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Comparison of the Overlap between Juvenile Justice Processing and Behavioral Health Screening, Assessment and Referral

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Given the large proportion of youth involved in the juvenile justice system who meet criteria for behavioral health disorders, the system is charged with delivering not only criminal justice programing, but also behavioral health services. Behavioral health service delivery is typically done through collaborative partnerships with behavioral health agencies. This study created process maps which describe the flows and boundaries of these partnerships with respect to screening, assessment and referral to treatment. Process maps of juvenile justice and behavioral health systems from six juvenile departments in different states (Mississippi, Kentucky, New York, Georgia, Texas, and Pennsylvania) are presented. Both the methodology of creating process maps and results from the analysis of the maps are presented. Results indicate that behavioral health screening, assessment, and referral to treatment were occurring at all sites, typically with standardized tools. Overall trends were that juveniles tended to have more screenings, assessments, and referrals to behavioral health services as they moved deeper into the juvenile justice system and were placed into more formal juvenile justice services. Within the analysis of interagency communication, these results were mirrored; settings that were more formal and located deeper into the juvenile justice system had more robust interagency communication.

Key Words: *Mental Health Disorders, Substance Use, Screening, Assessment, Juvenile Justice Processing*

INTRODUCTION

Nearly two-thirds of youth involved in secure care within juvenile justice systems meet criteria for a psychiatric disorder (Washburn et al., 2008), with somewhat lower prevalence among justice system youth maintained in community settings (Wasserman, McReynolds, Schwalbe, Keating, & Jones, 2010). Substance use disorders are also extremely prevalent among justice involved youth. A recently published 12-year longitudinal study of previously detained youth found that by median age 28 years, 91.3% of males and 78.5% of females had at some point been diagnosed with a Substance Use Disorder (Welty et al., 2016). The term behavioral health disorder is commonly used to refer to both mental health and substance use disorders, and will thus forth be utilized as such in this paper. Because behavioral health needs often contribute to offending, the juvenile justice system is charged with delivering not only criminal justice programing, but also screening, assessment, and referral of juveniles for behavioral health needs. Research demonstrates that appropriate screening and referral leads to treatment (Soulier & McBride, 2016), which in turn leads to reduced recidivism (Evans Cuellar, McReynolds, & Wasserman, 2006; Hoeve, McReynolds, & Wasserman, 2014).

Additionally, early treatment of juvenile behavioral health disorders has been associated with diversion from the criminal justice system (Liebenberg & Ungar, 2014). There is also evidence that for juveniles who are not diverted out of the justice system, community-based programs which utilize family-focused therapy can lead to lower rates of recidivism than more restrictive, institutional placements (Ryon, Early, & Kosloski, 2017). Maintaining juveniles in their communities also has the potential to capitalize on the protective elements of a neighborhood, such as high immigrant concentration (Wolff, Baglivio, Intravia, & Piquero, 2015). For these reasons,

it is important that youth with behavioral health needs be identified early in juvenile justice case processing, and appropriately referred to behavioral health services.

Behavioral health needs can also impact serious juvenile offenders. Both substance use and mental health symptoms of anxiety and depression are associated with greater probability of severe offending (Vaughn, Salas-Wright, DeLisi, & Maynard, 2014). Additionally, substance use is considered a dynamic risk factor for criminal offending. Given that dynamic risk factors can change over time repeated risk/need assessment is needed to identify potential fluctuations (Mulvey et al., 2016), particularly as these changes affect recidivism likelihood (Baglivio, Wolff, Piquero, DeLisi, & Vaughn, 2017). Finally, for juveniles who commit murder, low Intelligence Quotient (IQ) is a predictor (DeLisi, Piquero, & Cardwell, 2016).

Interagency care coordination and integration between juvenile justice and behavioral health agencies has also been demonstrated to divert criminal justice involvement and reduce recidivism (Foster, Qaseem, & Connor, 2004; Hoeve et al., 2014; Skowyra & Cocozza, 2007). However, within most juvenile justice systems, service delivery is comprised of cross-system partnerships (Leukefeld et al., 2017), often with complicated and overlapping systems of financing and organization. Within these partnerships, behavioral health service delivery is frequently provided by an external behavioral health agency. As a consequence, youth must be identified within the juvenile justice system and referred across these separate systems to the appropriate treatment agency to access behavioral health services (Seigle, Walsh, & Weber, 2014).

However, this multi-system nature of juvenile justice service provision often results in a fragmentation that lacks specific processes for screening, assessment and referral (Skowyra & Cocozza, 2007). While multiple models of behavioral health service provision exist across juvenile justice agencies, research that characterizes the systemic processes employed by juvenile justice systems to refer and deliver behavioral health services is limited. In 2007, the National Center for Mental Health and Juvenile Justice released a comprehensive model detailing best practices for the treatment of youth with behavioral health needs who are also involved with juvenile justice systems (Skowyra & Cocozza, 2007). Their model offers standards by which to assess behavioral health service provision within juvenile justice agencies. Our paper aims to build on this model by utilizing a process mapping methodology which is one component of Six Sigma (Trebble, Hansi, Hydes, Smith, & Baker, 2010).

Six Sigma is a management methodology born out of the manufacturing industry which aims to manage via process. Its goals are to maximize efficiency which can improve productivity/performance while decreasing personnel costs/waste. Six Sigma achieves these goals through the use of process metrics and statistical analysis (Barone & Franco, 2012). In this paper we employed only the process mapping tools from Six Sigma. Process mapping results in detailed diagrams which depict flow through a system. The diagrams allow for the identification of boundaries in collaborative partnerships and subsequent structural analysis to promote efficiency based change in the system (Trebble et al., 2010). Within the context of juvenile justice and behavioral health agency partnerships, this tool offers great potential as it can help identify gaps in access to behavioral health services.

Use of system processing maps has only recently begun to be utilized in healthcare settings (Taner, Sezen, & Antony, 2007). Although new, research has demonstrated how process maps designed with the Six Sigma approach can improve resource utilization (Cima et al., 2011), reduce redundancy, and improve patient satisfaction within a healthcare system (Taner et al., 2007). Given the often fragmented nature of juvenile justice/behavioral health agency collaborations, (Skowyra & Cocozza, 2007) the application of Six Sigma process mapping provides a tangible pathway to improved communication and service provision. While the National Center for Mental Health and Juvenile Justice's comprehensive model provides some process benchmarks, utilizing an individualized process mapping approach could provide agencies with a more flexible and customizable process by which to work towards the comprehensive model.

This paper has three objectives. The first objective is to describe how the Six Sigma process mapping approach can be used within juvenile justice and behavioral health systems. This approach is novel and bridges a gap in the current literature. As such, we will describe how six different system maps were created as part of the Juvenile Justice Translational Research on Interventions for Adolescents in the Legal System (JJ-TRIALS) initiative. The second objective is to describe how to create process maps, and how these maps can be used to improve understanding of case processing with regard to linking juveniles with behavioral health services. Our final objective is to provide juvenile justice systems with examples of how to create and use process maps for internal program evaluation to improve system efficiency and quality of services. Finally, we describe important cross site trends, and inter-site variations in the process maps of six participating JJ-TRIALS agencies.

METHODS

Sample

JJ-TRIALS is a multi-site cooperative research collaboration comparing implementation strategies aimed at improving adoption of evidence-based substance use services within juvenile justice systems (see (Knight et al., 2016) for full protocol). One of the first activities completed as part of the JJ-TRIALS protocol was an intensive Baseline Needs Assessment exercise. The JJ-TRIALS Baseline Needs Assessment activities occurred in 36 sites, with 34 sites going on to participate in the full array of JJ-TRIALS activities. In this paper, we use "site" to describe a single community-based juvenile justice system, typically a county wide system that included a juvenile justice community supervision agency and a behavioral health partner. Establishing a partnership between a juvenile justice community supervision agency and a community-based behavioral health provider was a requirement of JJ-TRIALS participation. The sample used in this analysis was a subset of six sites from the larger pool of 36 JJ-TRIALS participant sites. One site from each of the JJ-TRIALS Research Centers was included in the subset. Sites were located within the states of Georgia, Kentucky, Mississippi, New York, Pennsylvania, and Texas. While sites were located in different states, they were not representative of an entire state's system. Even within states there were substantial variations in services and processing practices between sites. Sites included in this analysis were chosen through internal dialogue with the research staff at each Research Center, taking into consideration variation in size and location of the site. From this discussion, six case examples were selected to maximize understanding of the wide variety of juvenile justice system structures across diverse settings. While standardization procedures were extremely labor intensive, this paper does not capture a fully representative sample, but rather illustrates how to

use the mapping approach across diverse settings. Sites were identified by a randomly assigned letter to mask the identity of the counties for this manuscript.

