Diverting Multi-Problem Youth from Juvenile Justice: Investigating the Importance of Community Influence on Placement and Recidivism

Zachary K. Hamilton, M.A.,* Christopher J. Sullivan, Ph.D.,† Bonita M. Veysey, Ph.D.‡ and Michele Grillo, M.A.§

In the U.S., diversion has increasingly become one of the most utilized alternatives to detention of delinquent youth. Programs providing diversion can vary greatly. Variations in program design make it difficult to evaluate the effectiveness of program outcomes. Utilizing hierarchical linear modeling, this study examines variations in outcome for ten program sites of the New York State MH/JJ Diversion Project. Program and youth predictors were evaluated on two outcomes: out-of-community placement and recidivism. At the individual level, significant mental health and substance abuse problems, age, prior placements, and use of wraparound funds were predictive of youth placements, while significant substance abuse problems were predictive of recidivism. Program variations were found to have a significant impact on youth outcomes. Specifically, sites providing direct (or “in house”) care had significantly reduced rates of placement. Study results and implications for future research are discussed. Copyright © 2006 John Wiley & Sons, Ltd.

INTRODUCTION

The 1980s witnessed a substantial growth in juvenile arrests, with this trend peaking in 1994 (Synder, 2003). This trend became the driving force for policy changes in the

*Correspondence to: Zachary K. Hamilton, M.A., Rutgers University—School of Criminal Justice, 123 Washington Street, Newark, NJ 07102, U.S.A. E-mail: zhamilto@pegasus.rutgers.edu
†Assistant Professor, Department of Criminology, University of South Florida.
‡Rutgers University—School of Criminal Justice.
§Rutgers University—School of Criminal Justice.

Data for this article were drawn from a study funded by New York State Office of Children and Family Services under contract to Rutgers University—Newark Center for Justice and Mental Health Research. Points of view and conclusions expressed herein are those of the authors and do not necessarily reflect the positions or policies of the New York State Office of Children and Family Services. The research is in compliance with federal and university human subjects protections. Rutgers University, Office of Research and Sponsored Programs, Approval No. E001-007.

juvenile justice system during the 1980s and 1990s, which moved away from rehabilitation and treatment, and toward offender accountability and community protection. These changes contributed to the overcrowding of juvenile institutions nationwide (Shelden, 1999). Even though the arrest rates for juvenile violent crimes declined by 44% from 1994 to 2001 (Synder, 2003), the proportion of these arrests referred to juvenile court has continually increased from 1990 to 2001 from 64 to 72% (Synder, 2003). In addition to increased formal processing for juveniles, placement in secure facilities has also been on the rise. Adjudicated cases resulting in out-of-community placement increased by 24% from 1990 to 1999, while the number of youth sent to detention increased by 41% from 1985 to 2000 (Puzzanchera, 2003).

The use of placement in secure facilities for juveniles has been met with considerable skepticism and is perceived by some to be ineffective and counter-productive for youth who may be better served in the community (Miller, 1998; Regoli, Wilderman, & Pogrebin, 1985; Shelden, 1999). One argument is that this is an expensive mode of corrections for juveniles, which increases the number of juveniles processed through courts and corrections. In addition, removing juveniles from their homes and placing them in secure facilities puts considerable strain on families and communities to which they will eventually return. Proponents of labeling and opportunity theories suggest that “incarceration” of juveniles will increase negative labeling, decrease access to conventional social roles, increase feelings of alienation, and decrease youth’s self-esteem (Bohnstedt, 1978), thus leading to repeat offending.

Diversion is an alternative to formal sanctions and out-of-community placement that can alleviate some of the negative effects of youth involvement in the justice system. The main function of diversion is to reduce juvenile justice involvement (i.e. courts, probation and detention), while identifying and treating targeted youth in their communities. It is through this process that diversion programs seek to decrease the costs of juvenile corrections, reduce the stigma of intervention associated with justice involvement, increase youth well-being and family functioning, and direct treatment toward the youths’ specific needs. By reducing these negative outcomes associated with formal justice processing, diversion programs seek to reduce delinquency and recidivism, and in turn increase public safety (Whitehead & Lab, 2001).

While all juvenile diversion programs attempt to prevent a youth’s penetration into the justice system, there are many approaches to achieve this goal. Diversion programs are often constructed to address the problems that are most salient to the unique needs of the youth and families in a particular community. This results in significant variation in program design from jurisdiction to jurisdiction. Some programmatic differences include when the youth is diverted in the justice process, what type of agency administers the program, types of treatment provided, and target population served. These variations among program sites make it difficult to evaluate the effectiveness of “diversion” in general.

In 1997, the New York State Office of Children and Family Services (OCFS) implemented a statewide diversion initiative to respond to what OCFS perceived as the most pressing needs of at-risk youth: mental health and substance abuse conditions. The Mental Health Juvenile Justice (MH/JJ) Diversion Project has ten county sites involving county probation and a mental health provider. The ten sites
share some program characteristics and core services, but each site varies with
regard to demographic, diagnostic, and criminal characteristics of youth served.
Each site is required to provide, at a minimum, the following: screening;
assessment; direct services, including individual, group, and family counseling;
and referral to mental health, substance abuse and other community-based
services. Within the requirements of the common elements, each site was allowed
to create and implement its own program tailored to the needs of the youth in their
community. This ultimately resulted in programmatic variations, such as type of
services available, when the youth is diverted, voluntary or mandatory
participation, and treatment modality. The objective of this study is to examine
these county level variations in order to explore the significance of programmatic
and community characteristics in predicting recidivism and out-of-community
placement.

