

JUVENILE OFFENDER REENTRY IN AN URBAN SETTING:
AN EVALUATION OF AN INTENSIVE SUPERVISION PROGRAM USING A
'TIME TO FAILURE' MODEL

by

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ABSTRACT OF THE DISSERTATION

Juvenile Offender Reentry in an Urban Setting:

An Evaluation of an Intensive Supervision Program Using a ‘Time to Failure’ Model

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The current study aimed to determine the extent to which a juvenile reentry program consisting of intensive supervision and collaboration between service providers was able to increase the amount of ‘time to failure’ and decrease the number of ‘days in custody’ for program participants when compared to a historical comparison group. This was done by using a quasi-experimental design, coupled with stratified propensity score matching to ensure group equivalency. Kaplan-Meier and Cox regression survival analyses along with t-tests found that survival likelihood was higher for the comparison group. It was also found that the rate of return to custody was substantially hastened for the treatment group, and the risk of failure climbed during the study period for both groups. The risk of failure also climbed when the treatment was combined with a court-mandated substance abuse intervention. The treatment group was however found to be more likely to receive education, and substance abuse and anger management treatments; as well as spend less time in custody upon failure. The above findings are likely due to treatment subjects

being supervised more intensively, with non-compliance more likely to be recorded and acted upon – particularly with regard to failure to attend substance abuse treatment programs. Findings may also be due to a lack of adherence to principles central to the risk-need-responsivity approach to community supervision. Policy implications include the need to avoid unnecessary court mandated treatments; the need to further explore the use of collaborative approaches to supervision with a larger dosage to ensure access to essential treatments, while simultaneously excluding in this process the potentially harsher responses to non-compliance that seem to come with increased supervision; and the need for criminal justice agencies to collect more incident-based information for stronger evaluations of future programming.

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CHAPTER 1

1.1 Background and Introduction

Purpose

Essex County is home to Newark, New Jersey, an area that currently sees rates for many crimes which nearly double those of the United States national average. Further, Newark is an exceptionally disenfranchised urban setting with very little in the budget for social welfare services, including those which target youth. Yet, through early intervention into juvenile criminal behaviour, youth deviance may be curtailed before developing into chronic adult offending. As such, the current research aims to conduct a program evaluation of an Essex County-based intensive supervision program, known as 'Pathways to Productive Citizenship'. This program was a collaboration of service providers, led by The Bridge, Inc. and served juveniles re-entering into the community following a period of incarceration. The Pathways program worked in collaboration with the existing Youth Services Commission's Multidisciplinary Team (MDT) to ensure conditions of community supervision were met and barriers to juvenile success were removed. Specifically, the Pathways program sought to mobilize community partners to provide more intensive supervision and aftercare to recently released youth for a period of approximately 8 weeks, although the follow-up period was dependent upon the needs of the client.

One goal of the Pathways program was to engage in evidence-based practices and maintain accountability through collecting and tracking data. The way in which this was

done was through conducting process and summative evaluations. The process evaluation was conducted throughout the duration of the program which began in August 2011, and ended prematurely in February 2013 - the program was initially scheduled to operate for a period of 3 years, ending in late 2014; however funding was cut for this program unexpectedly. The summative evaluation results are presented here and involved a quasi-experimental design in conjunction with survival analysis in order to determine time-to-failure. The summative evaluation also investigated the outcome measure of ‘days in custody’ using t-tests.

Introduction

Simply estimating the impact of the program under study by way of a hypothesis is a challenging task in itself due to the large amount of conflicting information available. Firstly, collaborative approaches to reentry which aim to bring together various community partners to provide more intensive supervision and aftercare such as the Pathways program have found success in reducing arrests or recidivism in the past (Braga, Piehl & Hureau, 2009; Kurlychek & Kempinen, 2006). Further, early research into the Pathways program has shown that this specific program operated with a high level of collaboration between stakeholders – with community partners working closely with one another (Sytsma, 2013). Additionally, the current program somewhat resembles the celebrated multisystemic therapy (MST) due to the fact that Pathways takes place in the home, in conjunction with family members. The current program also appears to rely on a theoretical foundation that resembles the risk-need-responsivity (RNR) approach to community supervision – an approach that has seen success (Taxman, Shepardson, &

Byrne, 2004; Taxman, 2008a; Ostermann, 2013). Thus there is some evidence to suggest that when compared to a comparison group, program participants may achieve a more prolonged time until failure and fewer days in custody post-release.

Conversely, the realities of reentry in general are bleak, with offenders who have been incarcerated and released being more likely to commit crimes than any other population (Braga et al., 2009). Further, the majority of released prisoners have prior offences and many are arrested again once released (Baer et al., 2006). When a preliminary investigation of the current treatment group was done, it demonstrated that 83% of this sample was gang-involved; many began their criminal careers at a young age and have relatively long criminal histories including violent offences (Sytsma, 2013). Additionally, the population under study is more likely to reside in areas characterized by “at risk” housing, gang territory, drug arrest hotspots, and gun violence hotspots - contextual issues that the Pathways program cannot address (Piza, 2013). This is significant as a disadvantaged neighbourhood predicts recidivism more so than does the return to a more affluent community - particularly among the offender population which already suffers diminished opportunities; and being deprived of resources predicts violent crime recidivism (Kubrin & Stewart, 2006; Clear, 2007; Mears, Wang & Bales, 2008). Further, Abrams, Terry, and Franke (2011) found that as adults, if participants in a community-based juvenile reentry program had at least a high school diploma/General Educational Development (GED) and were employed, they were much less likely to re-offend. Again, according to previous analysis using Pathways program documents, while the current treatment group are likely to have a GED or high school diploma (50%), 69% had no employment while under Pathways supervision (Sytsma, 2013). Additionally, the

developmental stages the average young person experiences may occur later or not at all for juvenile offenders. Thus due to disrupted adolescent development, this population faces unique challenges with employment, returning to school and interpersonal relationships (Altschuler, & Brash, 2004; Mears & Travis, 2004; Sullivan, 2004). Further, the program under study is very short in nature, which runs in contrast with literature that suggests both that effects diminish over time, and a larger dosage seems to point to a better result (Abrams et al., 2011; Drake & Barnoski, 2006; Wells, Minor, Angel, & Stearman, 2006). Finally, when a process evaluation was conducted on the program under study, evidence was found to suggest that stakeholders possessed some trepidation with regard to the extent to which the majority of program objectives and outcomes would be met - indicating that even those most closely linked to the program had doubts about its efficacy at times - and while the program seemed to be designed with the same theory behind it as RNR-style programs, principles central to this approach were not adhered to strictly.

Because of what is known about reentry, and this particular study population and stakeholders, prior to the current research there was more evidence in support of a null hypothesis than a hypothesis suggesting an effective program. This was an indication that the program being evaluated would not increase time to failure, nor would it decrease the number of days in custody post-release.

Hypothesis: It was hypothesized that subjects in the treatment group would not differ largely from those subjects in the comparison group with regard to time to failure; nor would they differ in the number of days spent in custody post-release.

Program Logic Model and Narrative

Based upon documents outlining the program which were developed by The Bridge, Inc., the following program logic model (seen in Figure 1) displays the constructs which link the Pathways program objectives to the eventual outcomes.

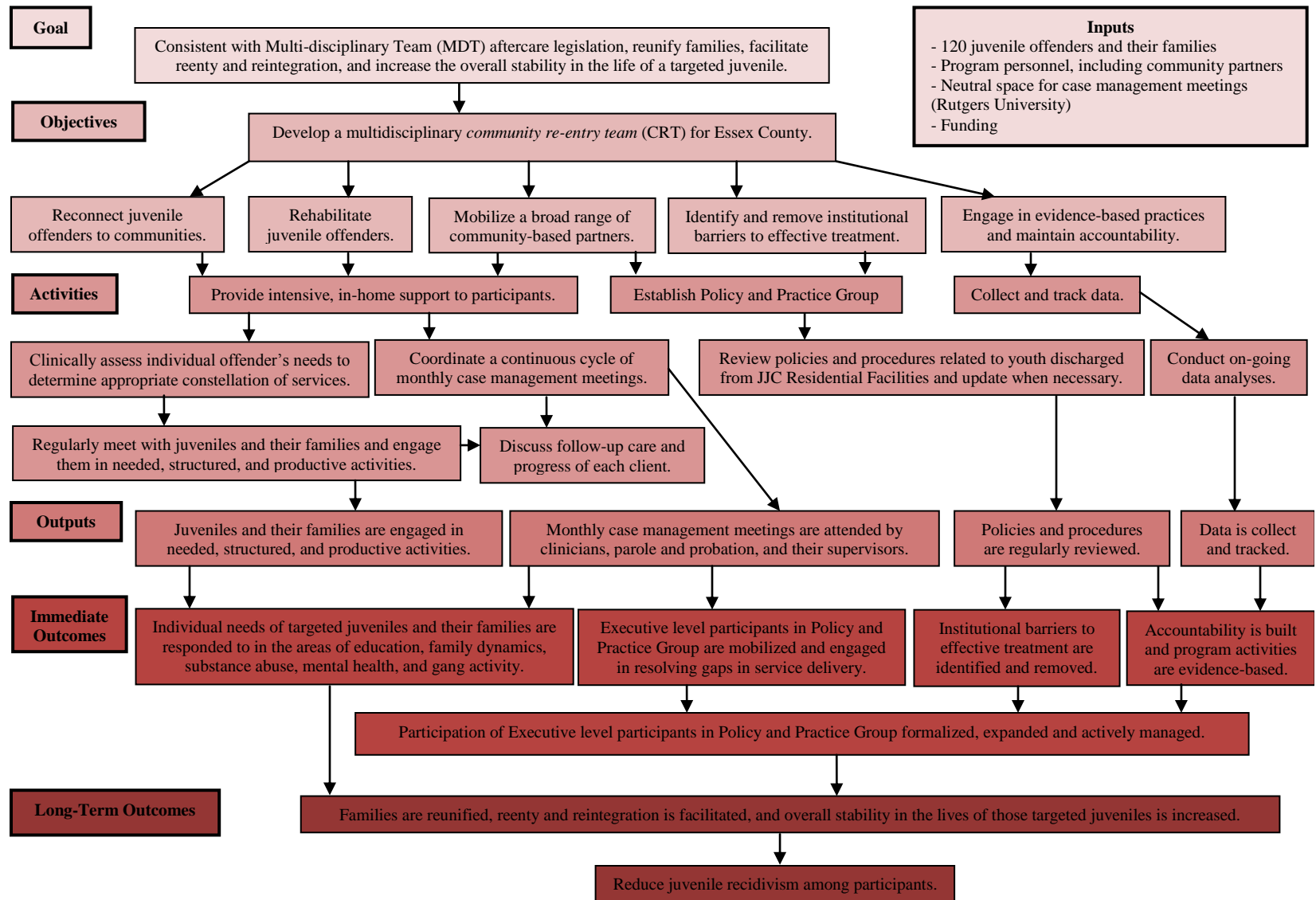


Figure 1. Pathways to Productive Citizenship logic model.

Goal. Consistent with MDT aftercare legislation, the Pathways program aimed to reunify families, facilitate reentry and reintegration, and increase the overall stability in the life of a targeted juvenile.

Inputs. In order to achieve its goal, the program required resources. These inputs included program staff and stakeholders, including all community partners; participants (in this case, the program served 36 juvenile offenders and their families); and the funding required to pay staff and facilitate program activities. This funding stemmed from a grant from Robert Wood Johnson Foundation's Local Funding Partnerships Special Solicitation with matching funds from The Nicholson Foundation. Additionally, the program received an in-kind donation of a neutral meeting space, refreshments, parking and personnel from Rutgers School of Criminal Justice, Rutgers University, Newark, New Jersey.

Objectives. It was theorized that this program's overarching goal would be met through the development of a multidisciplinary *community re-entry team* (CRT) for Essex County. In turn, the objectives of the CRT were to:

- reconnect juvenile offenders to communities;
- rehabilitate juvenile offenders;
- mobilize a broad range of community-based partners;
- identify and remove institutional barriers to effective treatment;
- and engage in evidence-based practices and maintain accountability.

Activities. There were 3 main activities characterizing the Pathways program:

- Provide intensive, in-home support to participants;
- establish a Policy and Practice Group;
- and collect and track data.

Pathways purposed to reconnect juvenile offenders to communities, rehabilitate juvenile offenders, and mobilize a broad range of community-based partners by providing intensive support to the participants in their homes. This support included clinically assessing individual offenders' needs to determine the appropriate constellation of services through regular meetings with juveniles and their families and engaging them in needed, structured, and productive activities.

Through providing intensive, in-home support, Pathways also aimed to reconnect and rehabilitate juveniles and mobilize partners by coordinating a continuous cycle of monthly case management meetings. Once individual offenders' needs were assessed and case management meetings coordinated, staff was supposed to then regularly meet with juveniles and engage them in needed programming, as well as discuss follow-up care and the progress of each client at both the management meetings, as well as with the clients themselves.

It was thought that partners would be further mobilized and institutional barriers to effective treatment would be identified and removed through the establishment of a Policy and Practice Group. Once established, this group planned to review policies and procedures related to youth who were discharged from Juvenile Justice Commission (JJC) Residential Facilities and update those policies when necessary.

Finally, in order to engage in evidence-based practices and maintain accountability, the Pathways program planned to collect and track data on participants and the CRT (which were used for the process evaluation), and conduct on-going data analyses on the program.

Outputs. The above program activities were hypothesized to produce the following quantifiable outputs:

- Juveniles and their families are engaged in needed, structured, and productive activities;
- monthly case management meetings are attended by clinicians, parole and probation, and their supervisors;
- policies and procedures are regularly reviewed;
- data is collected and tracked.

Immediate outcomes. Following the participation of juveniles and their families in needed, structured, and productive activities, and of stakeholders in monthly case management meetings, it was theorized that the individual needs of targeted juveniles and their families would be responded to in the areas of education, family dynamics, substance abuse, mental health, and gang activity.

Additionally, attending monthly case management meetings was thought to result in executive-level participants in the Policy and Practice Group being mobilized and engaged in resolving gaps in service delivery. Further, through the regular review of policies and procedures, it was hoped that institutional barriers to effective treatment

would be identified and removed. Those regular reviews of policies coupled with data collection and tracking were also thought to result in the establishment of accountability within the program and continued evidence-based practices.

By mobilizing executive-level participants in the Policy and Practice Group and resolving gaps in service delivery, identifying and removing institutional barriers to effective treatment, and by building accountability and facilitating evidence-based program practices, it was thought that the participation of executive-level participants in the Policy and Practice Group would be formalized, expanded and actively managed.

Long-term outcomes. Finally, through responding to the individual needs of targeted juveniles and their families in the areas of education, family dynamics, substance abuse, mental health, and gang activity, and through formalizing, expanding and actively managing the CRT, it was thought that families of targeted juveniles would be reunified, reentry and reintegration would be facilitated, and the overall stability of the lives of targeted juveniles would increase. It was further hypothesized that time to failure on the part of the juveniles, as well as the number of days they are not incarcerated would be increased.

1.2 Literature Review

Communities

‘Reentry’ as defined by the Urban Institute (2012) refers to “the process of leaving prison or jail and returning to society. Nearly all prisoners experience reentry

irrespective of their methods of release or form of supervision, if any” (para. 1). The challenge then lies in ensuring that return to society is productive and free from crime, as offenders who have been incarcerated and released are more likely to commit crimes than any other population (Braga et al., 2009). Further, the majority of released prisoners have prior offences and many are arrested again once released (Baer et al., 2006). In Illinois it was found that 31% of returning prisoners were arrested and placed back into prison within 13 months of the initial release (Baer et al., 2006). These findings were echoed in Maryland where it was found that 32% of released prisoners were arrested within 6 months of release (Baer et al., 2006).

It is clear that the prognosis for individuals post-release is not promising, and one possible reason for this prognosis is the context of the neighbourhoods in which recently-released prisoners reside. According to the Urban Institute’s Prison Reentry Portfolio, the settings which prisoners return to following a period of incarceration are more likely to be characterized by disadvantage (Baer et al., 2006). This is evidenced by the finding that within Chicago, Baltimore, Cleveland and Houston, the neighbourhoods which possess the highest concentrations of former prisoners are also seen to have rates of poverty, unemployment, and female-headed households which fall above national averages (Baer et al., 2006). In New Jersey, those areas which have the highest concentrations of released prisoners are also those areas which have rates of poverty at least double the state average (Baer et al., 2006). The Urban Institute also found that those returning prisoners who are more likely to recidivate are those who are returning to communities which they perceive to be lacking in safety and low in social capital (Baer et al., 2006).

In a complex 2010 study by Hipp, Petersilia, and Turner, the authors utilized California parolee address data, in addition to census tract data, and address data of social and health service providers to determine the effect that neighbourhood context has on parolee recidivism. This study found that when social service providers are located within 2 miles of a parolee, the likelihood of reoffending is decreased substantially; particularly for parolees who are black (Hipp et al., 2010). The researchers also found that the positive impact proximity to services can have on parolees diminishes as services must over-extend themselves to meet client demand (Hipp et al., 2010). The authors also found that an increase in social disorder and concentrated disadvantage within census tracts of parolee residences, as well as in nearby tracts is associated with an increase in recidivism (Hipp et al., 2010). The work by Hipp and colleagues (2010) demonstrates that proximity to services, as well as whether or not those services are actually procurable contributes to successful reentry; as does social disorder and the contextual factors of neighbouring communities. Similarly, in an earlier reentry study, Kubrin and Stewart (2006) sought to determine the individual-level determinants of reoffending, as well as the impact that neighbourhood disadvantage levels have on reoffending that cannot be accounted for within individual determinants. The study relied upon a sample size of 156 census tracts and the 4,630 former prisoners who live within those neighbourhoods in and around Portland, Oregon (Kubrin & Stewart, 2006). Using multilevel modeling, the authors found that controlling for individual-level variables, returning to a disadvantaged neighbourhood predicts recidivism more-so than does the return to a more affluent community (Kubrin & Stewart, 2006).

In a Florida study which also utilized multilevel modeling, Mears and others (2008) sought to determine the impact of racial segregation and access to resources on recidivism when individual-level determinants are controlled for. The authors also sought to determine how age and minority status predict recidivism, while controlling for variables at the individual-level and community level; namely racial segregation and access to resources (Mears et al., 2008). In a sample of over 49,000 former prisoners, and the 67 counties in which they reside, Mears and colleagues (2008) found that being deprived of resources predicts violent crime recidivism; as well as being young and minority predicts violent and drug crime recidivism regardless of level of exposure to resources and racial segregation. The authors also found that the impact that being young and minority has on predicting drug crime recidivism is lessened in those communities with higher levels of racial segregation (Mears et al., 2008). Further, a 2010 study by Grunwald, Lockwood, Harris, and Mennis utilized data from 7,061 male juveniles who were mandated by Philadelphia Family Court to enter correctional programs throughout a 10 year period between 1994 and 2004. The authors also investigated data from the Philadelphia Health Management Corporation's Household Health Survey. Also using multilevel modeling, they found that neighbourhood variables, particularly social capital and concentrated disadvantage, predict recidivism for drug offences, but not those offences characterized as property or violent (Grunwald et al., 2010).

All of these findings surrounding community are in line with Rose and Clear's (1998; Clear, 2007) notion of *coerced mobility* and the idea that mass incarceration in fact creates much of the challenges it aims to solve by damaging social networks and

support systems; and threatening the economic climate of troubled communities through the removal of labour power and diminished opportunities for former offenders.

Adolescent Development

The particular program under study targets juvenile offenders specifically – an offending group that poses its own unique concerns. It is for this reason that it is important to consider their developmental needs. Steinberg, Chung and Little (2004) put forth notions of psychosocial development wherein they purport that by the completion of adolescence, young people should have learned to become productive citizens – a concept they refer to as *mastery and competence*. Steinberg and colleagues (2004) also assert that young adults should be capable of engaging in appropriate interpersonal relationships – a concept known as *interpersonal relationships and social functioning*. Finally, by the end of adolescence, young people should be capable of behaving in a morally acceptable manner with a clear sense of self-worth – known as *self-definition and self governance*. Glick and Sturgeon (1998) assert that adolescent developmental stages include early adolescence (11-14 years), middle adolescence (15-17 years), and late adolescence (18 years to early 20s). According to Glick and Sturgeon (1998), it is during late adolescence that young people develop relationships of a mature nature as well as they develop a sense of independence. This ability to develop independence may be hindered for those experiencing reentry because of a lack of preparation for adulthood (Altschuler, & Brash, 2004).

Adolescents experiencing reentry are thought to be developmentally behind their non-offender peers, with the developmental stages the average young person experiences

occurring later or not at all for juvenile offenders (Altschuler, & Brash, 2004). Thus this group faces unique challenges with employment, returning to school and interpersonal relationships. Sullivan echoed this sentiment in 2004 when he relied on interviews with young offenders over the course of the 1980s and 1990s. Sullivan (2004) notes that in comparison to adult offenders, juveniles are expected to return to school and reside with family, they have a smaller criminal history, and they are likely to lack employment experience. That said incarceration itself pushes adulthood on young people causing some developmental stages to be hastened, disrupted or missed – making juvenile reentry a balance of both adolescent- and adult-oriented expectations without the proper preparation to meet those expectations appropriately. The type of communities that youth tend to enter post-incarceration are in themselves unable to effectively enter the labour market, acquire housing and education, and are isolated; only the individuals who have been incarcerated have the added stigma and difficulties of having been imprisoned – what Sullivan (2004) calls “doubly disadvantaged” (p. 68).

Additionally, based on the results of a roundtable organized by the Urban Institute, Mears and Travis (2004) point out that adolescents tend to rely on others to help them transition into independent living, employment, and relationship building. However the juvenile reentry population often lacks the supports necessary for adolescent development to occur normally. This can be exemplified by Martinez and Christian (2009) who sought to determine differences in support exchanges when the subject is residing with family, versus in a halfway house post-release. Using in-depth interviews of recently released prisoners and their families, Martinez and Christian (2009) found that when a subject resides with family members upon reentry, information-giving is seen by

family as the easiest way a family member can give support. It is also seen by family as important because it was thought to help subjects to remain crime-free. Additionally, the subjects interpreted that giving of information as emotional support because by sharing information, the family makes itself available for conversation and help with decision-making. Subjects also interpreted the fact that they were given a place to stay as support. This is in some ways positive because it is known that offering social supports to those reentering into the community prevents crime (Cullen, Wright, & Chamlin, 1999; Colvin, Cullen, & Vander Ven, 2002). However while information giving is an area of support, it does not necessarily result in employment opportunities and foster healthy interpersonal relationships both inside and outside of the family. Further, when supports are unpredictable and inconsistent in nature, criminal behaviour can occur due to feelings of low self-control (Colvin et al., 2002).

Due to the unique challenges faced by juveniles, this group not only has a completely separate criminal justice system, but therapeutic programming is generally tailored specifically for this group as well. Additionally, efficacy of juvenile-specific programming is dependent upon the particular criminogenic need targeted. For instance, in an evaluation of a juvenile program similar to Pathways known as Connections, Pullmann et al. (2006) focused on those offenders with mental health issues and found when the collaborative programming was compared to standard care the treatment group was less likely to recidivate, and upon failure spent less time in detention.

When juvenile-specific programming is aimed at increasing supervision level, recidivism is generally reduced. This is evidenced by a meta-analysis by Lipsey (1999) which investigated 3 intensive supervision parole programs for juveniles which found

lower recidivism (contact with police, rearrest, or contact with courts) among treatment groups. Similarly, Aos, Phipps, Barnoski, and Lieb (2001) combined 7 studies in a meta-analysis of intensive parole programming and found recidivism to be lower for treatment groups. Further, in a study conducted not unlike to the current one, Tollett and Benda (1999) investigated the Arkansas Division of Youth Services Serious Offender Program. Here the authors relied on a sample of 244 adolescents, and at a one year follow-up period, determine that for each prior incarceration, subjects return to custody 41 days earlier.

When substance abuse is the focus of juvenile interventions, the evidence is generally positive but weak. In a meta-analysis by Dowden & Andrews (1999) which combined samples from 11 studies targeting substance use as a criminogenic need, authors found lower recidivism among the treatment groups, but that finding was negligible. In a systematic review of substance abuse treatment literature, Tripodi and Bender (2011) found that treatment has a small impact on marijuana and alcohol use among juvenile offenders; with family-oriented and individual-based treatment showing no noticeable difference in impact level.

When juvenile-specific interventions are family-based, we see somewhat mixed, but generally favourable results. For instance, in a 40-study meta-analysis by Farrington and Welsh (2003) the authors found family-based approaches to be generally effective at reducing delinquency, with programs which train parents to be most effective, and family-based approaches that take place within the school system to be the least effective. Likewise, when 5 studies were combined, Woolfenden, Williams, and Peat (2002) found family and parenting interventions reduced rearrest for treatment groups. When family

supervision and family affection is investigated, recidivism was found to be lower for the treatment group (Dowden & Andrews, 1999). Conversely, Lipsey (1999) conducted a meta-analysis using 18 studies and found no effect on the treatment group with regard to contact with courts and police.

Finally, when education and vocational programs directed at juveniles are examined, the evidence is mixed. Community-based academic programs appear to lower recidivism, as do programs which combine vocational skills training with job counselling (Lipsey, 1999; Dowden & Andrews, 1999). Similar to other school-sponsored programs, those which aim to provide education and vocational counselling within schools have been found to be ineffective (Lipsey, 1999). Vocational skills programs seem to provide a slight reduction in recidivism among treatment groups. When the outcome is actual education engagement and the intervention is not specifically education-based, but rather a reentry program that includes a variety of supports, Abrams and Franke (2013) found that the vast majority of participants either attempted (52%) a post-secondary program, or completed (13%) one (usually trade school). This study speaks to the potential of reentry initiatives in terms of education engagement (Abrams & Franke, 2013). Further, when employment outcomes are measured against mental health, substance abuse and career counselling treatments, research of post-release youth in Oregon has shown that at a 6-month follow-up post-release, employment was negatively associated with in-custody mental health treatment (Bullis & Yovanoff, 2006). That said employment was found to be positively related to in-custody substance abuse treatment and career counselling. When a vocational training program in the construction and building sector was evaluated Schaeffer et al. (2014) found higher employment rates and higher attendance of GED

courses; however other areas such as criminality, substance use and mental health were not impacted by the program.