Baseline Needs Assessment

The Baseline Needs Assessment was a multi-component implementation activity that all JJ-TRIALS sites participated in during the initial 3 months of JJ-TRIALS (see (Knight et al., 2016). Baseline Needs Assessments were used to gather detailed information from juvenile justice and community behavioral health service partners. During the Baseline Needs Assessment, staff from participating sites described existing service capacities of their juvenile system and its community behavioral health partner agencies. Specific questions regarding screening, assessment, referral to community service agencies, and initiation/engagement in substance use services were discussed.

Baseline Needs Assessments, which were audio recorded and transcribed, were led by senior Research Center staff participating as discussion leaders, note takers, and map illustrators. A mix of both leadership and line staff from both juvenile justice and behavioral health agencies were asked to be present at the Baseline Needs Assessment. These included, but were not limited to, a juvenile justice chief probation officer (or equivalent), juvenile justice probation officers or case managers, a juvenile court administrator, and a staff of one or more behavioral health treatment provider agencies. Participants provided informed consent prior to participation.

Baseline Needs Assessments consisted of two components that were conducted over a three-hour period. These components included a systems mapping exercise and a focus group. The systems mapping exercise examined existing agency case processing protocols, capacity, and resources. Information was gathered from juvenile justice and behavioral health partners regarding the key processing components of the juvenile justice system. Emphasis was placed on clarifying relational boundaries with external behavioral health partners. The process also provided a venue for staff and partners to develop a shared understanding of the system, and their own roles in strengthening it.

The systems maps were developed through a three-step process to add information regarding system structure and processes in a segmented fashion. The first step was specific to juvenile justice agencies and focused on outlining the typical juvenile justice case flow. The map produced at this stage depicted activities directly related to the processing of a case such as: police reports, petitions, court hearings, and court dispositions. The second and third steps incorporated community behavioral health partners. The second step captured the linkage between the juvenile justice system and the behavioral health services by describing specific decision points regarding the identification of behavioral health needs, behavioral health treatment referrals, and service delivery.

Behavioral health needs were identified through decision points which gathered information about a juvenile's behavioral health status, and resultantly impact the next steps in the case. The third step detailed inter-agency information sharing and exceptions to typical case flow. The resulting map labeled the direction and type of communication between steps in the process. All three maps were overlaid to describe the flows, boundaries, and communications between the systems to understand how behavioral health services were administered to juveniles.

Standardizing System maps

Onsite meetings resulted in very complex drawings jointly created by Research Center and site staff in interagency workgroups. After these face-to-face meetings, Research Center staff incorporated elements from the focus group questions into the maps, referring to notes and reviewing transcripts. A task group from the Research Cooperative then applied the process mapping component of the Six Sigma approach to maps to make them consistent across Research Centers, as seen in Figures 1 and 2 (other maps shown in Appendix). Figures1 and 2 were selected for presentation in this paper as they represent two very different approaches to collaboration, as one screens primarily at formal judicial processing points and the other screens at both formal and informal points.

Map standardization was completed by first dividing each map into distinct "swim lanes", or stages which defined when the activities occurred in case processing (intake, probation, and integration with behavioral health services). Activities within the intake stage included short term processing activities such as police, probation or court assessments, court arraignments and detention. After court orders for supervision were issued, juveniles moved into the probation stage, thus termed because probation was typically the overseeing agency for service provision. Activities in the probation stage included diversion programs, specialty court placement, formal/informal supervision, as well as therapeutic and secure placements. The final stage represents integration of behavioral health services with probation which represented activities occurring in, or services provided by, the behavioral health service agency partners.

Steps for juvenile justice processing were depicted by blue rectangles. Purple rectangles represented steps in behavioral health service processing. Behavioral health screening and assessment activities were classified as "behavioral health decision points", and were represented by yellow diamonds. Justice system decision points, such as court petitions or orders, were shown as red dots. These activities were not the focus of JJ-TRIALS, but were included as reference points of case processing. Steps and decision points were connected by arrows pointing in the direction of case flow and communication.

Figure 1: Site A Map

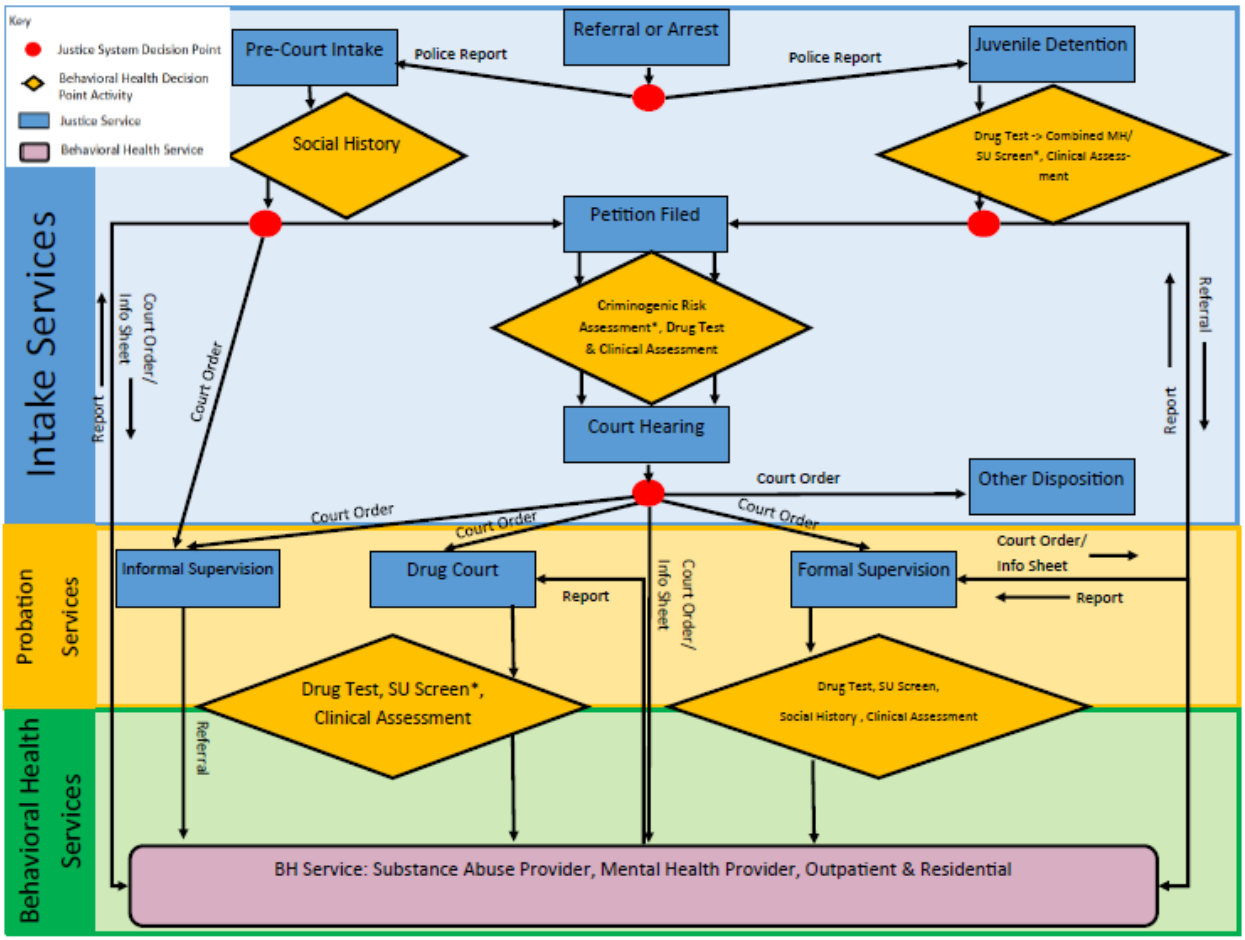
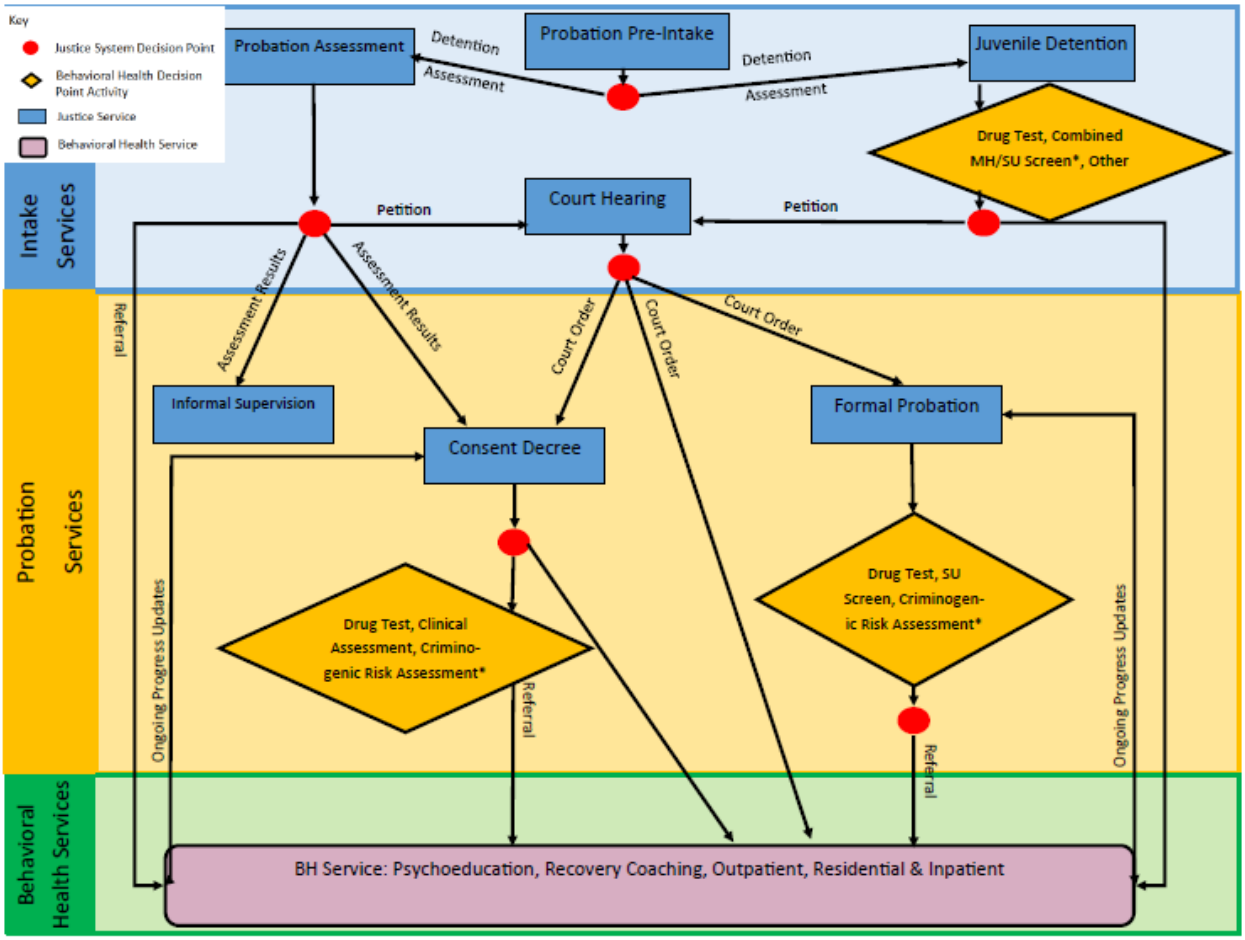