**Essential Components of Diversion Programs**

Juvenile diversion programs vary greatly with regard to program and participant
characteristics. Despite these differences, there is a core set of components that are
included in most juvenile diversion programs. The two components essential to all
diversion programs are screening and assessment, and community-based interven-
tion. Screening prospective participants provides program staff the ability to identify
youth who are appropriate for diversion (Grisso & Barnum, 2000), while
assessments identify participants’ specific need areas, which can be linked to the
appropriate treatment(s) and service(s) (Grisso, Barnum, Fletcher, Cauffman, &
Peuschold, 2001).

Community-based treatment and services are other essential components of a
juvenile diversion program. Lipsey (1992) found that youth in community-based
treatment fared better than youth whose treatment was provided in institutions (i.e.
detention and other out-of-community placements). The potential benefits of
allowing youth to participate in treatment in their home communities include
improved youth health and well-being, decreased stigma, and increased overall
functioning, which may ultimately prevent future delinquency (Whitaker, Severy, &
Morton, 1984).

Diversion programs that target multi-problem youth require the ability to refer
youth to community services that are appropriate for adolescents. Since many youth
in contact with the justice system have multiple problems, most notably mental
health and substance abuse problems, community treatment will involve referrals to
a variety of agencies. Thus, the effectiveness of a diversion program rests on its ability
to identify the multitude of problems that a given youth may exhibit, and provide or
coordinate the appropriate and comprehensive treatment for all identified needs.
Generally, effective programs have the capacity to refer and/or provide treatments
that are responsive to youth needs.

Finally, a common thread among all juvenile diversion programs is the attempt to
prevent formal processing. A common litmus test for achieving this goal is the
measurement of adjudicated placements among program participants. In the
juvenile justice system these adjudications are referred to as out-of-home or out-of-
community placement. Essentially, *placement* is an umbrella term used by the
Variations in Diversion Programming

The main goal of juvenile diversion programs is to reduce negative outcomes in two main areas: delinquency and negative stigmatization (e.g. labeling) (Palmer & Lewis, 1980; Whitaker et al., 1984; Whitehead & Lab, 2001). With regard to the former, diversion programs use some sort of intervention (e.g. treatment) to prevent recidivism. Diversion programs also attempt to prevent negative stigmatization by restricting the penetration of youth into the justice system, preventing them from experiencing events such as arrest, trial, and out-of-community placements (e.g. secure detention). Despite the common goals of diversion programs, however, there are many variations in design. These variations may affect the program’s ability to reduce negative outcomes among its participants.

Bynum and Thompson (1996) define diversion as “an attempt to divert, or channel out, youthful offenders from the juvenile justice system” (p. 430). A common criticism of diversion is the very general conceptualization of what constitutes “diversion.” Within the definition provided above, one can imagine that the channeling out of youth could take place at any number of points in the justice process. Whitehead and Lab (2001) identified four studies that broadly conceptualized diversion as the “minimization of penetration” (p. 271), and suggested that this “minimization of penetration” could take place in at least four different points in the justice process. The point at which a youth is diverted from the justice system can potentially have an impact on the effectiveness of that program. In a meta-analysis of 44 juvenile diversion studies, Gensheimer (1986) found that a majority of the “diverted” youth were adjudicated, and thus had some type of formal processing in the justice system. Gensheimer speculates that, in spite of the positive effects of the programs, in some respect the effects may have been “cancelled out” by the negative influences of their earlier formal processing (e.g. adjudication).

Dunford, Osgood, and Wiechselbaum (1982) evaluated 11 different programs and found three variations in the point of diversion. Some programs used police to select youth to be diverted from the courts. Other programs were run by private nonprofit organizations, whichfunctioned as a brokerage agency, and received referrals from juvenile courts. Another program utilized the state attorney’s office to target youth for diversion. The general findings indicated that all three types of program reduced the probability of detention. However, the authors indicate that there is some evidence that youth referred (or diverted) early in the justice process had an increased probability of remaining in the system, which indicates that agencies that divert earlier (e.g. prebooking or preadjudication) actually take longer to “channel out” youth from the system. This finding reflects the concept of net widening in diversion programming. Dunford et al. (1982) conclude that the mere identification
of these youth as potential problem cases enhances their probability of detention by their continued contact with the justice system, which may not have occurred otherwise. This finding may be related to increased contact with correctional officials, increased surveillance and detention for violations of diversion conditions, and failure to fulfill program expectations. This raises important questions regarding who does the diverting, what happens during the diversion program, and when diversion takes place.

The types of service that youth are provided through diversion may also be a determinant of a program’s efficacy. Palmer & Lewis (1980) evaluated 15 California Youth Authority diversion programs. They found that youth given individual or group counseling performed better than those who received family or no counseling and lower rates of recidivism were found for youth who received more hours of services. Also, better recidivism outcomes were reported for individuals who received a greater number of services (i.e. counseling, tutoring, education, employment counseling, recreational), and for those youth who were required to meet with diversion program staff more frequently. In addition, Lipsey (1992) found that behavioral, skill-oriented and multimodal treatments were associated with larger effect sizes than less structurally focused treatments (e.g. counseling).

The type and quality of treatment provided to youth may also have an impact on the effectiveness of the program. There is a fairly short list of empirically validated treatments for youth and this list is even shorter with regard to effective interventions for juvenile justice populations. Functional family therapy (FFT) is one intervention program that has been shown to be successful in treating high-risk youth. FFT attempts to address and treat multiple domains of at-risk youth and their families. This intervention is performed through multiple stages directed at increasing self-sufficiency and overall functioning on the part of youth and their families. When compared with standard juvenile probation services, alternative therapeutic approaches, and residential treatment, FFT has been shown to be highly effective in reducing negative youth outcomes such as recidivism (Sexton & Alexander, 2000). Multisystemic therapy (MST) is another treatment that has had empirically validated success with juvenile justice populations. Through multiple systems of treatment, MST attempts to address youth problem behaviors in the context of their daily lives. Intervention strategies take place in multiple areas, including family, peer, school, and vocational interventions. When compared with youth who receive the “usual” (or court ordered) services, youth who receive MST have fewer arrests, reported fewer criminal offenses, and spent fewer weeks in detention (Henggeler, 1997). MST has also demonstrated these reductions in negative outcomes in studies with violent and chronic juvenile offenders. Furthermore, studies performed on populations with complex clinical problems (i.e. substance abuse and/or mental health issues) have also shown promising results.

