12–18 years; 79.4% male). We conducted survival analyses to determine whether behavioral health services significantly affected time to recidivating.

Results. Approximately 19.1% of youths had positive mental health screens, and 25.3% of all youths recidivated within 12 months after release. Of youths with positive screens, 29.2% saw a mental health clinician, 16.1% received behavioral health services during detention, and 30.0% received referrals for postdetention services. Survival analyses showed that being male, Black, and younger, and having higher scores on the substance use or irritability subscales of the screen predicted shorter time to recidivism. Receiving a behavior precaution, behavioral health services in detention, or an assessment in the community also predicted shorter time to recidivating.

Conclusions. Findings support previous research showing that behavioral health problems are related to recidivism and that Black males are disproportionately rearrested after detention. (*Am J Public Health.* 2015;105:1372–1378. doi:10.2105/AJPH.2014.302529)

Detained youths have significant mental health needs, with the majority meeting the diagnostic criteria for a mental health disorder. Specifically, about 60% to 80% of detained youths have at least 1 mental disorder, compared with only 15% to 20% of the general adolescent population.[1–4] Practice guidelines highlighting the need for mental health screening, assessment, and treatment have been developed, and juvenile justice mental health screening programs have become increasingly common in the United States.[5] However, the role of detention-based mental health care on future outcomes has largely been unexplored.

Recidivism is the repetition of criminal behavior and is usually measured as the occurrence or frequency of a rearrest or reincarceration in a specific period. Depending on the base rate of arrest and how recidivism is defined, as many as 40% to 70% of adolescents recidivate within 1 year of release from detention.[6,7] Within the detained adolescent population, recidivism rates tend to be higher among boys, racial/ethnic minority youths, youths who are younger at first referral, and youths with a history of early childhood misbehavior or conduct problems.[8] Other factors that significantly predict recidivism within 12 to 30 months include prior criminal history, poor academic achievement or attendance, relations with deviant peers, low socioeconomic status, large families, older siblings involved in criminal activity, out-of-home placements, and family instability.[7,9]

Behavioral health problems (i.e., mental health and substance abuse problems) are also associated with recidivism. According to 1 meta-analysis of 23 studies and 15 265 adolescents, mental health disorders (e.g., anxiety, depression) are one of the strongest predictors of juvenile recidivism.[10] Substance abuse, trauma and neglect, conduct problems, attention-deficit/hyperactivity disorder, and untreated mental health symptoms have also been shown to increase the risk of recidivism.[6,8,11] A recent longitudinal study found that substance use disorders and comorbidity of substance use with mental health disorders were directly associated with an increased likelihood of recidivism.[12] However, one study found that behavioral health needs, as measured by a behavioral health screen, failed to significantly predict recidivism among a group of juvenile defendants.[8] In a longitudinal study of serious adolescent offenders, when several criminogenic and mental health risk factors were included as predictors, only substance use disorders, and not mental health problems, were consistently associated with negative outcomes.[13] Hence, the results of research on the role of behavioral health problems in recidivism is mixed and further research is needed.

Behavioral health treatment services are a promising avenue for reducing recidivism.[14,15] Multisystemic therapy, functional family therapy, and multidimensional treatment foster care are 3 interventions that target mental illness, maladaptive family dynamics, and behavioral problems. Each has strong empirical support for treating detained youths.[16] Specifically, these interventions have produced many positive outcomes, including better self-esteem, reduced psychiatric symptoms, reduced substance use, improved family functioning, decreased association with deviant peers, reduced number of rearrests and severity of charges, and delayed time of rearrest.[16,17] It should be noted, however, that reduced recidivism stemming from behavioral health intervention is not a universal finding, and

poorly implemented interventions have failed to demonstrate significant drops in recidivism.[18]

Because of the benefits of behavioral health services, providing behavioral health care during and following detention may substantially lower recidivism. Currently, the National Commission on Correctional Health Care guidelines recommend that facilities administer behavioral health screens within 14 days of intake, provide 24-hour emergency behavioral health services, and grant detained youths the right to request behavioral health treatment services daily.[19] However, facilities are not required to maintain accreditation with the National Commission on Correctional Health Care, so there is no consistent mechanism for monitoring services, keeping facilities accountable, or providing funding to facilities.[20,21] As a result, many juvenile justice facilities with limited resources are unable to meet the established standards for behavioral health care.[22,23] In fact, fewer than half of facilities comply with National Commission on Correctional Health Care accreditation standards[19] and more than one third of facilities use correctional staff to administer behavioral health assessments and services, despite having little or no background or training in mental health.[22]