Figure 2: Site C Map



*Indicates a standardized tool

Terminology for juvenile justice system services was standardized across sites to facilitate comparison. Standardized terminology is shown in Table 1. Once maps from all six Research Centers/states were developed, they were compared to understand differences and similarities across sites regarding juvenile justice service provision, the use of behavioral health screening, assessment, and referral to treatment, as well as continued interagency communication between behavioral health and juvenile justice agencies during behavioral health service provision. Processing steps were calculated by counting the number of juvenile justice processing steps (blue rectangles) passed on the way to the disposition or end point.

Table 1: Terms & Descriptions

Types of Services Provided		Description of Service
Detention		For the purpose of this study, detention refers to short-term placement in a locked juvenile justice facility while awaiting court hearings and/or court orders for placement.
Diversion		Non-judicial summary disposition made by a probation officer or other authorized intake personnel. This informal disposition option may include counseling the juvenile about the consequences of his or her conduct, contacting the juvenile's parents to inform them of the juvenile's behavior or referring the juvenile to a social service agency or a community-based first offender program run by law enforcement, where services are administered by either a probation department or community agency
Specialty Court	Drug Court	Substance use treatment based court system for juveniles with substance use disorders
	Youth/Teen Court	Voluntary alternative to the standard juvenile court system where peer volunteers serve in the roles of the court personnel
Supervision	Informal Supervision*	Voluntary alternative to adjudication in which the juvenile, parent/guardian(s) and juvenile court representative agree upon supervision conditions
	Formal Supervision**	Disposition in which a juvenile is formally, via court order, placed on probation under the supervision of the court for a specified period
Therapeutic Placement		Any residential, or day treatment based behavioral health placement, which may also include a therapeutic foster placement, or secure facilities
Secure Placement		Court ordered placement in a locked juvenile justice facility

Note: Services labeled "other" not shown; *Some sites used the following interchangeable terms for Informal Supervision: Informal Probation, Consent Decree, & Deferred Prosecution; **Some sites used the following interchangeable terms for Formal Supervision: Field Supervision, Formal Probation; Services provided reflect only particular sites and are not representative of entire states

Behavioral health screening and assessment activities were calculated in two ways. First, the types of activities were classified and then they were counted. The types of activities were classified as drug testing, substance use screening, combined substance use/mental health screening, clinical assessment, criminogenic risk assessment, and other. Given the small non-representative sample, counts were conducted to describe the data for discussion purposes. Drug testing was conducted via urinalysis. No sites reported conducting standalone mental health screens. The Substance Abuse Subtle Screening Inventory (SASSI), the American Society of Addiction Medicine Patient Placement Criteria (ASAM-PCC) and other non-standardized tools were used to screen for substance use. Combined substance use/mental health screens included the Massachusetts Youth Screening Instrument (MAYSI-2) and other non-standardized tools. Standardized criminogenic risk assessments included the following: Youth Assessment and Screening Instrument (YASI), Youth Level of Service/Case Management Inventory (YLS), Positive Achievement Change Tool (PACT), and the Structured Assessment of Violence Risk in Youth (SAVRY) (Grisso, Vincent, & Seagrave, 2005). Other non-standardized tools were also used, which typically included agency developed screeners or interviews. The category "other" was used to capture informal non-

clinically focused needs assessments, and other activities that informed juvenile justice staff of a juvenile's behavioral health needs. Activities in the other category included: social history/investigation, probation input, offense record review, youth/parent buy in, case detail review, and behavioral health records review. Activities in any of these categories that employed standardized or validated tools were also indicated.

Behavioral health decision point activities were also calculated by "identification event". Since these activities are often used concurrently, simultaneously occurring or sequential activities were categorized as an "identification event". For example, if a drug test, or urinalysis, was conducted and then followed up with a substance use or mental health screening tool, the results of which triggered a clinical assessment, then the entire cluster of activities was considered a single identification event.

Finally, interagency communication between juvenile justice and behavioral health agencies was classified in three ways. If communication occurred more than once and information flowed back and forth in both directions between agencies, then it was classified as "on-going bidirectional." However, if communication occurred only once, for example a referral was sent with no follow up, or a report of completion was sent without on-going updates, then communication was classified as "one time", with the direction of communication noted as either juvenile justice to behavioral health, or behavioral health to juvenile justice.

RESULTS

Sample Description

Using the results in the six exemplar maps, the types of services provided as a juvenile passes through the juvenile justice system were summarized and described. As shown in Table 2, juvenile justice services and processing at the time of the Baseline Needs Assessment included a range of services and processing pathways. The categories of post-adjudication juvenile justice services included informal and formal supervision, secure placements, therapeutic placements, specialty courts, and a variety of diversion programs. The type of service provided within each category varied by site.