Service-delivery setting may also influence the effectiveness of a diversion program. Lipsey’s (1992) meta-analysis of 443 studies found that treatments within the juvenile justice system or by other custodial institutions had smaller effect sizes than treatments performed by non-juvenile justice agencies. Therefore, treating juveniles within the justice system may reduce the effectiveness of the treatment; a finding consistent with both the labeling and diversion perspectives.

In contrast, getting individuals into treatment as early as possible can increase the effectiveness of treatment programs. Often offenders arrested or sentenced to
probation are referred to treatment in their communities, but then treatment is delayed for various reasons (i.e. long waiting lists, eligibility criteria, payment method). Particularly for substance users, any gaps or delays in treatment can increase the chances of relapse (Field, 1998). Programs and justice agencies that offer services in the interim (between referral and community treatment) may prove to be more effective in preventing future delinquency.

Caseload size is a contributing factor in program effectiveness as well. Overloading a service provider may restrict delivery of the appropriate amount of attention and services to the youth. Hser, Joshi, Maglinone, Chou, and Anglin (2001) found that residential drug treatment programs with a clear focus and low staff caseload were likely to have higher retention rates. Smaller caseloads usually translate into better supervision and allow for caseworkers to spend more time in the field rather than processing paperwork (Kurlychek, Torbet, & Bozynski, 1999).

Variations in Diversion Program Participants

Another factor involved in reducing negative outcomes in diversion programs is the individual variations found among their participants. In fact, Campbell and Retzlaff (2000) suggest that the problem with evaluating program effectiveness is that program success rates may have more to do with the type of offender assigned than with the interventions undertaken. This is due to the fact that, in addition to prior acts of delinquency, youth processed through the juvenile justice system often demonstrate multiple problems, such as poverty, experience of significant life events (e.g. divorce, death of family/friends, abuse), poor academic performance, involvement with the Department of Social Services (DSS), residence in violent neighborhoods, significant emotional problems, and substance use. Research has shown that the prevalence of mental health and substance abuse problems among juvenile delinquents is significantly higher compared with non-delinquent youth (Dembo, Pacheco, Schmeidler, Fisher, & Cooper, 1998; Fombonne, 1998; OJJDP, 1998; Rosenblatt, Rasenblatt, & Biggs, 2000). Youth with mental health problems have also been found to have a higher rate of co-occurring disorders, such as substance abuse and conduct disorder, which are related to delinquency (Boyle & Offord, 1991; Dembo, Bean, Schumacher, & Stinger, 1991; Disney, Elkins, McGue, & Iacono, 1999; Johnson, Posner, & Rolf, 1995; Myers, Burket, & Otto, 1993; Neighbors, Kempton, & Forehand, 1992; Pliszka, Sherman, Barrow, & Irick, 2000; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Trupin, Tarico, Low, Jemelka, & McClellan, 1993).

Frequently, multi-problem youth have higher rates of out-of-community placements than youth without such problems. Fader, Harris, Jones, and Poulin (2001) examined a juvenile system in Philadelphia and found that, for first-time offenders, the strongest predictor of residential placement is prior drug abuse. A study by Lyons, Baerger, Quigley, Erlich, and Griffin (2001) compared youth in residential treatment settings with those in detention/incarceration settings. They found that juvenile courts were more likely to incarcerate youth if they had a history of mental health or substance abuse treatment.

Youth with multiple problems present difficulties for the juvenile justice system. These youth require inter-agency services that may be quite costly or unavailable.
Without intervention, these youth are more likely to re-offend or be re-arrested, and are ultimately at greater risk for detention. Detention and other out-of-community placements, in turn, remove youth from their families and communities. This situation isolates the youth and the institutions that serve as protective factors for children (i.e. school, sports, church). Youth who are allowed to participate in treatment in their communities have been shown to have reduced recidivism (Garrett, 1985; Henggeler, 1997; Latimer, 2001; Lipsey, Wilson, & Cothern, 2000; Sexton & Alexander, 2000; Shelden, 1999).

PROJECT DESCRIPTION

The Mental Health/Juvenile Justice Diversion Project (MH/JJ) is a ten county diversion program for delinquent youth who have an identified mental health and/or substance abuse need and who are believed to be able to benefit from community-based treatment. The MH/JJ Project is an intervention designed for youth who have been arrested but are still in the early stages of formal justice processing. The intervention involves diverting youth out of the juvenile justice system and linking them to appropriate treatments in their counties. The MH/JJ Project has been in operation since 1997 and is funded and administered by the New York State Office of Children and Family Services (OCFS). The primary goals of the project are (1) to reduce out-of-community placement, (2) to prevent recidivism, and (3) to increase the general functioning of youth and their families. Although each of the ten programs shares these three goals, the sites have unique characteristics and resources.

Similarities Among Sites

Each county involved in the project is required to provide a core set of services and to demonstrate cooperation between its County Probation Department, which is responsible for intake, investigation, and supervision activities, and MH/JJ Project staff, who may be members of local behavioral health organizations or clinicians employed by the probation department. Screening, assessment, individual, group, and family counseling, and referral are essential core services provided by all sites. Funding requirements by OCFS also stipulate that sites provide case management and wraparound funds for both youth and their families. Wraparound funds provide additional resources, such as transportation, clothing, food, other non-reimbursable services and youth activities. Screening, assessment, and service referral are designed to take place in the initial stages of the MH/JJ intervention. Referral to services received by youth and/or their families include mental health, substance abuse, medical, educational, vocational, and family support services.

