

# Juvenile Probation and Residential Services Evaluation

Connecticut Support Services Division, Connecticut Judicial Branch

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## Executive Summary

Connecticut provides delinquency services through both the judicial and executive branches. The Connecticut Department of Children and Families (DCF) is responsible for juvenile corrections and aftercare services, while the Connecticut Judicial Branch's Court Support Services Division (CSSD) administers pre- and post-adjudication services, including detention and probation supervision (National Center for Juvenile Justice, 2010; Management 2011). The Connecticut Juvenile Justice System (CJJS) is based on restorative justice principles of accountability and reintegration, public safety and rehabilitation. Individualized treatment, prevention, community-based placements, standardized risk and needs assessments, and coordinated evidence-based services are core features of the CJJS (Management, 2011). Together, DCF and CSSD have developed a collaborative strategic plan to ensure the seamless delivery of delinquency services to at risk youth in Connecticut (Child Welfare League of America, 2006).

The joint plan is based on principles of effective intervention, which underscore the importance of reserving residential commitment programs for the most high risk youth, and those most likely to benefit from long-term, out-of-home placements. Two recent studies of juvenile probation and residential services suggest that youthful offenders who complete probation programming are less likely to re-offend once discharged than those completing more restrictive commitment programs (Winokur et al., 2007; Greenfield, 2007). The Connecticut Judicial Branch CSSD retained the Justice Research Center (JRC) to study system services including probation and residential programming. The State of Connecticut has a long history of ensuring accountability, and understands that evaluating effectiveness and efficiency is critical to the provision of quality services and the expansion of programs to reach more at-risk youth and their families.

The overarching goal of the current evaluation was to assess the extent to which Connecticut's juvenile probation and commitment programs provide effective interventions to the appropriate delinquent youth. The evaluation examined youth characteristics, pathways through the continuum of care, and correlates of recidivism for a historical sample of probation and residential clients. All youth disposed from court to either juvenile probation (N=2,823) or commitment to residential placement (N=269), and released between July 1, 2005 and June 30, 2007 were included in the study. Research questions specific to probation, residential, alternatives to residential commitment and predictors of system escalation were addressed through quantitative analyses. The evaluation results are summarized below.

➤ Probation

- ❖ Forty-nine percent of the probation releases had a juvenile referral or adult arrest; and 34 percent had a juvenile adjudication or adult conviction within one year of completing probation services.
- ❖ Many factors were significantly associated with recidivism for probation releases (gender, race, age at first offense, measures of prior offending and risk and needs); however, none exhibited more than a modest correlation with post-release juvenile adjudication or adult conviction.
- ❖ The predicted odds of recidivism are higher for male and non-white probation releases; delinquents who are younger when they commit their first offense; and those with elevated criminogenic risk. Those with higher JAG Peer Protective scores had significantly lower the odds of recidivism.

➤ Residential

- ❖ Sixty-eight percent of the residential releases had a juvenile referral or adult arrest; and 53 percent had a juvenile adjudication or adult conviction within one year of completing commitment programs.
- ❖ Factors such as gender, race, age at first offense and measures of prior offending were significantly associated with recidivism for residential releases; but none had moderate or strong correlations with post-release juvenile adjudication or adult conviction.
- ❖ The predicted odds of recidivism are higher for males, those with more charges prior to residential placement, and those who are younger when they commit their first offense.

➤ Probation Alternatives

- ❖ Probationers with similar risk, demographic and offense histories as residential clients have better recidivism outcomes after program completion.

➤ Pathways to Residential Placement

- ❖ Youth who progress from probation to residential placement are younger at first offense, more likely to be non-white, have fewer protective factors and higher risk scores.

The current study furthers the prevention and intervention efforts of CSSD and DCF by examining the effectiveness of the continuum of care including probation and residential programs. These findings represent a preliminary examination of recidivism outcomes and system escalation for a historical sample of probation and residential releases. There are some noteworthy restrictions to the evaluation including incomplete risk and needs information, small

sample sizes and limited data on services after disposition. Future collaborative research between CSSD and DCF should build on the protocols and processes established during this project. Examining which higher risk delinquents could safely and effectively receive community-based services should be a top priority. Evaluating the relationship between specific interventions and client outcomes is also very important to providing effective and efficient services for at-risk and delinquent youth.

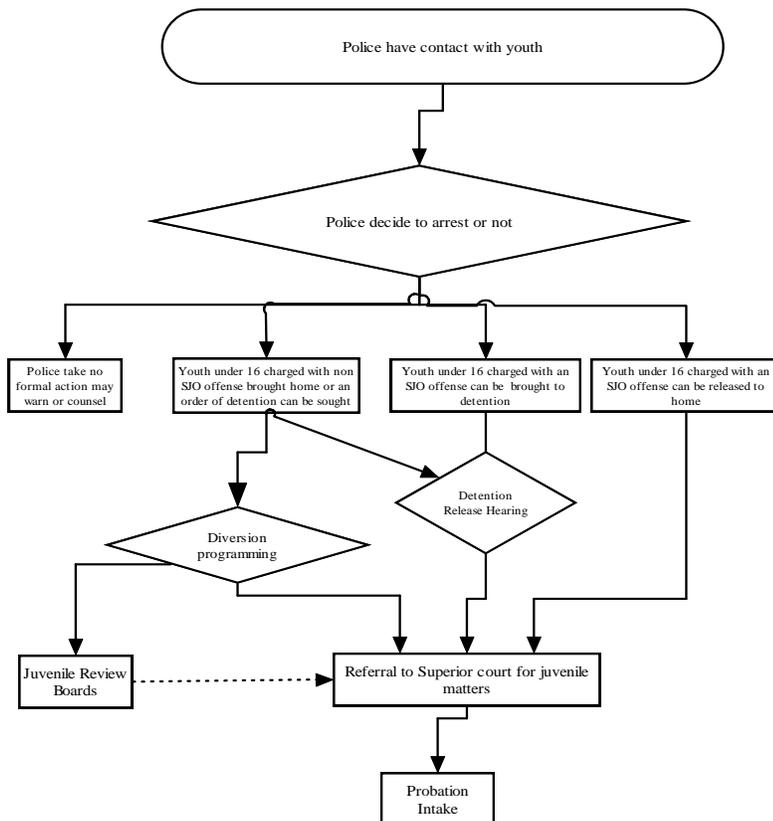
## Introduction

In 2006, Connecticut Department of Children and Families (DCF) and the Court Support Services Division (CSSD) assessed the prevention and delinquency intervention programming provided by both agencies and developed a joint strategic plan to coordinate services (Child Welfare League of America, 2006). Both agencies recognized and embraced the principles of effective intervention, and the efficient use of system resources. The joint strategic plan was developed to provide better services for at-risk and troubled youth and improve public safety. The collaborative effort also highlighted the need for research on probation and residential placements, how juveniles progress through the system and what factors impact client success after program completion.

The following discussion provides an overview of the Connecticut Juvenile Justice system, services provided by the CSSD, programming offered by DCF, and the joint efforts of the two agencies. Prior research on delinquency interventions and evidence-based programs is also reviewed. The evaluation methodology, including research questions, data sources, measures, sample and procedures, are described in the Evaluation Methodology section of the report. The Youth Profile section describes probation and residential placements; and youth outcomes. The evaluation findings and discussion are presented in the Results and, Discussion and Recommendations areas of the assessment.

## Connecticut's Juvenile Justice System

Connecticut's juvenile justice system involves the executive and judicial branches of government. The system is based on the principles of restorative justice and evidence-based practice. CSSD and DCF provide coordinated services for at-risk and delinquent youth through a



network of community-based programs and residential facilities. Individualized intervention services are monitored by the courts, CSSD and DCF.

Court involvement is initiated by law enforcement or juvenile probation officers. The flow chart provides an overview of system processing starting with police contact. Law enforcement officers have several options after

initial contact with an at-risk or delinquent youth which include: no formal action, detention diversion, or arrest and referral to juvenile court (Glynn, 2006, p. 6). Families with Service Needs and Youth in Crisis cases can also be referred to the juvenile courts. These complaints originate from community providers, parents, schools and other child welfare representatives.