Offender Needs Post-Incarceration

Clearly those offenders experiencing reentry have many challenges to overcome, with the above research demonstrating some of the contextual and developmental challenges faced by former prisoners in general, and young offenders in particular. As Travis and Visser (2005a) point out, a strategy which includes a post-release plan consisting of a wide range of supports, including family, community agencies, and employers, can be effective in reducing recidivism. One such method of support for juveniles is in the area of education or employment. A major trend in the literature is the need for juveniles facing reentry to receive some sort of education, or attain employment in order to be successful. A study by Abrams and others (2011) explored the impact of length of participation in community-based juvenile reentry programs on recidivism as both an adult and a juvenile, using self-reports of an urban sample of young-adult males. This research found that as adults, if participants in a community-based juvenile reentry program had at least a high school diploma/GED and were employed, they were 15-17% less likely to re-offend (Abrams et al., 2011). A study by Fields and Abrams (2010), which relied upon a convenience sample of both juvenile males and females within 2 months of release, found most subjects surveyed aspired to complete high school/GED upon release, but were concerned about academic needs such as being unaware of how many credits they required. This speaks to the educational challenges faced by juvenile parolees and the need for this population to be provided with assistance if they are

expected to enroll in school upon release. Most surveyed were also interested in acquiring employment upon release, but males were concerned about their earning ability and more likely to be accepting of the possibility of engaging in illegal means to earn an income compared to females (Fields & Abrams, 2010). The researchers concluded that employment counselling and job development are crucial policy directions if successful re-entry is to occur (Fields & Abrams, 2010).

While educational and employment needs may seem obvious in the reentry process, there are more latent variables to consider as well. Family for instance serves as a crucial socializing function for children and the success or failure of a juvenile seeking to reenter the community can be dependent upon the family dynamic. This socializing force can remain with young people well into adulthood. Baptist, Thompson, Norton, Hardy, and Link (2012) showed that when adults perceived their family-of-origin to be characterized by less-involved relationship-styles, more hostile approaches to conflicts are reported. That said it must be noted that notions around family can be tenuous as it can be difficult for outsiders to fully understand what is best for unstable family situations. Further, it is problematic to impose middle-class values or interventions created through a middle-class lens upon families which are experiencing turbulence.

In 1997 President Clinton enacted the Adoption and Safe Families Act. This policy marks something of an era of state intervention into families, with child protection becoming more important than family preservation (Vesneski, 2009). This is significant with regard to the program under study because while acknowledging that child safety is extremely important, the program also posits that it should be achieved in conjunction with family preservation. Using interview data with 35 juveniles who were in a

residential treatment program for at least 6 months, Hartwell, McMackin, Tansi, and Bartlett (2010) found that there are a wide variety of risk factors which may characterize justice system involved youth; including substance abuse, exposure to trauma, unstable family situation, academic problems, and delinquent peer-groups. According to the authors, their subjects sought to attain an education, as well as develop stronger relationships with their parents (Hartwell et al., 2010). In fact, researchers found that those that were interviewed felt that if their treatment was to be successful in preventing recidivism, reunification with their family was their most crucial need to be addressed (Hartwell et al., 2010). The young people interviewed also felt it necessary for them to be in a structured environment which may include attending school regularly or being involved in sports or other activities (Hartwell et al., 2010). As mentioned, notions of family are central in this evaluation as the Pathways program mandates family reunification to be a central facet of the program. That said according to Howe (2010), it can be difficult for the parents of treatment-involved youth to establish a working relationship with practitioners due to the perception that the practitioner represents a larger agency that parents may have already christen to be incompetent or untrustworthy. While difficult to develop and maintain, a strong working relationship between parents and practitioners is key to determining sound courses of action for the young person (Howe, 2010). If parents perceive the practitioner to be understanding of their unique needs, the process of treating their child will be less stressful for parents; enabling them to more effectively look toward the needs of the child, as opposed to focusing on their own stressors (Howe, 2010).

To the extent that poor-quality working relationships and increased emotional distance reduce the worker's capacity to be empathic, levels of stress for both parents and workers are likely to remain high. Heightened stress reduces the capacity of parents and workers to keep at-risk children in mind and in focus. This reduces their safety (Howe, 2010, p. 330).

Collaborative Aftercare

There are many contributors to reoffending, and many challenges to address each of these contributors. Further, academics have asserted that reentry programming should include cognitive skills training, training in coping mechanisms, and programming that emphasizes efficacy and personal identity (Spencer & Jones-Walker, 2004). When programs focus exclusively on the individual, they ignore the ecological aspects that can be addressed in a community-based intervention – ecological factors that inevitably impact individual-level decision-making (Spencer & Jones-Walker, 2004). As such it is logical to approach juvenile reentry and recidivism from a community collaboration or multisystems model; which is more encompassing than having one agency simply supervise the offender. In the past, programming of this nature has shown positive results, giving some promise to the program under study.

This collaborative approach has been seen in the Boston Reentry Initiative (BRI) wherein the Boston Police Department and the Suffolk County Sheriff's Department teamed up to provide enhanced criminal justice supervision as well as focused social services to those in the jail population who were at high risk of violent reoffending upon their return to the community (Braga et al., 2009). It must be noted that BRI focused on only those prisoners who are the most difficult to handle and are at greatest risk of reoffending. This of course is based on the fact that resources would be wasted if extra services were offered to those who are not of high risk for reoffending in the first place.

Of those newly placed in the Suffolk jail each month, 15-20 were selected for BRI based on their high risk of committing violent crimes upon release, age (18-32), and other more subjective criteria; such as gang involvement, and the likelihood of engaging in gun violence (Braga et al., 2009). The program consisted of prisoners being brought in front of a collective of both social service agencies to explain available programming to aid in reentry, as well as law enforcement (including parole and probation) to emphasize the idea that individuals will be held accountable if they fail to cease criminal engagement (Braga et al., 2009). Prisoners were assigned community mentors and a release plan was developed (Braga et al., 2009). Contact with mentors continued upon release (Braga et al., 2009). Using survival analysis, Braga and colleagues (2009) found that BRI was associated with a 30% reduction in overall arrest rates among the experimental group when compared to an equivalent control group. Similarly, a study by Kurlychek and Kempinen (2006) found that recidivism was lower for those subjects who participated in a 90-day intensive aftercare program following a boot camp sentence in Quehanna, Pennsylvania. In this case, the experimental group received aftercare which focused on treatment and rehabilitation, rather than supervision alone (Kurlychek & Kempinen, 2006).

Wilson and Davis (2006) had very different results in their evaluation of a New York City reentry initiative known as Project Greenlight. In this case reentry services were provided in an 8 week period prior to release, with no follow-up (Wilson & Davis, 2006). A reentry plan was developed in advance, and immediately upon release, prisoners were placed in contact with their families, agencies within the community, potential employers and parole officers (Wilson & Davis, 2006). The program also included skills

training in preparation for release; including cognitive skills, job skills, and life skills (Wilson & Davis, 2006). Again using survival models, researchers found that the probability of survival actually decreased for those 344 subjects who participated in the reentry program compared to control groups (Wilson & Davis, 2006). Wilson and Davis (2006) conjecture this finding to be the result of fidelity issues with regard to program implementation as well as a failure to place an appropriate population of offenders into the program.

MST is a programming strategy that has shown promising results in the literature and is a technique that also resembles the program under study. Both techniques take place in the home and in conjunction with family members. It is because of these similarities that in addition to general collaborative approaches to aftercare, a discussion on this particular collaborative aftercare strategy must be included. Butler, Baruch, Hickey, and Fonagy (2011) describe MST as:

An intensive family-and-home-based intervention for young people with serious antisocial behavior...MST was developed in response to research on the multidetermined nature of antisocial behavior, and adopts a social-ecological approach to intervention. MST improves behavior by intervening in the many systems of which juveniles are part (p. 1220).

In their study of 108 families, half of which were randomly assigned to MST, Butler et al. (2011) found that MST was more effective in reducing non-violent offending at an 18-month follow-up. Similarly, in their randomized controlled trial of 155 subjects and their families, Henggeler, Melton, Brondino, Scherer, and Hanley (1997) concluded that MST reduced incarceration by 47% at a 1.7 year follow-up. The authors also

concluded that efficacy was lower in settings where the treatment was not implemented with fidelity.

Interestingly, Sawyer and Borduin (2011) were able to follow up on a randomized controlled trial of 176 subjects who received MST approximately 22 years earlier. They found that felony recidivism and misdemeanor recidivism was much lower for those who received MDT. Finally, using interview data of 21 parents and 16 youths, Tighe, Pistrang, Casdagli, Baruch, and Butler (2012) sought to determine the success of MST from the perspective of the families the program aimed to serve. The study concluded that even when recidivism occurred, the program still offered alternative benefits; for example improved parenting and a return to an educational setting on the part of the young person.

Dosage and Failure

In addition to considering ecological context, needs of offenders - and particularly juvenile offenders, as well as the use of collaborative and multisystemic approaches to addressing many of these factors, it is also important to acknowledge optimal dosage when determining appropriate reentry initiatives. That said it is difficult to find consistent information on dosage, as optimal dosage may differ largely based on the program under study and the group being treated. For instance, in the study by Abrams and colleagues (2011), the length of reentry program was negatively correlated with juvenile recidivism, with non-recidivists participating in the program for an average of 2.3 months longer than recidivists (Abrams et al., 2011). The researchers found that controlling for age and education, as month of service increased, likelihood of recidivism decreased (Abrams et al., 2011). This finding is interesting as it relates to the Pathways program because in

contrast to the findings of Abrams and colleagues, this program generally operated on the assumption that very intensive services for one short burst (with a continuation of services when necessary) can be effective. Abrams et al.'s study on dosage was born out of a paucity of information on the subject; with only information on retention over time available. These studies have indicated that reentry programming at the community level appears to create effects which diminish over time. For instance, in an evaluation of a program wherein recently released juveniles were paired with adult mentors in Seattle, Washington, treatment subjects had lower rates of recidivism at 12 months when compared to a control group (Drake & Barnoski, 2006). However, at a 36 month follow-up, the differences between the groups had dissipated. Similarly, Wells et al. (2006) found that while the treatment group of a juvenile bootcamp and aftercare program had fewer reconvictions at a 4 month follow-up, by 12 months, both treatment and comparison groups did not differ in recidivism rates. Because effects diminish over time and a larger dosage seems to point to a better result, while the Pathways "short burst" approach is concerned about efficient use of resources by focusing on vulnerability following the early days of reentry, it seems to be empirically questionable.

Existing Literature and the Current Study

The current study contributes to this existing body of literature in a number of important ways. First, this project paints a picture of the communities this offender population was released into through the presentation of earlier work done by Piza (2013), as well as it tests the efficacy of a program specifically targeted toward juveniles that includes a dynamic measure of recidivism consisting of time until failure and the

severity of such failure. Additionally the current study displays how particular constellations of services impact success through an investigation of interactions between the Pathways program and education, substance abuse treatment, mental health treatment, and anger management programming. The current study also adds to the body of literature on intensive supervision and collaborative and multisystemic approaches to juvenile reentry in its demonstration of the efficacy level of a program of such nature. Further, through its discussion of the Pathways aftercare model, stakeholder challenges and perceptions, and the program in practice, this research outlines the difficulties and benefits of collaborative approaches to aftercare for juvenile offenders through a process lens. Finally, this research contributes to the current body of literature by addressing how risk levels may change over time for both treated and untreated juveniles. This exploration of risk level serves to inform the literature on dosage which is relatively sparse at this time.

CHAPTER 2

2.1 Scope of the Current Study: The Participants

Participant Description

The population specifically under study here can be characterized as being plagued by a variety of individual-level challenges. Earlier unpublished research on the program under study in the form of a process evaluation has shown the background

characteristics and offending histories of the specific population targeted by this particular program (Sytsma, 2013). While the program aimed to accept 120 subjects throughout its lifespan, the population reached only 36 by the end of the program activities. Information on juveniles came primarily from MDT intake sheets, which were subsequently compiled into program documents by The Bridge, Inc, with assistance from this researcher.¹ This information was then used to create frequency tables, prepared on a variety of variables to describe targeted juveniles. These variables include ethnicity, known gang involvement, current use of medication to treat a mental health condition, New Jersey Division of Child Behavioral Health Services Involvement (CBHS), Division of Child Protection and Permanency (DCP&P) involvement, prior offences, and the offences which resulted in Pathways supervision. These variables also include services received while under Pathways care (including education level, level of employment, substance abuse treatment, sex offender treatment, mental health treatment, parenting classes, and anger management treatment).

CBHS is a state-run organization which aims to provide services for children and young people with emotional and behavioral difficulties, and developmental challenges, as well as their families. In previous research on the current population, involvement with this agency referred to receiving services, past or current to February 2013, from Partnership for Children of Essex (a non-profit affiliate), or other affiliates such as Care Management Organizations (Sytsma, 2013). Additionally, involvement with DCP&P (formerly Division of Youth and Family Services) was measured as any involvement past

¹ It must be noted that this is a different data source from the one used in the current study, as such some of the results of the preliminary analysis differ slightly from the findings presented in the results section of this document. Data concerns of this nature will be discussed in detail in the conclusion of this document.

or current as of February 2013, and also included involvement due to any children the juvenile may have. Age referred to age at release, with the average age of program participants being 17. Age at which the offender committed their first offence referred to the age at which they were convicted of a crime for the first time. Information on age at first offence was very limited and frequencies were only available for 9 subjects. Measurement of prior offences included those offences subjects were convicted of prior to the offence which resulted in Pathways supervision; and measurement of current offences included those offences which resulted in Pathways supervision. Offences were organized by crime type; with the 'other' crime type containing those crimes which were not easily categorized as violent, sexual, property, weapon-related, drug-related, or failure to comply with conditions of probation or parole. These 'other' crimes included terrorist threats, conspiracy, endangering the welfare of a child, kidnapping, eluding, resisting arrest, wandering without a purpose, taking without consent, escape, and harassment. Within the analysis of services received while under Pathways care, level of employment was broken down into 3 levels with "no employment" referring to the subject not being employed at any time while under Pathways care. "Some employment" referred to the subject being employed sporadically throughout the process, such as those who were employed to meet extra demands during the holiday season. "Full-time employment" referred to those subjects who were employed on a full-time basis throughout the majority of the process, and included those who earned a salary through their full-time participation at Youth Build, which is a non-traditional education setting that allows students to complete secondary school and learn vocational skills.

Using descriptive statistics on general background variables of the 36 program participants shown in Table 1, it was found that most subjects were black, 83% were gang-involved, just under half had contact with CBHS at some point in their life, and with the limited information available for age at first offence, on average, subjects were first in trouble with the law around age 15 (Sytsma, 2013). Further, only 2 of the 36 participants (5.6%) had some involvement with DCP&P; indicating that perhaps family may not be an area of concern for this particular population.

Table 1

General Background Characteristics of Pathways Participants

Sex	<i>n</i>	Percent	
Male	35	97.2%	
Ethnicity	<i>n</i>	Percent	
Black	30	83.3%	
Hispanic	6	16.7%	
Known Gang Involvement	<i>n</i>	Percent	
No known gang involvement	6	16.7%	
Blood	21	58.3%	
Cript	8	22.2%	
Latin King	1	2.8%	
On Medication for Mental Health	<i>n</i>	Percent	
Yes	3	8.3%	
NJ Division of Child Behavioral Health Services (Past/Present)	<i>n</i>	Percent	
No CBHS involvement	18	50%	
Partnership for Children of Essex	13	36.1%	
Other	3	8.4%	
NJ Division of Child Protection and Permanency (formerly DYFS) involvement (Past/Present)	<i>n</i>	Percent	
Some DCP&P involvement	2	5.6%	
Age	Min	Max	Mean
	17	20	17
Age at First Offence (<i>n</i> =9)	Min	Max	Mean
	11	17	14.9

NOTE: *N*=36 with the exception of Age at First Offence, which is based upon *n*=9 due to missing data.

When offence histories were investigated in Table 2, prior to the offending which resulted in Pathways supervision, 42% of the sample had committed violent offences, 36% property offences, 42% drug-related offences; and even early in their criminal

careers, 42% had already been in trouble for violating existing community supervision orders. Further, 61% of the program participants had 3 or more prior offences before commitment of the offence which resulted in Pathways supervision.

Table 2

Offending Histories of Pathways Participants

Prior Violent Offence, Excluding Sexual	<i>N</i>	Percent
No prior	14	38.9%
1 prior	9	25%
2 priors	6	16.7%
Prior Sexual Offence	<i>N</i>	Percent
No prior	26	72.2%
1 prior	2	5.6%
Prior Property Offence	<i>N</i>	Percent
No prior	16	44.4%
1 prior	9	25%
2 priors	4	11.1%
Prior Weapon Offence	<i>N</i>	Percent
No prior	20	69%
1 prior	8	27.6%
2 priors	1	3.4%
Prior Drug Offence	<i>N</i>	Percent
No prior	14	38.9%
1 prior	15	41.7%
Prior Failure to Comply	<i>N</i>	Percent
No prior	14	38.9%
1 prior	14	38.9%
2 priors	1	2.8%
Prior 'other' Offence	<i>N</i>	Percent
No prior	22	61.1%
1 prior	6	16.7%
2 priors	2	2.8%
Total Prior Offences	<i>N</i>	Percent
1 prior	3	8.3%
2 priors	3	8.3%
3 priors	15	41.7%
4 priors	5	13.9%
5 priors	1	2.8%
6 priors	1	2.8%

NOTE: *n*=28, due to 8 missing cases.

With regard to those offences which resulted in Pathways supervision, Table 3 indicates that half of the program participants committed a violent crime, very few a drug offence, at 69% the overwhelming majority were unable to follow community supervision conditions, and 72% committed 1-2 offences to garner Pathways supervision.

Table 3*Offences which Resulted in Pathways Supervision*

Current Violent Offence, Excluding Sexual	<i>N</i>	Percent
None	18	50%
1	18	50%
Current Sexual Offence	<i>N</i>	Percent
None	36	100%
Current Property Offence	<i>N</i>	Percent
None	26	72.2%
1	10	27.8%
Current Weapon Offence	<i>N</i>	Percent
None	32	88.9%
1	4	11.1%
Current Drug Offence	<i>N</i>	Percent
None	30	83.3%
1	6	16.7%
Current Failure to Comply	<i>N</i>	Percent
None	11	30.6%
1	25	69.4%
Current ‘other’ Offence	<i>N</i>	Percent
None	31	86.1%
1	4	11.1%
2	1	2.8%
Total Current Offences	<i>N</i>	Percent
1	14	38.9%
2	12	33.3%
3	9	25%
4	1	2.8%

N=36**Community Context**

Thanks to a working paper by Piza (2013), information on the neighbourhood contextual factors faced by the specific population of the program under evaluation is available. Using the residence address data of 21 of the 36 Pathways clients (the total number of subjects available at the time this exercise was completed), Piza (2013) developed descriptions of participants’ spatial distribution in comparison to the spatial distribution of a variety of crime-generating variables. Further, Piza (2013) cross-referenced Newark client residences with the spatial intersections of these potential risk factors. These crime-generating variables included “at risk” housing, gang territory, drug arrest hotspots, and gun violence hotspots; all of which came from Newark Police

Department data. This was not an exhaustive list of crime-generating variables, but merely aimed to paint a picture of some of the challenges faced by Pathways clientele.

Drug arrest and gun violence hotspots began as GIS point layers showing the location of all drug arrests and violent crime incidents (gun murders, shootings, shots fired, gun robberies, and gun assaults) that occurred in the City of Newark during 2011. This data was based on Newark Police Department's systematically geocoded arrest data in the case of the drug crimes, and Part 1 crime incidents in the case of the violent crime. According to Piza (2013) GIS layers denoting gang territory were created during a separate 2011 study of crime and drug activity in Newark by Braga, Grossman, and Piza. In that study, Braga et al. (2011) conducted a series of focus groups lasting between 3 and 4 hours each with officers with non-administrative, investigative assignments from various units of the Newark Police Department. The goal of the focus groups was the identification of precise geographies considered as gang territories throughout Newark. The "at-risk" housing file, created and maintained by the Newark Police Department's CompStat unit through a partnership with the Newark Housing Authority and various City of Newark departments, is a GIS polygon layer containing land parcels with particular types of housing complexes. In addition to public housing units, the at-risk housing file included privately-owned complexes similar in scope to public housing complexes -in recognition of previous analyses (see Kennedy, Caplan, & Piza, 2011; Piza & O'Hara, 2012; Zanin, Shane, Clarke, 2004) finding that such complexes contribute to crime in a similar manner as public housing in Newark. Specifically, Newark personnel identified residential complexes with 10 or more units with similar structural attributes (for example large buildings with single entrances and limited automobile accessibility to

the courtyard), as well as complexes receiving government subsidies for renting to low income individuals (Piza, 2013).

For this exercise, the ArcView Spatial Analyst Extension was used to convert point data to raster and it was geocoded to street centerlines of Newark, NJ (created by the City of Newark's Office of Engineering and maintained by the Newark Police Department's Compstat Unit). Each of the 4 risk factor layers were then reclassified into a dichotomous variable, operationalized as '0' to represent not highest risk, and '1' to represent highest risk; with '1' referring to all values greater than 2 standard deviations from the mean. In the case of the "at risk" housing, and gang territory risk layers, because they were polygon shapefiles as opposed to point data, no standard deviations were used. Instead, all areas in Newark, either in or within a distance of half-a-block (145 feet) of these areas, were considered highest risk and coded as '1'. All other areas in the city were coded as '0', for not highest risk. The Raster Calculator function in ArcMap was used to combine each risk factor into a composite Risk Map. Risk values in the composite risk map ranged from a low of '0' (no risk factors present in the area) to a high of '4' (all of the 4 risk factors are present in the area). Each program client was assigned a Risk Value corresponding to the composite risk of their home address. For example, a client residing in an area with a risk value of '4' was assigned a score of '4', while a client residing within an area with a risk value of '0' was assigned a risk score of '0'.

When Piza (2013) mapped Newark Pathways client residences, it was found that clients tended to reside primarily in the mid-western area of Newark, with several residences distributed sporadically as one moves north (see Figure 2). When the

distribution of Pathways clients was compared to “at risk” housing complexes with a half-block buffer surrounding the complexes, there was clear overlap between the residences of these individuals and “at risk” housing. These results were quite similar for each of the crime-generating variables used.² When these variables were then summed with the inclusion of client addresses, it can be seen that there was a substantial cluster of Pathways clients in the mid-western portion of Newark who experience 3-4 of these risk factors simultaneously (see Figure 3). In short, Piza (2013) concluded that only 5% of the Pathways caseload experienced none of the risk factors used here. Conversely, 25% experienced 3-4 and 80% experienced 2 or more of the aforementioned risk factors.

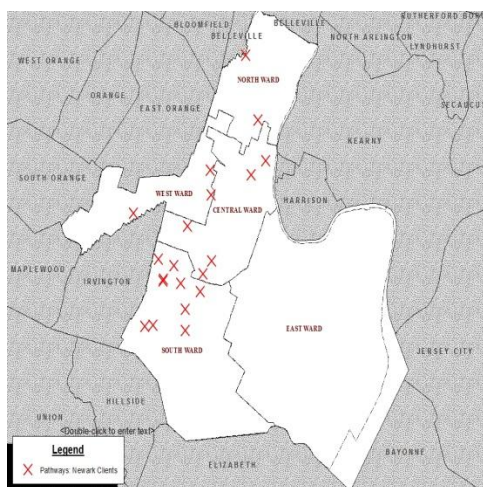


Figure 2. Residence locations of Pathways clients. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

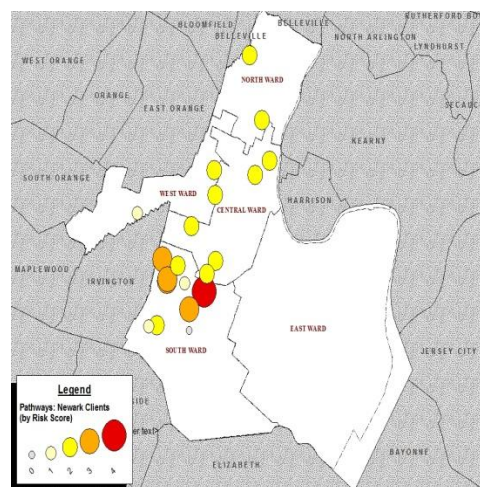


Figure 3. Residence locations of Pathways clients by risk level. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

Participant Needs

Early analysis of the Pathways program conducted by Sytsma (2013) indicated that the targeted juveniles received services which may not have been optimal in

² See APPENDIX A for spatial analysis graphics not shown here.

preventing future offending. The services received by all Pathways participants are presented in Table 4. Here it is shown that half of program participants had at least a GED or high school degree and 69% had no employment while under Pathways supervision. As mentioned, reentry literature has shown that employment counselling and job development are crucial if successful re-entry is to occur, as those juveniles with a secondary education and employment are far less likely to reoffend as adults (Fields & Abrams, 2010; Abrams et al., 2011). However, either very little emphasis was placed on employment throughout this program or employment was approached using ineffective methods - which is demonstrate by the extremely high level of chronic unemployment experienced by program participants.

Table 4

Services Received

Education Level	N	Percent
9 th grade	6	16.7%
10 th grade	5	13.9%
11 th grade	7	19.4%
GED	8	22.2%
High School Diploma	9	25%
At least some college	1	2.8%
Level of Employment	N	Percent
No employment	25	69.4%
Some employment	5	13.9%
Full-time employment	6	16.7%
Substance Abuse Treatment	N	Percent
Received some substance abuse treatment	35	97.2%
Sex Offender Treatment	N	Percent
Received some sex offender treatment	1	2.8%
Mental Health Treatment	N	Percent
Received some mental health treatment	12	33.3%
Parenting Classes	N	Percent
Received parenting classes	4	11.1%
Anger Management Treatment	N	Percent
Received some anger management treatment	16	44.4%

N=36

The above table also demonstrates that all but one of the 36 participants received some level of substance abuse treatment, 33% received some treatment for mental health

issues and 44% received some anger management treatment. The finding that very few of the current subjects were placed in the program due to a drug conviction, but that most received some level of substance abuse treatment is not a surprising one. Research has shown that there tends to be a discrepancy between how well clinicians believe a client to be faring, and how well a client believes they are doing with regard to drug treatment; with clinicians being more likely to believe clients are in need of further substance abuse treatment (Pulford, Adams & Seridan, 2007). This was found to be the case regardless of whether clients dropped out of treatment partway through or if they remained in treatment until the end, indicating a bias toward excess treatment on the part of the clinician (Pulford et al., 2007). In the case of Pathways, this inconsistency between the low number of drug offenders and the extremely high level of mandated drug treatment indicates that perhaps reentry services were not allocated appropriately. Further, and perhaps more pressing, compelling unnecessary treatments may even be harmful to recipients. It should also be noted, that in New Jersey, juveniles are automatically disposed with drug treatment as a condition of release – a practice that is perhaps problematic.

Program in Practice

The objectives, activities and program logic are made clear in the logic model; however it is important to also discuss how those activities and other reentry challenges actually manifested in practice for the treatment group. Firstly, once juveniles were released, it was into the custody of a variety of guardians; for example mothers were the most common guardians, followed by grandmothers, aunts and fathers. Either

immediately prior to, or immediately after release (depending on the date of the monthly meetings), the needs of a new client to come under Pathways care were discussed at the monthly case management meetings. Meeting attendees would develop a constellation of services for the client based on their combined clinical expertise, the court disposition developed during the MDT process, the client's living environment, and other individual concerns (such as a disability, or whether or not the juvenile has a child). Aside from the court ordered services, decisions about service allocation were based upon meeting attendees having an average of over 10 years of experience in the field.