1The MH/JJ project has been in operation for seven years. During that time the project itself has undergone some restructuring. Initially, the project consisted of 11 participating county sites. However, in 2003 two counties discontinued their participation and one county was added, bringing the current total of participating counties to ten.
**Differences Among Participating Sites**

The core set of services provided by all counties notwithstanding, sites do vary considerably on many factors.

**County Variations**

Sites are located across New York State and vary from urban to rural settings. Counties in which the program sites are located range in population from less than 100,000 to about 2.5 million (U.S. Census Bureau, accessed 2004). County population density ranges from under 100 people per square mile to nearly 35,000. The median income of counties also varies, ranging from a little more than $32,000 to nearly $68,000. Generally, socio-demographic factors vary between sites, but within sites these factors are representative of participating MH/JJ youth.

**Programmatic Variations**

During the funding process, county sites were required to specify how their program would provide the core set of services mentioned above. Having demonstrated their ability to provide these core services, sites were free to implement the diversion program that best suited their youth, including how the program was designed, when youth were diverted, and what services were available within each county. Also, because of resource availability, counties differed in terms of services offered to MH/JJ youth. Some counties had the ability to use MH/JJ monies as partial or supplemental funding for their diversion programs. Hence, some sites provided only the required set of core services and others were able to offer MH/JJ youth and their families a wider array of treatments and other resources. As a result, project site variations include, but are not limited to, availability of direct treatment resources and other services, availability of supplementary funds, and caseload size.

Due to these socio-demographic and programmatic variations, the ten county sites represent a diverse spectrum of youth characteristics, implementation strategies, treatments, and other services. These variations among programs had both positive and negative implications for the project. Having the ability to construct and implement a diversion program is beneficial for sites, because it allows a site to tailor its program to the needs of the youth and families in a particular county. However, these programmatic variations among sites create difficulties for evaluating the project’s effectiveness in terms of meeting its goals (i.e. recidivism and out-of-community placement). The goal of this study is to examine these programmatic differences to determine whether they have an effect on youth outcomes.

**PURPOSE OF THE CURRENT STUDY**

A previous study by Sullivan, Veysey, Hamilton, and Grillo (under review) explored individual factors that influenced the outcomes of interest. In that study youth characteristics were examined to identify which factors were predictive of out-of-
community placement. The results indicated that in addition to several individual factors (i.e. socio-demographic, criminal history, mental health and substance abuse issues, and treatment factors), the county was a significant predictor of out-of-community placement \( (p < 0.001) \). It was believed that the significance of site as a predictor might be the result of some measurable programmatic differences discussed earlier. Based on the possible county-site variations found within the MH/JJ project, the current study examines the influence of programmatic factors on two primary outcomes, recidivism and out-of-community placement, through the following four hypotheses.

**Hypothesis One**

Given the variations in county populations and program eligibility requirements, sites differ with respect to youth to whom they provide treatment. As previously noted, program effectiveness may have more to do with the type of offender assigned than the actual intervention provided (Campbell & Retzlaff, 2000). Although individual-level covariates are predicted to affect these key outcomes, differences at the site level will also emerge in predicting out-of-community placement and recidivism.

**Hypothesis Two**

Receiving treatment services rapidly or without a lengthy referral process has been predicted to decrease negative outcomes (Field, 1998). Programs that attempt to prevent any time lapse in service delivery will provide more effective treatment. When services are provided directly by the program sites rather than through referrals to outside treatments, a site’s effectiveness in preventing recidivism and out-of-community placement is predicted to increase.

**Hypothesis Three**

Smaller caseloads are expected to improve service delivery and program effectiveness (Hser et al., 2001; Kurlychek et al., 1999). In addition, sites with funding sources, beyond MH/JJ, should be able to provide a greater variety of deliverable services, thus increasing a program’s effectiveness. Therefore, sites with higher levels of human and monetary resources are predicted to reduce out-of-community placement and recidivism compared with sites with lower levels.

**Hypothesis Four**

As mentioned, a few standardized and manualized treatments have been shown to be effective at preventing negative youth outcomes (e.g. FFT and MST) (Henggeler, 1997; Sexton & Alexander, 2000). A site’s effectiveness in preventing recidivism and
out-of-community placement is predicted to increase when an empirically validated treatment is utilized.

DATA COLLECTION AND ELEMENTS

For this study, the individual level data consist of information gathered from the youth through screening and assessment. The aggregate level data consist of information gathered on the ten programs through site visits and interviews and reviews of routine administrative reports. Collection of the individual level began in July 1997. Data used in the analyses include cases recorded from 1 July 1997 to 31 December 2003, resulting in 4,464 cases. Of these, 2,177 youth were supervised on probation, for which placement and recidivism data were collected, thus eliminating 2,287 youth from the study (this issue will be discussed in the following section). For the aggregate level, data include program descriptives derived from the site visits conducted from August 2003 to February 2004.

Individual Level

The individual level data gathered for the current study are drawn from MH/JJ youth who have come into contact with the juvenile probation departments of participating counties in New York State. The MH/JJ project provides services to two types of youth, intake and supervision. The main difference between these two types is that supervision youth receive a follow-up evaluation at the 120 day mark, while intake youth do not. This follow-up contains information regarding our two outcome variables of interest (recidivism and out-of-community placement). Hence, intake youth were eliminated from the present analysis because they lacked the necessary outcome data for study inclusion \( n = 2,287 \). As the higher level of supervision implies, the youth included here were generally considered to be more serious cases.