The Connecticut Judicial Branch includes twelve Juvenile Matters Courts throughout the state. These courts are located in Torrington, New Britain, Hartford, Rockville, Willimantic, Danbury, Waterbury, Stamford, Bridgeport, New Haven, Middleton and Waterford. Juvenile

courts typically address cases involving delinquent youth, Families with Service Needs (FWSN), and Youth in Crisis (YIC).

“The Court Support Services Division (CSSD) oversees pretrial services, family services and probation supervision of adults and juveniles as well as juvenile detention services. Juvenile Probation Officers also prepare pre-dispositional studies which are recommendations to assist judges in the disposition of Judicial cases. In addition, CSSD administers a network of statewide contracted community providers that deliver services to court-ordered clients” (Branch, 2011, p. 27). Referrals to the Juvenile Court system are processed by Juvenile Court Operation clerks and submitted along with the Police Arrest Report to the Juvenile Probation Unit Supervisor at the Juvenile Matters Court location where the youth will appear. The Supervisor makes a handling decision based on offense seriousness, prior history and the willingness of the youth and family to participate in services; and assigns the case to a Juvenile Probation Officer. The Supervisor determines if the case should be handled formally (by the court system) or informally (non-judicial interventions). Non-judicial handling is only available to first and second time offenders charged with a misdemeanor who choose to waive their legal rights and accept responsibility for their actions as well as agree to the Probation Officer’s recommendations. Handling decisions are guided by specific criteria outlined in the Juvenile Probation Practice Manual.

Non-judicial processing can result in case dismissal, discharge with recommendations, administrative monitoring, or non-judicial supervision (Glynn, 2006). Judicially processed cases are either found delinquent or non-delinquent (a small number are transferred to adult court). Once adjudicated, cases are disposed with several possible outcomes including: dismissal with warning, conditional discharge or nolle, or judicial supervision/probation. A small number of

adjudicated delinquents are committed to residential services, which are provided by the Connecticut Department of Children and Families (DCF).

### **Juvenile Probation Services**

In 1999, the Connecticut Judicial branch created the Court Support Services Division (CSSD) to assist with the administration of adult and juvenile justice in Connecticut. CSSD provides intake and assessment and referral services; adult and juvenile probation; and coordinates community-based and alternate sanction programs. “CSSD Juvenile Probation provides a full continuum of monitoring, supervision and referral services for Delinquency, Judicial and Non Judicial Cases, and Families with Service Needs (FWSN) juveniles” (Court Support Services Division, 2011).

CSSD reserves non-judicial processing for those with minor charges, no prior offenses (up to two court referrals that aren’t felonies, or SJOs), or Families with Service Needs cases. Non-judicial handling also requires that delinquents admit responsibility for their behavior and agree to CSSD recommendations, which can include non-judicial supervision or other community-based services. Approximately 60 percent of cases are handled in this way (Court Support Services Division, 2011).

Cases referred for judicial processing typically involve more serious offenses, prior delinquency charges, and/or an unwillingness to cooperate with CSSD recommendations. Forty percent of the cases reviewed by CSSD are judicially processed (Court Support Services Division, 2011). Cases referred to the courts are adjudicated delinquent, non-delinquent, FWSN or YIC. “The majority of convicted delinquents are placed on probation. The probation supervision plan includes a combination of conditions and treatment depending on the unique circumstances of the juvenile” (Management, 2011).

## **Juvenile Residential Programming**

A small proportion of adjudicated delinquents are disposed to secure residential facilities operated by the Connecticut Department of Children and Families (DCF). DCF “protects children who are being abused or neglected, strengthens families through support and advocacy, and builds on existing family and community strengths to help children who are facing emotional and behavioral challenges, including those committed to the Department by the Juvenile Justice System” (Connecticut Government, 2011). Connecticut statutes “provide for commitments to the Department of Children and Families (DCF) for a period of up to 18 months in non-SJO cases and up to a maximum of four years in Serious Juvenile Offense (SJO) cases” (Management, 2011). Residential programs fall into two categories: specialized commitment programs operated by contract providers and Connecticut Juvenile Training Schools (CJTS).

## **DCF and CSSD Strategic Plan**

In 2006, DCF and CCSD “recognized the need to engage in a joint strategic planning process to expand interagency management efforts to provide greater coordination and services on behalf of children, youth, and families involved with the juvenile justice system” (Child Welfare League of America, 2006, p. 4). The objectives of the interagency plan are to reduce the number of youth referrals to court, provide better services for at-risk and delinquent youth, and increase the use of evidence-based services throughout the continuum of Juvenile Justice programming. Successful implementation of the plan involves understanding the characteristics of at-risk and delinquent youth in the Connecticut juvenile justice system, pathways through the system, and the relative effectiveness of supervision and residential programming.

## Prior Research

Community-based sanctions for juvenile delinquents, such as probation or home-based treatment, are replacing more expensive and restrictive residential placements. These changes are due, in part, to budget constraints; but are also linked to new research documenting success among community-based alternatives to residential treatment. The research does not suggest that probation or community-based programs are appropriate for all troubled youth; commitment programs are still the most effective option for some delinquents.

Over the last 35 years, a body of literature on juvenile interventions featuring rigorous designs has accumulated and has now been systematically reviewed. Research has focused on which risk factors account for the greatest variability in antisocial behavior (Loeber, 1990; Huizinga, Esbensen & Weiher, 1991; Moffit, 1993; Sampson & Laub, 1994). Studies have likewise identified treatments which are most effective in mitigating these risk factors resulting in lower rates of recidivism (Lipsey & Wilson, 1998; Lowenkamp, Makarios, Latessa, Lemke & Smith, 2010). The number of investigations has grown, and the quality has improved to the extent that systematic reviews are now commonplace. Indeed, so many meta-analytic reviews have been produced from this body of literature that researchers are able to collect them and produce a “review of reviews” (Lipsey & Cullen, 2007). In view of the evidence, it can now be said with confidence that treatment programs are capable of reducing recidivism rates among serious offenders.

During the late 1980s, researchers such as Don Andrews and his colleagues (1990) began to assimilate correctional outcome studies and review them using meta-analytical techniques. They concluded that correctional treatment was effective at reducing recidivism, but that there was no “silver bullet” treatment appropriate for all offenders. They began to develop a

framework for principles of effective intervention to tailor an individualized, psychologically informed approach to delinquent conduct.

Along with other researchers including James Bonta, Robert Hoge and Paul Gendreau, Andrews developed the principles of risk, need and responsivity based on the results of meta-analytic reviews of the literature (Andrews and Bonta, 2006). Drawing from their studies, they pioneered a strategy for correctional interventions that began with assessing individuals for the risk to recidivate and targeting those at the highest risk, as a key to providing the greatest recidivism reduction effects. This reasoning can, in part, be traced to Wolfgang, Figlio and Sellin's (1975) seminal work documenting that a small number of offenders are responsible for the majority of criminal offending; as well as findings from the meta-analyses suggesting that disparity between the risk of the offender and intensity of correctional interventions may actually increase the likelihood for recidivism rather than reduce it (Andrews et al., 1990). By targeting dynamic personal, familial and social risk factors that are the strongest predictors for recidivism, as opposed to static, non-criminogenic needs; Andrews and his colleagues argued that greater success could be achieved, especially in view of scarce resources. As a key part of a cost-effective strategy, their research revealed which treatments for these risk factors were proven most effective. By matching offenders to treatment based on their individual risk and needs, and taking into account their learning style and personal characteristics; rehabilitative treatment could be made more efficient and effective.

One of the key principles, however, was that the treatments must be competently implemented with fidelity to their original design. Recent research by Lowenkamp, Makarios, Latessa, Lemke & Smith (2010) has shown that programs that embrace these principles tend to have lower recidivism rates. Matching offender characteristics to the types of commitment or

community-based programs that are effective at reducing those risks is the strategy most states are now adopting to control costs and achieve a greater return on investment. “One tactic under consideration by several states is the shift from a reliance on costly juvenile residential incarceration to less expensive, community-based programming for juvenile offenders. The critical questions become whether these alternatives to commitment effectively reduce recidivism and with whom are they effective?” (Early, Blankenship, & Chapman, 2011, p. 6).