Evidence indicates that detained youths have significant behavioral health needs, and interventions that target behavioral health issues have the potential to reduce recidivism. However, few studies have adequately examined the relationship between behavioral health needs, detention-based behavioral health services, and recidivism.[24] Accordingly, we examined whether the provision of behavioral health services to youths during detention and referrals for behavioral health services after detention affect recidivism. In particular, we expected that, after controlling for behavioral health needs, the provision of behavioral health services would be related to lower rates of recidivism.

METHODS

Our study was part of a larger, statewide project to initiate mental health screening in juvenile detention centers in Indiana, a project that stemmed from collaborative efforts among the Indiana Criminal Justice Institute, the Indiana State Bar Association, and other community organizations.[25] A research coordinator visited each of the 16 sites to explain the importance of consistent screening, data collection, and data-reporting procedures to allow us to make direct comparisons among detention centers.

We collected data electronically on a monthly basis, and all 16 detention sites provided screening results. Six of the 16 participating sites had compatible information systems to report information on recidivism, and 5 of these 6 sites had adequate staffing to report on the behavioral health services and referrals that youths received while detained.

The sample consisted of 8740 unique detained youths from among 11 408 admissions to 6 juvenile detention centers in Indiana between January 1, 2008, and May 1, 2012. For youths detained more than once during the study period, we included only the first detention admission per youth in our analyses. Demographics are shown in Table 1. The majority of detained youths were male (79.4%), with an average age at first admission of 15.6 years (SD = 1.3). Approximately half of the youths were Black, 34.0% were White, 12.0% were Hispanic, and 2.0% reported another race/ethnicity. Average age varied significantly across detention centers. Although the gender distribution approached significance, the overrepresentation of male youths was not significant across detention centers. Race/ethnicity differed significantly across detention centers.

The detention centers' sizes (number of beds) ranged from 12 to 146 (mean = 53.3; SD = 55.1), and their average monthly admissions ranged from 13 to 102 (mean = 51.1; SD = 36.7). Detention centers hold juveniles during the preadjudication or predisposition (e.g., before residential placement) periods. A youth can be court ordered to detention if court personnel determine that the youth is a flight risk (i.e., will not appear before court) or to protect the community because of the seriousness of the charge.[26] Detention stays are brief, averaging 2 weeks, with many youths remaining in detention only 1 or 2 days. Hence, detention centers are short-term holding facilities, with requirements to meet the immediate physical and behavioral health needs of youths but not to provide rehabilitation or long-term treatment.[27]

Measures

At the time of detention center intake, gender, age, and self-reported race/ethnicity (White, Black, Hispanic, or multiracial) were recorded.

The Massachusetts Youth Screening Instrument, Version 2 (MAYSI-2) is an electronic behavioral health screening tool created and validated with detained youths.[3,28] Protocols were in place to standardize the administration of the MAYSI-2 as well as to minimize the time from admission to testing. The MAYSI-2 was designed to identify juvenile justice–involved youths with behavioral health needs. The instrument consists of 52 items requiring youths' responses of true or false. The MAYSI-2 is divided into 7 subscales (alcohol and drug use, angry or irritable, depressed or anxious, somatic complaints, suicide ideation, thought disturbance, and traumatic experiences), which

TABLE 1—Self-Reported Characteristics of Youths at First Detention Stay: Indiana, 2008–2012

Characteristic	Total Youths, % or Mean (SD)	County-Based Range, % or Mean (SD)	*P*
Male	79.4	72.2–84.9	< .001
Age, y	15.6 (1.3)	15.4 (1.3)–15.6 (1.3)	.047
Race/ethnicity			< .001
Black	51.4	10.5–65.7	
Hispanic	11.9	6.4–19.1	
White	34.4	23.3–72.3	
Other	2.3	1.1–6.7	