Upon referral to the MH/JJ Project, routine information was collected by probation officers during screening interviews with the youth and his/her family (e.g. arrest charges and description of the target event, contact and identifying information, youth supports and needs, family supports and needs, history of abuse and investigations by Child Protective Services, school performance, recent youth stressors); accompanying medical, psychiatric, and school records; and prior juvenile justice records. Within 30 days of a youth’s screening interview, an assessment was conducted by the MH/JJ staff, which provided information on diagnoses, prior service use, need for services, referral dates, and the receipt of MH/JJ services. At 120 days, follow-up information was gathered. This follow-up information included new arrests and violations, utilization of MH/JJ and other community-based services, and cost expenditures.

In previous analyses (Sullivan et al., under review), several individual characteristics were identified as possible predictors of out-of-community placement and recidivism; these indicators include age, race, current charge, prior arrests,
placement history, receipt of community treatment, use of wraparound funds, and significant mental health and substance abuse problems.

**Aggregate Level**

The three primary hypotheses of this study (H2–4) relate to the program or aggregate level. The aggregate level data for the current study were drawn from qualitative interviews conducted with probation, MH/JJ, and other project staff at the participating MH/JJ sites and from the review of routine administrative reports submitted to OCFS. The interviews were report reviews focused on several domains. The primary purpose of this component of the evaluation was detailed description of project services and resources. The domains of interest included the following: target population; identification and engagement process; probation, court, and MH/JJ staff roles and interactions; staffing and funds; county resources and barriers to successful referrals; implementation; and changes since inception. Four elements showed substantial variation and were deemed relevant to hypotheses 2–4: direct treatment provision (H2), the use of an empirically validated treatment modality (H4), supplemental funds (H3), and caseload size (H3).

The elements were measured as follows: (1) direct treatment was either “yes” (i.e., the MH/JJ project provided treatment at the MH/JJ location while the youth was waiting for referral or community treatment) or “no” (i.e., there was no such capacity) (utilized for H2); (2) MH/JJ site used an empirically validated treatment modality for multi-problem youth (i.e. FFT or MST) or did not (utilized for H4); (3) counties either had grants or other supplementary funds to provide additional support to the MH/JJ project or did not (utilized for H3); and (4) a continuous, ratio variable for caseload size (utilized for H3). The last item was computed by dividing the average number of youth served per year by the number of project staff. Again, the program level measures were (a) drawn from descriptive materials provided from individual research sites and (b) verified by the research team during site visits.

**Control Variables**

Income level of a county may mediate and/or suppress program effects. Specifically, more affluent counties may be able to provide a greater dosage and/or higher quality of service to youth. The variable “median income” serves as a control in the models. Information on median county income was taken from the 2000 U.S. census (U.S. Census Bureau, 2000). It should be noted that a variety of other control and programmatic factors were identified as possible covariates. Potential control variables included county population, population density, percent white, and poverty rate. However, we were not able to include these factors in our analyses due to multi-collinearity issues and lack of variance among sites. A similar problem was encountered for additional programmatic variables including: timing of youth diversion, lead agency delivering services, types of services available, and dosage of services received by youth. It should be noted, nevertheless, that the exclusion of these variables does not convey that these factors are expendable, or unimportant, only that these variables were not included due to priorities in the current model estimation procedure.
Outcome Measures

The dependent variables, out-of-community placement and recidivism, represent two of the primary goals of the MH/JJ Project. The MH/JJ program defines the first outcome, out-of-community placement, as any youth remanded to placement through court disposition. Remands in this context refer to any sanction which removes youth from their home for placement in a state-operated residential facility, which may include mandated inpatient treatment, group or foster home, or a juvenile detention facility. The second outcome, recidivism, is defined as whether or not the youth was rearrested or violated a condition of probation at any time during the 120-day follow-up period.

ANALYTIC PLAN

The HLM approach is designed to examine individual-level predictors (within aggregate groups) and group predictors simultaneously. In this case, youth characteristics are estimated within each program, yielding unique intercepts and slopes. The error term is assumed to be normally distributed with homogeneous variance across programs. The second stage estimates program characteristic parameters (Hser et al., 2001). Given that this is a two-level analysis, two sets of effects based on the two types of mean must be interpreted. The level-one, or youth level effects, are group mean centered, meaning that the effect of each predictor variable is relative to the mean for each site. The level-two effects are grand mean centered, meaning the effect of the predictor variable is relative to the overall effect of the outcomes (i.e. whether a youth recidivated or not) for the whole sample. Finally, the variance accounted for by the level-two predictors can be estimated. Using the formula of Bryk and Raudenbush (1992, p. 114), the variance component from the conditional model is subtracted from the variance component from the unconditional model. This figure is then divided by the variance component of the unconditional model. The result of this calculation yields the percent of variance explained due to the inclusion of the level-two predictors.

The Utility of a Hierarchical Linear Modeling (HLM) Strategy

Some studies of treatment effectiveness have made use of HLM to examine multilevel differences in outcome (Hser et al., 2001; Lipsey, 1992). Hser and colleagues (2001) examined 26,047 drug treatment patients, across 87 programs, nested within three program modalities to determine which individual and programmatic characteristics were the strongest predictors of patient retention rates. They concluded that programmatic factors that were important to patient retention included program practice and service provision. Lipsey’s (1992) meta-analytic survey of delinquency treatment research made use of 442 studies spanning four decades. From these studies he created multiple treatment clusters and then entered these treatment clusters into a multi-level model. Utilizing HLM, Lipsey was able to examine the independent variations of treatment characteristics beyond that explained by variance among study participants, which, in turn, allowed Lipsey to
find variations among effect sizes between types and locations of treatment modalities.