Several studies document the relative benefits of utilizing less restrictive community-based interventions and/or probation services to reduce juvenile recidivism. For instance, Andrews et al. (1990) and Andrews and Bonta (2006) reported that community based programs had a larger effect on recidivism than residential facilities. They also found that the negative impact of inappropriate interventions was higher for those placed in commitment programs. Research by Mark Lipsey has produced mixed results. A 1998 study by Lipsey and Wilson reported no significant difference in outcomes between community-based services and residential commitments. However, Lipsey (1999) found that juvenile probation and parole effect sizes were larger than those for residential placements.

“Even though differences in efficacy between institutional and community-based programming have been found fairly consistently, the nature and quality of the services offered make a more powerful difference” (Early, Hand, Blankenship, & Chapman, 2011, p. 4). For instance, Lowenkamp, Latessa & Holsinger (2006), reported that there were no significant differences in the two intervention approaches. However, they did note that intervention effectiveness varied in accordance to with adherence to evidence-based practices. Latessa and Lowenkamp (2006) and Latessa et al. (2010) also demonstrated that targeted intervention based on risk, supervision and treatment needs, therapeutic approaches and models implemented with

fidelity were more effective at reducing recidivism than those that did not. Finally, Drake, Aos and Miller (2009) meta-analysis of over 500 correctional programs found a number of effective community-based treatment programs that were reasonably priced and demonstrated positive returns. Community-based options were significantly related to positive outcomes; however, the most powerful predictors of success were treatment type, quality and offender characteristics.

The research on effective correctional programming suggests that community-based services, such as probation or in-home interventions, can successfully reduce delinquency. Studies also demonstrate that programmatic success is based, in part, on implementation and adherence to the principles of effective intervention. This includes matching appropriate services to the specific needs of the at-risk or delinquent youth. The literature shows that community-based services are not suitable for all cases; and that in some instances residential placements are more effective at reducing delinquency.

Since 2006, DCF and CSSD have operated under a joint strategic plan to provide the most appropriate services for juvenile delinquents. This strategy includes empirically based assessment, suitable placements, evidence-based treatments, reliance on community-based services, and a collaborative approach to rehabilitation and supervision. This study of Connecticut probation and residential services is a preliminary evaluation of outcomes for youth in the juvenile justice system between 2005 and 2007. The analyses that follow will examine the characteristics of youth in the CJJS, their placements, recidivism outcomes, and pathways through the continuum of services.

### **Evaluation Methodology**

The Connecticut Judicial Branch, Court Support Services Division (CSSD) retained the Justice Research Center (JRC) to conduct an outcome evaluation of juvenile delinquents. While

many youth are appropriate for community-based interventions, more serious juvenile offenders may present with risks and needs that cannot be adequately addressed in a community-based setting. CSSD and DCF undertook the study to investigate the characteristics of youth in the CJJS, explore how these factors relate to recidivism, examine the effectiveness of probation and residential placements, and evaluate pathways through the continuum of care, and correlates of recidivism.

The Justice Research Center used a modified quasi-experimental post-test only (with non-equivalent groups) research design with a historical sample of probation and residential releases. Quasi-experimental methods are often used in the absence of random assignment, as is usually the case with historical sampling. This design allows for reliable statistical analysis of comparison groups by introducing control measures into the modeling process.

### **Research Questions**

The quantitative study examined the following research questions:

1. For those receiving supervision services, what factors or characteristics are related to recidivism?
2. For those receiving residential services, what factors or characteristics are related to recidivism?
3. Is probation supervision an effective alternative to residential placement for some juvenile delinquents?
4. What factors are predictive of placement in residential services (i.e. how are those who progress from community to residential programming different from those youth who do not)?

## Data

Establishing a methodology for evaluating the effectiveness of programs designed to prevent youths from further justice system involvement is a complex endeavor. Outcome evaluation research that involves the comparison of two or more treatment options is dependent on having a sufficient number of cases for analysis, and uniform information for all cases under study. For instance, when comparing youth who have been released from various services (community-based supervision, residential, parole) it is essential to have consistent outcome, risk/needs, demographic and offense information for all subjects included in the study, otherwise comparisons are limited. Further, it is important that the research design account for the various pathways juveniles take through the system and the services they receive. Probation supervision (CSSD) and residential care for juvenile offenders (DCF) is managed by different state agencies, requiring special and careful consideration of agency policies and data sources.

The evaluation team included representatives from CSSD, DCF and the JRC. The evaluation team met frequently over a two-year period to identify pertinent research questions, develop a research plan and identify data sources. The researchers also met regularly with CSSD and DCF to promote a thorough understanding of each agency's policies, clients, data collection procedures and how variations potentially impact the evaluation. Further, the JRC identified common data elements across the two agencies and worked with CSSD and DCF to establish matching protocols for linking information from one data source to another. Finally, CSSD and DCF developed a Memorandum of Understanding, which facilitated the collection of data for the project<sup>1</sup>.

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<sup>1</sup> For more information on the CSSD/DCF Memorandum of Understanding, please contact Peter Kochol at [Peter.Kochol@jud.ct.gov](mailto:Peter.Kochol@jud.ct.gov).

Evaluation data came from multiple sources: CSSD Case Management Information System (CMIS), the Connecticut Computerized Criminal History (CCH) records system, and the Connecticut DCF Information System. The following protocol outlines the process for collecting secondary data from CSSD and DCF. The procedure ensured client confidentiality, and compliance with CSSD and DCF information policies.

First, CSSD selected all youth disposed from court to either juvenile probation or commitment to residential placement from July 1, 2005 through June 30, 2007. From this sample, CSSD created a DCF dataset. The data file included only juveniles committed to DCF for residential placement via SCJM disposition, a unique randomly generated (non-CMIS) numeric identifier, and the client information required for DCF to match clients to their system (as specified by DCF in the amended MOU item 3e). The encrypted file was submitted to DCF analysts who supplied the following data elements: 1) Start date of commitment period; 2) placement type (CJTS or residential facility); 3) actual commitment date; 4) release date; and, 5) commitment termination date. The DCF file was then resubmitted to the CSSD researcher who constructed the final dataset with CSSD and DCF information. Finally, CSSD removed identifying information from the file, encrypted the information and delivered it to the JRC via a secure server connection.

### **Measures**

The final file included data on youth demographic characteristics such as age, race and gender. The files also included information on referral and offense history, dispositions, placements and risk and needs. Finally, juvenile and adult justice system involvement after release was provided by CSSD. A full list of measures in the final evaluation data set is presented in Appendix A.

## Demographics

The analysis includes measures of the clients' age at admission to the program, their gender (male or female) and race/ethnicity (black, white, Hispanic), as reported to CSSD. The evaluation also incorporates the delinquent's age at first offense. Information on the clients' hometown is also available for regional analysis.

## Placements

Unique probation and residential placement, and assignment duration, was calculated using standardized criteria. Information from CSSD and DCF showed considerable youth movement within the system, and many clients had more than one placement with multiple admission and release dates. Disposition data were used to define the type of placement: probation supervision or residential commitment. Then admission and release dates were used to define assignment duration. The beginning of probation or residential services was determined by the admission date provided in the data. The completion of services was established by the probation or residential placement end date. There were cases with release or end dates, and readmission dates, within 30 days of one another. In these cases if the placements were of the same type (probation or residential), they were coupled or added to the prior assignment. If the client was released from services, and not disposed to probation or residential programs within 30 days; any subsequent justice system assignment (additional probation or residential dispositions) was defined as a unique placement.

CSSD and DCF data systems do not record completion reasons, only release or end dates. Both agencies assume that those with a release or end date have successfully completed the terms of their probation or residential/commitment placement. There were no indicators of successful program completion. Therefore completion was defined as any youth released from a

residential facility or probation supervision, and not placed into a residential setting or supervision term within 30 days of program end date. Establishing a completion date ensures that the study captures subsequent justice system involvement after the youth completes the full intervention. Measuring youth outcomes from assignment date does not allow time for the program to impact behavior; and inflates recidivism rates.