Behavioral Health Decision Points

Decision points related to the behavioral health of a juvenile were made throughout the juvenile justice process as their case moved through the system. Table 2 highlights behavioral health decision point activities in relation to where they occurred in case processing, at the time of the Baseline Needs Assessment. As shown in Table 2, during intake to community-based juvenile justice services, behavioral health decision point activities were reported to occur in three settings: juvenile detention, the court, and the community-based juvenile justice agency charged with pretrial service provision.

Across all intake settings, the mean number of behavioral health decision point activities per site was five, with a range of one behavioral health decision point activity to 11 behavioral health decision point activities. In one site, all behavioral health decision point activities were reserved until after the court hearing, at which point a full array of drug testing, substance use/mental health screening, and clinical assessment was conducted. All sites had some form of behavioral health

decision point activity during the intake phase, and no site relied solely on drug testing. Within the intake phase, the most commonly utilized activities were drug testing, and clinical assessments, both of which had a total of seven observed instances of use, across all sites. The use of drug testing was particularly high due to its repeated use. For example, two sites tested in both detention and court, and one site tested in detention, court, and non-custody settings.

At the time of the Baseline Needs Assessment, the mean number of behavioral health decision point activities during the probation phase was five, with a range of one to eight behavioral health decision point activities. During probation, all sites, except for two, utilized drug testing, substance use screening, and clinical assessment. Across intake and probation, all but one of the sites used some form of standardized screen or assessment. However, this site was unique in its service structure because this justice system was only involved after adjudication. Therefore, data was not available on this site's service provision prior to adjudication.

Table 2: Behavioral Health Decision Point Activities

Processing Point	Setting	Activity Type	Site A	Site B	Site C	Site D	Site E	Site F	Mean
Intake	Detention	Drug Test	1	1	1		N/A		
		SU Screen		1*			N/A		
		Combined MH/SU Screen	1*	1*	1		N/A		
		Criminogenic Risk Assessment		1*			N/A		
		Clinical Assessment	1	1			N/A		
		Other			1		N/A		
		Total	3	5	3	0	N/A	0	2
	Non-custody	Drug Test		1			N/A		
		SU Screen					N/A		
		Combined MH/SU Screen		1*			N/A		
		Criminogenic Risk Assessment		1*			N/A	1*	
		Clinical Assessment		1			N/A		
		Other	1				N/A	2	
		Total	1	3	0	0	N/A	3	1
	Court	Drug Test	1	1		2			
		SU Screen							
		Combined MH/SU Screen				1			
		Criminogenic Risk Assessment	1*	1*			1		
		Clinical Assessment	1	1		1		1	
		Other						2	
		Total	3	3	0	4	1	3	2
	Intake Total		7	11	3	4	1	6	5
Probation		Drug Test	2	1	2	2			
		SU Screen	2*	1*	1				
		Combined MH/SU Screen				2*			
		Criminogenic Risk Assessment			2*			2*	
		Clinical Assessment	2	1	1	1		1*	
		Other	1				1	2	
		Probation Total	8	3	6	5	1	5	5
Overall Total			15	14	9	9	2	11	10

Note: *Indicates that a standardized tool was used, sites reported use of the following: CANS, YASI, SAVRY, YLS, SASSI, PACT, & MAYSI-2

Referral to Treatment

To better understand the behavioral health services available to differently classified juveniles, referral to treatment was analyzed by "dispositional endpoint". We classified dispositional endpoints as the court's legal dispositional determination in the case regarding the initial determination of juvenile justice placement. As shown in Table 3, the fastest path to a dispositional endpoint involved three steps. For most of the sites where a juvenile could have reached a dispositional endpoint this quickly, they could have also been referred for treatment during one of the steps. For formal supervision, while a juvenile could have been processed in three steps, the shortest time to disposition and treatment was four steps. The data in Table 3 shows that as the juvenile moved deeper into the system (i.e. more steps towards disposition) two patterns occurred: 1) the juvenile was more likely to have had at least one referral or screen but 2) the opportunity for screenings reduced. For example, for sites whose pathway involved three steps to endpoint, 66% had at least one referral to treatment, regardless of the service category. This percentage increased as the number of steps to the endpoint increased. The average availability of at least one referral to treatment for all four-step pathways was 72%. The average availability of at least one referral to treatment for all pathways involving five or more steps was 100%.

Despite this increasing availability of at least one referral to treatment, the data in Table 3 also shows that the opportunities for referrals diminished as a juvenile became more embedded in the system. Examining the ratio between number of "referral to treatment" and "steps to endpoint" show how many opportunities a juvenile has for referral to treatment (ratios not shown in tables). Site A had the highest referral to step ratio for their dispositional endpoint of informal supervision service. There were two opportunities for referral to treatment in the three-step pathway to this disposition. The lowest referral to step ratio was for site B, where along a seven-step pathway to a dispositional endpoint of therapeutic placement there was only one referral opportunity.

There was only one observed instance where juveniles were tracked into a dispositional path in which referrals were unavailable without an identification event or behavioral health decision point activity. However, this occurred in informal supervision, where juveniles continue to have access to the same array of community services usually available to non-justice involved juveniles. In general, as juveniles progressed further into the juvenile justice system, they were screened, assessed, and referred to treatment more frequently. However, the opportunities for treatment referral did not scale equally.

Table 3: Identification of Behavioral Health Needs & Access to Treatment

Service Category	Type of Dispositional Endpoint	Site	Steps to End point	Identification Event		Referral to Treatment	
				Yes (#)	No	Yes (#)	No
Diversion		C	3		X	X (1)	
		F*	4	X (1)			X
		F*	4	X (3)		X (2)	
		B	4	X (1)		X (1)	
Specialty Court	Drug Court	E	3	X (2)		X (1)	
		F	4	X (1)			X
	Youth/Teen Court	A	4	X (3)		X (2)	
Supervision	Informal Supervision	D	3		X		X
		A	3	X (1)		X (2)	
		B	4	X (1)		X (1)	
		C	4	X (1)		X (1)	
	Formal Supervision	E	3	X (2)			X
		C	4	X (1)		X (1)	
		A	4	X (3)		X (2)	
		D	4	X (4)		X (1)	
		B	5	X (2)		X (1)	
		F	6	X (2)		X (1)	
Therapeutic Placement		E	3	X (2)		X (1)	
		D	5	X (4)		X (1)	
		B	7	X (3)		X (1)	
Secure Placement		D	4	X (2)			X
		B	6	X (3)		X (1)	

Note: *Site F is listed in diversion twice because they have two separate diversion programs; Detention & Other categories not shown; Steps to endpoint indicates the number of justice service steps to reach the endpoint; Identification event includes any screening or assessment activities, activities which occurred concurrently were counted as one event; Identification event & Referral to treatment indicate any event or referral point along the pathway to the endpoint

Table 4 reports the interagency communication that occurred within intake and probation. Most communication occurred only once and was not bidirectional (82%). Examples of such communication included referrals, court orders, and reports. Formal field supervision and the courts had the most robust interagency communication, with seven and six total instances of communication respectively. This trend mirrored what was seen in the behavioral health screening, assessment, and referral to treatment results, in that the highest performing settings were the most formal and tended to be further into the juvenile justice system.

Table 4: Behavioral Health Communication

Setting	Service	Type of Communication	Site A	Site B	Site C	Site D	Site E	Site F
Intake	Detention	Ongoing bi-directional					N/A	
		One time JJ to BH	X		X		N/A	
		One time BH to JJ	X	X			N/A	
	Non-Custody	Ongoing bi-directional					N/A	
		One time JJ to BH	X		X		N/A	
		One time BH to JJ	X	X			N/A	
	Court	Ongoing bi-directional				X		
		One time JJ to BH	X		X		X	X
		One time BH to JJ						X
Probation	Diversion	Ongoing bi-directional	N/A			N/A	N/A	
		One time JJ to BH	N/A			N/A	N/A	X
		One time BH to JJ	N/A			N/A	N/A	
	Specialty Court	Ongoing bi-directional		N/A	N/A	N/A		
		One time JJ to BH	X	N/A	N/A	N/A	X	
		One time BH to JJ	X	N/A	N/A	N/A		
	Informal Supervision	Ongoing bi-directional		X			N/A	N/A
		One time JJ to BH	X		X		N/A	N/A
		One time BH to JJ					N/A	N/A
	Formal Supervision	Ongoing bi-directional		X	X	X		
		One time JJ to BH	X					X
		One time BH to JJ	X					X
	Therapeutic Placement	Ongoing bi-directional	N/A		N/A			N/A
		One time JJ to BH	N/A	X	N/A	X	X	N/A
		One time BH to JJ	N/A		N/A			N/A
	Secure Placement	Ongoing bi-directional	N/A	X	N/A			N/A
		One time JJ to BH	N/A		N/A		X	N/A
		One time BH to JJ	N/A		N/A			N/A

These points are further illustrated in the "site walk-throughs" which describe how juveniles are processed through juvenile justice system examples. Three of the six sites were selected based on their varied approaches. Sites that were not presented utilized a blend of these approaches.