Note. The population size was n = 8363 youths, representing 10 945 detention stays.

have good internal consistency (Cronbach $\alpha = 0.61–0.86$).[28]

We interpreted individual subscale scores as falling in the normal, caution, or warning range. We considered youths to have a positive screen on the MAYSI-2 if their score on the suicide ideation scale was in the caution or warning range or if at least 2 subscales were in the warning range.[29] We did not consider a positive screen an official behavioral health diagnosis, but an indicator of behavioral health needs. After youths completed the MAYSI-2, whether they received detention-based behavioral health services or referrals depended on resource availability at each site. For instance, smaller, rural sites tended to have access to mental health professionals only on an as-needed basis, whereas larger, urban detention centers were more likely to have mental health professionals on-site.

Several items were recorded for all detained youths from 5 of the 6 sites. With the exception of court-ordered assessments, the receipt of behavioral health services was voluntary. Youths could also voluntarily seek behavioral health services. Lastly, protocols were in place to standardize the definition of the behavioral health services terms to enhance standard data collection across detention sites.[25] Each item required a response of "yes" or "no" from site coordinators.

- Court-ordered assessment in detention: Was a psychological assessment ordered by the juvenile court to take place while the youth was detained?
- Contact with mental health clinician within 24 hours: Did the youth have contact with a master's-level mental health clinician within 24 hours of intake?
- Behavioral precaution: Was the youth placed on behavioral precaution because of aggressive or problematic behavior at intake?
- Suicide precaution: Was the youth placed on suicide precaution because of suicidal ideation or suicidal behavior at intake?
- Behavioral health services in detention: Did the youth receive behavioral health services (e.g., individual counseling, group therapy) during detention?

Several items were assessed for all detained youths upon discharge from the detention center:

- Behavioral health referral: Was a referral for behavioral health services made for the youth upon discharge?
- Court-ordered assessment in community: Was a psychological assessment ordered by the juvenile court upon discharge?
- Family recommendations: Did detention staff members relay behavioral health service recommendations, spoken or written, to caregivers upon discharge?

We gathered juvenile delinquency arrest and referral records, including criminal charges, for each youth from 6 detention centers' electronic juvenile court case management systems. We defined recidivism as a new arrest charge within 12 months after release from a youth's first detention stay. We excluded probation violations and warrant charges for failure to appear before court from new arrests because they are heavily influenced by prosecutorial discretion.[30]

Analyses

We calculated descriptive statistics at the time of the youth's first detention intake. We used the χ^2 test to compare descriptive and outcome variables across detention centers. We used 2 separate proportional hazards regressions to model the time to recidivism, calculated as time to first new charge within 365 days of detention center release. If no charge occurred in 365 days, we marked recidivism as a nonevent.

For those with a nonevent, we calculated time as the lesser of 365 days or time to last date followed. We included data from all 6 detention centers for the first hazards model. For this model, predictors included demographics, MAYSI-2 subscale scores, and detention center site to assess for site-specific variation.

The second hazardsmodel incorporated data from only 5 detention center sites, because 1 site did not provide data on behavioral health services and referrals received by their detained youths. The second hazards model included the predictors from the first model as well as detention-based behavioral health services and referrals. Because of the large number of MAYSI-2 subscales and behavioral health services and referral variables, we included only predictors demonstrating strong relationships ($P < .01$) to recidivism, identified by the χ^2 test, in the final models.

RESULTS

The proportion of youths in the caution or warning range on each MAYSI-2 subscale is presented in Table 2. There was substantial MAYSI-2 subscale score variation across all sites. This was also true for the proportion of youths who screened positive and for recidivism rates at 1-year after release.

Table 3 presents the proportion of youths who screened positive on the MAYSI-2 and received detention-based behavioral health services. We did not include data from the 1 detention center that did not collect data on detention-based behavioral health services. All behavioral health services and referrals were received at significantly different rates among the detention centers, with the exception of court-ordered assessment while in detention.