During the course of the program a Pathways case worker made regular visits to the home (approximately weekly), and these visits ended in varying levels of success; for instance there was a case of a gunshot victim who refused to come to the door during several visits. While in the home, or sometimes over the telephone, the case worker would make note of a wide variety of challenges (or victories) the client may have been facing; such as whether or not they were enrolled in school or found employment and if not, why; relationship challenges with the guardian or other family members; and progress levels within the various treatment regimens, such as substance abuse. Some specific examples include the case where a local high school may have had a list of students they did not wish to allow into school, which included Pathways clients; as well as the case of a client who was prohibited from taking a lighter course load in order to balance school with other conditions of their legal disposition.

The case worker would then report back to community service providers and other stakeholders at monthly case management meetings and appropriate referrals would be made consistent with both the individual challenges a juvenile faced, as well as court

mandated treatment requirements. Parole and probation officers also reported back at case management meetings in the event of any violations; as well as any successes they were aware of. For example there was a lengthy discussion of a client who made great progress during her time on parole. In this case the supervising parole officer and the Pathways case worker were told they had done a great job with this parolee.

If the meeting group was in agreement that there was significant issue, appropriate parties indicated that they would take action; such as having a discussion with the a client, provide a warning that a violation may occur, or ensure the client had transportation to commitments such as treatment or job interviews. Additional examples of actions taken include a post-parole client who was nudged by parole to remain in school; a meeting with a client where Pathways, parole and Family Connections all made themselves available to meet with an uncooperative parolee collectively; and the case of a client who required summer school but was refused acceptance by the school. Because partners were informed on the facts regarding the legal obligations of schools, the school accepted the client and provided him the courses he needed to graduate. Further illustrations of actions taken include a client who was wrongfully paying child support. Here the Pathways case worker provided transportation and ensured all proper documents were completed. Finally, a client had no form of identification because he was a Haitian refugee, but the Bridge provided a counselor that was able to translate for the family and help the client to receive proper identification.

Clients spent their time in a variety of ways. For those who were unwilling or unable to return to public school, some attended Youth Build during school hours. In one instance an individual spent a great deal of time at home during the day while waiting to

get back into school, while other clients who already had high school or a GED had a lot of down time due to unemployment. Other subjects spent days attending substance abuse, mental health, or anger management programming at Family Connections or The Bridge, Inc. In a small number of cases, the juveniles had children of their own and attended parenting classes.

Despite juveniles being pushed to fill their days with activities, many were still unable to remain deviance-free; for instance there were cases of carjackings, a few clients were caught with or using drugs, some did not attend mandated treatment, and in one case a client lined-up multiple job interviews, but missed them due to sleeping through the day.

This program was scheduled to operate for a period of 3 years, beginning in August 2011 and ending in late 2014. However, this program ended quite prematurely in February 2013 due to funding cuts. This research was supported by a grant from Robert Wood Johnson Foundation's Local Funding Partnerships Special Solicitation with matching funds from The Nicholson Foundation. The Nicholson Foundation guaranteed one year of support, with the remaining support to be based upon reporting and contract compliance requirements set out by Nicholson; however these requirements were changed several times over the first six months of the funding, making it difficult to keep up with reporting. Further, the program officer at The Nicholson Foundation which supervised this program resigned. Due to these challenges, funding from Nicholson was placed on hold, resulting in an immediate suspension of the Pathways program activities. As a result of the suspension of the program, all existing clients as of February 2013 continued to receive services, but no new cases were added to the caseload.

2.2 Scope of the Current Study: The Stakeholders

Process Evaluation

As mentioned, a process evaluation has already been completed for this program. In addition to describing the participants, this early work by Sytsma (2013) demonstrated the strengths of utilizing a collaborative approach, as well as it demonstrated many of the challenges encountered by using this approach. For this research, there were several concepts which required conceptualization. First, the Pathways program can be considered a *juvenile reentry* program. The New Jersey criminal justice system considers anyone under the age of 18 at the time an offence was committed to be a ‘juvenile’. The Pathways program ran consistent with this definition in that clients in the program committed their offences prior to the age of 18. That said these were individuals who had already been through the court system and detention by the time they reached the program; as such they were often over the age of 18 by the time they entered the program. Further, the program was equipped to serve children 8 years old or even younger. However because they had all received incarceration sentences, they had most likely been in contact with the criminal justice system numerous times previously; thus they were more likely to be in the latter-teenage range. Therefore a ‘juvenile’ referred to an individual who committed an offence prior to the age of 18, with participants typically being in the late-teens to early-20s. Further, the term ‘reentry’ ran consistent with the definition provided by the Urban Institute (2012) which states that prisoner reentry refers to “The process of leaving prison or jail and returning to society. Nearly all prisoners

experience reentry irrespective of their methods of release or form of supervision, if any” (para. 1).

This process research attempted to determine the extent to which the program was able to *mobilize a broad range of community-based partners* to serve the needs of the target population (Sytsma, 2013). The term ‘mobilize’ referred to the organizing of stakeholders for the purpose of taking action toward the proposed goal. Additionally, the research aimed to determine the extent to which the program was able to *identify and remove institutional barriers* to the effective treatment of subjects. These ‘institutional barriers’ referred to hurdles to a juvenile’s progress which are systemic and can be traced back to management or even policy levels. An example of this may be a juvenile who is unable to re-enroll in school upon release due to a school policy prohibiting students who display certain behaviours from attending the school.

This process research utilized survey data to gather a pre- and post-test of perceptions of program effectiveness and worth on the part of staff and stakeholders.³ Interviews with stakeholders were planned, but because this program lost funding prematurely, the interviews did not take place.⁴

As indicated in the logic model, the population of interest for this survey research met once monthly as part of the activities of the program being evaluated. Subjects came from the individuals who represented their respective community agency at monthly case management meetings. The agencies included, but were not limited to, The Bridge, Inc., The Youth Services Commission of Essex County, the Youth Education and Employment Success Center of Newark, the Juvenile Justice Commission/Juvenile Parole, Family

³ The survey and its associated informed consent form can be seen in APPENDIX B.

⁴ The Rutgers Institutional Review Board (IRB) for the Protection of Human Research Subjects granted permission for these research activities. See APPENDIX C.

Connections and the Essex Vicinage Probation Service. Those who attended meetings were not an exhaustive list of all individuals who had contact with Pathways participants in a practitioner function; nor is it an exhaustive list of those involved in the Pathways program in a management capacity. The Bridge, Inc. had no real control over who chose to attend monthly meetings, but one might conclude those who attended were also those who were most engaged in the program operations. As such the survey portion of the process evaluation relied upon a purposive, non-probability sampling strategy and it was during monthly case meetings where all individuals were invited to fill out an anonymous survey to express their perceptions of the Pathways program. Surveys were done immediately following the monthly meeting and recruitment was voluntary.⁵ Survey data was collected sporadically from December 2011 to February 2013 – with the same survey instrument being used each time. The survey was originally administered monthly, but due to respondent fatigue, administration became more sporadic. The result of this change is that while response process validity may have increased, the number of time points available for comparison decreased. Had the researcher known the program was going to end prematurely, monthly administration would have continued despite low respondent engagement.

Through this survey research, it was found that including those who did not complete surveys, across all 18 meetings, the average number of meeting attendees was 13, with a minimum of 10 and a maximum of 16; and the survey response rate was 86%. Surveys were administered at a total of 6 time points over the course of the 18 month program. Based on survey responses, there was a range of stakeholders present at any

⁵ See APPENDIX D for a copy of a letter from Executive Director of The Bridge, Inc., Stanford Brown, to the IRB granting permission for the principle investigator to access this population.

given meeting, with either a parole officer or probation officer present at all time points; other clinicians, individuals in a supervisory role, academics, and occasionally a representative from DCP&P/child welfare were also present. Most subjects to complete a survey identified themselves as ‘other,’ indicating an even wider array of partners than the aforementioned.

Across the 6 time points, a total of 57 responses were captured for the question of how many years respondents have worked in the general field. Based on these 57 responses, years of experience ranged from 1 to 30+, with a mean of 11.23 years of experience and a standard deviation of 6.78.

Observer-as-participant field research was also conducted by Sytsma (2013) during the monthly case management meetings, with observations recorded as field notes. These notes were thought to be able to capture more-nuanced information not captured by other data collection sources. Results were analyzed by theme, with specific examples presented to illustrate findings.

Pathways Aftercare Model

A central objective of the Pathways program was to form a CRT by mobilizing a range of community-based partners. There was much evidence to support the notion that partners were indeed mobilized; and in the process of mobilizing these partners, attempts were made to reconnect juveniles to the communities in which they reside (Sytsma, 2013). Not only were partners mobilized to participate, they typically participated in an extremely collaborative and supportive manner. This can be seen in an instance where one client was nearly finished with parole, but The Bridge, Inc. felt the client could

benefit from further services. In this case there was a sense that it would be difficult to get the mother of the client to agree to continue receiving services without the looming threat of a parole violation. Despite the client leaving the parole case load, a parole officer offered to telephone the client and his mother to endorse the activities of The Bridge, Inc. It was during this discussion at the case management meeting that parole announced an “open door policy” with regard to clients near discharge; parole pledged to move beyond its individual mandate to support other agencies in trying to continue services post-supervision. These kind of “united front” and “open door policy” initiatives were common throughout the process, including a case where a client was injured by a gunshot and claimed he was unable to see the Pathways home visitation case worker due to his injury. Because this lack of home visitation was undermining a central mandate of Pathways, parole suggested they would participate with Pathways on a joint home visit. Further examples include a post-parole client who was nudged by parole to remain in school; a meeting with a client where Pathways, parole and Family Connections all made themselves available to meet with an uncooperative parolee; and an inquiry from Youth Build to go beyond their responsibilities to visit a client in custody who had been arrested while on the Pathways caseload. One meeting attendee can be quoted as stating, “it’s not just individual commitment, but also agency commitment – people are really starting to come to value Pathways meetings.”

This tight collaboration between agencies and the willingness to go ‘above and beyond’ individual mandates may well be due to the friendly and cooperative nature of the particular group of agencies which made themselves available to the Pathways program in the first place; and more prominently, the particular individuals present at

meetings. Throughout the process, meeting attendees either knew each other prior to Pathways through the MDT process, or were getting to know each other through Pathways, and were often observed laughing and generally keeping the meeting atmosphere light and welcoming. Meeting attendees often praised each other on successes, as in the example of when a female client made great progress during her time on parole. In this case the supervising parole officer and the Pathways case worker were told they had done a great job with this parolee. During one meeting, a representative from the JJC was present and commented on the level of organization, cooperation and closeness of the Pathways meeting attendees. To this, a representative from parole can be quoted as saying, “it is nice to reach out and have someone to reach back.”

The benefits experienced by offenders due to this collaborative approach was seen in the way in which supervision was able to be somewhat tailored to the needs of the clients – as tailored as possible given a client’s legal disposition. In one case all agencies agreed to provide a lower intensity of programming to a client to avoid overwhelming her with services. Conversely, in another case, it was agreed that the client was more successful when supports were more intensive. These examples indicate that when agencies are able to communicate regularly, the best interest of the client under supervision can be determined collectively, and conflicting practices are avoided.

In keeping with the above discussion on collaboration, the Pathways meetings also succeeded in providing agencies a forum in which to explain the mandates, and policies and procedures of their respective programming (Sytsma, 2013). Sometimes this was during the course of a referral, and sometimes during the announcement of new programming. In either case, by informing stakeholders of the types of programming

available, it provided stakeholders with a larger toolbox from which to choose the best means of offender support. There are many examples of this information sharing. A limited list of these examples includes the presentation of a recently opened daily reporting center operated by The Kintock Group; the discussion of a new job readiness program; an explanation of the consequences faced by an individual who was terminated from the Prisoner Re-Entry Program; an explanation of the programs offered by Urban Renewal, such as a computer repair course and transitional housing; a discussion of the Yes Center permuting into the Reengagement Center, and its more formal connection to the Newark Public School system.

Stakeholder Challenges

While there is evidence to support the notion that community partners were indeed mobilized to participate, and many did so with high levels of engagement and collaboration, the objective that the range of partners being mobilized would be *broad* could have been met to a slightly higher degree. For instance, there were partners which were privy to invaluable knowledge on a given offender that may have proven helpful when making referrals that were absent from meetings. Absences are an issue because this program functions primarily around the objective of collaboration and communication between community-based partners. While it is possible and in fact likely that stakeholders engaged with one another during the MDT process or in other ways in the community, without all stakeholders coming together at monthly meetings, the mobilization of a broad range of community-based partners is somewhat impaired. This observation is further supported by survey findings where respondents were less likely to

agree that a broad range of community-based partners seem to be present at the case management meetings the longer the program commenced. Further, there were at least 4 occasions where a client to be discussed was being serviced by a particular agency, and a representative from that agency failed to attend the meeting. Stakeholders had specific questions for this agency, yet were unable to have their questions answered.

There was also the concern around agencies not participating with the same level of commitment as others. This was seen with partners leaving the meeting partway through; which is problematic as partners may miss the chance to offer referrals, as well as partners may have had past-involvement with a case and may be able to provide relevant insight. During a discussion of meeting attendees leaving early, one attendee expressed dissatisfaction by stating, “collective wisdom is what we are looking for.” In a more extreme example of low levels of enthusiasm regarding Pathways, a community supervision representative was inclined to violate a client because the guardian was not available to consent to treatment at Family Connections due to scheduling issues. The Bridge, Inc. requested a delay of the violation while agencies worked together to accommodate the schedule of the family. In this case the community service representative was unwilling to be accommodating and can be quoted as stating, “my day ends at 4:30, not 5 o’clock.”

Finally, while Pathways encouraged collaboration and cooperation between agencies, at times, due to some agencies being adversarial by design, cooperation was not possible. In one example of this, one meeting attendee suggested enlisting the help of the client’s defense attorney to determine how to optimally provide services to the client. In a sobering response to this suggestion, one meeting attendee stated, “defense attorneys are

on the opposite side from us, so we tend not to speak to them.” In another example, despite the client’s lawyer urging that the client was developmentally delayed and required special consideration, parole had to acknowledge the individual was still a threat to public safety and as such, parole must act as a law enforcement body. During this conversation it was recognized that some agencies are not legally allowed to communicate with each other or may be adversarial in nature.

Stakeholder Perceptions

A major aspect of the process evaluation was stakeholder surveys. These surveys indicated that stakeholders tended to have mixed feelings on the intended outcomes of the program, depending upon which outcome they were asked about (Sytsma, 2013). The level of agreement that the case management meetings will likely have a positive impact on targeted juveniles and their families began high, with almost all respondents at least agreeing. As the program commenced, these results leveled out, at around 80% of respondents being in agreement. Similarly, when asked about agreement that the case management meetings are likely to contribute to reconnecting juvenile offenders to communities, there was a peak in uncertainty in February 2012, which was approximately 6 months into the program; but this uncertainty leveled out with at least 80% in agreement between March 2012 and February 2013.

There were several program outcomes which resulted in a substantial level of uncertainty from respondents; with uncertainty peaking around February or March 2012 (Sytsma, 2013). Within these outcomes, at their peak, over 40-65% of respondents stated

they neither agreed nor disagreed -with the uncertainty remaining in some cases until February 2013. Outcomes included:

- the rehabilitation of juvenile offenders;
- the removal of institutional barriers to the effective treatment of targeted juveniles and their families;
- the mobilization and engagement of executive level participants in resolving gaps in service delivery;
- an increase in overall stability in the lives of those targeted juveniles and their families;
- a reduction in juvenile recidivism among participants.⁶

The latter-most outcome is the most notable, with just under 20% of respondents neither in agreement nor disagreement that the case management meetings will likely contribute to a reduction in juvenile recidivism among participants in December 2011. This level of uncertainty climbed to over 65% by March of 2012. The hesitation regarding recidivism reduction remained, and the number of respondents who either strongly disagree or neither agreed nor disagreed fell to 40% by February 2013 (see Figure 4).

⁶ See APPENDIX E for additional graphical representations of survey data.

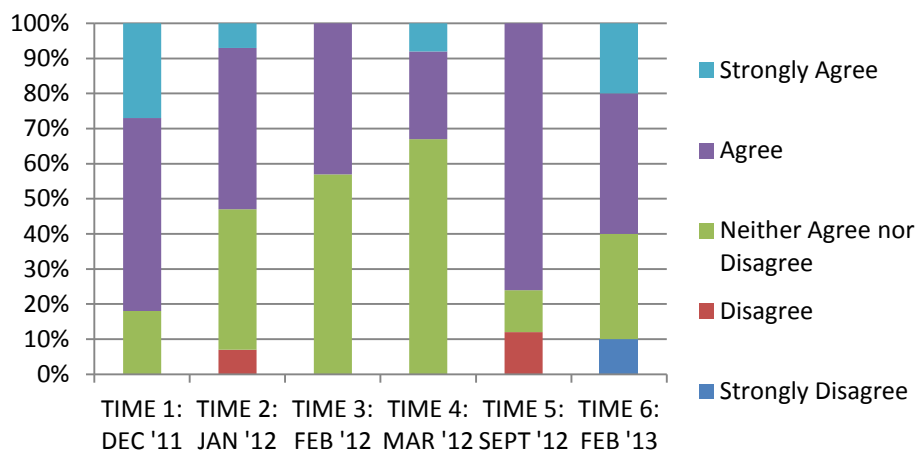


Figure 4. The case management meetings will likely contribute to a reduction in juvenile recidivism among participants.

When asked about level of agreement that the case management meetings seem to identify institutional barriers to the effective treatment of targeted juveniles and their families, early responses teetered on uncertainty or disagreement, with around 60% of respondents in agreement or strong agreement with the statement in December 2011 and January 2012. Agreement with the statement increased to around 90% by February 2012 and March 2012. One year later, agreement with the statement was back down to 70%.

Agreement that the individual needs of targeted juveniles and their families are responded to in the areas of education, family dynamics, substance abuse, mental health, and gang activity as a result of the case management meetings remained fairly steady at around 75-85% between December 2011 and September 2012; and rose to 90% by February 2013.

Finally, despite a slight increase in respondents who neither agree nor disagree in March 2012 (18%), agreement that the day's case management meeting was productive and a good use of time remained fairly stable over time at around 86% of respondents

either agreeing, or strongly agreeing. Again, despite a spike in those who neither agree nor disagree in March 2012, agreement that that day's case management meeting was a satisfactory experience remained fairly stable at 85-100%.

It is not known why stakeholders did not hold consistent views surrounding program objectives, and at some points outright doubted them. However, it may be due to the brief time periods the subjects were actually supervised; as well as the short duration of the program as a whole. As mentioned, each subject was supervised for approximately 8 weeks – sometimes longer if necessary. With community service providers meeting once monthly to discuss current caseloads, depending on the service provider's role and relationship to a given client, there is potentially very little time for stakeholders to form an attachment to a given case; ultimately resulting in less enthusiasm around program objectives in general. This is more likely given that the program as a whole was supposed to operate for 3 years, but was cut short after approximately 18 months – giving stakeholders little time to understand mandates, adjust to scheduling conflicts, work through any initial adjustment periods in order to ensure the program ran smoothly and with fidelity, and generally form an attachment to the program and the other stakeholders involved. This notion of program duration impacting stakeholder beliefs around objectives is consistent with the literature which suggests larger dosage is optimal over programs which are short in duration (Abrams et al., 2011; Drake & Barnoski, 2006; Wells et al., 2006).

CHAPTER 3

3.1 Theoretical Framework

Trends in Community Supervision Models

As with scientific paradigms in general, theories of community supervision shift over time, with the field seeing a large number of perspectives over the years. As Schwalbe (2012) points out:

At minimum, these include deterrence theory, control theory, just deserts theory, and restorative justice...each contributes a set of strategies based on assumptions about social and psychological mechanisms of change, the purposes of the justice system, and the prescribed objectives of probation (p. 186).

That said approaches to community supervision seem to be cyclical with older trends often rearing their head a generation later. Models which focused on strict enforcement of conditions rather than therapeutic approaches were the norm throughout the 1970s to part of the 1990s (Taxman, 2002). However a 1993 game-changing paper by Petersilia and Turner which evaluated an intensive supervision program pointed out that cracking down on technical violations through close supervision of offenders does not in fact decrease new arrests. Because individuals are not given a chance to make mistakes, *learned helplessness* can develop and they lose the motivation change.

Despite punitive approaches to supervision falling out of favour by the mid-1990s, they made something of a comeback throughout the first decade of the 2000s in the form of specific deterrence; likely due to the success of law enforcement interventions such as Boston Ceasefire. This type of intervention was designed by Braga,

Kennedy and many others to reduce gang violence by bringing together a variety of individuals in law enforcement, the judiciary, and social work, and informing offenders they would be treated extremely harshly if they engaged in violence, but would be provided services should they wish to leave the criminal lifestyle (Kennedy, 2011).

This specific deterrence-style of law enforcement translated into community supervision in much the same format as it was used by Kennedy and can be seen in the example of Project HOPE. HOPE is a collaboration of service providers allowing probation officers to notify prosecutors directly and immediately after a violation in an effort to respond to bad behaviour with swift and certain punishment (brief jail stays) in place of lengthy judicial wait-times (Duriez, Cullen, & Manchak, 2014). Public defenders are tasked with informing probationers of the changes so that they are made aware that there will be real consequences for their actions, and those who requested treatment are provided with it.

Harris (1998) had long ago pointed out that authoritative parenting styles that include warmth combined with swift and certain punishment for misbehaviour are not as effective at curbing poor conduct as was once thought. This fact was ignored in the creation of HOPE, and despite the local nature of this program and promising - but not definitive - evaluation results, this program has been replicated in a number of settings (Duriez et al., 2014). Duriez and colleagues (2014) attribute this popularity to a number of things including the appeal of “tough love” approaches which couple the offer of treatment with the promise of swift, certain and proportionate punishment in response to violations.

While the return to deterrence-based approaches has been touted by some, others have turned to past criminological theory in another form – that of control theory. Hirschi (1969) first proposed control theory in the late 1960s and Sampson and Laub (1993) added to it the concept of ‘social capital’ which refers to the resources which are developed through high quality relationships between people. Because this capital is theoretically valued, social control increases with social capital; thus crime is determined by the individual to not be worth committing when social capital is high (Sampson & Laub, 1993). According to work by MacKenzie and De Li (2002), criminality tends to dissipate when individuals have social bonds, such as employment and marriage. Based on these principles, Ward and Maruna (2007) developed the Good Lives Model (GLM) which purports that social bonds should be built and maintained through supportive relationships. According to Ward and Maruna (2007), through the use of open-ended interviews offender needs, strengths and goals are identified, and a *good lives plan* is developed. During this process offenders communicate what crime has provided for them, and treatment plans include developing mechanisms to fill those needs without crime. This method focuses heavily on rapport between supervisors and offenders and providing offenders with respect, but still recognizing the harm they have caused. GLM is likely rooted in part in Maruna’s (2001) work with British offenders. He conducted interviews with both chronic offenders and desisters. He found that all offenders shared criminogenic characteristics, such as extroverted personalities, risk-taking behaviour, childhood abuse and economic disadvantage; however those who desisted redefined their identity or “story” (p. 86). Desisters were able to move past their prior master status of offender and find meaning in a crime-free identity. They were also able to create new

goals based on pro-social values. According to Maruna's (2001) research, active criminals often describe themselves as victims of circumstance, whereas those who desist possess more agency in their ability to change circumstances. Maruna (2001) states that "criminal behaviour might be used as a way of filling a void or emptiness in a person's life" (p. 118); and productivity and employment are crucial aspects of desistance as they can also occupy that void. Maruna (2001) champions a compensatory model where offenders are not to be blamed for their issues, but responsible for creating solutions nonetheless and are rewarded for doing so.

As with the contemporary trends involving the use of deterrence and control theories in community supervision models, 'what was old, is new again' pokes its head once more in the form of hybrid approaches. Despite the 'nothing works' rhetoric of the 1970s, Klockars (1972) put forth his typology of supervision styles with the concept of the synthetic officer still seeing empirical support today. Essentially Klockars' (1972) theory describes 4 supervision styles which include law enforcers, time servers (those who are physically present at their job, but put in very little effort toward actually serving the offender), therapeutic agents, and synthetic officers. Synthetic officers combine both the law enforcement style with the therapeutic style and supervise in a manner that depends on the immediate needs of the offender. Forty years after Klockars' typology was first discussed, Gleicher, Manchak, Cullen (2013) maintain that enforcement styles of supervision are not supported, and they point to the importance of a strong rapport between the supervising officer and the offender, as well as the importance of conversations during visits which focus on changing behaviour as opposed to shared goals. Gleicher et al. (2013) insist upon a balance of therapist and law enforcement in

order to provide safety to the public while still focusing on offender rehabilitation. This has been proven empirically by Paparozzi and Gendreau (2005) in their study of 240 parolees where it was shown that when compared to a law enforcement style, a “hybrid” supervision style resulted in less parole revocations and fewer violations of conditions. Further, according to Miller’s (2013) work on supervision typologies, the synthetic officer seems to be the norm, with rehabilitative approaches being positively associated with officer engagement. Finally, in a review of probation programs for probationers both with and without mental health issues by Skeem and Manchak (2010), the hybrid model was most effective. However according to the authors, “Beyond Klockars’ theory, these results also suggest that the treatment model included in hybrid programs must explicitly target key criminogenic needs, if the program’s goals include improving criminal justice outcomes” (Skeem & Manchak, 2010, p. 240).

Risk-Need-Responsivity

The needs-targeting void found in hybrid models as well as the acknowledgement of existing strengths seen in the GLM model seems to be satisfactorily addressed through an approach known as RNR (again, risk-need-responsivity) – an approach that also seems to be the theoretical foundation for the Pathways program. RNR was born in the early 1990s and focuses on the use of validated risk assessment tools to determine criminogenic needs and assign appropriate levels of supervision and services accordingly (Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 2006; Bonta & Andrews, 2007). When it was first outlined, the theory stated that program intensity should be proportionate to offender risk level, criminogenic needs should be targeted, and

intervention techniques should coincide with the offender's capacity and style of learning (Andrews et al., 1990). Andrews, Bonta & Wormith (2011) recommend identifying risk and need through the Level of Service Inventory-Revised (LSI-R), in addition to other empirically validated risk assessment tools. Taxman (2008a) added to the discussion on RNR, stating that officer and offender rapport and an environment that supports change is a key ingredient to this model – a sentiment that is shared in both the GLM literature and the hybrid model literature (see Ward & Maruna, 2007; Maruna, 2001; Gleicher et al., 2013). Taxman's point on officer/offender rapport and creating a supervision environment conducive to offender change is consistent with Schwalbe's (2012) notion of the 'participation process model' which was developed through interviews with probation officers. This model was developed when probation officers identified 4 areas that they felt would lead to the reduction of criminogenic needs and increase accountability. These areas included the engagement and cooperation of the juvenile in the supervision process, the relationship between the officer and the juvenile, the support level of parents, and the various factors that motivate offenders.