The focus of the current study is to examine these programmatic differences across project sites. As mentioned earlier, our previous analyses found that in addition to county site variances, individual variation among MH/JJ participants also influenced these outcomes. Therefore, analyzing only the aggregate, or county site level variations, would not account for the individual variations found among participants, and create some degree of bias. The use of hierarchical linear modeling (Bryk and Raudenbush, 1992) allows for examination of the random effects of the aggregate, or program variations, over and beyond the contributions of individual-level covariates. Ultimately this analytic technique allows for more efficient and unbiased estimation of the factors that contribute to variations in youth outcomes.

RESULTS

Youth Characteristics

Characteristics of MH/JJ youth are presented in Table 1. The sample of MH/JJ youth is predominately male (77.5%). African-American youth comprise 55% of the sample, followed by Caucasian (25.2%) and Hispanic (12.4%), and 7% were

<table>
<thead>
<tr>
<th>Table 1. Youth characteristics (n = 2177)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
</tr>
<tr>
<td>% male</td>
</tr>
<tr>
<td>Race</td>
</tr>
<tr>
<td>% Caucasian</td>
</tr>
<tr>
<td>% African American</td>
</tr>
<tr>
<td>% Hispanic</td>
</tr>
<tr>
<td>% Other</td>
</tr>
<tr>
<td>Mean age</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td>% prior record</td>
</tr>
<tr>
<td>Mean age at first arrest</td>
</tr>
<tr>
<td>% ever placed</td>
</tr>
<tr>
<td>Referral and treatment</td>
</tr>
<tr>
<td>% referred for mental health issues</td>
</tr>
<tr>
<td>% referred for substance abuse issues</td>
</tr>
<tr>
<td>% referred for both MH and SA issues</td>
</tr>
<tr>
<td>% received community treatment</td>
</tr>
<tr>
<td>Current offense</td>
</tr>
<tr>
<td>% violent</td>
</tr>
<tr>
<td>% property</td>
</tr>
<tr>
<td>% alcohol or drug-related</td>
</tr>
<tr>
<td>% other</td>
</tr>
<tr>
<td>% weapon used or displayed</td>
</tr>
<tr>
<td>Youth outcomes</td>
</tr>
<tr>
<td>% recidivated</td>
</tr>
<tr>
<td>% remanded to placement</td>
</tr>
</tbody>
</table>
classified as “other” race (i.e. Asian, Pacific Islander or mixed). The range of youth age was 7–19 years with a mean of 15.5 (sd = 1.4).

A substantial proportion of youth have a history of delinquency. One-third of the youth in the sample have a prior juvenile record (33.5%) with an average age of first arrest taking place at almost 14 years of age (13.8, sd = 4.0). Twenty-one percent of youth have had an out-of-community placement prior to their involvement with the MH/JJ Project.

Project youth have varying service needs. The predominant reason for referral among the youth was a mental health issue (47.4%), followed by substance abuse issues (21.3%) and co-occurring mental health and substance abuse issues (7.6%). Seventy percent of youth referred were provided some form of treatment in their community.

Youth in the sample were most often charged with a violent crime (37.5%), while 34 percent were charged with a property offense, and nine percent were arrested for an alcohol or drug related offense; the remaining 18 percent of youth were classified as committing “other” offenses. Further, 23% used or displayed a weapon in the commission of their offense.

Nearly 15 percent of youth recidivated during the 120 day follow-up period and 12 percent of MH/JJ youth were remanded to an OCFS detention facility.

Program Characteristics

Program characteristics are presented in Table 2. Four sites stated that they provided direct (or “in house”) care to youth. Of the two empirically validated treatments encouraged by OCFS (MST and FFT), only FFT was used by any of the programs. Five sites reported the use of FFT. Five sites reported attaining additional grant monies or other supplemental funding beyond that provided by the MH/JJ Project. Caseload estimates varied from “1” to “45.6” youth per program staff member.

Bivariate Correlations

The results of the bivariate correlations for the dependent variables are presented in Table 3. For out-of-community placement, only violent crime was not statistically significant among individual-level predictors. However, the correlations varied from

<table>
<thead>
<tr>
<th>County</th>
<th>Median income</th>
<th>Direct care available</th>
<th>FFT utilized</th>
<th>Supplemental funding</th>
<th>Average caseload</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53,086</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>3.58</td>
</tr>
<tr>
<td>2</td>
<td>35,347</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>3.54</td>
</tr>
<tr>
<td>3</td>
<td>41,915</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>7.50</td>
</tr>
<tr>
<td>4</td>
<td>38,567</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>37.1</td>
</tr>
<tr>
<td>5</td>
<td>44,891</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>27.0</td>
</tr>
<tr>
<td>6</td>
<td>67,971</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1.04</td>
</tr>
<tr>
<td>7</td>
<td>41,739</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>13.8</td>
</tr>
<tr>
<td>8</td>
<td>65,288</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>32.5</td>
</tr>
<tr>
<td>9</td>
<td>63,528</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>45.6</td>
</tr>
<tr>
<td>10</td>
<td>32,135</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>6.94</td>
</tr>
</tbody>
</table>

Median Income Source: U.S. Census Bureau (accessed 2004).

small to moderate with Ever Placed, Significant MH Problems, Age, and Received Community Treatment demonstrating the strongest relationships with out-of-community placement. Among the program-level predictors, no relationships were found to be statistically significant. Median Income and Supplemental Funding, however, were found to have moderate relationships with out-of-community placement (−0.38 and 0.45, respectively).²

Among the individual-level predictors, four were significant, but reveal only small correlations to recidivism. No program-level predictors were significant. Median county income and additional grants used were found to possess moderate relationships with recidivism (−0.42 and 0.44, respectively).