We assessed the relation of recidivism to demographic variables, MAYSI-2 scores, and detention-based behavioral health services with a series of χ^2 analyses to determine the predictors to be included in the proportional hazards regression models. Boys, Blacks, and younger youths had significantly higher recidivism rates (all $P < .001$) than did their counterparts. Screening in the caution or warning range on the alcohol and drug use ($P < .01$), angry or irritable ($P < .001$), suicidal ideation ($P < .05$), or thought disturbance ($P < .05$) MAYSI-2 subscales was associated with increased recidivism. Depressed or anxious ($P = .068$) and somatic complaint ($P = .160$) subscales were not associated with recidivism rates.

In terms of detention-based behavioral health services and referrals, behavioral health services in detention ($P < .01$), family recommendations given ($P < .001$), court-ordered assessment in the community ($P < .001$), contact with a behavioral health clinician within 24 hours of intake ($P < .01$), receiving a behavioral health referral ($P < .001$), and being placed on suicide ($P < .01$) or behavior ($P < .001$) precaution were associated with increased recidivism. Court-ordered assessment in detention was nonsignificant ($P = .755$).

Table 4 shows the results of the 2 proportional hazards regression analyses predicting time to recidivism. The first model includes

TABLE 2—Proportion of Youths, Across Multiple Detention Stays, Who Scored Within Caution or Warning Ranges on MAYSI-2 Subscales, Had a Positive Mental Health Screen, and Had Recidivism: Indiana, 2008–2012

MAYSI-2 Subscale	Total Youths, %	County-Based Range, %	*P*
Alcohol and drug use	19.0	13.1–31.5	< .001
Angry or irritable	37.4	29.6–44.2	< .001
Depressed or anxious	31.6	26.3–43.4	< .001
Somatic complaints	46.0	42.0–61.9	< .001
Suicide ideation	14.6	9.3–23.8	< .001
Thought disturbance	35.1	28.4–42.1	< .001
Positive screens	19.2	12.9–27.4	< .001
Recidivism	30.6	10.7–39.4	< .001

Note. MAYSI-2 = Massachusetts Youth Screening Instrument, Version 2. The population size was n = 8363 youths representing 10 945 detention stays.

data from 6 detention centers and focused on the impact of behavioral health screening on recidivism. The attributes of younger age, male, and Black predicted shorter time to recidivism. Higher scores on the alcohol and drug use and angry or irritable subscales were also significant. There was also significant site-specific variation for 3 detention centers.

The second model includes data from 5 sites and examines the effect of receiving detention-based behavioral health services on recidivism. Younger age and being male remained significant predictors of recidivism. Race was not significant. Both alcohol and drug use and angry and irritable subscales were nonsignificant. Being placed on behavior precaution, receiving behavioral health services in detention, and a court-ordered community assessment predicted shorter time to recidivism. There was also significant site-specific variation for 3 detention centers.

DISCUSSION

Consistent with previous research,[2–4] many of the detained youths reported serious behavioral health problems. Also consistent with a previous meta-analysis examining youths from 283 different juvenile justice programs, we observed substantial variation in MAYSI-2 subscale scores across the detention centers.[3] Despite this variation, our results support the notion that a significant proportion of juvenile justice–involved youths are experiencing behavioral health problems.

Unfortunately, only a small proportion of youths identified as having behavioral health needs received detention-based behavioral health services or referrals. For instance, the juvenile courts across different counties ordered psychological assessments for an average across sites of 1.8% of youths during detention and 11.3% of youths on release from detention. Furthermore, 16.1% of detained youths who screened positive obtained behavioral health services during detention, and 15.3% of these youths' caregivers were given behavioral health service recommendations. As noted by other researchers,[19,31,32] consistent behavioral health services within detention centers and upon discharge were lacking, even for youths with prominent behavioral health concerns.

One notable strength of this study is that we were able to include the receipt (or its lack) of detention-based behavioral health services in our models predicting recidivism. This is a novel aspect of our study that has not been regularly assessed in the past. Whereas previous research has largely examined the association of lifetime history of mental health services,[14,33] particularly community-based services,[34,35] on recidivism, our work is one of the only empirical studies to specifically connect detention-based behavioral health services and referrals to recidivism.