There has been empirical support for RNR style models of supervision with Taxman et al. (2004) finding that when staff has training on communicating with offenders in a way that promotes motivation, they have greater success. Further, Taxman (2008a) found Maryland's Proactive Community Supervision program to result in a lower likelihood of arrest and a lower likelihood of warrant for violation. This program attempted to facilitate offender change through the use of reliable intake tools to determine criminogenic needs, strong rapport between offender and staff, and a case plan and contract consisting of 3 goals offenders must meet per month including participation

in treatment. According to Taxman (2008a), this program emphasized ownership of success on the part of the offender, as well as empowerment (not unlike GLM). Further, Bonta et al. (2008) used audio recordings containing interviews between probation officers and offenders to determine prevalence of RNR over enforcement of conditions. These authors found that probation officers rarely displayed skills in behaviour modification and neglected criminogenic needs. Ultimately, meeting conditions of probation was placed above service delivery. In their discussion of HOPE, Duriez and colleagues (2014) point to the problem with the program being that it under-emphasizes the RNR approaches and assumes technical violations are a sign of failure. As Duriez et al. (2014) put it, “These ‘high-risk behaviors’ might be targets for sanctions, but sanctioning without teaching offenders new skills to change these behaviors...is unlikely to curtail future violations or recidivism for new offenses” (p. 34-35). In line theoretically with RNR, Ostermann (2013) has shown that while those on parole generally recidivate at a lower rate than those unconditionally released, effects are not sustained over time and thus parolees who are supervised for longer time periods do better than parolees supervised for less time. Ostermann (2013) surmises that this is the result of long-term rehabilitative objectives going by the wayside in favour of managing offending exclusively during the supervision period.

Of the trends outlined above, the Pathways program seems to follow a theoretical foundation which most closely resembles RNR, albeit a more perfunctory version. Much like with RNR, the program aimed to clinically assess individual offender’s needs to determine an appropriate constellation of services. Unlike with RNR which relies on empirically validated risk and needs assessment tools, assessments were done through

monthly meetings of service providers where meeting attendees would develop a constellation of services for the client based on their combined clinical expertise, the court disposition developed during the MDT process, the client's living environment, and other individual concerns. Following home visitations by a case worker, the case worker reported back to community service providers and other stakeholders at monthly case management meetings and appropriate referrals were made consistent with both the individual challenges a juvenile faced, as well as court mandated treatment requirements. Parole and probation officers also reported back at case management meetings in the event of any violations; as well as any successes they were aware of. There is evidence to support the fact that some needs were identified and appropriately responded to, with the clearest example being the numerous clients who demonstrated the need to return to school post-incarceration. This need was indeed responded to for many, and 50% of Pathways clients had high school/GED by the end of the program. In a specific example, one subject was mandated to attend school as part of his legal disposition; however his local high school was unwilling to accept this subject for the summer session, impacting his chances of graduating. Program stakeholders all agreed it would not be in his best interest to violate his community supervision, but instead worked with him and the school board to remove this institutional barrier to his success, allowing him to return to school. While the above case exemplifies assessing and responding to need, it does not demonstrate the *risk* element of RNR. Again, RNR posits that program intensity should be proportionate to offender risk level. This is something that did take place during the Pathways program. For example it was identified by a parole officer that a particular case tended to get overwhelmed and do less well when treatment responsibilities were high

and supervision was more intense; and thus stakeholders agreed to ease up on supervision requirements. This individual ended up becoming quite successful and self-sufficient while on parole, evidenced by independent living with no new offences.

In addition to identifying and responding to risk and needs appropriately, based on Taxman's assessment of RNR, service provider and offender rapport as well as an environment that supports change are crucial to this model's success. These are both facets of the Pathways program that were not inherently built into the program's logic and activities, and thus may or may not have been present. While the combination of stakeholder surveys, field observations, and offender survival outcomes worked well in determining the theoretical basis for this program, it would have been useful to observe interactions between offenders and services providers to assess for rapport and motivational language. Further, interviews with offenders may have yielded their perspective on which needs were or were not identified, and were or were not met. Unfortunately, juvenile offenders are some of the most difficult populations in criminal justice research to access. The challenge lies in both tracking them down due to transient lifestyles and unstable living environments, as well as due to the vulnerable nature of this group, it is nearly impossible to receive approval from a research institution's ethics board to engage in such research.

CHAPTER 4

4.1 Research Questions and Methods

Research Question

The current research aimed to address two central research questions:

1. *To what extent has the program been able to increase the amount of ‘time to failure’ for program participants when compared to a comparison group?*
2. *To what extent has the program been able to decrease the number of ‘days in custody’ for program participants when compared to a comparison group?*

Again, based on a review of the literature and process evaluation results, it was hypothesized that subjects in the treatment group would not differ largely from those subjects in the comparison group with regard to time to failure and days in custody.

Design and Sampling

This study utilized an *ex post facto* ‘time to failure’ quasi-experimental method; with the JJC’s Juvenile Information Management System (JIMS) aiding to construct a post-release history for each subject.⁷ This history included any in-custody dates post-release, offence history, types of treatment received post-release, and a variety of controls such as race/ethnicity, gang involvement, and education level. The sample for this

⁷ See APPENDIX F for a letter from the JJC granting permission to access this data management system.

research included a treatment group consisting of juveniles who received Pathways supervision during the time that the program was functional - September 2011 to February 2013. The program served a total of 36 individuals; however the JJC only provided data on 23 cases. The reason for this loss of data is not known for certain; but is likely due to cases being waived into the adult system – which is under the jurisdiction of the Administrative Office of the Courts. Efforts were made to acquire data from this agency; however those efforts were unsuccessful due to case identification numbers which do not transcend agencies. The implication for this loss of data is attrition, which threatens the internal validity of the study by creating a sample of individuals who are most likely to succeed. That said if attrition occurred in the treatment group, by nature of the sampling technique it is logical to assume it occurred in the comparison group as well. Nonetheless, a strong sample matching technique was used to ensure treatment and comparison groups were equivalent. This technique will be discussed in more detail below.

Sampling of the comparison group was a complex process because not all juveniles coming out of custody were put into the Pathways program, but rather Youth Services Commission's MDT (again Multidisciplinary Team) aftercare legislation allowed for some adolescents to enter the care of the Multi-Systemic Team. This is a program which also worked with children and adolescents in the context of their home and family. The Multi-Systemic Team was mandated to accept any case wherein the client was under the age of 17.5, which is approximately 20% of all young people released into Essex County. What was left was approximately 80% of youth coming out of detention during that period entering the Pathways program. Therefore the portion of

individuals who were not Pathways participants, but were released from custody during the same time period were placed in the comparison group.

In addition to the Multi-Systemic Team cohort, the comparison group consisted of all individuals who were released from incarceration into Essex County from January 2009 to August 2011. Consequently, the comparison group as a whole was comprised of those released from incarceration between January 2009 and February 2013, excluding those who received Pathways treatment. By using a broad study period for the comparison group, any history effects – that is changes in the program environment which may coincide with or mask program effects such as a state-wide policy change during the study period – were mitigated. The larger comparison group also aided in increasing statistical power through an increased sample size; however it should be noted that the small size of the treatment group did raise analytic concern. Ultimately, the comparison group consisted of 315 cases; for a total N of 338. See APPENDIX G for a full list of descriptive statistics for both treatment and comparison groups, including offence histories and services accessed.

It should be noted that while all were released from prison and placed under community supervision, there was no record provided to differentiate parolees from probationers. This is important as outcomes for each group tend to differ, as do supervision levels, with parolees typically being supervised more intensively. According to the Bureau of Justice Statistics (BJS), 68% of adult probationers completed their supervision period in 2012, compared to 58% of parolees (Maruschak & Bonczar, 2013). Further, the rate of incarceration for adult probationers in 2012 was 5.1%, compared to 9% for parolees. While this does not speak to the trends of juveniles under community

supervision (that information is not available), it does show that probationers are more likely to do well when compared to parolees. There are however a few mitigating circumstances to consider in the specific population under study here. Firstly, probationers tend to do better than do parolees because they are more likely on probation as a stand-alone sentence, versus parolees who by definition are recently released from prison and are therefore guilty of more serious offences, with lengthier criminal careers. That said the population under study here are all recently released from prison and the probationers simply had a probation sentenced tacked on to their incarceration sentences; therefore the fact that parolees are typically more serious offenders does not necessarily apply in this case. Further, based on the Pathways program documents, 7 of the total 36 cases in the treatment group were probationers. Of the 23 treatment group cases provided to the researcher by the JJC, 1 of the 23 Pathways cases was known to be on probation. From that fact it may be extrapolated that of those returning to Essex County between January 2009 and February 2013, approximately 1 in 5 were on probation in total. Assuming the same loss of probationers that occurred in the treatment group due to attrition occurred in the comparison group as well, 14 of the 315 cases in the treatment group may have been probationers. That estimated number was however further whittled down following the matching process, making the number of probationers in the sample so small, no conclusions could have been made with this group even if they were identifiable.

4.2 Measurement and Analytical Framework

Outcome Measures

The research sought to determine the extent to which the program was able to increase the amount of ‘time to failure’ for program participants when compared to a comparison group of juveniles who did not receive the program. It also sought to determine the extent to which the program has been able to decrease the number of ‘days in custody’ for program participants compared to a comparison group.

As Travis and Visher (2005b) point out, recidivism is one of the most popular measures of program success in criminal justice research. As a fundamental outcome measure, recidivism is not without concerns. Firstly, when recidivism is conceptualized as arrests which result in convictions, the measure does not account for the attrition which occurs during the complex process which takes place between arrest and conviction (Travis & Visher, 2005b). Additionally, when recidivism is conceptualized as a return to prison, arrests which do not result in sentencing are not captured (Travis & Visher, 2005b). Further, given the challenges faced by the population under study and the poor prognosis for success seen in parolees in general, a hypothesis which presumes this population to cease offending altogether because of an 8 week intervention following a life of challenges is likely to be rejected. An outcome of recidivism is arguably far too simplistic for the complicated process of juvenile reentry. That said it was thought that relying on multiple outcome measures strengthened the current study through increased construct validity. The concept of ‘failure’ is multifaceted; and multiple measures can help address that. For instance it is hypothesized that taking longer to re-enter custody

post-release is positive because it appears an individual is remaining crime-free.

However, should that person eventually end up in long-term custody due to a serious offence, it may be construed as perhaps more of a failure than for example, someone who got into trouble almost immediately post-release but received only a few days or weeks in custody as a result. The measures used here accounted for both of these situations by covering length of time until failure as well as severity of failure (number of days in custody upon failure). Additionally, by including the number of days in custody for those who did fail, the measure provided an additional outcome assessment opportunity for those cases. Ultimately, while it was beyond the scope of this study to address any and all aspects of reentry failure (for example struggles that are not captured through official records), multiple measures of failure does help to paint a more thorough picture of reentry failure than the use of one measure alone.

Time to failure was measured as the amount of days from the date of release to the date of return to custody. That said the follow-up period used in this study is a complex one. All cases were followed until September 30, 2013 (the latest possible date for data to be provided to the researcher in order to conduct this research) however cases came under risk of failure at varying time points due to varying initial release dates. For example the largest number of follow-up days for a comparison group member was 1731 days, and the smallest was 580; conversely the largest number of follow-up days for the treatment group was 755 days, and the smallest was 286. However when survival data is used in Stata, the 'stset' command informs Stata of whether or not an event took place (failure or non-failure), the event time (either the failure day, or the last day of the study in the case of non-failure), as well as the time at which the individual came at risk for the

event. Stata looks at the actual number of days an individual is at risk, as opposed to allowing for the risk period to begin on the same date for each subject. In other words, ‘day 1’ refers to the respective day 1 for each case; not the first day of the study which was January 1, 2009. To help clarify how survival data is utilized using Stata, Table 5 presents an abbreviated version of the current dataset. This table shows how after each subject had been observed for 4 days (regardless of respective start dates), 1 case left the study due to failure. Further, as time progressed, the bulk of the sample had already left the study due to failure, leaving only those who never failed.

Table 5

Survival Dataset in Stata

Time in Days	Number at Risk	Number of Failed	Number of Censored
4	211	1	0
14	210	1	0
18	209	1	0
24	208	1	0
28	207	2	0
<i>Output Omitted</i>			
1697	7	0	1
1698	6	0	2
1705	4	0	1
1714	3	0	2
1728	1	0	1

NOTE: Based on n=211 as a result of the matching process; ‘Number of Censored’ refers to number of cases who reached the September 30, 2013 end date without failing.

Days in custody, the secondary outcome measure, was operationalized as the number of days spent in custody for only those cases that failed during the study period. This measure was limited to only those cases that returned to custody, but had time to be released again before the end of the study period in order to weed out unknown custody length. Unfortunately, the JIMS data did not include those days where a juvenile was incarcerated in a non-JJC-run institution, such as a county jail. This was a crucial

limitation as there may have been individuals who were repeatedly placed in county jail not a JJC facility, but by the standards of this study were being considered successful. However because treatment and control groups were statistically matched for equivalency, both groups would have been affected equally by this limitation; therefore there was no risk of one group being made to look more favourable than another due to this weakness.

One final limitation to using custody stays as the measure of failure is that it does not capture non-official measures of failure such as unemployment, nor does it capture the decision-making process of the criminal justice system which includes parole officer warnings and subjective decisions not to violate a case when some conditions of parole are not completely followed. The graphic shown in Figure 5 demonstrates the fact that a large number of conditions must be present for a custody period to take place among parole violators, indicating that the outcome measure used here does exclude a great number of individuals under community supervision experiencing challenges that are simply not captured by using an official record of JJC custody as an outcome measure.

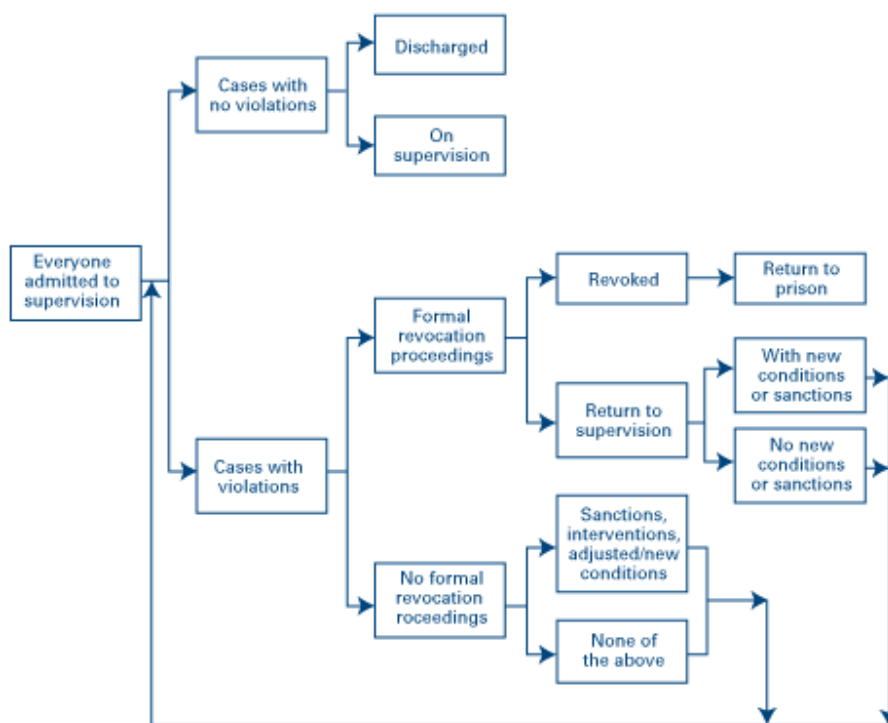


Figure 5. The parole violation process. Many conditions must be present before a custody stay occurs for a parolee. Reprinted from *The Violation Process*, by Parole Violations Revisited, 2014. Retrieved from <http://www.paroleviolationsrevisited.org/tools/tool7.htm>

Analytical Framework and Predictor Measures

Propensity score matching. When conducting observational studies, subjects do not have a known and equal chance of receiving treatment, as with random assignment studies. Rosenbaum and Rubin (1983) have demonstrated that the bias that can occur when attempting to estimate treatment effects in quasi-experimental research can actually be determined through the residual bias captured by propensity scores. Based on the covariates that are available, it is possible to determine a subject's propensity toward exposure to a given treatment by creating propensity scores (Rosenbaum & Rubin, 1983). When determining how similar a control group is to an experimental group, these scores can be compared to ensure that both groups had relatively equal propensity toward receiving treatment; making propensity score matching a very useful tool when random

assignment is not available. This method is especially useful in cases where there is something of a selection into treatment bias - as there was with the Pathways population wherein the comparison group was not afforded the opportunity to enter treatment to due temporal restraints.

Propensity score matching has been used in past reentry programming evaluations. Specifically, based on the covariates age, race, current conviction offences, past gang affiliation and arrest history, Braga et al. (2009) utilized this technique in their evaluation of BRI. Here the authors had a pool of 200 potential comparison group members – substantially less than the pool of 315 in the current study. Additional uses for this method can be seen in Robinson and Espelage (2013) where those who self identified as lesbian, gay, bisexual, transgender or questioning and those who self identified as nontransgender heterosexual were matched on peer victimization. The groups were then compared on their levels of risky sexual behaviour.

All that said a test for equivalency of groups was made in the current study by creating propensity scores. This was be done by, as Rosenbaum and Rubin (1983) suggest, employing logistic regression with the dependent variable being *Pathways treatment*. The average treatment on the treated (ATT) was employed to estimate the effect of the Pathways program on return to custody – or *failure*. In other words ATT measures the expected “’gain’ from treatment among those in the treated group” (Apel & Sweeten, 2010, p. 545). The ATT was used as it is concerned with the effect of treatment within the portion of the population who received the treatment; thus this is the relevant method to use in program evaluation research.

The independent variables used when estimating the propensity scores were those variables that existed pre-treatment and that were not affected by the treatment. Several authors in the propensity score matching literature have pointed out, if a control is potentially affected by the treatment, it is best to include it in the main analysis, and exclude the variable during the matching process (Rosenbaum, 1984; Frangakis & Rubin, 2002; Greenland, 2003; Reinisch, Sanders, Mortensen & Rubin, 1995; Apel & Sweeten, 2010). In addition to including variables simply because they existed prior to treatment, consistent with the urging of Apel and Sweeten (2010), variables were chosen based on factors that resulted in study inclusion. To that end, the variables that were initially explored for the logit included age, number and type of offences committed, ethnicity, medication for mental health, New Jersey Division of Child Behavioral Health Services Involvement (CBHS), and Division of Child Protection and Permanency (DCP&P) involvement.⁸

Age was a ratio-level variable operationalized as the individual's age at the time of the primary release date. The offence history variable however was slightly less straightforward. Unfortunately the JIMS database does not associate specific custody periods with each offence in an offender's offence history, but rather only has a list of all offences ever committed which were adjudicated by the JJC – past or current. Some offences in the offence history may have been old, but some may have occurred following the release period of interest. Because there is no way of teasing these out, this measure simply encompassed an entire criminal career. Offence history included the total number of offences, number of violent offences, number of sexual offences, number of

⁸ See APPENDIX H for the complete coding manual used in this study.

property offences, number of weapons offences, number of drug offences, number of violations of parole/probation and the number of ‘other’ offences. The variable ‘other’ crime type referred to those crimes which were not easily categorized as violent, sexual, property, weapon-related, drug-related, or failure to comply with conditions of probation or parole; and included terrorist threats, conspiracy, endangering the welfare of a child, kidnapping, eluding, resisting arrest, wandering without a purpose, taking without consent, escape, and harassment. That said most offence history variables were later excluded based on the diagnostics of logit, which is discussed in detail below.

The theory behind using age and offence history here is fairly straightforward – one had to be a juvenile (adolescent), and had to have committed a crime to be included in this study. Further, age is a typical variable used in offending research due to the well-established age-crime curve, linking age to the cessation of offending behaviour following a peak in adolescence (for example, most recently see Shulman, Steinberg, and Piquero, 2013). Additionally, a more extensive criminal history is often a predictor of receiving a custody sentence – all subjects in this study were released from a period of custody.

Ethnicity was initially operationalized as 3 binary variables including Black, Hispanic, and White; however based on the diagnostics of logit, only the binary variable where subjects were either Black or not was utilized. Ethnicity was used because of the over-representation of minorities in the American criminal justice system; making ethnicity a predictor of criminal justice system contact. For instance, according to a report by the Pew Research Center, in 2010, incarceration rates for Black and Hispanic men were 4,347 and 1,775 per 100,000, respectively. This is in contrast with a rate of 678 per

100,000 for non-Hispanic white men (Pew Research Center, 2013). Additionally, Black and Hispanic children are much more likely than White children to live in impoverished neighbourhoods; with Black children being more likely than Hispanic and White children to live in neighbourhoods where most other residents are also minorities (Drake & Rank, 2009; Lichter, Parisi & Taquino, 2012).

The matching criteria also included use of medication to treat a mental health condition, CBHS involvement, and DCP&P involvement. These were all dichotomous variables and use of medication referred to any use past or current as of September 2013. The CBHS is a state-run organization which aims to provide services for children and young people with emotional and behavioral difficulties, and developmental challenges, as well as their families. Involvement with this agency referred to receiving services, past or current to September 2013. Additionally, involvement with DCP&P (formerly Division of Youth and Family Services) was measured as any involvement past or current as of September 2013. Medication for mental health and CBHS involvement were included as those with mental illness and developmental delay have been found to be overrepresented in the criminal justice system, as well as mental health challenges have often been criminalized as opposed to treated – making mental illness a logical predictor of criminal justice system contact (Teplin, 1991; Lurigio & Swartz, 2000; Lurigio, 2012). Finally, DCP&P involvement was used because family-perpetrated victimization has been linked to a host of issues within the victim, including residential instability, trauma symptoms, and familial conflict or adversity (Turner et al., 2012). Most importantly, Higgins and McCabe (2003) have demonstrated, child maltreatment and family dysfunction actually predict behavioural problems and psychopathology.

While gang involvement could theoretically be impacted by reentry programming thereby making it a logical variable to include in the main analysis, because the JJC only has information on lifelong gang involvement as opposed to gang involvement by time point, this variable was used in the matching criteria. Known gang involvement was operationalized as a binary nominal variable that included the attributes gang involvement or no gang involvement. It was conceptualized as ‘gang criminality’, which is in itself a crime in New Jersey, thus a necessary criterion for inclusion in the study. In this case gang criminality is defined as:

If, while knowingly involved in criminal street gang activity, he commits, attempts to commit, or conspires to commit, whether as a principal or an accomplice, any crime specified [this includes crimes common to street gang activity such as carjacking]...A crime is committed while involved in a criminal street gang related activity if the crime was committed for the benefit of, at the direction of, or in association with a criminal street gang (National Gang Center, 2013).

Once the propensity scores were estimated, ATT was used in conjunction with stratification to estimate treatment effects. Stratification divides the sample into strata with relatively similar sample sizes that include treated and untreated observations within a common boundary of propensity scores. According to Cochran (1968), 4 or 5 strata are recommended, as quartiles remove approximately 86% of the bias within the model.

Time to failure model. Survival or failure analysis is a statistical technique which focuses on the time it takes for a given outcome to occur. This was again used in addition to ‘days in custody’ to provide both a measure of failure as well as a measure of severity of that failure. There are several arguments in favour of the use of survival

analysis. First, by relying on ordinary least squares regression, there is the assumption of normality of the time to failure (Cleves, Gould, Gutierrez, & Marchenko, 2008).

Unfortunately however, the risk of a particular event occurring is not instant, nor is it constant over time. Further, according to Cleves and others (2008), while logit does not assume a particular distribution of failure times, if one were to utilize logistic regression with failure (and no failure) as the dichotomy, it would not be capable of estimating failure beyond the study period as well as it would require separate analyses at each failure time point – and in a large sample this can be very inefficient. The ideal then is to be able to conduct a single analysis that combines failure time points, and does not make the assumption of normality of time points – survival analysis does just this.

The term ‘survival’ itself has its roots in medical research wherein the time it takes for a patient to reach mortality or relapse is measured for experimental and control groups who have received differing treatment plans (Tabachnick & Fidell, 2007). In the manufacturing field, ‘failure’ is used in place of ‘survival’ in which case researchers are interested in determining the time it takes for a given machinery component to fail – *time to failure* (Tabachnick & Fidell, 2007). Survival analysis provides the useful feature of providing results even when there are study cases which have not yet failed at the end of the study period; these cases are known as *censored* cases (Tabachnick & Fidell, 2007). This feature made survival analysis a good fit here since recidivism did not occur at all for some cases during the study period, thereby not presenting the researcher with an ‘event’ when data collection was complete.

In using survival analysis researchers are able to model data despite the fact that time until censoring will vary by individual (Long, 1997). This feature also made this

method a good fit here as participants came at risk at differing time-points based on release dates, failed at differing time points, and in some cases, did not fail at all. Finally, due to the very fact that most study participants were hypothesized to fail, more events of failure were included in the analysis than with, for example, cases of successful medical treatment procedures; thereby allowing the very nature of the sample to increase statistical power.

Survival models have been gaining popularity in the field of reentry. Tollett and Benda (1999) took the parametric route to survival analysis in their study of the Arkansas Division of Youth Services Serious Offender Program. Here the authors had a sample of 244 adolescents and at least a one year follow-up period. They relied upon ordinary least squares regression to determine that for each prior incarceration, subjects return to custody 41 days earlier. Braga and colleagues (2009) relied upon survival analysis when evaluating the BRI. Braga et al. (2009) relied upon the Kaplan-Meier method to determine the total proportion of subjects to survive within the study period, and the Cox regression to model the amount of time it takes for the event (rearrest) to occur in those cases which had not yet failed at the end of the study period. Both the Kaplan-Meier method and the Cox model were also employed in the Project Greenlight study conducted by Wilson and Davis (2006).

A study by Jensen and Kane (2011) sought to investigate the time it takes until first re-arrest for a group of released prisoners who participated in a therapeutic community while incarcerated, when compared to a control of those who were selected to participate but did not complete the program; as well as a second control group of those who were not selected to participate. In this case the researchers also used a Cox

regression. Their analysis determined that the group which was selected for, and completed the program were in the community for 80 days longer than those who were selected for, but did not complete the program (Jensen & Kane, 2011). In the boot camp aftercare study by Kurlychek and Kempinen (2006) the researchers also relied upon an earlier cohort of boot camp graduates which did not receive the aftercare program to form their control group. Groups were compared based on demographic information and researchers found the control and experimental groups were not statistically different on a variety of variables. In this study they also utilized the Cox regression model (Kurlychek & Kempinen, 2006).

Although not prisoner reentry, Yampolskaya, Armstrong, and King-Miller (2011) provide an interesting application of survival analysis to the case of abused children entering into residential care. Here the authors included multiple levels in their survival analysis and utilized Cox regression. In the first level, individual factors such as age and health problems were included in the model. In the second level of the model the authors included the individual factors from the first model, in addition to agency or program factors such as average program expenditures per subject (Yampolkaya et al., 2011). This method can be usefully replicated in criminal justice when the second level of the model includes aspects of the reentry program which may differ from subject to subject; such as number of parole conditions or number of services accessed.