### **Risk and Needs**

CSSD evaluates juvenile risk and need using the Juvenile Assessment Generic (JAG), a validated risk measurement instrument. The JAG measures criminal history, substance use, risk taking behaviors, family functioning, peer relationships, clients' stake in conformity, and personal values. Scores are aggregated into total protective and risk values. Summary scores are presented for criminal risk; substance use; family; peer and personal risk and protective domains.

The analysis also includes seriousness index scores for prior referrals and adjudications. These measures capture offense gravity for both prior referral/arrest and adjudication/conviction. A weighted system assigns point values to specific offense types. As crime seriousness increases, so does the seriousness score (violent felony = 8, property or other felony = 5, misdemeanors = 2, and other offenses = 1).

### **Justice System Outcomes**

Probation violations, juvenile referrals, adult arrests, and adjudications and convictions, are common indicators of involvement in the justice system. Referrals and arrests demonstrate client contact with law enforcement, and may point to deviant or delinquent behaviors. Whether the juvenile actually committed an offense is indicated by a subsequent adjudication or conviction. Adjudication is generally considered a more accurate measure of delinquent behavior and involvement with the juvenile or criminal justice systems, than referral or arrest.

Justice system outcomes are operationalized as (1) any juvenile adjudication or adult conviction, or (2) any juvenile referral or adult arrest within one year of placement completion. **Recidivism**, operationally defined as any adjudication or conviction within one year of program completion, is the primary focus of the assessment. Re-arrest analyses are presented in Appendix A for comparison to previous studies of Connecticut probation and residential services.

### Sample

The historical sample of probation and residential clients included all youth disposed from court to either juvenile probation or commitment to residential placement, and released between July 1, 2005 and June 30, 2007. Those who successfully complete either probation or commitment programming meet the criterion for the outcome analysis sample (N = 3,092). There were 2,823 probation releases during this time period; and 269 residential releases in this timeframe.

TABLE 1: PROBATION AND RESIDENTIAL SAMPLE

Total Releases July 1, 2005 - June 30, 2007	3,092
Probation Dispositions Completing Services	2,823
Residential Dispositions Completing Services	269
Total Outcome Evaluation Sample	3,092

### Procedures and Data Analysis

The program assessment incorporates the following analytic techniques: descriptive statistics, simple hypothesis testing (using t and chi square statistics), logistic regression and propensity score matching. Descriptive statistics demonstrate baseline sample characteristics and outcome measures. Simple hypothesis tests highlight differences in the two groups (probation and residential); and help determine which factors potentially affect youth outcomes.

Correlation coefficients are used to determine the association between key demographic and risk/need factors, and youth outcomes. Correlation coefficients range from -1 to 1. Modest associations range between 0 and (+/-) .2; values between (+/-) .3 and (+/-) .6 indicate a moderate relationship; and anything higher than (+/-) .7 shows a strong connection between two variables. A positive coefficient indicates that as one factor increases, so does the second variable. In contrast, negative correlations imply that as one variable increases, the other factor decreases.

Logistic regression, a more complex statistical tool, allows for more robust modeling of recidivism, a direct comparison of probation and residential outcomes; and prediction of placement type; while controlling for factors known to impact justice system involvement. The logistic regression results demonstrate the expected outcomes (or predicted probability) of recidivism or placement type; given the juveniles' demographic, risk, needs, legal, offense history and other extra legal factors. Analyses can then be conducted to predict the likelihood for future system involvement based on factors found in the research literature to be correlated with delinquency.

Finally, to ensure an equitable comparison between youth completing probation services and residential programming, a propensity score was calculated for all probation and residential completions. The propensity score estimates the probability of youth placement on probation supervision versus a residential program. Logistic regression was used to calculate these coefficients. The scores were then used to create a matched sample of probation and residential releases during the study time period. Propensity Score Matching (PSM) statistically controls for inherent differences between the two groups (probation and residential placements). In a typical application, PSM compensate for possible biases imposed under non-experimental conditions

(e.g., lack of randomization) by modeling the selection process related to the probability of receiving treatment, and then comparing outcomes for subjects with a similar likelihood but different actual rates of receiving treatment. The technique essentially controls for pre-program differences in juvenile offenders that could impact the probability of receiving services and the potential effect of the treatment. While utilizing a smaller sample (N = 152), having equal or comparable groups allows for a more meaningful and valid exploration of probation as an alternative to residential placement.

### **Youth Profile**

This section profiles the outcome evaluation sample of youth disposed to probation and/or residential services, and released between July 1, 2005 and June 30, 2007. This analysis provides a basic description of these youth, their risk and needs, and prior offending. Youth outcomes for probation and residential placements are also considered in Exhibits 1 and 2.

### **Demographic, Prior History and Risk/Needs**

Table 2 presents summary statistics for probation clients released from services between July 1, 2005 and June 30, 2007. The sample is comprised primarily of male youth (approximately 76 percent); and 34 percent of the study group is white. The average age at first offense for all probation releases in the sample is 13 years of age. The average prior referral seriousness index score for all releases is 25 (the range is 1 to 300). The average prior adjudication seriousness index range is 1 to 385; and the average for all releases is 17. The average Juvenile Assessment Generic (JAG) risk and protective scores are 13 and 35, respectively.

**TABLE 2: PROBATION SAMPLE DESCRIPTIVE STATISTICS**

<i>Probation Releases July 1, 2005 - June 30, 2007 (N=2,823)</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>St. Dev.</i>
Age at first offense	6.15	17.47	13.14	1.75
Gender (0=Female, 1=Male)	0.00	1.00	0.76	0.43
Race (0=Other, 1=White)	0.00	1.00	0.34	0.47
Prior charge seriousness index	1.00	300.00	25.02	27.69
Prior adjudication seriousness index	1.00	385.00	17.13	22.93
JAG Total Risk Score	1.00	36.00	13.45	6.23
JAG Total Protective Score	0.00	57.00	34.77	6.97
JAG Total Criminal Score	0.00	5.00	0.97	1.10
JAG Total Substance Use Risk Score	0.00	9.00	0.98	1.58
JAG Total Substance Use Protective Score	0.00	12.00	10.23	2.21
JAG Total Family Risk Score	0.00	10.00	3.41	2.09
JAG Total Family Protective Score	0.00	9.00	4.42	1.90
JAG Total Peer Risk Score	0.00	13.00	4.98	3.10
JAG Total Peer Protective Score	0.00	27.00	14.61	4.00
JAG Total Personal Risk Score	0.00	10.00	3.10	2.00
JAG Total Personal Protective Score	0.00	9.00	5.52	1.66

Demographic, offense seriousness and JAG assessment statistics for the commitment sample (N=269) are presented in Table 3. Most of the releases in the sample were male (81 percent) youth. More than half of the releases were non-white (78 percent). The average age at first offense was approximately 12 years old. The average prior referral seriousness index score for all releases is 54 (the range is 4 to 234). The average prior adjudication seriousness index range is 1 to 180; and the average for all releases is 34. The average Juvenile Assessment Generic (JAG) risk and protective scores are 17 and 31, respectively.