### HLM Analyses

#### Placement Model

The outcome of interest in the first model is out-of-community placement. The overall percentage of placements for the MH/JJ population was 12.4. Because the outcome of interest (placement) is dichotomous (1,0), a Bernoulli model was utilized. Results of the multilevel model for out-of-community placement are presented in Table 4. At the individual (or youth) level, five covariates were found to be significant predictors of out-of-community placement. They are as follows: age, prior placements, significant mental health problems, significant substance abuse problems, and youth/family receipt of wraparound funds. As a youth ages, the

---

²At first glance the relationships found between the individual-level predictors and the program-level predictors may seem counterintuitive, where the individual level has significant, weak relationships and the program level possesses non-significant, moderate relationships. However this effect occurs because of the contrast in sample size between the individual level (n = 2177) and the program level (n = 10).
likelihood of placement decreases ($\beta_{03} = -0.292, p < 0.001$). Youth who have been placed prior to their involvement with the MH/JJ Project have a greater likelihood of placement ($\beta_{05} = 0.940, p < 0.001$). Youth with either significant mental health or substance abuse problem are less likely to be placed than those without such problems ($\beta_{07} = -1.126$ and $\beta_{08} = -2.066$, respectively, $p < 0.001$). Youth who received wraparound funds are also less likely to be placed ($\beta_{010} = -1.193, p < 0.001$). These effects remained while controlling for gender, race, crime type, prior record, and whether the youth received community treatment.

A significant random variation in the intercept was found ($\beta_{00} = -2.700, p < 0.001$), indicating a significant variance between counties with respect to placement. Within the variation of the intercept, one program-level predictor was found to be significant—direct care ($\beta_{30} = -2.293, p < 0.05$), indicating that if a site provides direct care a youth is less likely to be placed. These effects were observed while controlling for median county income, caseload, FFT, site receipt of supplemental funding, and the random effects of the level-one predictors. The variance component was found to be significant ($\chi^2 = 24.841, p < 0.001$). The variance component for the unconditional model (the model containing only individual-level predictors) was $1.325$ ($sd = 1.151$) and the variance component for the conditional model (which included both levels of predictors) was $0.477$ ($sd = 0.690$). This indicates that the inclusion of the program level variables reduces the variance component, and thus increases the variance explained by $64\%$. 

*The proportion of variance explained was estimated using the formula of Bryk and Raudenbush in Hierarchical Linear Modeling (1992, p. 114).
Recidivism Model

The overall frequency of youth recidivism during the 120 day follow-up period was 14.2%. Again, the outcome of interest (recidivism) is dichotomous (1, 0), and therefore the Bernoulli model was specified. The results of the multilevel model for recidivism are presented in Table 5. At the individual (or youth) level, one covariate was found to be significant. Youth with significant substance abuse problems have a greater likelihood of recidivating ($\beta_{08} = 0.705, p < 0.01$). These effects were found while controlling for gender, race, age, crime type, prior placements, prior record, significant mental health problems, youth receipt of community treatment, and use of wraparound funds.

As with the placement model, the random variation in intercept ($\beta_{00} = -2.022, p < 0.01$) indicates a significant degree of variance between counties with regard to recidivism. Within the variation of the intercept, however, no program-level variables were found to be significant predictors of recidivism. Nevertheless, the variance component was found to be significant ($\chi^2 = 14.554, p < 0.01$). The variance component for the unconditional model was 0.247 (sd = 0.497) and the variance component for the conditional model was 0.226 (sd = 0.476). The inclusion of the program-level variables in the model increased the amount of variance explained by 8.5%.

DISCUSSION

The prevention of out-of-community placement and recidivism are two of the main goals of the MH/JJ Project. However, the participating county sites took different

<table>
<thead>
<tr>
<th>Table 5. Bernoulli model for recidivism ($n = 2177$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed effects</strong></td>
</tr>
<tr>
<td><strong>Coefficient</strong></td>
</tr>
<tr>
<td><strong>S.E.</strong></td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
</tr>
<tr>
<td>Intercept2, $\beta_{00}$</td>
</tr>
<tr>
<td>Caseload, $\beta_{10}$</td>
</tr>
<tr>
<td>FFT, $\beta_{20}$</td>
</tr>
<tr>
<td>Direct care available, $\beta_{30}$</td>
</tr>
<tr>
<td>Supplemental funding, $\beta_{40}$</td>
</tr>
<tr>
<td>Median income, $\beta_{50}$</td>
</tr>
<tr>
<td><strong>Level 1</strong></td>
</tr>
<tr>
<td>Male, $\beta_{01}$</td>
</tr>
<tr>
<td>White, $\beta_{02}$</td>
</tr>
<tr>
<td>Age, $\beta_{03}$</td>
</tr>
<tr>
<td>Violent crime, $\beta_{04}$</td>
</tr>
<tr>
<td>Ever placed, $\beta_{05}$</td>
</tr>
<tr>
<td>Prior record, $\beta_{06}$</td>
</tr>
<tr>
<td>Significant MH problems, $\beta_{07}$</td>
</tr>
<tr>
<td>Significant SA problems, $\beta_{08}$</td>
</tr>
<tr>
<td>Receive community treatment, $\beta_{09}$</td>
</tr>
<tr>
<td>Wraparound funds used, $\beta_{10}$</td>
</tr>
<tr>
<td><strong>Random effects</strong></td>
</tr>
<tr>
<td>Variance component</td>
</tr>
<tr>
<td>Chi-square$_{44}^{40}$</td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01; ***p < 0.001.
pathways to achieve these goals, and these differences can and did impact success at the program level. As a result, it is essential to understand how these program variations affect youth across sites. The current study utilized hierarchical linear modeling to examine recidivism and placements. Specifically, we attempted to identify how these outcomes were influenced by program and/or individual youth characteristics through the testing of four hypotheses.