All said following group matching, survival analysis was conducted. Because this program was hypothesized to be ineffective, with covariates potentially having more impact on survival than treatment; and because there are no distributional assumptions of failure times, both nonparametric and semiparametric analyses were employed.

According to Cleves et al. (2008), “there is a vast literature on performing nonparametric regression using methods such as lowess or local polynomial regression; however such methods do not adequately deal with censoring...” (p. 5). The Kaplan-Meier method was used here as it can estimate failure for cases which were censored at the September 30, 2013 time point, and it does not make assumptions about the impact of covariates. Further, the Kaplan-Meier method does not make the assumption that it was the treatment that determined the probability of failure.

The semiparametric method, Cox regression, was also used because of its flexibility around changes in the rate of risk. That is to say Cox is the most popular tool used in survival analysis because no assumptions are made regarding the distribution of the hazard function – it does not matter if it is more risky for individuals when they are first released, or if the longer they are out, it becomes more difficult for them to live crime-free (Cleves et al., 2008). The only assumption made is that *however* hazard varies over time, it varies equally for all cases. Further, according to Braga et al. (2009), “Cox regression models are a standard method for modeling time-to-event data in the presence of censored cases. That is, information on inmates who are not rearrested during the period of observation is used in the estimation, essential for producing unbiased estimates of the program effect” (p. 424). While this is inconsistent with Cleves et al. (2008) who purport that the Kaplan-Meier method is better suited to censoring, regardless of which method deals well with censoring, both models are being used here to ensure the strongest possible analysis.

For the survival analysis, the dependent variable was program involvement, which was binary – treatment or no treatment; with Kaplan-Meier survival estimates and Cox

hazard functions being calculated for both groups based on the outcome *days until failure*. Control variables that were used were those variables not used in the matching process; those variables that were potentially impacted by treatment.

The Pathways program appeared to be using a theoretical foundation similar to that of RNR. Again, RNR focuses on identifying needs and responding to them, thus it was theoretically appropriate to use therapeutic variables as covariates for the survival analysis – these variables may serve as a proxy measure of responding to needs and were chosen based on the therapeutic variables collected by the JJC. These variables included education level; which was operationalized nominally as a binary variable – at least a GED, less than a GED. The reason this variable sat at the lowest level of measurement despite access to an ordinal education scale is because Cox regression does not allow for categorical variables (Cleves et al., 2008). Substance abuse treatment, mental health treatment, and anger management treatment were all dichotomous variables wherein the subject either did not receive treatment, or received some treatment upon primary release. It must be noted that these variables are systematically collected by the JJC, and were subsequently used here because they make up the more commonly received juvenile treatments based on being either general or special parole conditions – meaning juveniles are mandated to attend these types of programs most often or face violation. While education/vocational programs as well as substance abuse treatment are named specifically in JJC Transitional Services legislation, the legislation also mentions “Assignment to...any other recommended treatment programs” (JJC, 2005, p. 19), with anger management and mental health treatment being the most commonly used ‘other’ interventions.

T-test. Once time to failure was determined, t-tests were conducted to determine whether there was an average difference between groups in terms of the number of days in custody. This analysis of time off the street for those who did fail was initially to be explored using linear regression, however due to sample size restrictions, t-tests were used instead. Here program involvement was the independent variable, with the central dependent variable being number of days in custody. The therapeutic variables listed above were also each used as independent variables in separate analyses.

CHAPTER 5

5.1 Data Analysis and Results

Propensity Score Matching

Logit diagnostics. Because logit was being used to create propensity scores, the assumptions of logit were first tested. When multicollinearity was assessed using Pearson's R, the Black and Hispanic race/ethnicity variables were highly correlated ($r=.93$), and as such only the dichotomous Black race variable (Black or not Black) was retained. Additionally, when a preliminary logit model was run, Stata omitted many of the offence history variables – perhaps due to lack of statistical power. As such, all but *number of violent offences* and *total number of offences* were dropped from the model. Following this re-specification of the model, tolerance and variance inflation factors (VIFs) were explored to determine the level of inflation of the standard error which may

be caused by collinearity. Because all variables produced values of approximately 1, the variables were likely unrelated (orthogonal).

The correct specification of the model was then assessed using the link test – a test which determines whether the coefficient on the squared linear predictor is significant or not. Because $p = .867$ for the squared prediction variable, indicating it lacked explanatory power, the model was specified correctly. Further, when goodness of fit was explored using the log-likelihood chi-square, it was found that the model as a whole was statistically significant ($X^2(8) = 31.26, p = .000$). This finding was substantiated by the pseudo r-square (.186); and further confirmed by the Hosmer and Lemeshow's goodness-of-fit test which yielded a large p-value ($p = .734$), indicating the predicted frequencies and observed frequencies were similar.

Outliers were also assessed using Pearson residuals, deviance residuals and Pregibon leverages. Based on scatterplots of both standardized Pearson residuals and deviance residuals, a case identified at number 324 appeared to be an outlier; however this case did not stand out in terms of leverage. This is an indication that while impacting fit statistics, this individual did not impact parameter estimates greatly. This particular observation was the case of a young person who was relatively educated, received treatment, did not fail; but who was involved with CBHS and DCP&P. Because parameter estimates were not impacted, as well as the large residuals for this particular case indicated that the values for the predictor variables were not necessarily extreme but rather the outcome not surprisingly differed from the predicted value, this was not actually a case of concern. That said, in terms of leverages, subject number 3 - a relatively older (19 years) Hispanic with a high school diploma, lengthy criminal history

(8 offences), who did not receive treatment and did fail – produced a leverage value of .31; compared to the mean of .05. This observation was well beyond the standard cut-off point for exclusion which is typically 2 or 3 times the average, depending on sample size. As such, this case was considered an outlier and was not included in the study.⁹

Finally, linearity of the logit was tested by creating an interaction term for each of the ratio-level variables (*age*, *number of violent offences*, and *total number of offences*) which included the variable, and the natural log of the variable. Because none of the interaction terms were significant in this model, there appeared to be a linear relationship between the predictor variables and the log of the odds of the dependent variable. Descriptive statistics of the variables used in the logit model can be seen in Table 6, in addition to the post-matching descriptive statistics.

⁹ See APPENDIX I for scatterplots of outlier assessments.

Table 6

Summary Table of Descriptive Statistics before and After Matching; Treatment and Comparison Groups

Descriptive Statistics								
Covariates	Before Matching							
	N		Mean (SD)		Min.		Max	
	T	C	T	C	T	C	T	C
Fail~	23	314	48%	24%	0	0	1	1
Age	23	314	17.3(1.15)	17.18(1.17)	15	14	20	20
Black	23	314	91%	93%	0	0	1	1
Gang	23	314	96%***	54%***	0	0	1	1
Medication for Mental Health	23	314	13%	14%	0	0	1	1
CBHS Involvement	23	314	22%	10%	0	0	1	1
DCP&P Involvement	23	314	26%	15%	0	0	1	1
Total Number of Offences	23	314	3.91(1.78)***	2.43(1.47)***	1	1	8	10
Covariates	After Matching							
	N		Mean (SD)		Min.		Max	
	T	C	T	C	T	C	T	C
Fail~	23	189	48%	33%	0	0	1	1
Age	23	189	17.3(1.15)	17.23(1.19)	15	14	20	20
Black	23	189	91%	90%	0	0	1	1
Gang	23	189	96%	89%	0	0	1	1
Medication for Mental Health	23	189	13%	15%	0	0	1	1
CBHS Involvement	23	189	22%	15%	0	0	1	1
DCP&P Involvement	23	189	26%	22%	0	0	1	1
Total Number of Offences	23	189	3.91(1.78)**	2.77(1.54)**	1	1	8	9

NOTE: ~'Fail' (return to custody) is the outcome used to determine ATT (average treatment on the treated). Means of binary variables are presented as percentages. 'T' refers to Pathways treatment group, and 'C' refers to the comparison group. Significant differences between treatment groups tested using Fisher's exact test (due to small expected frequencies) and independent samples t-tests for nominal variables and ratio variables, respectively. Equal variances assumed based on non-significant Levene's Test. **= $p < .01$, ***= $p < .001$

Estimation of propensity scores. Propensity scores and treatment effects were estimated using the user-written command suite 'pscore', by Becker and Ichino.¹⁰ This suite of commands is very useful as it satisfies the Balancing Hypothesis while estimating scores. That is to say that when using propensity scores, the hope is to engage in assignment to treatment in a manner that looks as similar to randomization as possible by choosing untreated individuals who are comparable on a large number of confounding variables (Apel & Sweeten, 2010).

¹⁰ Becker, S.O., & Ichino, A. (2002). Pscore: ATT estimation based on propensity score matching.

If this requirement is satisfied, treatment is then said to be independent of potential outcomes, conditional on the confounding variables, a situation known as the *conditional independence assumption*...In other words, balance is achieved (i.e., treatment assignment is ignorable) once the relevant covariates are properly controlled (Apel & Sweeten, 2010, p. 547).

Consistent with Apel and Sweeten's (2010) discussion of how to demonstrate covariate balance, the 'pscore' command uses independent samples t-tests to test the balancing property for each matching criteria variable. The probability of Pathways treatment – propensity scores - were estimated using logistic regression, and when the initial model was run, the Balancing Hypothesis was not met, with *number of violent offences* posing an issue. Under the advice of Apel and Sweeten (2010), the variable was squared, which in turn produced covariate balance. Further, this process was done using the option of requiring *common support* during the estimation. Common support refers to the propensity score distribution for each group (treated and untreated); and this is met when the two groups have overlapping distributions (Apel & Sweeten, 2010). This option improves the quality of matches garnered in the treatment effect estimation (Becker & Ichino, 2002). Finally, as part of the algorithm used by the 'pscore' command, the sample was portioned into sections which were equally spaced intervals of the propensity score (Becker & Ichino, 2002). The intervals were then tested to ensure the mean score for both treated and untreated groups were equivalent. If groups happened to be non-equivalent within each interval, the block was halved and tested again. This process was reiterated by interval until the mean propensity score was equivalent for both the treated and untreated groups. The default number of intervals to begin was 5 (Becker & Ichino, 2002). Based on this algorithm, one interval contained 2 treatment group observations and zero comparison observations; a result which posed problems later during the

estimation of the treatment effect using a stratified method. However, when *number of violent offences* was removed, this issue was repaired. See Figure 6 below for the propensity score estimates for each interval (or *block*), including only those observations which fall on common support.

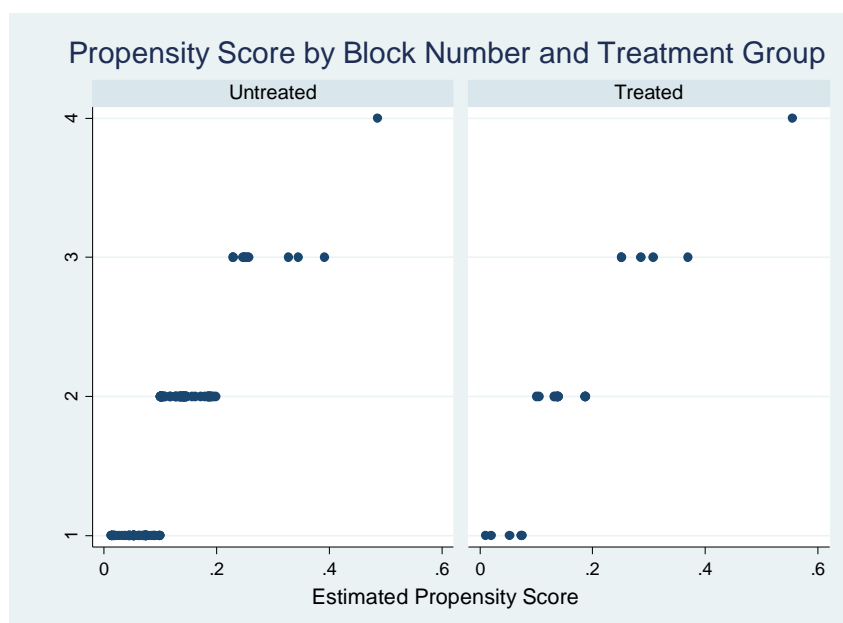


Figure 6. Propensity score distribution by block

The results of the logit can be seen in Table 7. The pseudo R-Square indicates that the model explains 18.4% of the variation in the treatment. The mean propensity score for those who received treatment was .17; and .061 for those who did not receive treatment. The only other information we can confidently glean from this model is that those who were gang involved and those with a higher total number of offences were more likely to receive treatment.

Table 7

Summary Table of Propensity Score Model

Propensity Score Model			
Pseudo R-Square	.184		
Mean Propensity Score (SD)	All	T	C
	.068(.084)	.17(.124)	.061(.075)
Covariates	Logit Coeff. (SE)		
Age	-.0151(.196)		
Black	-1.308(.925)		
Gang	2.749(1.068)*		
Medication for Mental Health	-.489(.683)		
CBHS Involvement	.93(1.165)		
DCP&P Involvement	-.53(1.082)		
Total Number of Offences	.354(.123)**		

NOTE: *= $p < .05$, **= $p < .01$; N=337 and values are pre-common support

Estimation of the treatment effect. As mentioned, once the propensity scores were estimated, ATT was used in conjunction with stratification to estimate treatment effects. The matching process yielded 4 strata. Again, descriptive statistics of the matched sample can be seen in Table 6. In Table 8, stratified matching is shown as it compares to other popular matching methods. In the stratified method it can be seen that the largest possible sample size was created, which ensures optimal statistical power moving forward. Further, when mean or percentage differences were compared across methods, overall, stratified matching produced the smallest mean differences. In all methods, a t-test indicated a significantly different total number of offences between groups; which amounted to approximately one more total crime for the treatment group. Because this difference was unchanged by differing matching methods, it cannot be avoided, thus attention was paid to this fact during any conclusions made by this study. Finally, the ATT for the stratified method indicated that juveniles who received treatment had a failure likelihood that was 8 units lower than those who did not receive treatment. This finding was similar for all but radius matching; which found that juveniles who

received treatment had a failure likelihood that was 1 unit higher. Based on this comparison of several matching methods, it is clear that stratified matching is the optimal method for the current study.

Table 8

Comparison of Matching Techniques with ATT, Standard Error, and Frequencies by Treatment and Comparison with Difference

Model	Stratified			Nearest Neighbour		
ATT(SE)	-.08(.089)			-.162(.131)		
N	T	C		T	C	
	23	189		23	62	
Covariate	Mean (SD)			Mean (SD)		
	T	C	D	T	C	D
Age	17.3(1.15)	17.23(1.19)	.07	17.3(1.15)	17.08(.77)	.22
Black	91%	90%	1%	91%	98%	7%
Gang	96%	89%	7%	96%	98%	2%
Medication for Mental Heath	13%	15%	2%	13%	2%	11%
CBHS Involvement	22%	15%	7%	22%	6%	16%
DCP&P Involvement	26%	22%	4%	26%	8%	18%
Total Number of Offences	3.91(1.78)**	2.77(1.54)**	1.14	3.91(1.78)*	2.76(1.81)*	1.15
Model	Kernel			Radius		
ATT(SE)	-.073(.122)			.01(.119)		
N	T	C		T	C	
	21	189		21	189	
Covariate	Mean (SD)			Mean (SD)		
	T	C	D	T	C	D
Age	17.19(1.12)	17.23(1.19)	.04	17.19(1.12)	17.23(1.19)	.04
Black	95%	90%	5%	95%	90%	5%
Gang	100%	89%	11%	100%	89%	11%
Medication for Mental Heath	14%	15%	1%	14%	15%	1%
CBHS Involvement	14%	15%	1%	14%	15%	1%
DCP&P Involvement	19%	22%	3%	19%	22%	3%
Total Number of Offences	3.90(1.84)*	2.77(1.54)*	1.13	3.90(1.84)*	2.77(1.54)*	1.13

NOTE: 'D' refers to the difference between the treatment and comparison groups. Means of binary variables are presented as percentages. Standard errors in stratified and nearest neighbour matching based on bootstrapped standard errors. Nearest neighbour is with replacement. Kernel is based on epanechnikov kernel matching. Radius is with the Stata default of a .1 radius. Significant differences between treatment groups tested using Fisher's exact test (due to small expected frequencies) and independent samples t-tests for nominal variables and ratio variables, respectively. Equal variances assumed based on non-significant Levene's Test for all but age in nearest neighbour matching. *= $p < .05$, **= $p < .01$

Survival Analysis

Cox diagnostics. Prior to the survival analysis, diagnostics for the Cox model were tested. Model specification, also called the proportional-hazards assumption, was

tested again using the link test. Based on a non-significant p-value of .698, the squared predictor possessed no explanatory power, indicating good model specification. Cleves et al. (2008) point out that an additional way to test model specification is to model an interaction of analysis time with covariates and “verify that the effects of these interacted variables are not different from zero because the proportional-hazards assumption states that effects do not change with time except in ways you have already parameterized” (p. 204). When this was done, the effects of the interacted variables did not in fact differ from zero, indicating effects did not change over time. Proper model specification was further assessed by the use of scaled Schoenfeld residuals. Residuals were regressed on functions of time using generalized linear regression, and then plotted to test for a non-zero slope (Cleves et al., 2008). Scatterplots shown in APPENDIX I indicate non-zero slopes; again an indication of good model specification.

Residual and diagnostic measures were then assessed. First Martingale residuals were obtained from the null Cox model to determine proper functional form of the covariates. When residuals were plotted against each independent variable using a running-mean smoother, as would be expected in binary variables, linearity was apparent in each covariate; indicating proper functional form.¹¹

Overall model fit was tested using Cox-Snell residuals. According to Cleves et al. (2008), if good model fit is present, “then the true cumulative hazard function conditional on the covariate vector has an exponential distribution with a hazard rate of 1” (p. 219). This can be determined by utilizing the Nelson-Aalen cumulative hazard function and estimating it with the Cox-Snell residuals along with the censoring variable. When the

¹¹ See APPENDIX I for scatterplots.

Nelson-Aalen cumulative hazard estimator was plotted for Cox-Snell residuals (see Figure 7) using a 45° line, there seemed to be a slight lack of fit. However because covariates are binary in nature, transformations were not possible. That said, according to Cleves et al. (2008) variability on the right hand side is still expected; therefore while not ideal, these results are acceptable.

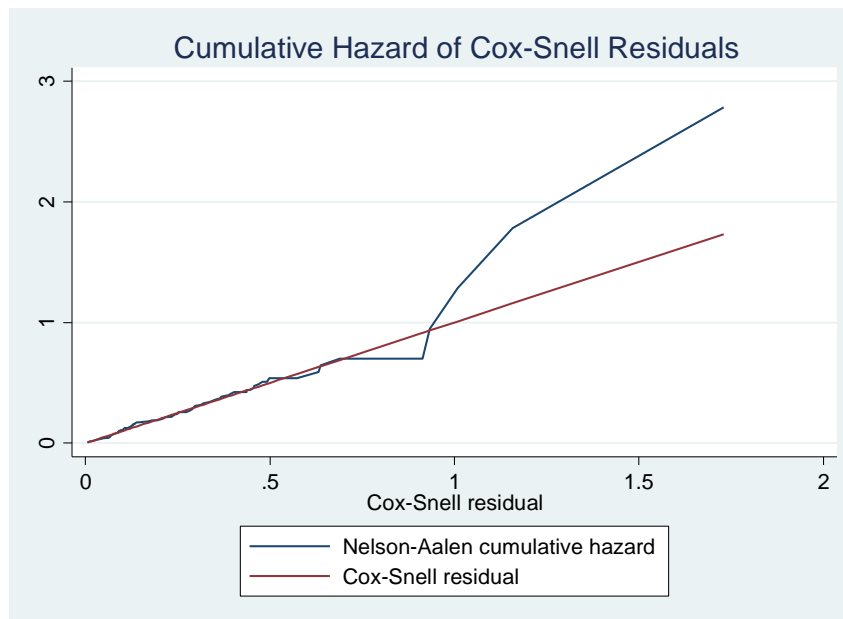


Figure 7. Cumulative hazard of Cox-Snell Residuals.

It was then determined whether or not any outlying cases influenced estimated parameters using the DFBETA leverage analysis. Here it was found that for education, and the mental health and anger management treatment variables, case number 245 was consistently an outlier. This finding was further substantiated when the influence of cases on coefficients were collectively explored using log-likelihood displacement and LMAX values; wherein case 245 continued to be an outlier.¹² Upon further inspection, this was the case of a 15 year old subject that did not receive treatment and who failed after 7

¹² Scatterplots of these analyses can be seen in APPENDIX I.

days. Although for the most part hazard ratios and standard errors were not largely influenced by this case, the anger management treatment variable was an exception (.194[.148] with outlier; .095[.099] without). To avoid overstating the impact of anger management treatment on survival time, this case was deleted from further analysis. Descriptive statistics for survival analysis covariates can be seen in Table 9.

Table 9

Descriptive Statistics of Covariates by Treatment Group and Total

Descriptive Statistics			
Covariates	N	Frequencies	
		Treatment	Total
Pathways	211	23(100%)	23(10.9%)
Education	211	10(43.5%)	87(41.2%)
Substance Abuse Treatment	211	12(52.2%)	28(13.3%)
Mental Health Treatment	211	1(4.4%)	29(13.7%)
Anger Management Treatment	211	3(13%)	13(6.2%)

Survival Analysis

Kaplan-Meier survival estimates. Prior to the Cox model, Kaplan-Meier survival functions were estimated for each failure time point; first for the full study period, then only for the duration of the program supervision period (a period of 8 weeks or 56 days). The estimates for the full study period can be seen in the graph shown in Figure 8, which indicates the likelihood of survival is higher for the comparison group; a trend which was maintained over time. Additionally, when the full study period was used, the comparison group had an estimated mean survival time of 1245.4 days, whereas the treatment group had an estimated mean survival time of only 464 days; a difference of 781.4 days, or just over 2 years.

When the log-rank test was run, it was found that of the 72 failures observed, 61 were from the comparison group, and 11 were from the treatment group. The number of failures one would expect if both groups had the same survivor function was 65.82 for the

comparison group and 6.18 for the treatment group. This difference in groups was statistically significant at $\alpha = .05$ ($X^2(1) = 4.14$, $p = .042$); and this was an indication that one can reject the null hypothesis that the treatment and comparison groups are not different in terms of their survival functions.

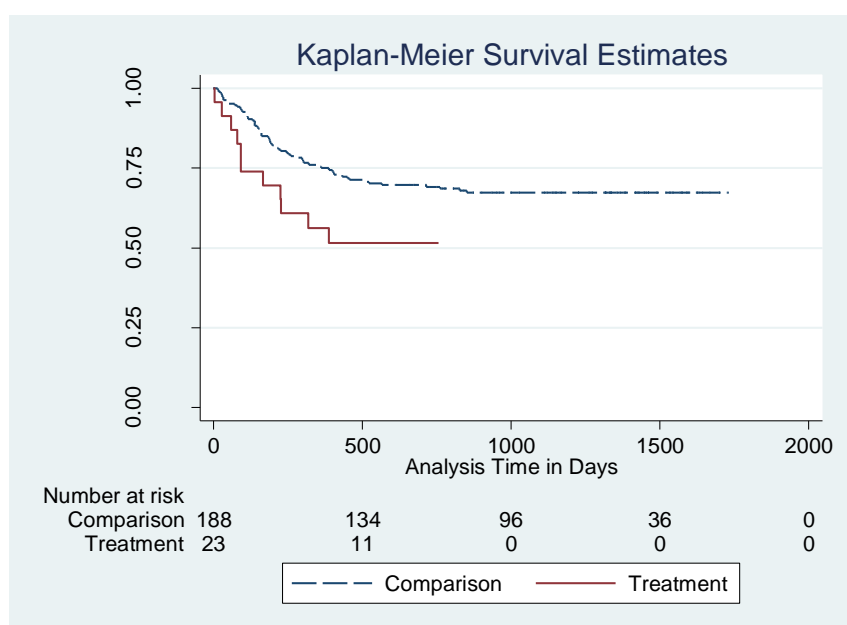


Figure 8. Estimated Kaplan-Meier survival functions: Full study period.

The estimates for an 8 week follow-up period can be seen in the graph shown in Figure 9, which indicates that while groups had more or less equivalent survival functions at day 1, the likelihood of survival quickly became higher for the comparison group. Additionally, when only the 8 week supervision period was used, the comparison group had an estimated mean survival time of 54.8 days, whereas the treatment group had an estimated mean survival time of 52.5 days; a difference of 2.3 days.

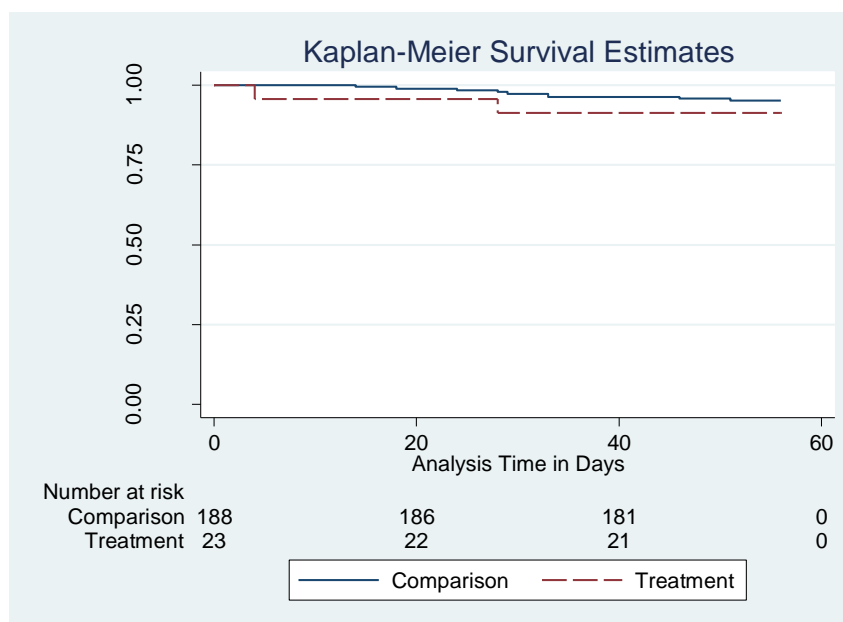


Figure 9. Estimated Kaplan-Meier survival functions: Eight week follow-up.

Cox proportional hazard. In determining the hazard ratios using Cox regression, first the treatment-only model was run using the full study period. Here it was found that receiving the Pathways treatment increased the rate of return to custody by 93.1%. This finding was statistically significant at the .05 level. When this was done for the 8 week supervision period only, it was found that the Pathways treatment increased the rate of return to custody by 89.6% during the actual supervision period, albeit this finding was non-significant.

When the estimated cumulative hazard was graphed in Figure 10 for both the treatment and comparison groups for the full study period, it was found that the cumulative hazard increased rapidly within the first 500 days of study for both the treatment and comparison groups. That said the line was much steeper for the treatment group within the earlier period of follow-up, indicating that the risk of failure was nearly

twice is high within the first year or so of study for the treatment group. This difference in risk of failure remained stable throughout the study period.