Descriptive "Site Walk Through" for Site B

In Site B, juveniles entered the juvenile justice system after a formal referral was made (see Appendix for case flow map). These formal referrals came from police, schools, or families. After referral, juveniles were routed into one of two parallel pathways, juvenile detention, or a non-custody based intake. Their police report or school/family referral was sent along with them. Both pathways then conducted a series of standardized behavioral health screenings, followed by a clinical assessment, as needed. Screenings were administered by juvenile justice agency staff,

while assessments were done by contracted behavioral health staff. Juveniles in detention were also provided drug education programming. From that point, the parallel pathways converged, and a determination was made regarding whether to file a petition to the court. If a petition was filed, the court then conducted a standardized behavioral health screening and a clinical assessment, if these activities were not done previously or if new information was brought to light. Petitions resulted in a hearing where the juvenile was either adjudicated or placed in pre-adjudicated supervision. Juveniles in pre-adjudication supervision were referred to behavioral health treatment services as needed; furthermore, those in pre-adjudication supervision who met expectations were not adjudicated. During these processes, treatment providers communicated with the juvenile justice supervision agency via phone and email. Juvenile justice staff also entered this information into the state database.

Adjudicated juveniles were the court ordered to post-adjudication supervision. Juveniles in post-adjudication supervision were placed in either field supervision or an out-of-home placement. All decisions were entered into a state database. Based on the severity of their substance use, juveniles in field supervision were either provided with drug education run by the juvenile justice agency, given individual/group counseling by contracted providers, or referred to outside behavioral health treatment services. Internal providers (including contracted staff who provide counseling) communicated monthly, while external providers received referrals and information requests, but typically did not maintain ongoing communication. Juveniles in an out-of-home placement were screened again using a standardized behavioral health tool, followed by a clinical assessment. Placement sites maintained communication with the sending agency via either ongoing emails, or internal communication. Juveniles in secure placement were either provided with drug education run by the juvenile justice agency or given individual/group counseling by contracted providers. These placements were made per the level of severity of the juvenile's substance use. Treatment providers entered updates into a state database and maintained communication with the county placement via ongoing emails. This system has three steps in both the intake and probation phases, with referrals to treatment available at nearly all terminal steps.

Descriptive "Site Walk Through" Site C

In Site C, juveniles had their first point of contact with the police, after which their case was forwarded to the probation office. Some juveniles were detained whereas others remained in the community. Juveniles placed in detention were given a drug test, suicide risk assessment, and a standardized mental health assessment by trained detention center staff. The results of those behavioral health activities triggered referral for assessment or to treatment services, as needed.

All juveniles had their charges reviewed and approved by the district attorney. If the charge was approved, the juveniles had an intake appointment with the juvenile probation department. Juveniles who admitted their charges received up to three services 1) a urine screen (drug test), 2) a risk assessment that included a drug and alcohol component, and/or 3) a drug and alcohol evaluation conducted by a juvenile probation office staff member. These activities occurred at the juvenile probation office, although not always at the same time. Some juveniles received informal supervision (referred to by this site as "consent decree") without going to court. For the juveniles that did go to court, a court order was issued which determined which of two parallel pathways down which their case would proceed. These pathways included informal and formal supervision, which, according to need, could also include a requirement that the youth receive drug and alcohol

treatment. The court can also order residential placement, in addition to one of the supervision types.

Depending on need, juveniles who received informal adjustment, a consent decree, or formal probation were routed directly into recovery coaching services. Their behavioral health needs were identified via drug testing, drug/alcohol screens and assessments and clinical, psychological, or psychiatric assessments. Clinical assessments were done by behavioral health partner agencies. These agencies included a formal county level assessment agency, behavioral health treatments providers, or both. Assessments and screens were conducted at the respective agencies; however, if the youth was held in detention, the formal assessment agency sometimes conducted the assessments at the juvenile probation office. Drug and alcohol assessments and screens were also done at the probation office by a probation officer if there was one available who had been specially trained and certified by the state certification board. Drug and alcohol assessments were conducted by a behavioral health provider if youth meet one of three conditions: 1) positive urinalysis results, 2) charged with a drug-related offense, and/or 3) scored medium or high on the substance abuse screen. The results of these tests were provided to the juvenile's probation officer and were also used to determine whether the juvenile would be referred to inpatient or outpatient drug or alcohol treatment, or Recovery Coaching Services. Finally, treatment providers maintained ongoing bidirectional communication with probation officers for juveniles in formal supervision.

Descriptive "Site Walk Through" for Site F

In site F, juveniles began processing after arrest, at which point they were tracked into one of two parallel pathways (i.e. probation or detention) based on a juvenile justice decision point. The corresponding police report was sent to the receiving agency. Detained juveniles proceeded directly to court, while juveniles assigned to probation underwent a probation intake. After probation intake, juveniles were tracked into one of three diversion paths or sent to court based on a county attorney's report. Juveniles referred to diversion programs underwent behavioral health screening and records review to determine which diversion program was most appropriate and then consented to participate in the recommended program. Diversion programs existed as parallel pathway, and included youth court, community based diversion, and a diversion agreement. Youth court was classified as a type of specialty court, which in other jurisdictions is often referred to as teen or peer court. This court exists outside of the formal juvenile court, and employs a restorative justice model (Forgays & DeMilio, 2005). Site F also employs two different types of diversion agreements, one which is operated by the probation department, and another which is administered by a community behavioral health agency. Juveniles tracked into either of the diversion agreements underwent a behavioral health screen and review of past hospitalizations that determined which behavioral health treatment service they would be referred to.

Juveniles who were sent to court were tracked into either behavioral health treatment or formal probation based on probation officer input and the results of a social investigation. Formal probation and behavioral health treatment existed as parallel pathways, and both maintained ongoing bidirectional communication with each other and the court regarding the status of the juvenile. Juveniles in formal probation were also given a behavioral health screen and had the

details of their case reviewed to determine whether a referral to behavioral health treatment was warranted.

DISCUSSION

This paper is the first to describe the use of Six Sigma methodology for juvenile justice case processing and provision of behavioral health services. The results show some observational patterns regarding types of services provided to juveniles as their cases were processed through the juvenile justice system, specific screens/assessments, and types of communication utilized by partners involved. All sites in this study addressed juvenile substance use needs at some level, with increasing opportunities to access care and interagency communication as juveniles penetrated deeper into the justice system. This increased communication and access to care within more formal settings may result from the increased control that the juvenile justice agency has at these stages.

For example, during the needs assessment process that was utilized to develop the process maps, participating sites reported difficulty in obtaining family follow through on treatment referrals which occurred prior to a court order. Sites reported two reasons for this limitation. The first reason was the adversarial nature of the justice system itself. Within the juvenile justice system, a defense attorney and prosecutor play distinct roles where they represent two different sides of the case. However, the pre-trial probation department is often seen as being aligned with the prosecution. Sites reported that families were sometimes reluctant to cooperate with voluntary services due to defense attorney recommendations that cooperation may imply guilt. The second reason reported was limited juvenile justice agency resources, including both funding and providers. Juvenile justice agency sites reported that they sometimes focused on providing referrals and services through court orders, to prioritize funding services to those with the highest need and willingness to engage in treatment. Further research may elaborate on the impact of resource scarcity on access to care. Important factors to explore in this vein might include the role of private insurance in supplementing juvenile justice behavioral health service delivery. Future policies may also consider how to otherwise incentivize or fund provision of services and interagency collaboration at earlier stages of juvenile justice involvement.

Overall, we found that most sites were addressing substance use needs using standardized screening tools. Additionally, some of these tools were specifically validated with a juvenile justice population. While this study was qualitative in nature and employed a very small sample size, these findings are important as they diverge from national survey data which have historically suggested that not all juvenile justice agencies are addressing substance use needs. However, our sample may consist of early adopters, which is beyond the scope of this paper to identify.