Our findings did not support a strong relationship between receipt of detention-based behavioral health services and reduced recidivism. Contrary to expectations, receipt of behavioral health services (except court-ordered assessment in detention) was significantly associated with increased recidivism. Several issues must be noted to fully understand the results. In the first regression model, greater MAYSI-2 subscale scores for alcohol and drug use and angry or irritable problems were strongly associated with shorter times to recidivism.

Such results are consistent with other research demonstrating the relationship between behavioral health concerns, particularly substance use problems, and increased risk of

TABLE 3—Proportion of Youths Who Scored Positive on Mental Health Screen and Received Detention-Based Mental Health Services: Indiana, 2008–2012

Variable	Screened Positive, %	County-Based Range, %	*P*
Follow-up mental health services in detention			
Court-ordered assessment in detention	1.8	0.0–3.0	.308
Contact with mental health clinician within 24 h of intake	39.3	1.6–63.5	< .001
Placed on behavioral precaution	29.1	2.2–39.8	< .001
Placed on suicidal precaution	31.6	4.4–76.5	< .001
Mental health services in detention	16.3	0.0–23.4	< .001
Follow-up mental health services upon discharge			
Mental health referral	30.8	9.3–42.2	< .001
Court-ordered assessment in community	11.6	0.8–17.1	< .001
Family recommendations given	16.0	2.3–35.7	< .001

Note. County 4, contributing 3943 individuals, was deleted from the analysis because of the lack of follow-up data. Population size was n = 1030 youths. Sample for this analysis was 1079 youths who screened positive out of 4527 individuals from remaining counties.

TABLE 4—Proportional Hazards Model Predicting Time to Recidivism Within 1 Year: Indiana, 2008–2012

Predictor	Recidivism, 6 Counties (n = 8363), HR (95% CI)	Recidivism, 5 Counties (n = 4484), HR (95% CI)
Age, y		
< 15	2.37 (2.14, 2.63)	1.53 (1.32, 1.77)
15–16	2.02 (1.84, 2.21)	1.45 (1.27, 1.64)
≥ 17 (Ref)	1.00	1.00
Male	1.29 (1.18, 1.42)	1.25 (1.11, 1.42)
Race/ethnicity		
Black	1.23 (1.13, 1.34)	1.13 (0.99, 1.28)
Hispanic	1.00 (0.88, 1.14)	0.97 (0.83, 1.14)
Other	1.14 (0.91, 1.43)	1.10 (0.81, 1.50)
White (Ref)	1.00	1.00
Behavioral health screening		
Angry or irritable	1.18 (1.10, 1.27)	1.08 (0.96, 1.20)
Alcohol and drug abuse	1.22 (1.12, 1.34)	1.07 (0.93, 1.22)
Detention center site		
1	2.74 (1.64, 4.58)	3.03 (1.81, 5.09)
2	2.60 (1.61, 4.18)	2.42 (1.49, 3.91)
3	1.32 (0.79, 2.23)	1.59 (0.94, 2.68)
4	4.20 (2.61, 6.77)	. . .
5	2.85 (1.75, 4.64)	2.59 (1.59, 4.23)
6 (Ref)	1.00	1.00
Follow-up behavioral health services		
Contact with behavioral health clinician within 24 h	. . .	0.76 (0.63, 0.92)
Behavior precaution	. . .	1.20 (1.02, 1.41)
Behavioral health services in detention	. . .	1.83 (1.53, 2.06)
Assessment in community	. . .	1.73 (1.52, 1.98)

Note. CI = confidence interval; HR = hazard ratio.

recidivism.[10,12] However, when detention-based behavioral health services were added as predictors to the second regression model, behavioral health variables were no longer significant and service variables became the strongest predictors of recidivism. Importantly, it appears that receiving detention-based behavioral health services may be a proxy measure of the seriousness of a youth's behavioral health needs. Detained youths with serious behavioral health difficulties may be more likely to receive detention-based services, and these youths may also be more likely to experience a recidivism event sooner after release from detention. In sum, the relationship between receiving detention-based behavioral health services and recidivism may be strongly influenced by the underlying severity of youths' behavioral health needs.