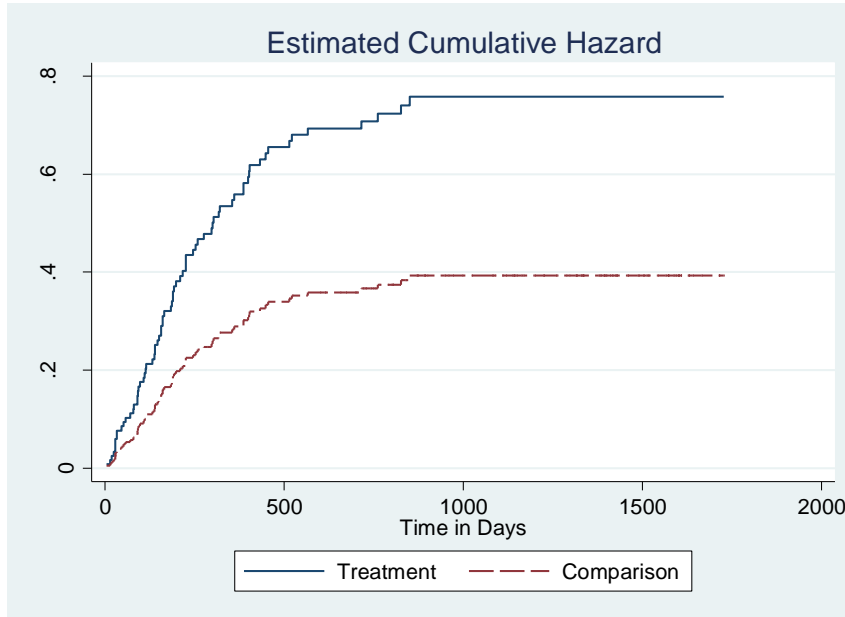


Figure 10. Estimated cumulative hazard: treatment and comparison groups, full study period.

When this was done for the first 8 weeks post-release, it was found that while treatment and comparison groups were similar in their hazard functions early on and the overall distribution was similar for both groups throughout the 56 days, by 15-20 days into supervision, the risk of failure for the treatment group began to grow higher than the comparison group, with risk being almost double by about 35 days into supervision. See Figure 11.

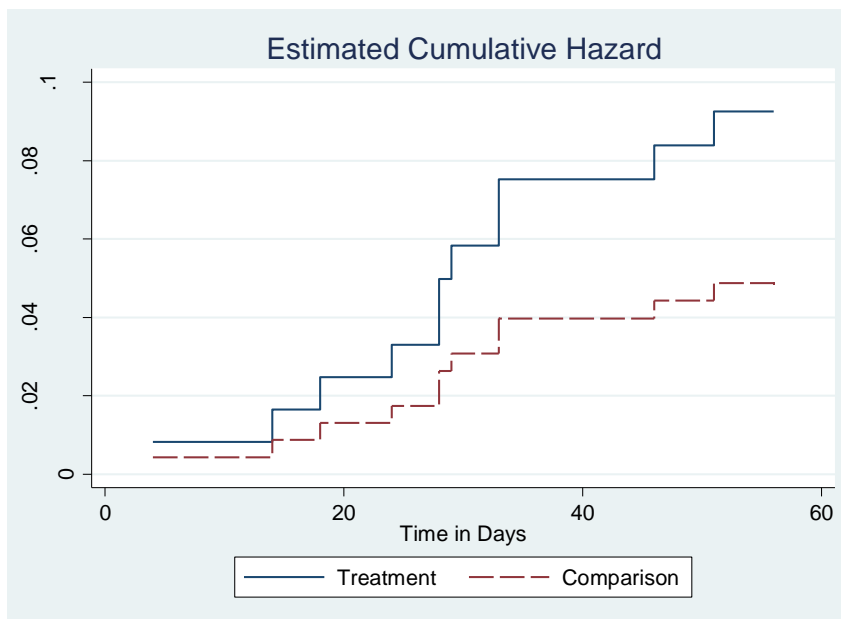


Figure 11. Estimated cumulative hazard: treatment and comparison groups, 8 week follow-up.

Covariates were then added to the analysis; first using the full study period. When education was added to the full study period model, Pathways remained significant, but the likelihood of failure fell to 87.1%, and the possession of at least a GED increased the rate of return to custody by 77.7%. By adding substance abuse treatment, the likelihood of failure for those who received Pathways remained positive, but this was no longer significant at .05. The impact of education was significant and stable, and substance abuse treatment was found to be non-significant. When mental health treatment was added to the model, Pathways and substance abuse treatment were found to be non-significant and the impact of education remained the same. Additionally, receiving mental health treatment increased the risk of failure by 98.7%; holding constant the model.

When the final model containing all of the various treatments was run, the Pathways treatment was non-significant, as was mental health treatment. This model also

indicated that holding all other treatments constant, possessing at least a GED increased the rate of return to custody by 84.5%. Likewise, substance abuse treatment increased the rate by 105.4%, and anger management treatment decreased the rate of return to custody by 90.5%.

When this was done using only the 8 week follow-up period, results were similar in direction, albeit non-significant, with the only exception being education. During the supervision period possessing at least a GED was associated in a decrease in the rate of return to custody.

Sensitivity analyses were conducted using the full study period to confirm the above findings. First the full model was run also controlling for actual propensity scores. In this case only anger management treatment remained significant and coefficient strengths decreased in all cases, but directions remained consistent indicating the above results are generally reliable, but may be less dramatic. A second sensitivity analysis was run where the total number of offences variable was removed from the propensity score estimation and matching criteria (creating a new and slightly different comparison group in the process) and used as a covariate in the Cox models. Here the ATT shifted from -.08 to .103. This is consistent with the overall results of this study and indicates that juveniles who received treatment had a failure likelihood that was 10 units higher than those who did not receive treatment. The inclusion of total number of offences at this stage of the analysis emphasized the importance of offence histories in predicting risk of failure, as this variable was consistently significant. Additionally, while non-significant, the impact of the therapeutic variables remained consistent in direction, while again losing strength; indicating further that the above results are generally reliable, but again may be less

dramatic. The only real inconsistency between the central analysis and the sensitivity analysis is the result in the latter, while non-significant, indicating that once total number of offences was included, the Pathways program was found to decrease the risk of failure, controlling for other therapeutic interventions. This is a discrepancy in the results that will be discussed in the conclusion.

Finally, in order to determine if there was an optimal combination of treatments throughout the full study period, interactions on Pathways were created. First models were produced which included each treatment condition and an interaction with Pathways alone; then interaction terms for each treatment condition were included for the full model. Results of the former indicate that the effect of Pathways on failure increased when it was combined with substance abuse treatment. Because this model was extremely telling in terms of assessing various constellations of service, goodness of fit was assessed. Overall model fit was again tested by utilizing the Nelson-Aalen cumulative hazard function and estimating it with the Cox-Snell residuals along with the censoring variable. When the Nelson-Aalen cumulative hazard estimator was plotted for Cox-Snell residuals (see Figure 12) using a 45° line, there is excellent model fit.

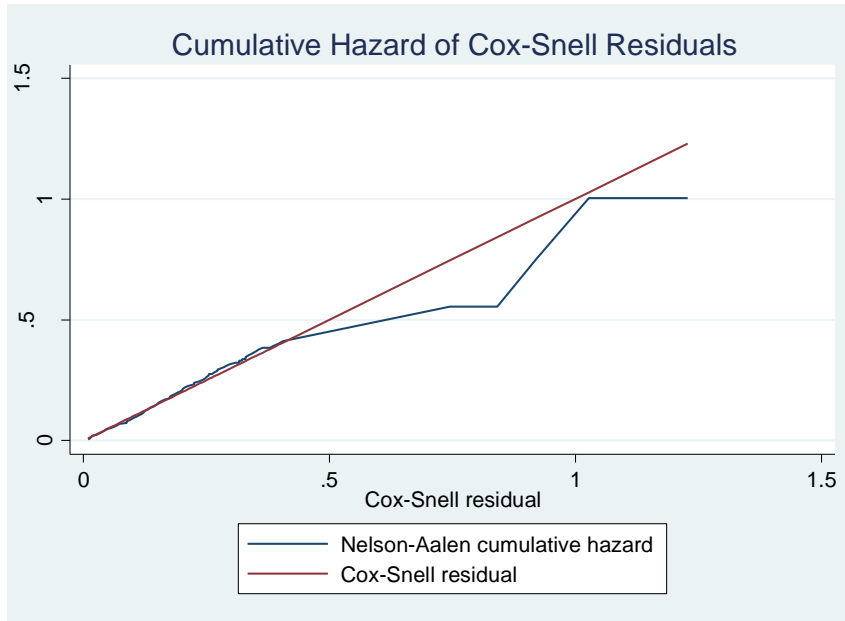


Figure 12. Cumulative hazard of Cox-Snell Residuals for Substance Abuse Interaction Term.

For the full models, none of the interaction terms were found to be significant, and the results did not differ largely from the full study period full model which did not contain the interaction terms. An attempt was made to further narrow down optimal combinations of treatment by interacting multiple treatments onto Pathways; however the results were inconclusive due to low statistical power as a product of small frequencies. See Table 10 for all Cox Proportional Hazard results, including sensitivity analyses.

Table 10

Hazard Ratios and Standard Errors for Cox Regression Models

Hazard Ratios and Standard Errors for Cox Regression Models					
Cox Models (Full Study Period)					
Covariates	Model 1	Model 2	Model 3	Model 4	Model 5
	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)
Pathways	1.931(.636)*	1.871(.617)	1.784(.613)	1.95(.682)	1.754(.643)
Education		1.777(.421)*	1.769(.419)*	1.705(.405)*	1.845(.44)**
Substance Abuse Treatment			1.185(.392)	1.212(.405)	2.054(.738)*
Mental Health Treatment				1.987(.586)*	1.744(.516)
Anger Management Treatment					.095(.099)*
Cox Models with Pathways, Single Treatment and Interaction Terms					
Covariates	Model 6	Model 7	Model 8	Model 9	
	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	
Pathways	2.123(1.034)	.869(.515)	2.074(.729)*	1.958(.671)*	
Education	1.838(.473)*				
Substance Abuse Treatment		.674(.349)			
Mental Health Treatment			2.056(.626)*		
Anger Management Treatment				e	
Pathways#c.Education	.799(.526)				
Pathways#c.Substance Abuse Treatment		5.66(4.823)*			
Pathways#c.Mental Health Treatment			1.224(1.34)		
Pathways#c.Anger Management Treatment				e	
Cox Models with Full Model and Interaction Terms					
Covariates	Model 10	Model 11	Model 12	Model 13	
	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	
Pathways	1.483(.797)	.963(.576)	1.742(.656)	1.566(.598)	
Education	1.759(.459)*	1.973(.476)**	1.851(.447)*	1.835(.438)*	
Substance Abuse Treatment	2.126(.777)*	1.227(.663)	2.044(.746)*	2.191(.78)*	
Mental Health Treatment	1.77(.527)	1.701(.501)	1.731(.533)	1.722(.509)	
Anger Management Treatment	.092(.096)*	.12(.126)*	.095(.099)*	e	
Pathways#c.Education	1.35(.917)				
Pathways#c.Substance Abuse Treatment		4.039(3.519)			
Pathways#c.Mental Health Treatment			1.102(1.239)		
Pathways#c.Anger Management Treatment				e	
Cox Models (Eight Week Follow-Up)					
Covariates	Model 14	Model 15	Model 16	Model 17	Model 18
	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)
Pathways	1.896(1.482)	1.919(1.502)	1.763(1.543)	2.295(2.242)	1.929(2.03)
Education		.799(.501)	.796(.499)	.723(.455)	.757(.479)
Substance Abuse Treatment			1.217(1.065)	1.242(1.199)	1.793(1.863)
Mental Health Treatment				6.176(3.799)*	5.518(3.393)*
Anger Management Treatment					e
Sensitivity Analysis with Propensity Scores					
Covariates				Model 19	
				Ha. Rat. (SE)	
Pathways Education Substance Abuse Treatment Mental Health Treatment Anger Management Treatment Propensity Scores				1.101(.42)	
				1.387(.343)	
				1.344(.513)	
				1.466(.465)	
				.059(.063)**	
				1252.158(1489.129)***	
Sensitivity Analysis with Total Number of Offences					
Covariates	Model 20	Model 21	Model 22	Model 23	Model 24
	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)	Ha. Rat. (SE)
Pathways	1.329(.44)	1.333(.442)	1.213(.456)	1.333(.512)	.96(.396)
Total Number of Offences	1.497(.07)***	1.487(.073)***	1.489(.073)***	1.503(.077)***	1.673(.11)***
Education		1.119(.278)	1.112(.277)	1.055(.265)	1.215(.298)
Substance Abuse Treatment			1.222(.441)	1.189(.432)	1.55(.6)
Mental Health Treatment				1.889(.562)*	1.507(.458)
Anger Management Treatment					.101(.079)**

NOTE: e = Error produced by low statistical power; for instance only 3 cases received both Pathways treatment and anger management treatment. *p<.05;**p<.01

Pathways treatment increases risk of return to custody, but when other predictors are included in the model, education and substance abuse treatment become more important, as well as anger management decreases risk. Based on these findings, Chi-square was used to determine which group was most likely to receive each of the various interventions post-release. Here it was found that the Pathways treatment group was more likely to receive all interventions, save for mental health treatment; however these findings were only statistically significant in the case of substance abuse treatment. See Table 11 for results.

Table 11

Chi-Square Test for Significant Differences between Groups

Education		Substance Abuse Treatment	
χ^2		χ^2	
$\chi^2(1) = .054, p = .817$		$\chi^2(1) = 33.946, p = .000$	
Frequencies		Frequencies	
T	C	T	C
43.48%(10)	40.96%(77)	52.17%(12)***	8.51%(16)***
Mental Health Treatment		Anger Management Treatment	
χ^2		χ^2	
$\chi^2(1) = 1.923, p = .166$		$\chi^2(1) = 2.115, p = .146$	
Frequencies		Frequencies	
T	C	T	C
4.35%(1)	14.89%(28)	13.04%(3)	5.32%(10)

***<.001

Days in Custody

The days in custody for those who did fail was initially to be explored using linear regression, however once the sample was limited to those who failed, minus outliers as well as one case wherein the individual failed but had not yet returned to the community at the end of the study period, the sample size was reduced to $n = 70$. This sample size approaches violation of the ‘cases per independent variable’ assumption of ordinary least

squares regression which assumes 10-20 cases per variable. At 5 variables in this analysis, this threshold is just met or nearly met. Further, when preliminary regressions were run containing full models as well as all combinations of independent variables, not surprisingly, no variables were statistically significant. Thus the proposed strategy of utilizing ordinary least squares was replaced by t-tests.

First a t-test was run to determine the mean difference between the treatment group and comparison group in terms of number of days in custody at failure. A non-significant Levene's test ($p = .117$) indicated equal variances, therefore independent samples t-test was used with homogeneity of variance assumed. Here it was found there was a non-significant difference between the treatment and comparison groups in number of days in custody; with the comparison group spending an average of about 13 more days off the streets than the treatment group ($t(68) = .355, p = .724$).

For the sake of interest, the same exercise was completed for each therapeutic intervention. This did not include anger management because there were no cases which both failed and also received anger management. While no difference between those who received an intervention and those who did not were found to be statistically significant, there were several notable findings. First, those who possessed at least a GED spent an average of 23 more days in custody. Further, those who received substance abuse treatment spent an average of about 15 more days in custody; and finally receiving mental health treatment was associated with about 1 less day in custody. See Table 12 for results of all t-tests.

Table 12***T-Tests of Days in Custody***

Pathways		Education	
T		T	
t(68) = .355, p = .724		t(68) = -.959, p = .341	
N		N	
T	C	1	0
9	61	37	33
$\bar{X}(SD)$		$\bar{X}(SD)$	
T	C	1	0
136.222(44.913)	149.131(107.142)	158.432(117.879)	135.182(78.371)
Substance Abuse Treatment		Mental Health Treatment	
T		T	
t(68) = -.438, p = .663		t(68) = .023, p = .982	
N		N	
1	0	1	0
11	59	15	55
$\bar{X}(SD)$		$\bar{X}(SD)$	
1	0	1	0
159.818(61.769)	145.17 (107.163)	146.933(105.131)	147.618 (101.057)

NOTE: Based on n=70. 1=Intervention received, 0=No intervention received. Anger management treatment was not included here as none of those who failed received anger management treatment.

CHAPTER 6

6.1 Conclusion and Discussion

The current study aimed to investigate summative outcomes of the Pathways to Productive Citizenship juvenile reentry program. This is a program which has shown both strengths and weaknesses throughout its lifespan, leaving ultimate program success markers difficult to maneuver. From a process perspective, while stakeholder perceptions regarding the intended outcomes of the program wavered from positive to slightly more negative over time, the Pathways program in fact succeeded in mobilizing community-based partners, and program stakeholders participated in an extremely collaborative and supportive manner. The benefits experienced by offenders due to this collaborative

approach were seen in the way in which supervision was able to be somewhat tailored to the needs of the clients (as tailored as possible given court mandates). There is also evidence indicating that this program removed institutional barriers to service; specifically issues with school re-enrollment. Further, the Pathways case management meetings succeeded in providing agencies a forum in which to explain the mandates, and policies and procedures of their respective programming. There were however partners which may have been privy to invaluable knowledge on a given offender and may have proven helpful when making referrals that were absent from meetings. Additionally, while Pathways encouraged collaboration and cooperation between agencies, at times, due to some agencies being adversarial by design, cooperation was not possible.

When summative analyses were conducted, they aimed to determine the extent to which this program was able to increase the amount of ‘time to failure’ and decrease the number of ‘days in custody’ for program participants when compared to a historical comparison group. This was done by first matching treatment participants to a comparison group using a stratified propensity score matching strategy; and then combining Kaplan-Meier and Cox regression survival analyses with t-tests to determine time to failure and days in custody. This exercise produced complex and - not unlike process analyses - sometimes conflicting results; with policy implications resting on a number of assumptions about the population not capture by the existing data.

Key Findings

Propensity score matching yielded similar samples which only differed by one more total crime for the treatment group; and by estimating the scores it was found that

those who were gang involved and those with a higher total number of offences were more likely to receive treatment. The reason for these group differences is fairly clear. As mentioned, the JJC data records offence history as a total number of offences, with no indication of when those offences occurred – therefore they may have taken place after or during the treatment period. By nature of the intervention, the treatment group would have been more closely supervised, resulting in a higher likelihood of recorded offences and a higher likelihood of gaining information about a subject, such as gang involvement. This explanation may also account for the discrepancy between the central study results and the sensitivity analysis which included total number of offences as a covariate, and not part of the matching criteria. Again, while non-significant, once total number of offences was included in the Cox model, the Pathways program was found to decrease the risk of failure, controlling for other therapeutic interventions. While this variable indisputably belongs in the matching criteria as there was no way of knowing when offences took place (see Rosenbaum, 1984; Frangakis & Rubin, 2002; Greenland, 2003; Reinisch, Sanders, Mortensen & Rubin, 1995; Apel & Sweeten, 2010), the results it yielded from inclusion in Cox as a sensitivity analysis are again likely the result of the Pathways program itself contributing to offence histories and when those offence histories are controlled for, the program artificially appears successful.

Based on the ATT produced by the matching process, juveniles who received treatment had a lower failure likelihood than the comparison group. In contrast, based upon the Kaplan-Meier survival estimate, the likelihood of survival was found to be higher for the comparison group; a trend which was maintained over time. These conflicting results may be the result of the way in which ATT is calculated using a

stratified sampling strategy. ATT is based upon the average of the block-specific (or strata-specific) effects of treatment. Due to sample size differences, there are many more cases in blocks 1 and 2 for the comparison group compared to the treatment group, resulting in much more stable means (for example, a change in one case in the treatment group could influence the likelihood of failure for the whole stratum). It may be that the ATT was calculated as a result of instances of non-failure cases for the treatment group located within specific blocks, skewing the ATT as a whole. The fact that radius matching produced the opposite effect of stratified matching further substantiates this theory.

That said when one considers that the Pathways treatment variable was non-significant in the full Cox model as well as several Cox models containing interaction terms; the results of the ATT and the Kaplan-Meier survival estimate are further muddled. When considered in conjunction with nearest neighbour and kernel matching ATTs, these findings could be the result of a null effect on the part of the Pathways treatment, rather than a backfire effect – which there is also much evidence to support the notion of (including a positive ATT during sensitivity analyses). Opposing results could be interpreted as cancelling one another out, with the conclusion being that the program is neither effective, nor harmful, but rather simply had no effect at all. Regardless of whether results are due to the arithmetic involved in stratified matching, a null program effect, or a backfire effect, the empirical evidence unequivocally shows that the Pathways program did not produce the desired outcome effect.

Based on Kaplan-Meier for the full study period, the comparison group also had an estimated mean survival time of over 2 years more than the treatment group. This

trend began early on in the supervision period as was evidenced by the Kaplan-Meier model using only an 8 week follow-up period. Further, Cox found that when the full study period was used, the rate of return to custody was substantially hastened for the treatment group (an increase of 93.1%), and the risk of failure climbed during the study period for both groups; although the risk of failure was nearly twice as high within the first year or so of study for the treatment group. This was again found to be similar within the 8 week follow-up period, with differences in groups increasing quickly at round 15 days of follow-up. These findings echo those of Wilson and Davis in their 2006 evaluation of Project Greenlight. Again, using survival models, researchers found that the probability of survival actually decreased for those 344 subjects who participated in the reentry program compared to control groups (Wilson & Davis, 2006). As mentioned, Wilson and Davis (2006) felt that the findings were the result of fidelity issues with regard to program implementation as well as a failure to place an appropriate population of offenders into the program. Risk level was not likely an issue in this case; however the process evaluation did indicate that some agencies participated with much less commitment than did others, for instance some partners left meetings early, which speaks to possible fidelity issues. Possible explanations for these findings are discussed in more detail below.

These findings are inconsistent with the hypothesis that subjects in the treatment group would not differ largely from those subjects in the comparison group with regard to time to failure; and they indicate that the longer one is in the community, the higher the risk of failure. The fact that this is the case for both groups is consistent with the literature on adolescent development which point to the challenges faced by juvenile delinquents in

terms of employment, returning to school and interpersonal relationships; and is consistent with reentry literature that suggests a higher likelihood of offending and reoffending for former prisoners compared to those who have never been incarcerated (Altschuler, & Brash, 2004; Mears & Travis, 2004; Sullivan, 2004; Baer et al., 2006).

Further, because these findings were similar for both groups, it speaks to the realities of the communities in which the offending population lives. Again, the settings which prisoners return to following a period of incarceration are more likely to be characterized by disadvantage, and returning prisoners who are more likely to recidivate are those who are returning to communities which they perceive to be lacking in safety and low in social capital (Baer et al., 2006; Grunwald et al., 2010). Additionally, an increase in social disorder and concentrated disadvantage, as well as deprivation of resources is associated with an increase in recidivism (Hipp et al., 2010; Kubrin & Stewart, 2006; Mears et al., 2008). High risk community residency is certainly known to be true for the treatment group (see Piza, 2013) and given the equivalency of groups, it is likely true for the full sample.

In the absence of more longitudinal data, it is difficult to say whether this risk would eventually fall if the subject remained crime free for several years; although age-crime research suggests it would (Shulman et al., 2013). While perhaps not economically ideal, this finding does point to the need for programs that are longer in duration and is consistent with the literature that suggests both that effects diminish over time, and a larger dosage seems to point to a better result (Abrams et al., 2011; Drake & Barnoski, 2006; Wells et al., 2006).

Longer interventions post-release might also help to further increase clinician enthusiasm or confidence in the program, which could result in high program fidelity and stakeholder buy-in. This speaks to the process evaluation findings surrounding stakeholder attitudes toward the program – namely that stakeholders seemed to waver on whether or not they believed the program would meet its stated objectives. This also speaks to some fidelity issues of the program wherein some agencies participated with much less commitment than did others, which is problematic as partners may have missed referrals or the opportunity to provide relevant insight on particular cases. These process factors may have occurred due to the brief time periods the subjects were actually supervised; as well as the short duration of the program as a whole.

Unpacking Key Findings

There are several possible explanations for these findings. While both groups had a rapidly climbing risk of failure, the fact that the treatment group had a much steeper risk and were less likely to survive overall may be the result of the treatment group actually worsening their behaviour. More likely however, this finding may be attributed to the fact that by nature of the program, the treatment group was supervised more intensively, and therefore transgressions were more likely recorded and acted upon – particularly since the risk of failure was relatively similar for both groups in the first days, but increased quickly during the 8 week supervision period for the treatment group. In fact, this program clearly produced long-term residual effects. This is likely due to the fact the by nature of the program, offenders became well-known to those working in the criminal justice system; a relationship that would not have abruptly ended simply because

the official period of intensive supervision was over. This may in fact be interpreted as a successful program if the standard is to pay closer attention to the behaviour of recently released juveniles and catch slip-ups. That said, the program did result in a reduction in the amount of time spent in the community post-release, and treatment subjects were more likely to fail. Assuming this result was in fact due to closer supervision and thus greater opportunity for officially recorded instances of failure, it begs the question, is this outcome a positive one for the individual?

The 'days in custody' analysis might lend itself somewhat to answering this question. Here, t-test found that the comparison group spent an average of about 13 more days in custody than the treatment group, however these findings were non-significant. This is in complete contrast to the hypothesis which predicted that the groups would not differ in the number of days spent in custody rather than on the street post-release. Not only were the two groups quite different in that respect, but in fact the treatment group spent less time in custody upon failing – indicating perhaps they returned to custody for less serious reasons. If this reduction in days in custody for the treatment group occurred following a rise in the number of officially recorded instances of failure due to closer supervision, one of two phenomena transpired:

1. Less serious behaviour that normally would have resulted in a warning was more likely acted upon in an official capacity for the treatment group - resulting in shorter custody stays.
2. Because of the increased supervision, subjects improved their behaviour, and as such committed only very minor infractions.

If the latter is true and subjects improved their behaviour, the policy implications are clear, and point to the possibility of replication in alternative settings; with a longer supervision period than the 8 weeks used here being advisable based upon the risk of failure climbing during the study period for both groups. However it must be noted that this program operated in a very specific context (Essex County, NJ), raising concerns of external validity; which has implications for service providers seeking new approaches to reentry.

More likely however, if more intensive supervision led to treatment subjects spending less time in custody because less serious behaviour was acted upon than that otherwise would not have been, policy implications are less apparent and additional assumptions must be made. Firstly, it may be assumed that this “less serious behaviour” that was officially captured for the treatment group were minor offences at most, and technical violations at least. This is a fair assumption given that Clear, Harris, and Baird (1992) found that of the over 7,500 probationers studied, 25% violated community supervision. Of that 25%, half were for technical violations, and of those who violated probation for a new crime, most were minor offences. Further, following the initial violation, most did not violate probation subsequently. Additionally, research suggests that technical violations may be a sign of actually remaining crime-free (Petersilia & Turner, 1993; Paparozzi, & Gendreau, 2005).