Hypothesis One

As reported in an earlier study (Sullivan et al., under review), a major predictor of out-of-community placement was program site. Also, youth characteristics such as age, prior placements, significant mental health and substance abuse problems, and use of wraparound funds were found to be significant predictors of out-of-community placement. Age and history of justice involvement have been shown to be correlates of further justice involvement (i.e. placement), and the results presented in this model are consistent with those findings. With regard to mental health and substance abuse, our findings are inconsistent with previous literature (Fader et al., 2001; Lyons et al., 2001) revealing that youth with such problems are less likely to be placed. These findings can be almost entirely attributed to the focus of the project. By targeting youth with such problems, it is to be expected that the MH/JJ Project will be most effective in preventing placements of youth with these specific problems.

As mentioned, a site’s effectiveness in preventing recidivism and out-of-community placement should remain, accounting for the influence of individual youth factors related to recidivism and out-of-community placement. Despite the significant findings at the individual level, county remains an important predictor of out-of-community placement. Based on the results of HLM, we remain confident that program, or site, differences account for a considerable amount of variation in out-of-community placement—beyond individual level effects. As illustrated by the changes in the unconditional and conditional models, the addition of the program-level predictors increased the variance explained in the out-of-community placement model by 64%. This finding indicates the importance of county site as a predictor in out-of-community placement, as the program differences between sites account for a substantial increase in variance explained. In the recidivism model the variance components for the second-level covariates were significant as well, but resulted in only an 8.5 percent change in variance explained.

Hypothesis Two

As previously stated, a site’s effectiveness in preventing recidivism and out-of-community placement is predicted to increase when services are provided directly by the program sites rather than through referrals to outside treatments. No significant predictors were found in the recidivism model; hence, hypothesis one is not satisfied for recidivism. In the out-of-community placement model, direct care was found to
be a significant predictor, indicating that counties providing youth with direct care are more effective at preventing youth placements. As mentioned earlier, after an individual’s treatment needs are assessed, any delays occurring in treatment delivery can increase the risk of negative outcomes (i.e. relapse and/or rearrest). Programs that do not provide direct care must refer youth to an appropriate treatment facility. These programs are then dependent upon referrals to outside treatment agencies, essentially becoming a middleman for individuals seeking treatment, which, in itself, delays treatment. In addition, when youth are referred to an outside agency they may be placed on a waiting list or denied admission altogether.

Engagement in treatment is critical for MH/JJ youth. Not only do these youth have identified treatment needs, but often participation in treatment can become an influence in the court’s decision to allow an individual to remain in a diversion program. Therefore, preventing treatment delays are of utmost importance to MH/JJ youth. Programs providing direct care decrease treatment delays because they are not dependent on outside treatment agencies to provide services to their clientele. Hence, they have the ability to implement treatment services immediately. Our results indicate that providing direct care ultimately reduces youths’ likelihood of out-of-community placement. This finding is consistent with Field’s (1998) perspective on continuity of care.

**Hypotheses Three and Four**

The use of functional family therapy, supplemental funding, and caseload were not found to be significant program predictors in either model. Hence, we failed to reject the null hypotheses three and four.

**CONCLUSION**

Our intent and hope was that the use of HLM would clarify and advance our understanding of the distinct program elements. The results of the analyses, however, revealed many non-significant programmatic variables that were anticipated as influences on out-of-community placement and recidivism. We attribute this lack of findings to three key issues. First, better data needs to be gathered at the programmatic level. During our qualitative interviews, we gathered very basic information on how sites were organized and the possible barriers they perceived in preventing out-of-community placement and recidivism. The results presented here suggest that we have yet to find the most important programmatic predictors, and therefore further contextual and process information needs to be gathered regarding variations among sites. Second, limited power, and resultant restriction of variance, at the second level probably contributed to the lack of discernable differences in programmatic covariates observed here. Although explicit rules of thumb with respect to power in HLM are not clear, reasonable estimates would suggest a need for more second-level observations (i.e. sites) (Kreft & DeLeeuw, 1998; Snijders & Bosker, 1993).
Finally, better-controlled designs would aid in the evaluation of program effectiveness. The results of our earlier work (Sullivan et al., under review) revealed that county site was a significant factor in predicting out-of-community placement, or that some sites were more effective at preventing negative outcomes than others. We then tried to identify which site characteristics might serve as predictors of program effectiveness in preventing such outcomes. A major limitation of this study was the use of an *ad hoc*, statistical-model driven design, which, while still useful, may preclude the type of validity that can be established with a stronger experimental or quasi-experimental design (for a dialogue on these and related issues, see Berk, 1991; Blalock, 1991; Freedman, 1991; Mason, 1991). We believe that, wherever possible, future analyses should attempt to identify these programmatic variables prior to the initiation of the program and incorporate them into the research design. This will allow for better conceptualization and selection of the most influential program factors involved in juvenile diversion.

As the use of diversion continues to increase in popularity, the varieties of program designs will ultimately increase in tandem. In previous years, these variations would most likely be viewed as constraint for evaluation, decreasing the generalizability of findings. One implication to be taken from this study is that these variations are not necessarily a limitation for evaluators; attempting to explore these programmatic differences, as we have here, can inform program designers and service providers as to the most effective combination of treatment components. Advancing knowledge of diversion program effectiveness is best directed at identifying and testing these variations to create an empirical foundation of best practices in diversion programming.

REFERENCES


Mason, W. M. (1991). Freedman is right as far as he goes, but there is more, and it’s worse, statisticians could help. *Sociological Methodology, 21*, 337–351.