Further considerations need to be noted when interpreting the association between detention-based behavioral health care and recidivism. The measures we assessed closely mirrored psychiatric care guidelines from the National Commission on Correctional Health Care. These guidelines do not assess the quality or type of behavioral health treatment. For example, other studies have assessed the impact of interventions to improve engagement in behavioral health care, such as the family checkup, which uses principles of motivational interviewing.[36] It may be that reduced recidivism is affected by increased engagement in behavioral health care or through symptom reduction. Hence, future research is necessary to assess the quality and duration of the services provided in and outside detention and the engagement of the youths and their family in treatment.

There is increasing interest in adult criminal justice research on the provision of module-specific interventions that target criminogenic-specific risk factors (e.g., anger management, addiction, trauma).[37] This approach may be useful for juvenile populations as well. Controlling for quality, duration, and engagement may help elucidate the association between detention-based behavioral health services and recidivism in juvenile justice–involved youths. Furthermore, because of the relationship of behavioral health problems and recidivism, youths should be stratified by the seriousness of their behavioral health problems. This would allow the comparison of effect sizes on recidivism by seriousness of behavioral health problems. Moreover, the receipt of behavioral health services before a detention placement could be an additional proxy measure of behavioral health problem seriousness and should be explored in future research.

"Justice by geography" is the phenomenon that a youth's county of residence poses clear implications for his or her progress through the juvenile justice system.[38] Geographic location and the idiosyncrasies of the local juvenile court system can strongly influence the use of behavioral health services and recidivism among youths because of variations in service availability, funding, sentencing, and probation policies. For example, rural sites in our study tended to have mental health professionals available on an as-needed basis, whereas urban sites tended to have mental health professionals on-site at the detention facility.

Overall, we found significant variation across sites (i.e., counties) with regard to the proportion of youths with positive screens, caution or warning scores on MAYSI-2 subscales, receipt of different detention-based services, and recidivism. It is therefore possible that variability in service provision, use, and quality across counties may have masked the role of detention-based services on recidivism. The fact that detention site was significantly associated with time to recidivism further supports this possibility.[39] This suggests that studies seeking to identify relations between

behavioral health needs and recidivism will be limited in their generalizability to specific detention centers in practice because of the heterogeneity of detention centers and their jurisdictional differences.

Limitations

Although our study has unique strengths, there were several limitations that should be acknowledged. First, our primary measure of behavioral health services was limited to receipt of services. We did not examine key aspects of treatment services, such as service quality and intensity. Such information is crucial to drawing firm conclusions about the association between behavioral health services and recidivism, particularly because research demonstrating the positive impact of behavioral health services on recidivism is determined by high-quality, rigorous interventions, such as multisystemic therapy and functional family therapy.[16,35]

We cannot state with certainty how service quality and intensity affected our findings. Also, information regarding behavioral health services offered in detention and upon discharge was lacking from 1 site. We considered deleting data from this site for all analyses; however, in the interest of including as much data representing as many detained youths as possible, we included them in analyses when feasible. Lastly, there was significant diversity across detention centers in terms of size and of proportion of race/ethnicity and gender for detained youths. Future research should explore county and detention center predictors of recidivism.

Conclusions

It is clear that detained youths have significant behavioral health difficulties, and our results confirm that behavioral health screening results are related to time to recidivism. The fact that detention-based behavioral health interventions did not reduce recidivism calls into question the primary role of detention centers. There is a clear public policy mandate for detention centers to identify youths with behavioral health needs. The responsibility of detention centers to treat youths with behavioral health needs, however, is less clear.[40] Nonetheless, if empirically based and effective identification of need for behavioral health services can influence follow-up services that reduce future recidivism, there could be economic savings, increased community safety, and perhaps fewer youths continuing a life of crime into the adult criminal justice system. ■

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Contributors

M. C. Aalsma, L. M. White, and K. S. L. Lau wrote and edited the article. A. Perkins performed statistical analysis and reviewed the Methods and Results sections of the article. P. Monahan provided input regarding statistical analysis. T. Grisso edited the article and drew out the implications of this study for the health and well-being of juvenile justice–involved youths.

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Human Participant Protection

The study was approved by the Indiana Supreme Court and the Indiana University institutional review board. Review of these data did not require parent or youth consent, as juvenile courts act in loco parentis for detained youths, and all youth records were de-identified secondary data.

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