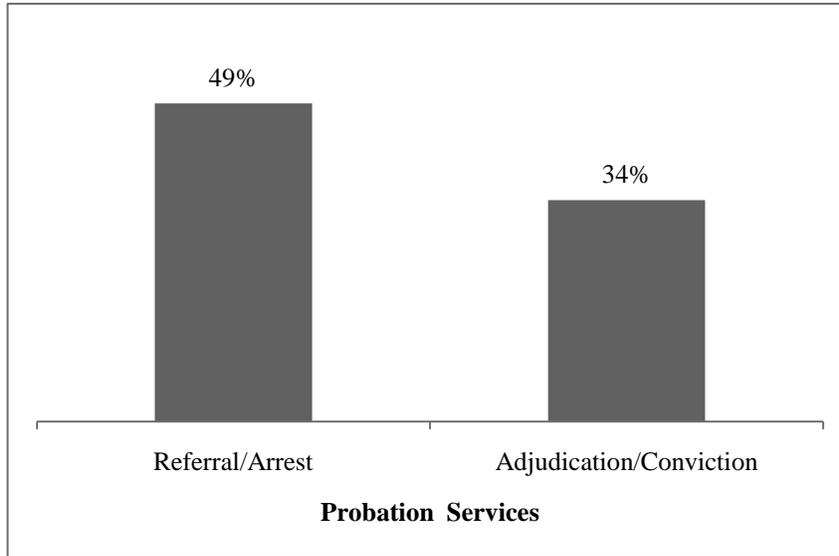
**TABLE 3: RESIDENTIAL SAMPLE DESCRIPTIVE STATISTICS**

<i>Residential Releases July 1, 2005 - June 30, 2007 (N = 269)</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>St. Dev.</i>
Age at first offense	6.52	16.38	12.06	1.87
Gender (0=Female, 1=Male)	0.00	1.00	0.81	0.40
Race (0=Other, 1=White)	0.00	1.00	0.22	0.42
Prior charge seriousness index	4.00	234.00	53.83	40.29
Prior adjudication seriousness index	1.00	180.00	33.80	29.62
JAG Total Risk Score	3.00	34.00	16.58	7.33
JAG Total Protective Score	10.00	52.00	30.92	7.62
JAG Total Criminal Score	0.00	5.00	1.29	1.20
JAG Total Substance Use Risk Score	0.00	9.00	1.24	2.02
JAG Total Substance Use Protective Score	3.00	12.00	9.93	2.52
JAG Total Family Risk Score	0	9	3.83	2.295
JAG Total Family Protective Score	0	9	3.55	1.98
JAG Total Peer Risk Score	0	13	6.24	3.408
JAG Total Peer Protective Score	1	25	12.67	4.467
JAG Total Personal Risk Score	0	8	3.98	2.054
JAG Total Personal Protective Score	0	8	4.76	1.75

### **Justice System Involvement**

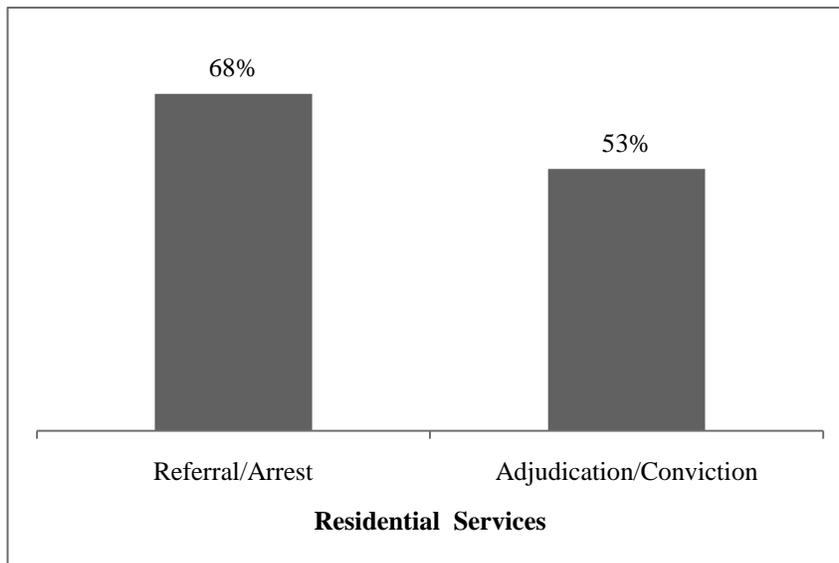
Exhibits 1 and 2 present the justice system involvement for youth completing probation and residential services in fiscal years 2005-07, respectively. Of the 2,823 probation releases, 49 percent had a juvenile referral or adult arrest within one year of program completion. Thirty-four percent of all releases had a juvenile adjudication or adult conviction within one year of completing probation services.

### EXHIBIT 1: PROBATION COMPLETIONS - JUSTICE SYSTEM OUTCOMES



Of the 269 residential releases, 68 percent had a juvenile referral or adult arrest within one year of program completion. Fifty-three percent of all releases had a juvenile adjudication or adult conviction within one year of completing commitment programs.

### EXHIBIT 2: RESIDENTIAL COMPLETIONS - JUSTICE SYSTEM OUTCOMES



## Results

The following statistical analyses examined probation and residential information drawn from CSSD and DCF data systems. Client and program information was included in the assessment, as well as offense history, demographics and youth risk and needs. The study results provide answers to the following questions:

1. For those receiving supervision services, what factors or characteristics contribute to recidivism?
2. For those receiving residential services, what factors or characteristics contribute to recidivism?
3. Is probation supervision an effective alternative to residential placement for some juvenile delinquents?
4. What factors are predictive of placement in residential services (i.e. how are those who progress from community to residential programming different from those youth who do not)?

## Probation Outcomes

There are several key indicators of recidivism for delinquent youth who receive probation services. The significant results, shown in Table 4, demonstrate the correlation between client characteristics, offense history and risk and needs; and recidivism. The analyses show that race has the strongest correlation with recidivism; followed by JAG Peer Protective and Risk scores. Age at first offense is also significantly related to recidivism, as is gender and other measures of probation client risk and needs. All of the presented variables are significantly associated with recidivism; however, all coefficients imply minor relationships between the factors and juvenile adjudication or adult conviction.

TABLE 4: PROBATION – CORRELATES OF RECIDIVISM

Correlation: Demographic, Risk/Needs, Prior History and Recidivism	Correlation Coefficient
Race (0=Other, 1=White)	-0.13
JAG Total Peer Protective Score	-0.12
JAG Total Peer Risk Score	0.12
Age at first offense	-0.12
JAG Criminal Risk Score	0.12
Total misdemeanor charges before program	0.12
Total charges before program	0.10
JAG Total Protective Score	-0.10
Gender (0=Female, 1=Male)	0.08
JAG Total Risk Score	0.08
Total misdemeanor adjudicated charges before program	0.08
Total adjudicated delinquent charges before program	0.08
Total adjudicated charges before program	0.07
Index of prior referral seriousness	0.07
JAG Total Personal Protective Score	-0.05
JAG Total Family Protective Score	-0.05
Length of stay	0.04

Logistic regression, a more complex statistical tool, allows for a more robust analysis of factors related to recidivism for those released from probation services by controlling for factors known to impact juvenile recidivism including age, race, gender, risk and needs, and prior record. The logistic regression results demonstrate the expected outcomes (or predicted probability) of recidivism given the juveniles’ demographic, risk, needs, legal, offense history and other extra legal factors. Results, shown in Table 5, show that the odds of recidivism are higher for male and non-white probation releases. In addition, the odds of recidivism are substantially higher for those first arrested at a younger age. Higher JAG Peer Protective scores significantly lower the odds of recidivism; while higher Criminal Risk scores substantially increase the probability of adult conviction or juvenile adjudication. The referral index and Family Protective scores were not significantly associated with predicted recidivism.

**TABLE 5: PROBATION – PREDICTED RECIDIVISM**

Probation Recidivism	Coefficient	S.E.	Sig.	Exp(B)
<b>Age at first offense</b>	<b>-0.07</b>	<b>0.03</b>	<b>0.00</b>	<b>0.93</b>
Referral Index	0.00	0.00	0.12	1.00
<b>Gender (0=Female, 1=Male)</b>	<b>0.45</b>	<b>0.11</b>	<b>0.00</b>	<b>1.56</b>
<b>Race (0=Other, 1=White)</b>	<b>-0.54</b>	<b>0.10</b>	<b>0.00</b>	<b>0.58</b>
<b>JAG Peer Protective Score</b>	<b>-0.05</b>	<b>0.01</b>	<b>0.00</b>	<b>0.95</b>
<b>JAG Criminal Risk Score</b>	<b>0.14</b>	<b>0.04</b>	<b>0.00</b>	<b>1.15</b>
JAG Family Protective Score	0.00	0.03	0.87	1.00

### **Residential Outcomes**

The results shown in Table 6, demonstrate the correlation between client characteristics, offense history and risk and needs; and recidivism for residential releases. All variables in the table are significantly related to recidivism (insignificant correlations are not shown). The analyses show that total number of prior misdemeanor charges has the strongest correlation with recidivism; followed by total charges before the program, and other measures of prior offending. Gender also has a modest association with recidivism for youth released from residential placements. The prior referral index, age at first offense and other measures of risk, need and prior offending are also significantly correlated with recidivism; however, the coefficients imply small associations between the variables.