The literature is indeed consistent with the results surrounding the inclusion of various other interventions subjects were exposed to upon release from prison (substance abuse treatment, mental health treatment, anger management treatment). This analysis

indicated that Pathways and mental health treatments were found to lose importance when combined with additional interventions (Models 4 and 5 in Table 10), and possessing at least a GED and substance abuse treatment increased the rate of return to custody substantially in the long term; while anger management treatment decreased the rate of return to custody by a large margin.

When each treatment condition was interacted on Pathways, it was found that the effect of Pathways on failure increased when it was combined with substance abuse treatment, and the Pathways treatment group was more likely to receive all interventions (including substance abuse treatment), save for mental health treatment. Additionally, while the findings were non-significant, both possessing a GED and receiving substance abuse treatment were associated with more days in custody; however, again while not significant, when education is interacted on Pathways the risk of failure decreases as one would expect.

Interestingly, these findings are in slight opposition to studies on substance abuse treatment for juvenile offenders which generally yield positive but weak effects (Dowden & Andrews, 1999; Tripodi & Bender, 2011). However, while in opposition to study findings that education is linked to success, these findings are not surprising due to the fact that most research emphasizes a need for pairing education with employment counselling in order to avoid recidivism, yet process evaluation results of this program point to an extremely high level of chronic unemployment on the part of program participants (Abrams et al.'s, 2011 Lipsey, 1999; Dowden & Andrews, 1999). It may be that juveniles with at least a GED are returning to custody due to new crimes, as the combination of Pathways and education (albeit non-significant) points to lower likelihood

of failure, but a higher number of days in custody for educated people (an average of 23 days longer). Perhaps these new crimes are being committed out of economic need due to the high unemployment seen in the process evaluation. This is consistent with literature that suggests these individuals are likely to live among concentrated disadvantage and deprivation of resources, as well as within proximity to illegal opportunities as evidenced by the likelihood of residing in neighbourhoods characterized by crime-generating variables (Hipp et al., 2010; Kubrin & Stewart, 2006; Mears et al., 2008; Piza, 2013). The idea that crimes were committed for economic need is also consistent with Fields and Abrams (2010) who found juvenile offenders to be accepting of the possibility of engaging in illegal means to earn an income (Fields & Abrams, 2010).

The reason for these relationships is likely further related to the fact that all juveniles being released from prison are mandated to receive substance abuse treatment, where-as education is only universally mandatory for those 16 and under (otherwise it may or may not be added as a special condition on a case-by-case basis), and mental health and anger management treatments are not universally mandated (again, only made mandatory on a case-by-case basis). As one might recall, the treatment variables used here were dichotomous, with subjects either receiving no treatment, or *some* treatment. It is not known whether or not subjects completed any of the programming. Because there does tend to be a bias toward excess treatment on the part of the clinician, which can lead to patient frustrations (see Pulford et al., 2007), it is not a stretch to assume the young people in this study who were supervised more intensively may have also been more likely to get caught and violated for incompleteness of substance abuse treatment. It is also known from preliminary work using Pathways program documents that there is an

inconsistency between the low number of drug offenders and the extremely high level of mandated drug treatment, indicating that perhaps reentry services were not allocated appropriately. Therefore substance abuse treatment may result in the three Fs – young people who do not actually have an issue with drug abuse but are mandated to attend treatment get *fatigued*, they get *frustrated*, they stop attending and they *fail* due to a violation of conditions. The anger management results are directly consistent with these theories because again, anger management is not mandatorily disposed upon juveniles universally, therefore the frustration and subsequent drop-out and violation would not be there.

In returning to the question, although the program provided a means to keep a better eye on subjects, is this resulting reduction in the amount of time spent in the community a positive outcome for the individual? Clear and colleagues (1992) suggest that in the case of probationers, responding more harshly to minor infractions does not in fact lessen recidivism in the long term because violators were not likely to misbehave again anyway; and therefore intensive supervision is not necessary. The results here have shown that the treatment group was more likely to fail and more likely to fail faster. Thus the shortened custody period for treatment group subjects who failed did not pay off as it came at the cost of a greater likelihood of failure. The policy implication then is perhaps to further explore the use of intensive supervision to aid in subjects receiving rehabilitative services; but exclude in this process the potentially harsher responses to misbehaviour that seem to have come with increased supervision. This policy implication is empirically substantiated further by the chi-square findings that indicate the treatment group was more likely to receive all interventions, except mental health treatment –

indicating that while subjects were supervised more closely, they were also more likely to receive some treatment. In that vein, more inquiry needs to be done into the extent of the rehabilitative services that went along with this intensive supervision program. As Paparozzi and Gendreau (2005) noted with their evaluation of intensive supervision, it is unknown whether community service agencies that recently released juveniles regularly visit for court mandated programming do in fact use efficacious treatment methods which target individual needs.

Additionally, the recommendation that punitive response should not accompany intensive supervision is particularly important given the consequences of this removal of large numbers of offenders from communities; which Rose and Clear (1998) have pointed out are an asset to the community through the social capital they offer. They care for family members, participate in the community and possess earning potential for families.

Given all the above assumptions, it is important to acknowledge that the 1992 study by Clear and others was of course based upon probationers and knowledge of the nature of failures in terms of offences versus technical violations. Thus perhaps the most crucial policy implication of this study is the need for juvenile justice agencies in New Jersey to not only coordinate data, but record it with more incident-based information. Specifically, the data used here came from the JJC, which records offence histories as an aggregate list, with no indication of when each offence occurred, as well as no link between custody periods and offence type; thus this study was unable to determine whether failures were based upon violations or new arrests and for what offence type. Additionally, without information on county jail stays, a myriad of failures may not be

captured at all. Further, this study had no access to data indicating whether subjects were on parole or probation, although it is speculated that the vast majority were on parole, thus it is unknown if the 1992 findings of Clear and others are applicable to interpreting these results. It is also unknown whether or not services were completed or simply attended, and if so, at what dosage level. As mentioned, this is something that may be recorded in more detail as well. In terms of coordination, the JJC and the Administrative Office of the Courts have data on juvenile and adult custody, respectively; however they use differing case identification numbers and as such it is impossible to link cases for long-term follow-up on adult arrests or juvenile waivers into the adult system. Thus coordinating agencies which possess similar functions and mandates can be a helpful exercise; not only for researchers, but for practitioners who may be able to serve their clients more effectively by having as much information available to them as possible.

RNR Revisited

RNR focuses on the use of validated risk assessment tools to determine criminogenic needs and assign appropriate levels of supervision and evidence-based services accordingly (Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 2006; Bonta & Andrews, 2007). The needs-targeting void found in hybrid models as well as the acknowledgement of existing strengths seen in the GLM model seems to be satisfactorily addressed through RNR; with the theory stating that program intensity should be proportionate to offender risk level, criminogenic needs should be targeted, and intervention techniques should coincide with the offender's capacity and style of learning (Andrews et al., 1990).

While Pathways seems to have operated under a similar theoretical foundation as RNR with the program aiming to clinically assess individual offender's needs to determine appropriate constellation of services, the results shown here may be an indication of the importance of including all aspects of the RNR model in order to ensure success. Again, Pathways has seen success in removing institutional barriers to reentry in the area of education attainment as well as tailoring supervision intensity as much as possible. This is consistent with RNR's discussion of risk/needs assessments and responding appropriately based on risk level and needs. That said the failure of this program may to some degree be due to the subjective nature of the risk/needs assessments as opposed to empirically validated assessment tools such as the LSI-R. Again, needs were assessed by clinicians with a great deal of experience in the field, but the level of involvement contributing clinicians had with a given offender was perhaps limited given the short duration of the program, as well as the apparent lack of psychometric tools is cause for concern. Some of the program's failure may also be attributed to the short duration, not just in terms of needs assessment, but given that the community supervision literature inside and outside of RNR point to the importance of officer and offender rapport and an environment that supports change – things that may be difficult to achieve within such a brief time period (Taxman et al., 2004; Taxman, 2008a; Schwalbe, 2012; Ward & Maruna, 2007; Maruna, 2001; Gleicher et al., 2013). In addition to program duration being a concern (which has been further substantiated by the above findings on increasing risk level within the first year of release), Taxman (2008a) suggests that an organizational shift may be necessary in order to create the proper atmosphere to implement the RNR model. For change to take place, Taxman

(2008b) asserts that organizations must *reframe* the work they do so that staff see themselves in positive roles rather one that endangers public safety. She also believes community supervision providers must *recalibrate* expectations to avoid becoming discouraged; for example, adjust the goal to be to decrease recidivism instead of eliminate it. Finally, in her discussion of changing community supervision culture, agencies must *refocus* attention to the community supervision officer as a skills trainer, rather than the old image of the officer as an authoritarian.

Concerns around clinician expertise over validated assessment tools aside, due to conclusions about closer supervision resulting in failure, it must also be noted that relying on court mandated treatments over adherence to RNR-based responses may have impeded proper reactions to identified needs – as treatments were not necessary provided due to some form of needs assessment, but rather mandated from a policy level. This is consistent with Ostermann's (2013) interpretation of program failures where long-term rehabilitative objectives may be less important than managing offending exclusively during the supervision period. This is also consistent with Bonta et al.'s (2008) research showing that probation officers rarely displayed skills in behaviour modification and neglected criminogenic needs. Ultimately, while this program seemed to share the same underlying theory as RNR, as with Project HOPE, it may have failed due to, among other issues discussed elsewhere, an under-emphasis of key aspects of RNR such as psychometrics, rapport and environments conducive to motivating offenders to change.

Conclusion

Based on the research presented here, the program under study ultimately had a number of successes and a number of failures. Again, the treatment group was found to be more likely to fail, more likely to fail faster, the risk of failure increased quickly during the supervision period and continued to increase for weeks afterward, and failure was hastened when the program was coupled with substance abuse treatment. While there may not have been an outright backfire effect on subjects as a result of this treatment, there was at least a null effect. Further, stakeholders themselves possessed uncertainty about the program while it was operating and stakeholder attendance to monthly could have been improved. That said the treatment group was more likely to receive almost all types of therapeutic interventions. This has the potential to be beneficial if need is clinically assessed and treatment is allocated according to need, not legislation. Additionally, stakeholders who were committed to the program were extremely supportive and helpful toward one another and as a result community partners were able to discuss available community services, support was tailored to subjects, and at least one major institutional barrier to reentry success was removed (school re-enrollment). Ultimately, perhaps the most fundamental success of this program was that community service providers were afforded an opportunity to implement a novel approach to juvenile reentry in a community which faces substantial systemic challenges; subsequently resulting in a learning experience for policy makers and clinicians alike.

6.2 Limitations

Data Limitations

This study has a number of limitations; many of which have previously been mentioned in one respect or another throughout this document. The majority of the weaknesses seen in this study are not design-related, but rather are concerns with the data. Unfortunately, this is par for the course when relying on non-public agency data, as this type of data is typically not collected for the purpose of research, and therefore often does not meet the full needs of the researcher (Maxfield & Babbie, 2011).

One such data limitation is that of attrition, wherein those who are removed from the program, are those who do least well; making the program look more effective than it really is. Technically subjects left the program because of a custody stay – which was considered a failure; therefore attrition in its purest form was not an issue here. That said one might consider the cases lost due to missing JJC data another form of attrition. Again, 36 individuals received Pathways treatment; however the JJC only provided information on 23 cases. Again, the reason for this loss of data is not known for certain; but is likely due to cases being waived into the adult system – which is under the jurisdiction of the Administrative Office of the Courts. Strong efforts were made to acquire data from this agency; however those efforts were unsuccessful due to case identification numbers which do not transcend agencies. That said if attrition occurred in the treatment group, by nature of the sampling technique it is logical to assume it occurred in the comparison group as well; as a census of several cohorts were used, and a

strong sample matching technique was used to ensure treatment and comparison groups were equivalent.

An additional limitation is the fact that the JIMS data did not include those days where a juvenile was incarcerated in a non-JJC-run institution, such as a county jail. This was a crucial limitation as there may have been individuals who were repeatedly placed in county jail and not a JJC facility, but by the standards of this study were being considered successful. However based on the sampling strategy, both the treatment and comparison groups would have suffered from the same fate, therefore this issue was controlled for in terms of equivalency of groups.

The study design also included concerns about the interaction between the results and the participants, wherein there may have been differences in results in one category of the participants and not another. This was particularly a concern with regard to the program being more effective depending on offence type – an area that could not be explored here due to data-limitations. Similarly, because offences were presented in the data as aggregate lists, with no indication of when each offence occurred, as well as no link between custody periods and offence type, this study was unable to determine whether failures were based upon violations or new arrests. The data also did not include a differentiation between parolees and probationers, impeding the ability to rely on literature on intensive supervision for specific community corrections techniques.

As a result of using administrative data, study conclusions rest only upon official records of failure. Thus this research cannot comment on challenges this population faced during their day-to-day struggles with reentry, such as missing job interviews. Nor does it capture the decision-making process of the criminal justice system which includes parole

officer warnings and subjective decisions. The implication of this lack of information is of course an incomplete picture of the reentry process. That said due to confidentiality issues, ethical challenges with accessing juveniles as well as offenders in general, a complete lack of identifying information for the comparison group, and sampling size concerns, gaining insight into the daily challenges of this population through survey or interview data would likely be a near-impossible task.

One last limitation with using administrative data lays in the differences in data collection methods across agencies. Based on first-hand knowledge garnered from the use of both Pathways program documents and the JIMS database, it is clear that had a differing source been used, this study may have produced differing results. See Table 13 for a comparison of treatment group descriptive statistics using Pathways program documents and JIMS data. While much of the differences between datasets seen in this table may be attributed to the sample size differences, some difference may be related to differing conceptualizations. That said again, problems of this nature are characteristic of administrative data and are largely unavoidable. This issue was likely sufficiently dealt with however by the use of propensity score matching – if JIMS data was lacking in some way with respect to the treatment group, the same weaknesses would be present for the comparison group.

Table 13***Descriptive Statistics for Treatment Group: Pathways Program Documents Compared to JIMS***

Variable	Dataset*	
	Program Documents	JJC JIMS Database
	Percent	
Black	83.3%	91%
Known Gang Involvement	83.3%	96%
Medication for Mental Health	8.3%	13%
DCP&P	5.6%	26%

NOTE: *n=36 and 23 for Pathways program documents and JIMS data, respectively. CBHS involvement was not included in this table as program documents operationalized this to include the subject, plus any children they may have; whereas the JIMS database only included the subject involvement.

Study Design Limitations

In addition to data limitations, several design limitations should be acknowledged.

Firstly as with any community-based program, there was the risk of a history effect wherein an event may have occurred in Essex County such as a juvenile justice policy change that may have coincided with or mask the program effects. However, through an investigation of the JJC's policies and services, the researcher knows of no such history effect. Additionally, by using a broad study period for the comparison group, any unknown history effects were mitigated. Another possible internal validity threat is the risk of maturation wherein the natural changes of the program participants coincide with the program activities. This is always a risk with juveniles however it is not a large concern here due to the group matching process minimizing the impact of this phenomenon; thus if maturation occurred in the participants, it should have theoretically also occurred in the control group. An additional internal validity concern to the research design was the possibility of ambiguous temporal sequence in the cause and effect variable; meaning it can be difficult to distinguish whether the effects came before or after the intervention. In this case, it was possible that the juveniles received some sort of

intervention while incarcerated which had a delayed or more gradual effect. That said again, because the comparison group looked very much like the program group, if that process occurred it would have occurred in both groups resulting in all things remaining equal. Another such threat was the possibility of an interaction between the results and the treatment variations. This refers to the idea that removing one aspect of the treatment would undermine the results of the program as a whole. All attempts were made to address this through statistical analysis and the inclusion of additional treatment interventions in statistical models (substance abuse, mental health, anger management), but few conclusions were clearly reached based on low statistical power. Finally, while propensity score matching minimized the differences between the treatment and comparison groups, allowing most design limitations to be controlled for as well as many data limitations, it decreased the true representativeness of the samples due to the fact that cases were selected based on similarity to the treatment group, and were not necessarily typical in the broader population. This is a limitation that cannot be minimized; however the benefits of this limitation far outweigh the cost.

6.3 Ethical Considerations

The quantitative data taken from program documents and JIMS did not pose a significant ethical concern due to the secondary nature of this information; particularly because prior to even receiving access to JIMS, the JJC insisted any identifying information be removed. Further, the JJC did not grant access to these data until the

researcher received approval from the IRB for the Protection of Human Research Subjects for the commencement of this research.¹³

6.4 Contribution to the Field of Criminology

Practical Applications

Despite its limitations, the current research makes numerous contributions to the field of reentry, and to criminology as a whole; particularly in its practical policy implications. For instance, results of this study point to the need for intensive, collaborative approaches to supervision to be longer in duration than the one evaluated here. It has been shown that the risk of failure increases over time, pointing the need for a longer dosage. Exactly how long is unclear, although this study would suggest at least a year of care for those experiencing reentry. This study also points to the need to eradicate unnecessary therapeutic interventions that seem to only result in increasing the likelihood of failure. This research has also demonstrated a clear need for more incidence-based data collection, such as violations versus new offences, as well as data sharing across agencies. Finally, this evaluation contributes to the broader literature on intensive supervision and collaborative and multisystemic approaches to juvenile reentry in its discussion of the efficacy of a program of such nature.

¹³ See APPENDIX J for a letter granting IRB approval to proceed with the current research.

Theoretical Applications

This research also makes minor contributions to criminological theory. Firstly, it provided a short history of trends in community supervision theory, leading to the origin of RNR. This study provides interested parties with a description of the most likely theoretical foundation for a program of this nature, while speculating as to the why the program was ineffective from a theoretical perspective – namely the use of subjective risk/needs assessments over validated assessment tools and needs responses that are at the policy level, rather than based on individual care plans. It also speculates that this program may have been more effective had it included built-in activities to ensure a supervision environment ripe for offender change such as the inclusion of motivational messages.

Methodological Applications

Braga and colleagues are of the few criminological researchers to combine propensity score matching with survival analysis. This study adds to that small body of literature which combines these methods. Additionally, there is a paucity of literature which combines survival analysis with a measure of days in custody to provide both a temporal measure of success, as well as a measure of severity of failure. This author knows of no such literature. This study may provide some guidance to those seeking novel measures as well as aid in diagnostic tests and model development.

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APPENDIX A

Spatial Analysis

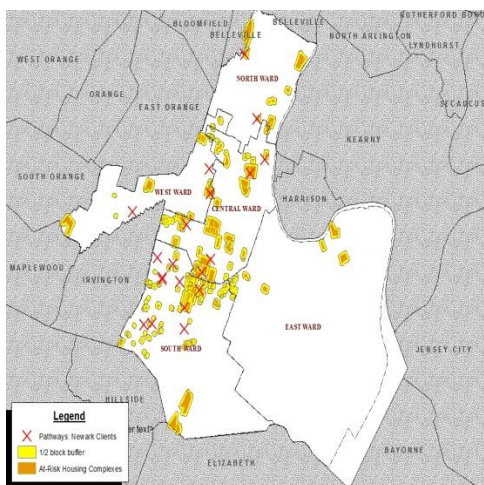


Figure A1. Residence locations of Pathways clients and locations of at-risk housing complexes with $\frac{1}{2}$ block buffer. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

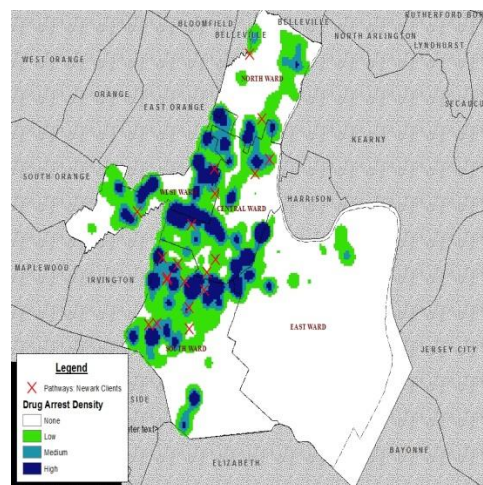


Figure A2. Residence locations of Pathways clients and locations of drug arrest hotspots. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

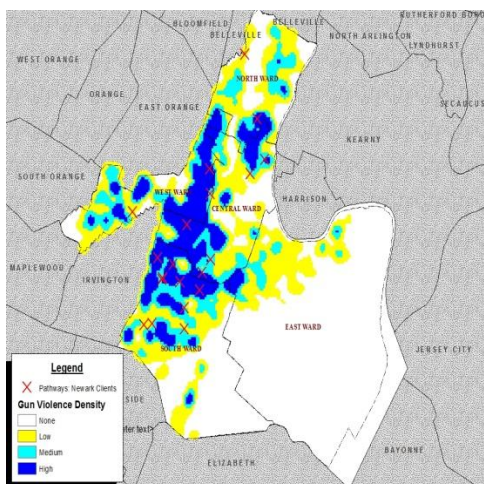


Figure A3. Residence locations of Pathways clients and locations of gun violence hotspots. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

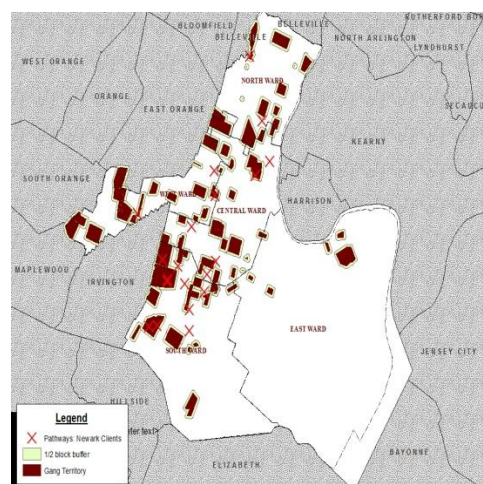


Figure A4. Residence locations of Pathways clients and locations of gang territory with $\frac{1}{2}$ block buffer. Reprinted from *Environmental Risk Pathways Client Residences in Newark*, by E.L. Piza, 2012. Reprinted with permission.

APPENDIX B

Process Evaluation Informed Consent Form and Survey

Informed Consent to Participate: You are invited to participate in a research study being conducted by a researcher from Rutgers University School of Criminal Justice. You are being invited to complete a survey, which should take approximately 10 minutes to complete during each session. You are being asked to answer the questions put forth in the survey but you may decline to answer any and all survey questions. By signing this form you are giving your informed consent to participate in today's survey and this same survey which will be handed out again in the future. Approximately 15-25 other participants will be taking this survey during a given meeting and data collection for this study will take place over the next 34 months. All responses on this survey will remain anonymous. The purpose of this study is to determine the effectiveness of the Pathways to Productive Citizenship Program and by participating you will be contributing to the advancement of scientific knowledge in the areas of juvenile justice and prisoner re-entry. This research is interested in collecting information related to your occupational experiences and perceptions of the Pathways to Productive Citizenship Program and will not be gathering any personal or sensitive information; as such the researchers see no risks to you by participating in this study. Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time. The results of this study may be presented in reports, at academic conferences, and/or in academic journals; however, only aggregate (i.e., grouped) data will be used, and there is no likelihood of profiting financially from the findings. A summary of the results of this study will be available once the study is completed. If you have any questions about this research you may contact the principle investigator and faculty advisor at:

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If you have any questions about your rights as a research subject, you may contact the IRB Administrator at Rutgers University at:

Rutgers University Institutional Review Board for the Protection of Human Subjects
Office of Research and Sponsored Programs
3 Rutgers Plaza
New Brunswick, NJ 08901-8559
Tel: 848 932-0150
Email: humansubjects@orsp.rutgers.edu

I have read the above statement of informed consent and I agree to the terms and conditions therein.

Participant Signature: _____ Date: _____

Researcher Signature: _____ Date: _____

1. **What is your role as a stakeholder in this program?** Check only one.
 This is simply to gain an understanding of the variety of stakeholders participating in the program and will not be used to identify respondents.
☐ Parole officer
☐ Probation officer
☐ Other clinician (Indicate _____)
☐ Supervisor
☐ Academic
☐ DCP&P/Child Welfare
☐ Other (Indicate _____)

2. **How many years have you been working within this general field?** _____

Please indicate how strongly you agree or disagree with each of the following statements.
 Check only one.

3. **The goals of the Pathways to Productive Citizenship program have been made clear.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

4. **The goals of the case management meetings have been made clear.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

5. **The case management meetings will likely have a positive impact on targeted juveniles and their families.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

6. **The case management meetings are likely to contribute to reconnecting juvenile offenders to communities.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

7. **The case management meetings are likely to contribute to the rehabilitation of juvenile offenders.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

8. **A broad range of community-based partners seem to be present at the case management meetings.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

9. **The case management meetings seem to identify institutional barriers to the effective treatment of targeted juveniles and their families.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 10. The case management meetings seem to remove institutional barriers to the effective treatment of targeted juveniles and their families.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 11. As a result of the case management meetings, the individual needs of targeted juveniles and their families are responded to in the areas of education, family dynamics, substance abuse, mental health, and gang activity.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 12. The executive level participants seem to be mobilized and engaged in resolving gaps in service delivery during the case management meetings.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 13. The case management meetings will likely contribute to an increase in the overall stability in the lives of those targeted juveniles and their families.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 14. The case management meetings will likely contribute to a reduction in juvenile recidivism among participants.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 15. Today's case management meeting was productive and a good use of my time.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 16. Today's case management meeting was a satisfactory experience.**

Strongly Disagree___ Disagree___ Neither agree nor disagree___ Agree___ Strongly Agree___

- 17. If you have any other comments regarding case management meetings (today's meeting, or the meetings in general), please feel free to discuss briefly below.**

APPENDIX C

Rutgers Internal Review Board Notice of Approval (Process)

RUTGERS UNIVERSITY
Office of Research and Sponsored Programs
ASB III, 3 Rutgers Plaza, Cook Campus
New Brunswick, NJ 08901

July 2, 2012

P.I. Name: Sytsma
Protocol #: 12-574M

Victoria A. Sytsma
School of Criminal Justice
123 Washington Avenue
Newark Campus

Dear Victoria Sytsma:

(Initial / Amendment / Continuation / Continuation w/ Amendment)

Protocol Title: "Juvenile Offender Re-Entry in a Disorganized Urban Setting: An Evaluation of Newark, New Jersey's 'Pathway to Productive Citizenship'"

This is to advise you that the above-referenced study has been presented to the Institutional Review Board for the Protection of Human Subjects in Research, and the following action was taken subject to the conditions and explanations provided below:

Approval Date:	5/29/2012	Expiration Date:	5/28/2013
Expedited Category:	7	Approved # of Subject(s):	25

This approval is based on the assumption that the materials you submitted to the Office of Research and Sponsored Programs (ORSP) contain a complete and accurate description of the ways in which human subjects are involved in your research. The following conditions apply:

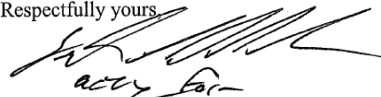
- **This Approval-**The research will be conducted according to the most recent version of the protocol that was submitted. **This approval is valid ONLY for the dates listed above;**
- **Reporting-**ORSP must be immediately informed of any injuries to subjects that occur and/or problems that arise, in the course of your research;
- **Modifications-**Any proposed changes MUST be submitted to the IRB as an amendment for review and approval prior to implementation;
- **Consent Form(s)-**Each person who signs a consent document will be given a copy of that document, if you are using such documents in your research. The Principal Investigator must retain all signed documents for at least three years after the conclusion of the research;
- **Continuing Review-**You should receive a courtesy e-mail renewal notice for a Request for Continuing Review before the expiration of this project's approval. However, it is your responsibility to ensure that an application for continuing review has been submitted to the IRB for review and approval prior to the expiration date to extend the approval period;

Additional Notes: Expedited Approval per 45 CFR 46.110

Failure to comply with these conditions will result in withdrawal of this approval.