All sites in our study were also found to be collaborating with behavioral health partner agencies. However, to be a part of JJ-TRIALS, all sites were required to identify and partner with a behavioral health agency. While some of the juvenile justice agencies did not have formalized partnerships, this may still demonstrate a trend toward interagency collaboration. Additionally, by including inter-agency collaborations with behavioral health agencies in the mapping exercise, the information provided above builds on the Office of Juvenile Justice and Delinquency Prevention (OJJDP) depiction of the stages of delinquency case processing in the juvenile justice

system (Sickmund & Puzzanchera, 2014). The OJJDP map presents only the processing regarding juvenile justice agency activities, while the maps in this study demonstrate how these agencies interface with behavioral health partner agencies to provide more comprehensive services. Given the high proportion of juvenile justice involved youth who meet criteria for a behavioral health disorder, the results presented above fill an important gap in knowledge by providing models for improved coordination between these systems. For example, existing juvenile justice systems may use the maps provided here as examples of where communication might be increased.

By describing six different models, we recognize the diversity of approaches to structuring juvenile justice systems, and offer a variety of templates for coordination of services. These six sites demonstrate multiple ways in which screening, assessment and referral to treatment can be employed to triage youth into needed services. These practical models can be further used as conceptual diagrams to inform policy decisions relating to recommendations within juvenile justice systems. However, continued research is needed to determine whether youth are more likely to receive services if multiple points are available. For example, substance use needs may not surface until the youth moves further into the juvenile justice case management process.

Systemic variation described in this paper can be used to identify alternative approaches to case processing which may be useful to juvenile justice systems considering restructuring. The methodological approach outlined in this paper can be replicated by juvenile justice agencies as a tool for self-assessment and mobilization towards change. Visual representation of the typical flow of cases can be used to identify system redundancies and inefficiencies. While it was beyond the scope of this paper to include the number of cases at each step, it could be particularly useful in program evaluation or implementation research to add this information to the maps. Inclusion of the typical number of cases at each step could assist in evaluation of resource utilization, which could also be used to improve system efficiency. Additionally, the maps presented here can serve as comparisons within self-assessment to provide insight into alternative approaches to system processes and structures.

Limitations to this study include the small sample size and the potential sample bias of including only a subset of JJ-TRIALS participating sites. As previously mentioned, all JJ-TRIALS participating sites were required to have an ongoing partnership with a behavioral health agency. Therefore, this sample may not be representative of national trends. However, these results still provide practical models for how other agencies that have not yet developed these partnerships may incorporate interagency collaboration into their juvenile justice case processing. Additional limitations include the lack of details about the cultural and structural context of the sites, which could have provided information to assist sites looking to adopt a model in finding the best match for their context. Future research could continue to examine this new frontier.

CONCLUSION

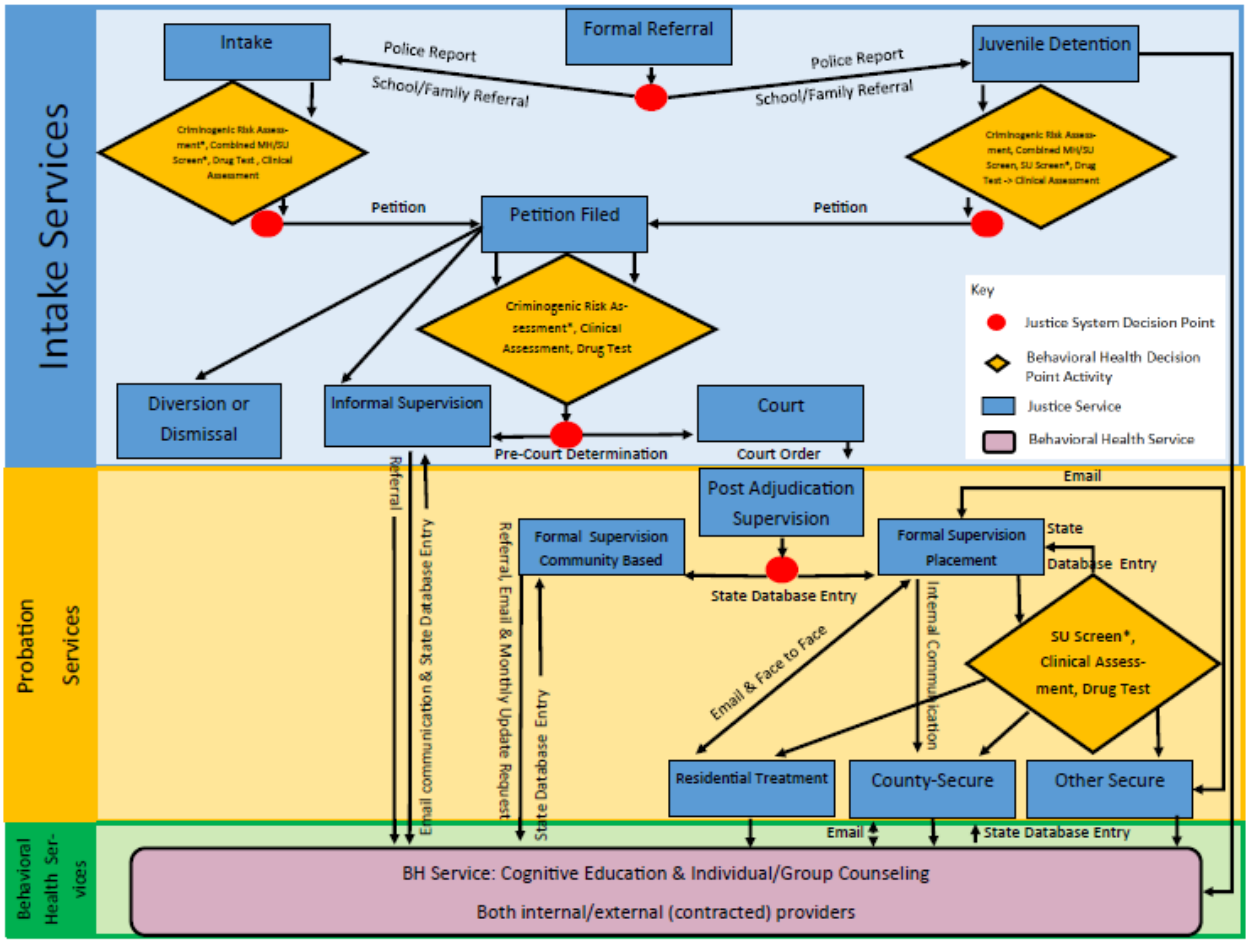
This study documented variation in the types and number of juvenile justice services, behavioral health decision point activities, and interagency communication. While this type of information is important to assess at a program level to ensure efficiency and quality, it is not possible to compare the quality of programs based on this level of data analysis. The cultural context,

availability of resources, and policy context of the systems should be considered when deciding how to structure programs. For example, it should not be assumed that a juvenile justice department with a higher number of behavioral health decision points is necessarily better than another program. Indeed, it could be quite the opposite, that a program with less decision points is implementing less redundant services and, therefore, maximizing efficiency.

This nuance in programmatic context may explain the variety of pathways documented across sites. For this reason, the methodology described here should be applied at the program level to comprehensively assess the individual needs of a program. The documentation of a variety of systemic pathways within this paper should serve to validate the existence of multiple acceptable processes in disseminating these services. Finally, this documented variety in approaches provides important insight for policy makers and funders seeking a once size fits all approach.