**TABLE 6: RESIDENTIAL – CORRELATES OF RECIDIVISM**

Correlation: Demographic, Risk/Needs, Prior History and Recidivism	Correlation Coefficient
Total misdemeanor charges before program	0.23
Total charges before program	0.22
Total misdemeanor adjudicated charges before program	0.21
Total adjudicated delinquent charges before program	0.20
Total adjudicated charges before program	0.20
Gender (0=Female, 1=Male)	0.20
Index of prior referral seriousness	0.18
Age at first offense	-0.18
Category of worst adjudication	-0.18
Index of prior adjudication seriousness	0.16
Race (0=Other, 1=White)	-0.16
Total felony charges before program	0.13
Total felonies adjudicated charges before program	0.12
Category of worst referral	-0.12
JAG Total Substance Use Protective Score	-0.08
JAG Criminal Risk Score	0.08
Commitment age	-0.08

The logistic regression results establish the expected outcomes (or predicted probability) of recidivism given the juveniles’ demographic, risk, needs, legal, offense history and other extra legal factors. The logistic regression results (Table 7) indicate that the predicted odds of recidivism are higher for males and those with more charges prior to residential placement. The probability of recidivism also significantly increases as the age at first offense decreases. Race is not a significant factor in predicted recidivism. There were not enough residential releases with JAG data to compute the impact of youth risk and needs on predicted recidivism.

**TABLE 7: RESIDENTIAL – PREDICTED RECIDIVISM**

Residential Recidivism	Coefficient	S.E.	Sig.	Exp(B)
<b>Age at first offense</b>	<b>-0.12</b>	<b>0.07</b>	<b>0.10</b>	<b>0.88</b>
<b>Gender (0=Female, 1=Male)</b>	<b>0.65</b>	<b>0.35</b>	<b>0.06</b>	<b>1.92</b>
Race (0=Other, 1=White)	-0.48	0.32	0.13	0.62
<b>Total charges before program</b>	<b>0.03</b>	<b>0.02</b>	<b>0.05</b>	<b>1.03</b>

## Alternatives to Residential Placement

If probation services are effective alternatives to residential placement, one would expect comparable or better outcomes for probation clients that ‘look’ like residential commitments. PSM was used to create 76 pairs of similar probation and residential clients. The sample was limited to youth with unique placements (excluding those with both probation and residential dispositions during the study period), and those with complete risk and needs data. PSM identified 76 probation and 76 residential clients with comparable demographic, risk and needs and prior history profiles. The descriptive statistics in Tables 8 and 9 demonstrate the similarities between the two groups.

**TABLE 8: MATCHED SAMPLE ANALYSIS – PROBATION RELEASES**

<i>Probation Releases July 1, 2005 - June 30, 2007 (N=76)</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>St. Dev.</i>
Age at first offense	6.95	15.62	11.94	2.28
Gender (0=Female, 1=Male)	0.00	1.00	0.82	0.39
Race (0=Other, 1=White)	0.00	1.00	0.28	0.45
Prior charge seriousness index	7.00	192.00	64.75	59.04
Prior adjudication seriousness index	2.00	166.00	42.54	46.88
Worst referral before program (0=Non-violent, 1=Violent)	0.00	1.00	0.33	0.47
JAG Total Risk Score	3.00	36.00	16.31	6.28
JAG Total Protective Score	12.00	51.00	32.97	6.26
JAG Total Criminal Score	0.00	5.00	1.32	1.41
JAG Total Substance Use Risk Score	0.00	7.00	1.15	1.59
JAG Total Substance Use Protective Score	4.00	12.00	9.94	2.10
JAG Total Family Risk Score	0.00	10.00	3.96	2.21
JAG Total Family Protective Score	1.00	8.00	4.28	1.48
JAG Total Peer Risk Score	0.00	13.00	6.15	3.25
JAG Total Peer Protective Score	0.00	23.00	13.56	3.60
JAG Total Personal Risk Score	0.00	7.00	3.72	2.06
JAG Total Personal Protective Score	2.00	9.00	5.18	1.51

**TABLE 9: MATCHED SAMPLE ANALYSIS – RESIDENTIAL RELEASES**

<i>Residential Releases July 1, 2005 - June 30, 2007 (N = 76)</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>St. Dev.</i>
Age at first offense	8.31	13.80	11.33	1.27
Gender (0=Female, 1=Male)	0.00	1.00	0.89	0.31
Race (0=Other, 1=White)	0.00	1.00	0.26	0.44
Prior charge seriousness index	8.00	138.00	57.64	32.88
Prior adjudication seriousness index	4.00	106.00	36.80	26.53
Worst referral before program (0=Non-violent, 1=Violent)	0.00	1.00	0.55	0.50
JAG Total Risk Score	3.00	30.00	15.86	7.21
JAG Total Protective Score	10.00	52.00	31.39	7.65
JAG Total Criminal Score	0.00	4.00	1.17	1.12
JAG Total Substance Use Risk Score	0.00	8.00	1.03	1.82
JAG Total Substance Use Protective Score	3.00	12.00	10.00	2.53
JAG Total Family Risk Score	0.00	9.00	3.74	2.35
JAG Total Family Protective Score	0.00	9.00	3.64	1.98
JAG Total Peer Risk Score	0.00	13.00	6.04	3.56
JAG Total Peer Protective Score	1.00	25.00	12.93	4.48
JAG Total Personal Risk Score	0.00	8.00	3.88	2.03
JAG Total Personal Protective Score	0.00	8.00	4.82	1.64

Statistical comparison of the two groups reveal that there are significant differences, even after propensity matching, in terms of age at first offense, violent or non-violent prior charges, and JAG Family Protective Scores. The disparity suggests that residential clients are higher risk than probation placements. Logistic modeling further explored the relationship between placement type and youth outcomes. The predictive model controls for age at first offense, prior charge type (non-violent or violent) and JAG Family Protective Score. The results affirm that residential placements have significantly higher recidivism rates when compared to probationers. In addition, as age at first offense decreases, the odds of recidivism substantially increase.

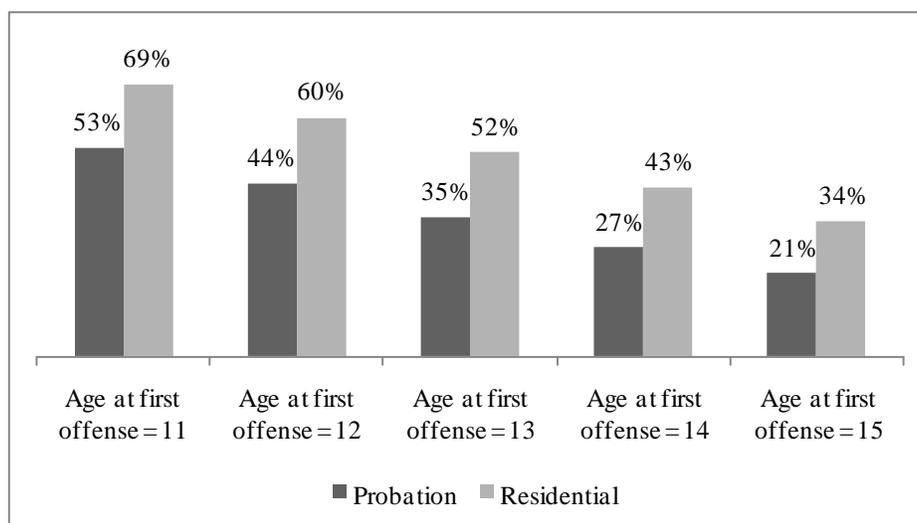
**TABLE 10: MATCHED SAMPLE ANALYSIS – PREDICTED RECIDIVISM**

<b>Probation/Residential Recidivism</b>	<b>Coefficient</b>	<b>S.E.</b>	<b>Sig.</b>	<b>Exp(B)</b>
Probation or Residential Placement (0=Probation, 1=Residential)	<b>0.68</b>	<b>0.37</b>	<b>0.07</b>	<b>1.96</b>
Age at first offense	<b>-0.36</b>	<b>0.10</b>	<b>0.00</b>	<b>0.70</b>
Violent or nonviolent prior charges (0=Non-violent, 1=Violent)	-0.39	0.37	0.29	0.68
JAG Family Protective Score	0.00	0.10	0.99	1.00

Propensity score matching and the logistic analyses allow for an “apples to apples” comparison of probation and residential placements. The results show that probationers with similar risk, demographic and offense histories as residential clients have better recidivism outcomes after program completion. The predicted probability of recidivism for residential releases (all other factors held constant) is 66 percent; and 50 percent for probation releases. These findings suggest that probation services are a viable alternative to residential placement for some juvenile delinquents.

Determining which residential placements are likely to benefit from alternative probation services is not possible given the small sample in this analysis. However, the significant association between age at first offense and recidivism points to a possible consideration in policy and programming decisions. Exhibit 3 demonstrates the predicted probability of recidivism (holding constant prior charge type and JAG Family Protective Scores) by placement type and age at first offense.

**EXHIBIT 3: PREDICTED RECIDIVISM BY PLACEMENT AND AGE AT FIRST OFFENSE**



The chart illustrates that increasing the age of first offense has a dramatic impact of predicted recidivism. A probation client who was 11 years old when they committed their first offense, had a non-violent offense history and average Family Protective Scores; has a 53 percent probability of recidivism. Keeping that same client out of the system until they are 15 decreases the probability of adult conviction or juvenile adjudication after probation completion to 21 percent. That represents a 32 percent reduction in recidivism. The predicted probability of recidivism for residential releases is 69 percent for a youth who is:

- 11 years old at first offense;
- has a non-violent offense history; and,
- average Family Protective Scores.

Increases the age of first offense to 15 years old, reduces the probability of recidivism to 34 percent for the same youth.

### **Predicting System Escalation**

Understanding the progression of at-risk youth through the juvenile justice continuum of services is essential to providing appropriate interventions. The following analysis examines the characteristics of youth whose justice system involvement escalates from probation to residential placement. The demographic, prior justice involvement, offense seriousness and JAG assessment information is presented in Table 11 for all probation and residential completions in the study sample without commitment dispositions prior to July 1, 2005 (N=2,807). The findings demonstrate that there are significant differences (marked with and \* in the table) between probation and residential placements in terms of age at first offense, race, JAG Total and Criminal Risk scores, Substance Use and Personal Risk indicators, and Family Protective

and Risk scores. Youth who progress from probation to residential placement are younger at first offense, more likely to be non-white, have fewer protective factors and higher risk scores.

**TABLE 11: POST RELEASE COMMITMENT DESCRIPTIVE STATISTICS**

<i>Releases July 1, 2005 - June 30, 2007</i>	Probation (N=2,724)	Committed (N=83)
	<i>Mean</i>	<i>Mean</i>
Age at first offense*	13.18	12.33
Gender (0=Female, 1=Male)	0.76	0.75
Race (0=Other, 1=White)*	0.34	0.20
Prior charge seriousness index	22.15	19.11
Prior adjudication seriousness index	15.43	12.64
JAG Total Risk Score*	13.36	15.29
JAG Total Protective Score	34.82	34.02
JAG Total Criminal Score*	0.96	1.33
JAG Total Substance Use Risk Score	0.98	0.69
JAG Total Substance Use Protective Score*	10.22	10.98
JAG Total Family Risk Score*	3.38	4.23
JAG Total Family Protective Score*	4.45	3.65
JAG Total Peer Risk Score	4.96	5.42
JAG Total Peer Protective Score	14.63	14.17
JAG Total Personal Risk Score*	3.08	3.62
JAG Total Personal Protective Score	5.53	5.21

Additional logistic analyses model the relationship between age at first offense, gender, race and JAG Family Protective Score; and residential placement within one year of completing probation terms. As the age at first offense decreases, the probability or odds of residential placement increases. White juveniles placed on probation are less likely to be committed within one year of program completion. Finally, the odds of residential placement are lower for those with higher Family Protective scores.

**TABLE 12: PREDICTING RESIDENTIAL PLACEMENT**

	<u>Coefficient</u>	<u>S.E.</u>	<u>Sig.</u>	<u>Exp(B)</u>
<b>Age at first offense</b>	<b>-0.27</b>	<b>0.07</b>	<b>0.00</b>	<b>0.76</b>
<b>Race (0=Other, 1=White)</b>	<b>-0.85</b>	<b>0.39</b>	<b>0.03</b>	<b>0.43</b>
<b>JAG Family Protective Score</b>	<b>-0.20</b>	<b>0.10</b>	<b>0.04</b>	<b>0.82</b>
JAG Total Risk Score	0.01	0.03	0.75	1.01

## Discussion and Recommendations

### Summary of results

Initial analyses focused on the impact of various youth characteristics, offending patterns, and risk and needs domains on justice system outcomes for those released from probation or residential services. The goal was to identify which factors had a significant relationship with recidivism outcomes. For both groups, there was a non-trivial association between age at first offense, race, gender, offense history and recidivism. For probation releases, Peer Protective and Risk scores were also significantly related to adult conviction or juvenile adjudication within one year of program completion. Offense history measures, for residential releases, were the largest correlates to recidivism outcomes.

Logistic analysis, which moves from observed to predicted recidivism outcomes, controls for factors such as age, race, gender, prior offending, and risk and need. These analyses indicate that for probation releases, age, gender and race significantly impact the probability of recidivism. Further, Peer Protective and Criminal Risk scores also affect recidivism odds. Sample size and missing risk and needs data limited the residential logistic analyses. However, age, gender and number of prior charges all significantly impact the probability of juvenile adjudication or adult conviction within one year of program completion.

These findings suggest that there are some clear differences, and similarities, in the factors related to recidivism for probation and residential releases. It is noteworthy that the prior offending measure was a significant factor in predicting recidivism for residential releases; but not probation cases. The probation model also demonstrates that programming should focus on strengthening peer protection and reducing criminogenic risk; as both impact recidivism. The

consistent negative association between age at first offense and future offending supports the need for preventative programming to stop at-risk youth involvement with the justice system.

Through PSM and logistic analyses, the study explored probation as an alternate to more restrictive residential placements. The assessment demonstrated that residential placements have higher rates of actual and predicted recidivism; holding constant demographic, risk/need and offense history. The matched sample analysis also highlighted the role of age at first offense on predicted recidivism. Younger at-risk youth who become officially involved in the justice system have significantly higher odds of recidivism than those who stay out of the system longer. The modeling process further established that probation supervision is a viable alternative to residential placement for some juvenile offenders. Unfortunately, the sample size limited more detailed analyses of which residential placements were appropriate for probation supervision.

The final analyses examined differences between probationers with and without residential placements within one year of completing their supervision term. System escalation is related age at first offense, race and risk and needs. Those who progress through the system to residential services are younger at the time of their first offense, are typically minorities, and have fewer protective factors and greater risk indicators. Predicting residential placement for youth placed on probation concluded the assessment. The logistic model indicates that age at first offense, race and Family Protective scores are all significant predictors of residential placement after probation completion.

The study examined how individual characteristics, prior offending, program placement, and risk and needs impacted recidivism and system escalation. The findings consistently point to age at first offense, gender, race and risk and protective factors as key contributors to future offending, justice system involvement and progression through the continuum of services. These

results underscore the importance of prevention efforts and delaying system involvement as long as possible. The study also documents that recidivism and system escalation can be addressed with gender appropriate services, and programs that increase protective factors and reduce risk. Finally, for some delinquent youth, probation services are a practical option to residential placement.

### **Limitations**

Data collection during the study timeframe was limited to the variables presented in Appendix A. Information on the specific interventions utilized in each case, and/or the frequency and intensity of the treatment were not available. This limits the discussion in important ways. First, it is possible that outcomes differences are related to the type of intervention commonly used (for example, family treatments or substance use programming) at the time; as opposed to probation or residential placement. In addition, this information would be beneficial in further understanding the best approach to reducing recidivism given a clients specific criminogenic, family, peer and personal risk and protective factors.

The residential analysis was also restricted by the absence of key risk and need information. Roughly, two-thirds of the residential sample did not have JAG data, and key risk and needs indicators were not available for statistical analyses. As a result, the logistic modeling did not control for client risk and needs in predicting recidivism. The findings should be interpreted with caution since factors commonly associated with post release success were not included in the modeling process.