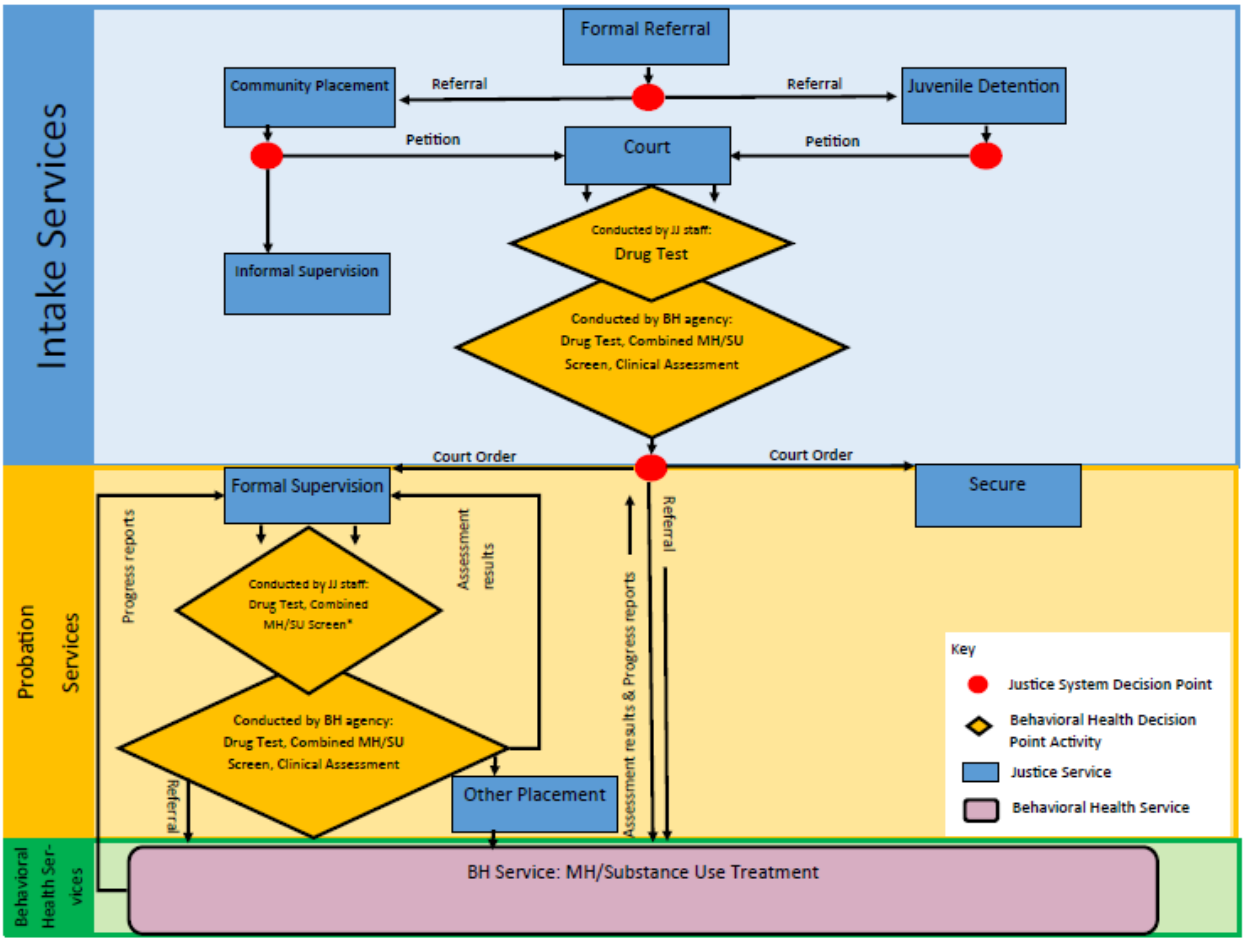
Appendix 1: Maps

Site B



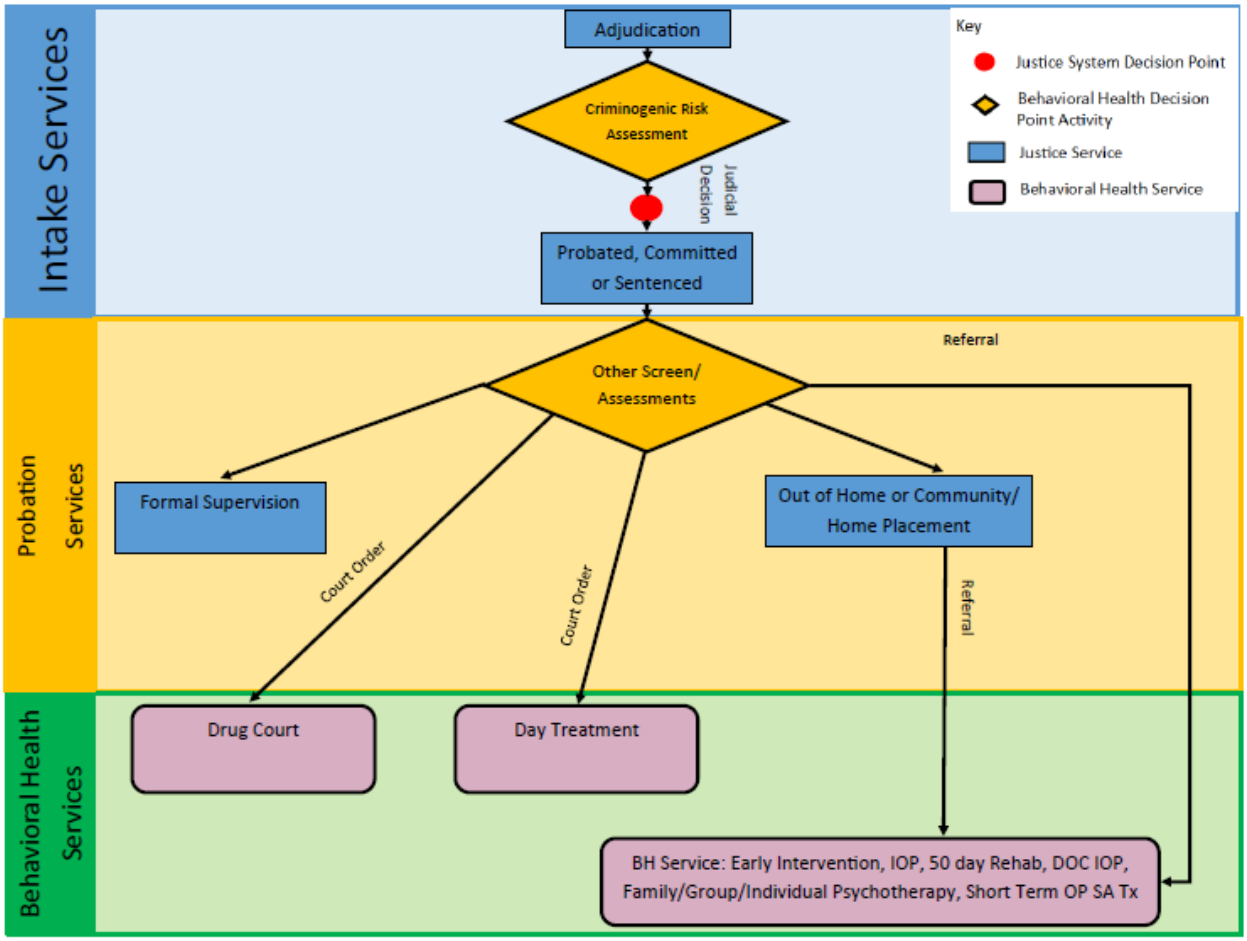
*Indicates a standardized tool

Site D



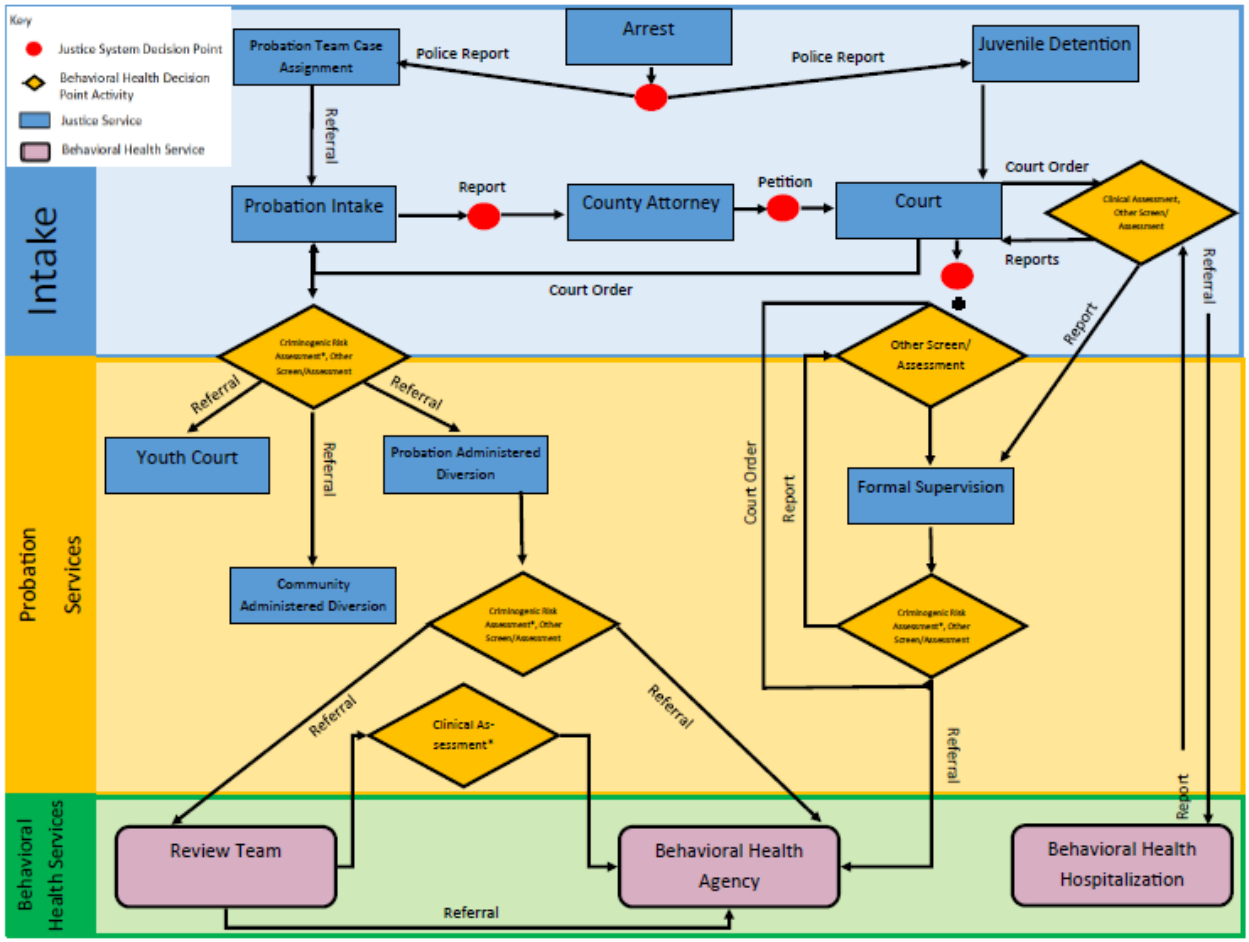
*Indicates a standardized tool

Site E



*Indicates a standardized tool

Site F



*Indicates a standardized tool

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REFERENCES

Baglivio, M. T., Wolff, K. T., Piquero, A. R., DeLisi, M., & Vaughn, M. G. (2017). The Effects of Changes in Dynamic Risk on Reoffending among Serious Juvenile Offenders Returning from Residential Placement. *Justice Quarterly*, 1-34.

Barone, S., & Franco, E. L. (2012). Six Sigma methodology. *Statistical and Managerial Techniques for Six Sigma Methodology: Theory and Application*, 1-21.

Cima, R. R., Brown, M. J., Hebl, J. R., Moore, R., Rogers, J. C., Kollengode, A., . . . Deschamps, C. (2011). Use of lean and six sigma methodology to improve operating room efficiency in a high-volume tertiary-care academic medical center. *Journal of the American College of Surgeons, 213*(1), 83-92.

DeLisi, M., Piquero, A. R., & Cardwell, S. M. (2016). The unpredictability of murder: juvenile homicide in the pathways to desistance study. *Youth violence and juvenile justice, 14*(1), 26-42.

Evans Cuellar, A., McReynolds, L. S., & Wasserman, G. A. (2006). A cure for crime: Can mental health treatment diversion reduce crime among youth? *Journal of Policy Analysis and Management, 25*(1), 197-214. doi:10.1002/pam.20162

Forgays, D. K., & DeMilio, L. (2005). Is teen court effective for repeat offenders? A test of the restorative justice approach. *International Journal of Offender Therapy and Comparative Criminology, 49*(1), 107-118.

Foster, E. M., Qaseem, A., & Connor, T. (2004). Can Better Mental Health Services Reduce the Risk of Juvenile Justice System Involvement? *American Journal of Public Health, 94*(5), 859-865.

Grisso, T., Vincent, G., & Seagrave, D. (2005). *Mental health screening and assessment in juvenile justice*: Guilford Press.

Hoeve, M., McReynolds, L. S., & Wasserman, G. A. (2014). Service referral for juvenile justice youths: associations with psychiatric disorder and recidivism. *Administration and Policy in Mental Health and Mental Health Services Research, 41*(3), 379-389. doi:10.1007/s10488-013-0472-x

Knight, D. K., Belenko, S., Wiley, T., Robertson, A. A., Arrigona, N., Dennis, M., . . . the, J. J. T. C. (2016). Juvenile Justice—Translational Research on Interventions for Adolescents in the Legal System (JJ-TRIALS): a cluster randomized trial targeting system-wide improvement in substance use services. *Implementation Science : IS, 11*, 57. doi:10.1186/s13012-016-0423-5

Leukefeld, C. G., Cawood, M., Wiley, T., Robertson, A. A., Fisher, J. H., Arrigona, N., . . . Marks, K. R. (2017). The Benefits of Community and Juvenile Justice Involvement in Organizational Research. *Journal of Juvenile Justice, 6*(1), 112-124.