The direct comparison of similar residential and probation placements did include a variety of factors correlated with recidivism. However, the sample was limited to 76 matched pairs. PSM and logistic regression produced valid results, but further investigation with a larger

population is needed to verify the findings and further explore probation as an alternative to residential placement. Finally, the analyses and sample size only allow for a preliminary understanding of how and why some delinquents escalate from supervision to residential commitment. Addressing risk taking behaviors and reducing system involvement is dependent on:

- Utilizing prevention and early non-judicial intervention programming;
- Targeting youth when they first begin to display deviant or anti-social behavioral problems; and/or, when they exhibit criminogenic or other risk factors that may be predictive of future justice contact;
- Matching the appropriate service with the unique needs of each client; and,
- Developing a range of effective programming and service options for the younger at-risk juvenile.

## **Recommendations**

This study marks an important first step in understanding justice system involvement for juveniles placed on probation supervision or assigned to residential programs. Discerning which factors are predictive of recidivism and system escalation is essential to targeted, evidence-based, effective and efficient interventions. The assessment highlights some of the key indicators of youth success after program completion, and points to important programming considerations.

Future research efforts on the delinquency prevention and intervention efforts of CSSD and DCF should focus on increased collaboration between the agencies and improved data collection. Increasing joint empirical investigations will ensure that the research addresses the specific needs of each agency. Partnering together to create common data collection procedures and consistent system measures will enhance the quality of client information and facilitate

future evaluations. Future research should focus on complete client risk and needs information, detailed service records and consistent measures of program success.

Finally, this evaluation started a discussion on the joint efforts of CSSD and DCF to address the needs of delinquent and at-risk youth. The study produced a new data sharing agreement between the agencies, and a model for additional collaborative research projects. CSSD and DCF should continue these efforts in the future to ensure that the system is providing appropriate and effective services for vulnerable and delinquent youth in Connecticut.

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## Appendix A: Evaluation Measures

### ***Demographic Characteristics***

Gender (0=Female, 1=Male)

Race (0=Other, 1=White)

Commitment Age

Age at first offense

### ***Program Measures***

Length of stay

Placement Type (Probation, Residential or Both)

### ***Offense History***

Index of prior referral seriousness

Index of prior adjudication seriousness

Total charges before program

Total felony charges before program

Total misdemeanor charges before program

Total adjudicated charges before program

Total adjudicated delinquent charges before program

Total adjudicated FWSN before program

Total adjudicated YIC before program

Total felonies adjudicated charges before program

Total misdemeanor adjudicated charges before program

Category of worst referral before program

Category of worst adjudication before program

### ***Risk and Needs Indicators***

JAG Total Risk Score

JAG Total Protective Score

JAG Criminal Risk Score

JAG Total Substance Use Risk Score

JAG Total Substance Use Protective Score

JAG Total Family Risk Score

JAG Total Family Protective Score

JAG Total Peer Risk Score

JAG Total Peer Protective Score

JAG Total Personal Risk Score

JAG Total Personal Protective Score

### ***Offenses During Intervention***

Total number of juvenile charges during supervision  
Total number of FWSN charges during supervision  
Total number of YIC charges during supervision  
Total number of juvenile charges during supervision adjudicated  
Total number of FWSN charges during supervision adjudicated  
Total number of YIC charges during supervision adjudicated  
Had a juvenile charge during supervision  
Offense during supervision was adjudicated  
Worst juvenile charge type during supervision  
Worst juvenile charge during supervision  
Worst juvenile charge during supervision that was adjudicated

### ***Six Month Justice System Involvement***

Juvenile referral or adult arrest within 6 months  
Juvenile adjudication or adult conviction within 6 months  
Referral within 6 months of program completion  
Felony referral within 6 months of program completion  
FWSN charge within 6 months of program completion  
YIC charge within 6 months of program completion  
Adjudicated for delinquency charge within 6 months of program completion  
Felony adjudication within 6 months of program completion  
Adjudication for FWSN charge within 6 months of program completion  
Adjudication for YIC charge within 6 months of program completion  
Worst charges within in 6 months  
Worst adjudicated charge within 6 months  
Adult arrest within 6 months after program completion  
Adult conviction within 6 months of program completion

### ***One Year Justice System Involvement***

Referral within 1 year of program completion  
Felony referral within 1 year of program completion  
FWSN charge within 1 year of program completion  
YIC charge within 1 year of program completion  
Juvenile adjudication within 1 year of program completion  
Juvenile felony adjudication within 1 year of program completion  
Juvenile FWSN adjudication within 1 year of program completion  
Juvenile YIC adjudication within 1 year of program completion  
Category of worst referral within 1 year of program completion  
Most serious adjudication Within 1 year of program completion  
Adult arrest within 1 year after program completion  
Adult conviction within 1 year of program release  
Juvenile referral or adult arrest within one year  
Juvenile adjudication or adult conviction within one year

## Appendix B: Juvenile Re-Arrest

There are several key indicators of re-arrest within one year for delinquent youth who receive probation services. The significant results, shown in Table 13, demonstrate the correlation between client characteristics, offense history and risk and needs; and re-arrest. The analyses show that total misdemeanor charges before probation placement has the strongest correlation with adult arrest or juvenile referral. This is followed by JAG Peer Protective scores and age at first offense. All of the presented variables are significantly associated with re-arrest; however, all coefficients imply minor relationships between the factors and juvenile referral or adult arrest within one year of probation completion.

TABLE 13: PROBATION – CORRELATES OF ARREST/REFERRAL

Correlation: Demographic, Risk/Needs, Prior History and Arrest/Referral	Correlation Coefficient
Total misdemeanor charges before program	0.15
JAG Total Peer Protective Score	-0.14
Age at first offense	-0.13
Total charges before program	0.13
Race (0=Other, 1=White)	-0.13
JAG Total Peer Risk Score	0.13
JAG Total Protective Score	-0.11
JAG Total Risk Score	0.10
JAG Criminal Risk Score	0.10
Total misdemeanor adjudicated charges before program	0.10
Total adjudicated delinquent charges before program	0.09
Total adjudicated charges before program	0.09
Index of prior referral seriousness	0.07
JAG Total Personal Risk Score	0.07
JAG Total Family Protective Score	-0.06
JAG Total Personal Protective Score	-0.06
Gender (0=Female, 1=Male)	0.06
Length of stay	0.05
Index of prior adjudication seriousness	0.04
Commitment Age	0.02
Total felony charges before program	0.02

The analyses show (Table 14) that the total number of prior misdemeanor charges has the strongest correlation with juvenile referral or adult arrest within one year of completing a residential program. Gender and age at first offense also have modest associations with re-arrest for youth released from residential placements. Other measures of prior offending and race are also significantly correlated with recidivism; however, the coefficients imply small associations between the variables.

**TABLE 14: RESIDENTIAL – CORRELATES OF ARREST/REFERRAL**

Correlation: Demographic, Risk/Needs, Prior History and Arrest/Referral	Correlation Coefficient
Total misdemeanor charges before program	0.22
Total charges before program	0.20
Gender (0=Female, 1=Male)	0.15
Age at first offense	-0.15
Total adjudicated charges before program	0.15
Total adjudicated delinquent charges before program	0.15
Index of prior referral seriousness	0.14
Race (0=Other, 1=White)	-0.14
Index of prior adjudication seriousness	0.12

Finally, the juvenile referral or adult arrest rate, within one year of program completion, for the total sample of probation placements is 49 percent. This is consistent with prior research on juvenile delinquents disposed to probation supervision in Connecticut. The findings from five previous evaluations of juvenile delinquent arrest rates are presented in Table 15 to provide context for the current assessment. While the analysis results are generally consistent with prior studies; there are significant variations in study design and measurement among these evaluations. This prevents direct comparison of the re-arrest rates among these studies; and these results should not be used as trend indicators or to draw conclusions about system effectiveness.

TABLE 15: JUVENILE RE-ARREST RATE STUDIES

Author	12 Month Juvenile Probation Re-arrest Rate
Dougherty (2002)	29%
Dougherty (2002)	36%
J-SAT (2007)	42%
Lyon (2000)	58%
Lyon (2000)	62%
Ryon, Early & Hand (2011)	49%