Liebenberg, L., & Ungar, M. (2014). A comparison of service use among youth involved with juvenile justice and mental health. *Children and Youth Services Review, 39*, 117-122. doi:http://dx.doi.org/10.1016/j.childyouth.2014.02.007

Mulvey, E. P., Schubert, C. A., Pitzer, L., Hawes, S., Piquero, A., & Cardwell, S. (2016). An examination of change in dynamic risk of offending over time among serious juvenile offenders. *Journal of Criminal Justice, 45*, 48-53.

Ryon, S. B., Early, K. W., & Kosloski, A. E. (2017). Community-based and family-focused alternatives to incarceration: A quasi-experimental evaluation of interventions for delinquent youth. *Journal of Criminal Justice, 51*, 59-66.

Seigle, E., Walsh, N., & Weber, J. (2014). Core principles for reducing recidivism and improving other outcomes for youth in the juvenile justice system. *New York, NY: Council of State Governments Justice Center*.

Sickmund, M., & Puzzanchera, C. (2014). *Juvenile Offenders and Victims: 2014 National Report*. Pittsburgh, PA: National Center for Juvenile Justice.

Skowyra, K. R., & Cocozza, J. J. (2007). Blueprint for change: A comprehensive model for the identification and treatment of youth with mental health needs in contact with the juvenile justice system. *Policy Research Associates, Inc*.

Soulier, M., & McBride, A. (2016). Mental Health Screening and Assessment of Detained Youth. *Child and Adolescent Psychiatric Clinics, 25*(1), 27-39. doi:10.1016/j.chc.2015.08.002

Taner, M. T., Sezen, B., & Antony, J. (2007). An overview of six sigma applications in healthcare industry. *International Journal of Health Care Quality Assurance, 20*(4), 329-340. doi:doi:10.1108/09526860710754398

Trebble, T. M., Hansi, N., Hydes, T., Smith, M. A., & Baker, M. (2010). PRACTICE POINTER: Process mapping the patient journey through health care: an introduction. *BMJ: British Medical Journal, 341*(7769), 394-397.

Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). Violence and externalizing behavior among youth in the United States: Is there a severe 5%? *Youth violence and juvenile justice, 12*(1), 3-21.

Washburn, J. J., Teplin, L. A., Voss, L. S., Simon, C. D., Abram, K. M., & McClelland, G. M. (2008). Psychiatric Disorders Among Detained Youths: A Comparison of Youths Processed in Juvenile Court and Adult Criminal Court. *Psychiatric Services, 59*(9), 965-973. doi:doi:10.1176/ps.2008.59.9.965

Wasserman, G., McReynolds, L., Schwalbe, C., Keating, J., & Jones, S. (2010). Psychiatric disorder, comorbidity, and suicidal behavior in juvenile justice youth. *Criminal Justice and Behavior, 37*(12), 1361-1376.

Welty, L. J., Harrison, A. J., Abram, K. M., Olson, N. D., Aaby, D. A., McCoy, K. P., . . . Teplin, L. A. (2016). Health Disparities in Drug- and Alcohol-Use Disorders: A 12-Year Longitudinal Study of Youths After Detention. *American Journal of Public Health, 106*(5), 872-880. doi:10.2105/ajph.2015.303032

Wolff, K. T., Baglivio, M. T., Intravia, J., & Piquero, A. R. (2015). The protective impact of immigrant concentration on juvenile recidivism: A statewide analysis of youth offenders. *Journal of Criminal Justice, 43*(6), 522-531.