Please note that the IRB has the authority to observe, or have a third party observe, the consent process or the research itself. The Federal-wide Assurance (FWA) number for the Rutgers University IRB is FWA00003913; this number may be requested on funding applications or by collaborators.

Respectfully yours,



Sheryl Goldberg
Director of Office of Research and Sponsored Programs
gibel@grants.rutgers.edu

cc: Todd R. Clear

APPENDIX D

Letter of Permission to Recruit Subjects



14 Park Avenue, Caldwell, New Jersey 07006

973-228-3000

FAX 973-228-2742

Board of Trustees

President

Hon. Francis X. Astorino Rutgers, The State University of New Jersey

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New Brunswick, NJ 08901

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Robert Masella

Robert L. Podvey, Esq.

Terry Rogers

Jolinda Smith, LCSW

Bradford White

Executive Director

Stanford L. Brown

Dear Ms. Gaines:

I am writing in support of Victoria Sytsma's request for an expedited review for IRB # 12-574, entitled "Juvenile Offender Reentry in a Disorganized Setting: An evaluation of Newark, New Jersey's 'Pathways to Productive Citizenship.' " As Executive Director of the Bridge, Inc., it is my responsibility to ensure that the Pathways program gets off the ground, works with the JJC and the Youth Services Commission of Essex County and ultimately provides both a formative and summative analysis of our collective efforts. With that in mind, not only do we give permission for recruiting and interviewing our stakeholders, but we need those interviews to take place in order to properly fulfill our mandate.

If you have any further questions, do not hesitate to call me or email me. Thank you for your consideration.

Respectfully Submitted,

Stanford L. Brown



A United Way Member Agency

APPENDIX E

Survey Results

Table E1

Percent and Frequency by Time Point: A Broad Range of Community-Based Partners Seem to be Present at the Case Management Meetings¹⁴

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	8% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	0% (0)	0% (0)	12% (1)	8% (1)	27% (3)	20% (2)
Agree	54% (7)	47% (7)	63% (5)	75% (9)	64% (7)	50% (5)
Strongly Agree	38% (5)	53% (8)	25% (2)	17% (2)	9% (1)	20% (2)
Total	100% (13)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

Table E2

Percent and Frequency by Time Point: The Goals of the Pathways to Productive Citizenship Program Have Been Made Clear

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	9% (1)	0% (0)
Neither Agree nor Disagree	0% (0)	6% (1)	13% (1)	9% (1)	9% (1)	0% (0)
Agree	77% (10)	47% (7)	63% (5)	58% (7)	55% (6)	50% (5)
Strongly Agree	23% (3)	47% (7)	25% (2)	33% (4)	27% (3)	40% (4)
Total	100% (13)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

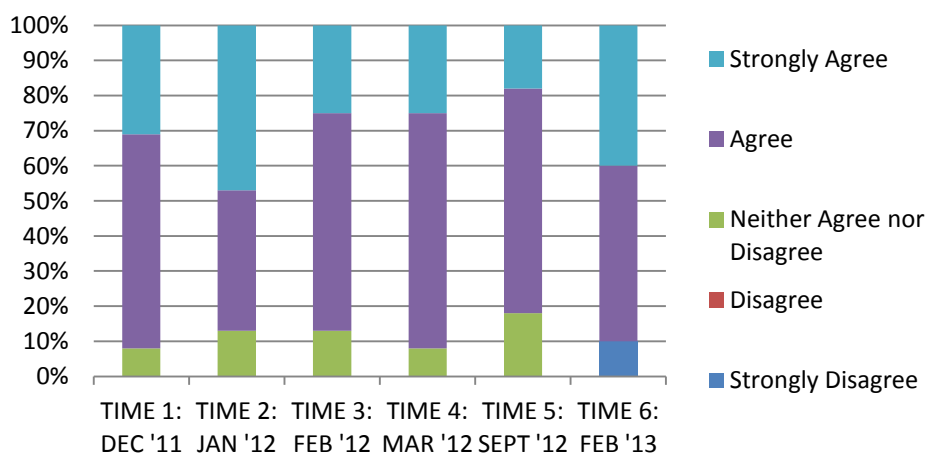


Figure E1. The goals of the case management meetings have been made clear.

¹⁴ Percentages are not precise due to rounding.

Table E3

Percent and Frequency by Time Point: The Goals of the Case Management Meetings Have Been Made Clear

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	8% (1)	13% (2)	13% (1)	8% (1)	18% (2)	0% (0)
Agree	61% (8)	40% (6)	62% (5)	67% (8)	64% (7)	50% (5)
Strongly Agree	31% (4)	47% (7)	25% (2)	25% (3)	18% (2)	40% (4)
Total	100% (13)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

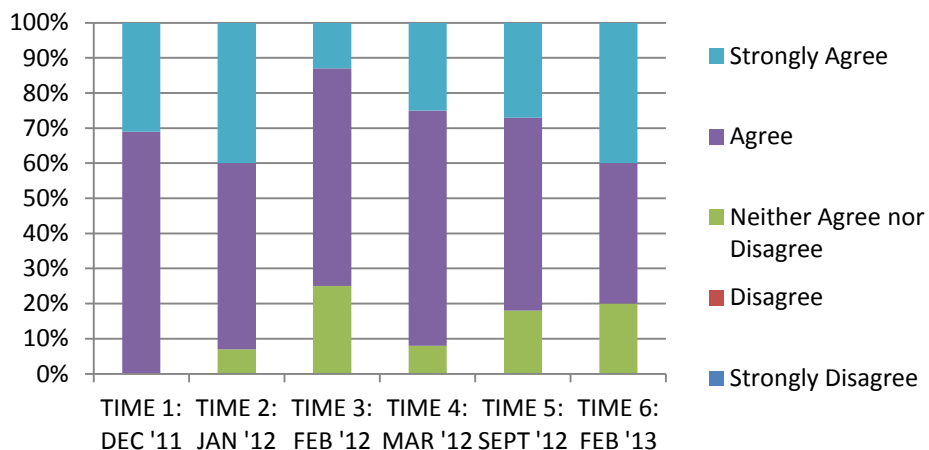


Figure E2. The case management meetings will likely have a positive impact on targeted juveniles and their families.

Table E4

Percent and Frequency by Time Point: The Case Management Meetings will Likely Have a Positive Impact on Targeted Juveniles and their Families

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	0% (0)	7% (1)	25% (2)	8% (1)	18% (2)	20% (2)
Agree	69% (9)	53% (8)	62% (5)	67% (8)	55% (6)	40% (4)
Strongly Agree	31% (4)	40% (6)	13% (1)	25% (3)	27% (3)	40% (4)
Total	100% (13)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

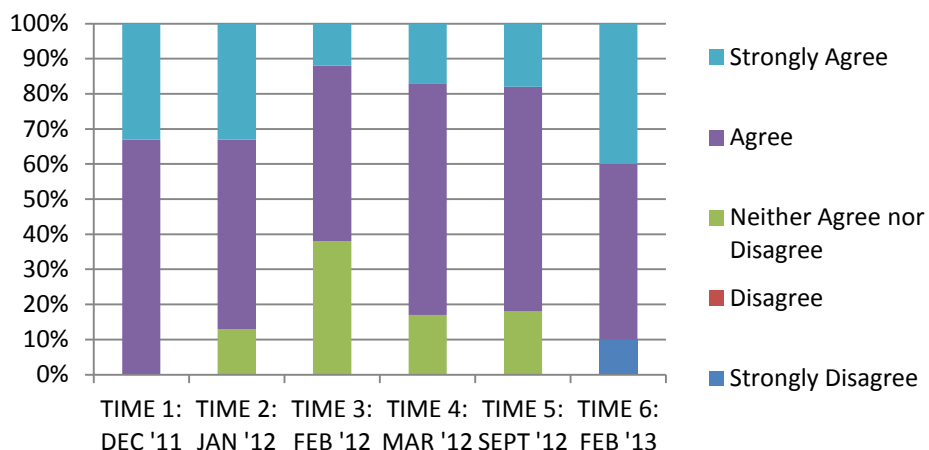


Figure E3. The case management meetings are likely to contribute to reconnecting juvenile offenders to communities.

Table E5

Percent and Frequency by Time Point: The Case Management Meetings are Likely to Contribute to Reconnecting Juvenile Offenders to Communities

Response Category	Percent with Frequency and Time Point					
	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	0% (0)	13% (2)	38% (3)	17% (2)	18% (2)	20% (0)
Agree	67% (8)	54% (8)	50% (4)	66% (8)	64% (7)	50% (5)
Strongly Agree	33% (4)	33% (5)	12% (1)	17% (2)	18% (2)	40% (4)
Total	100% (12)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

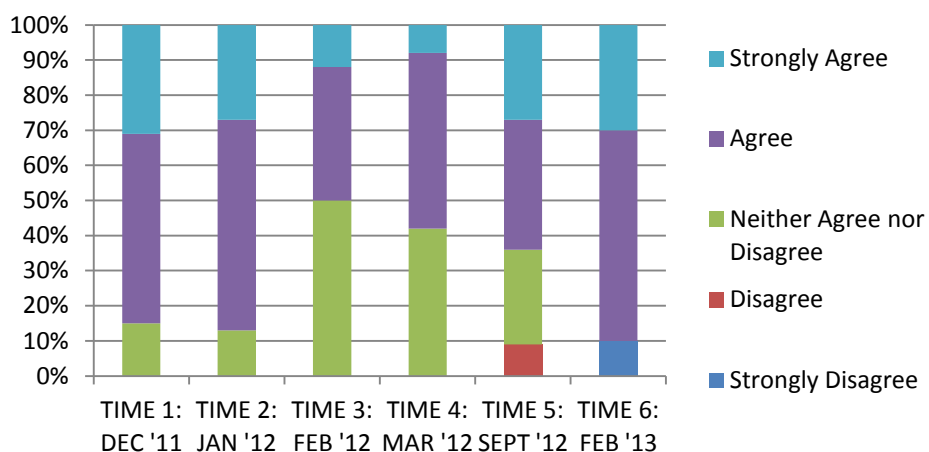


Figure E4. The case management meetings are likely to contribute to the rehabilitation of juvenile offenders.

Table E6

Percent and Frequency by Time Point: The Case Management Meetings are Likely to Contribute to the Rehabilitation of Juvenile Offenders

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	9% (1)	0% (0)
Neither Agree nor Disagree	15% (2)	13% (2)	50% (4)	42% (5)	27% (3)	0% (0)
Agree	54% (7)	60% (9)	38% (3)	50% (6)	37% (4)	60% (6)
Strongly Agree	31% (4)	27% (4)	12% (1)	8% (1)	27% (3)	30% (3)
Total	100% (13)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

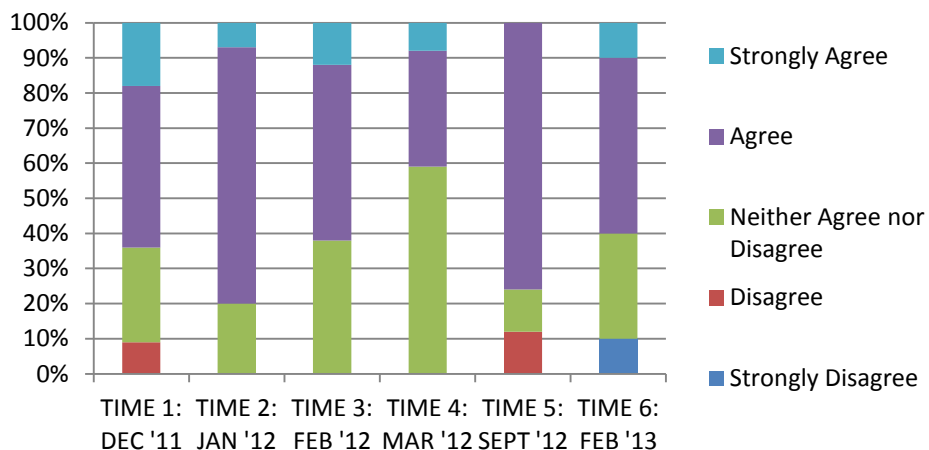


Figure E5. The case management meetings seem to remove institutional barriers to the effective treatment of targeted juveniles and their families

Table E7

Percent and Frequency by Time Point: The Case Management Meetings Seem to Remove Institutional Barriers to the Effective Treatment of Targeted Juveniles and their Families

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	9% (1)	0% (0)	0% (0)	0% (0)	12% (1)	0% (0)
Neither Agree nor Disagree	27% (3)	20% (3)	38% (3)	59% (7)	12% (1)	30% (3)
Agree	46% (5)	73% (11)	50% (4)	33% (4)	76% (6)	50% (5)
Strongly Agree	18% (2)	7% (1)	12% (1)	8% (1)	0% (0)	10% (1)
Total	100% (11)	100% (15)	100% (8)	100% (12)	100% (8)	100% (10)

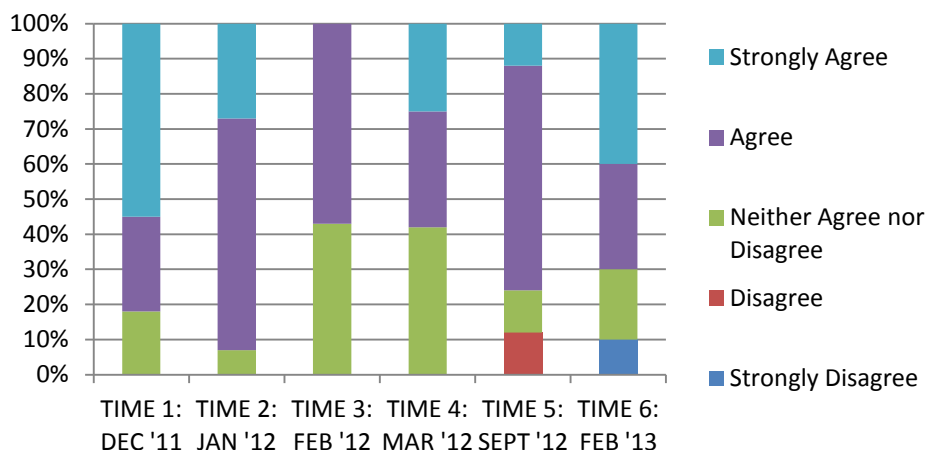


Figure E6. The executive level participants seem to be mobilized and engaged in resolving gaps in service delivery during the case management meetings.

Table E8

Percent and Frequency by Time Point: The Executive Level Participants Seem to be Mobilized and Engaged in Resolving Gaps in Service Delivery During the Case Management Meetings

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	12% (1)	0% (0)
Neither Agree nor Disagree	18% (2)	7% (1)	43% (3)	42% (5)	12% (1)	20% (2)
Agree	27% (3)	66% (10)	57% (4)	33% (4)	64% (5)	30% (3)
Strongly Agree	55% (6)	27% (4)	0% (0)	25% (3)	12% (1)	40% (4)
Total	100% (11)	100% (15)	100% (7)	100% (12)	100% (8)	100% (10)

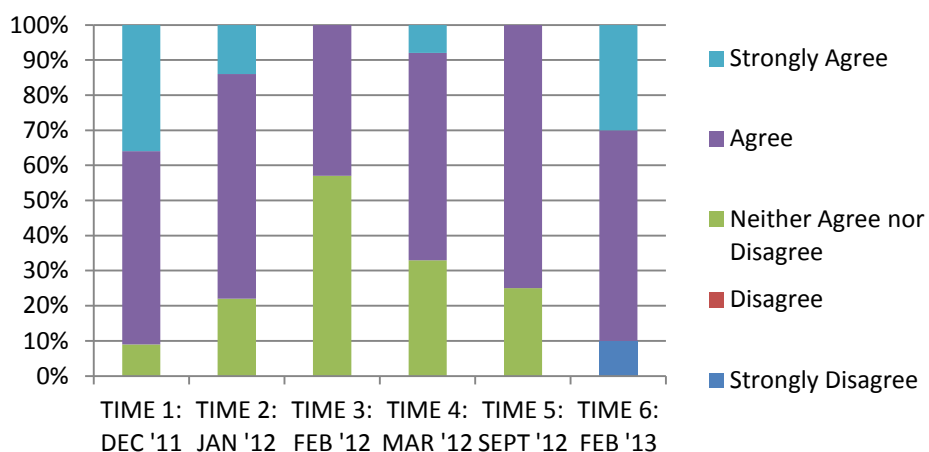


Figure E7. The case management meetings will likely contribute to an increase in overall stability in the lives of those targeted juveniles and their families.

Table E9

Percent and Frequency by Time Point: The Case Management Meetings will Likely Contribute to an Increase in Overall Stability in the Lives of those Targeted Juveniles and their Families

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	9% (1)	22% (3)	57% (4)	33% (4)	25% (2)	0% (0)
Agree	55% (6)	64% (9)	43% (3)	59% (7)	75% (6)	60% (6)
Strongly Agree	36% (4)	14% (2)	0% (0)	8% (1)	0% (0)	30% (3)
Total	100% (11)	100% (14)	100% (7)	100% (12)	100% (8)	100% (10)

Table E10

Percent and Frequency by Time Point: The Case Management Meetings will Likely Contribute to a Reduction in Juvenile Recidivism Among Participants

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	7% (1)	0% (0)	0% (0)	12% (1)	0% (0)
Neither Agree nor Disagree	18% (2)	40% (6)	57% (4)	67% (8)	12% (1)	30% (3)
Agree	55% (6)	46% (7)	43% (3)	25% (3)	76% (6)	40% (4)
Strongly Agree	27% (3)	7% (1)	0% (0)	8% (1)	0% (0)	20% (2)
Total	100% (11)	100% (15)	100% (7)	100% (12)	100% (8)	100% (10)

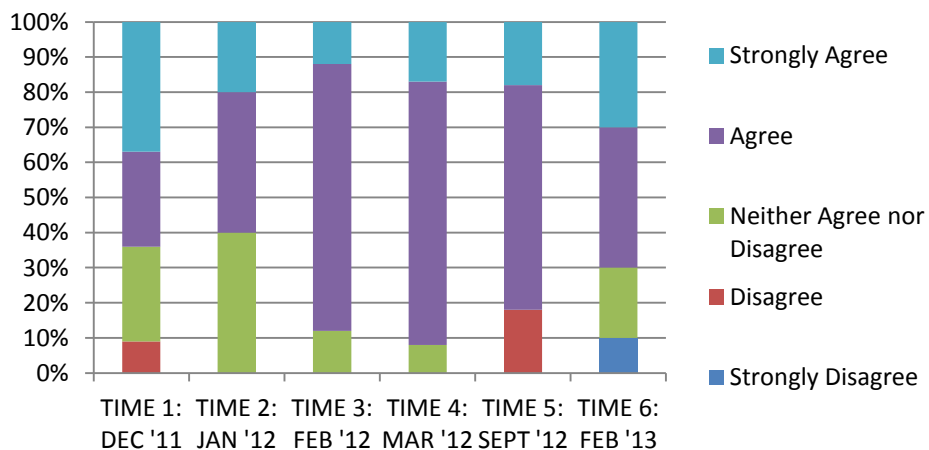


Figure E8. The case management meetings seem to identify institutional barriers to the effective treatment of targeted juveniles and their families.

Table E11

Percent and Frequency by Time Point: The Case Management Meetings Seem to Identify Institutional Barriers to the Effective Treatment of Targeted Juveniles and their Families

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	9% (1)	0% (0)	0% (0)	0% (0)	18% (2)	0% (0)
Neither Agree nor Disagree	27% (3)	40% (6)	12% (1)	8% (1)	0% (0)	20% (2)
Agree	27% (3)	40% (6)	76% (6)	75% (9)	64% (7)	40% (4)
Strongly Agree	37% (4)	20% (3)	12% (1)	17% (2)	18% (2)	30% (3)
Total	100% (11)	100% (15)	100% (8)	100% (12)	100% (11)	100% (10)

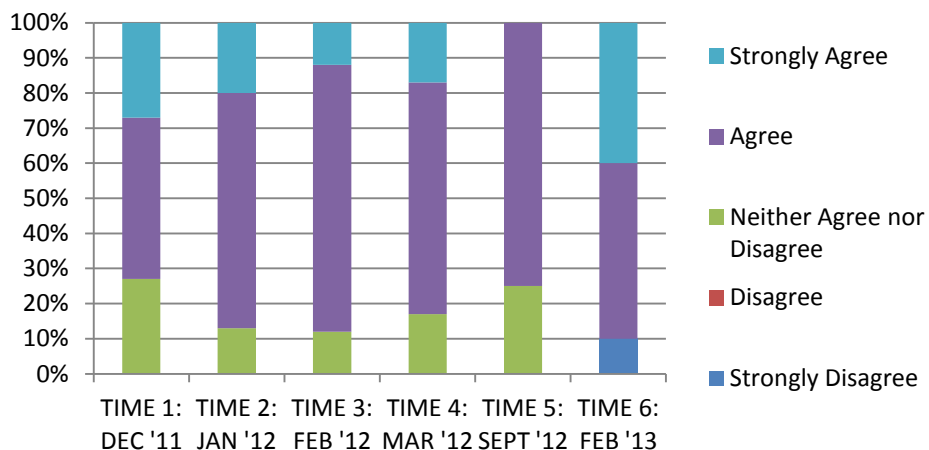


Figure E9. As a result of the case management meetings, the individual needs of targeted juveniles and their families are responded to in the areas of education, family dynamics, substance abuse, mental health, and gang activity.

Table E12

Percent and Frequency by Time Point: As a Result of the Case Management Meetings, the Individual Needs of Targeted Juveniles and their Families are Responded to in the Areas of Education, Family Dynamics, Substance Abuse, Mental Health, and Gang Activity

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	27% (3)	13% (2)	12% (1)	17% (2)	25% (2)	0% (0)
Agree	46% (5)	67% (10)	76% (6)	66% (8)	75% (6)	50% (5)
Strongly Agree	27% (3)	20% (3)	12% (1)	17% (2)	0% (0)	40% (4)
Total	100% (11)	100% (15)	100% (8)	100% (12)	100% (8)	100% (10)

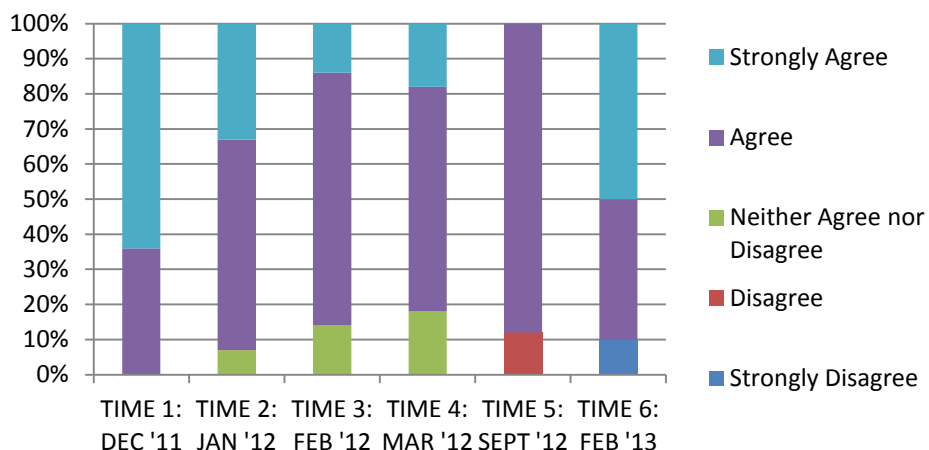


Figure E10. Today's case management meeting was productive and a good use of my time.

Table E13

Percent and Frequency by Time Point: Today's Case Management Meeting was Productive and a Good use of my Time

Response Category	Percent with Frequency and Time Point					
	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	12% (1)	0% (0)
Neither Agree nor Disagree	0% (0)	7% (1)	14% (1)	18% (2)	0% (0)	0% (0)
Agree	36% (4)	60% (9)	72% (5)	64% (7)	88% (7)	40% (4)
Strongly Agree	64% (7)	33% (5)	14% (1)	18% (2)	0% (0)	50% (5)
Total	100% (11)	100% (15)	100% (7)	100% (11)	100% (8)	100% (10)

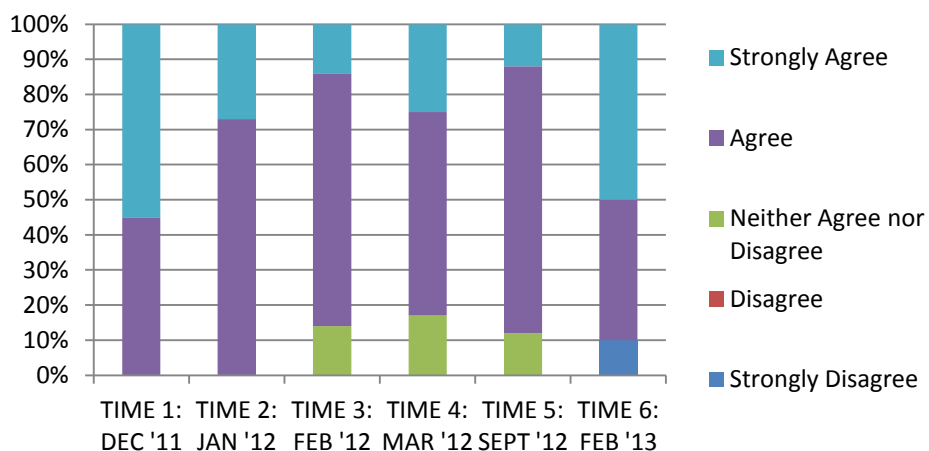


Figure E11. Today's case management meeting was a satisfactory experience.

Table E14

Percent and Frequency by Time Point: Today's Case Management Meeting was a Satisfactory Experience

Percent with Frequency and Time Point						
Response Category	Dec. 2011	Jan. 2012	Feb. 2012	Mar. 2012	Sept. 2012	Feb. 2013
Strongly Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	10% (1)
Disagree	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Neither Agree nor Disagree	0% (0)	0% (0)	14% (1)	17% (2)	12% (1)	0% (0)
Agree	45% (5)	73% (11)	72% (5)	58% (7)	76% (6)	40% (4)
Strongly Agree	55% (6)	27% (4)	14% (1)	25% (3)	12% (1)	50% (5)
Total	100% (11)	100% (15)	100% (7)	100% (12)	100% (8)	100% (10)

APPENDIX F

Letter of Permission to Access JIMS



Chris Christie
Governor

Kim Guadagno
Lt. Governor

State of New Jersey
Office of the Attorney General
DEPARTMENT OF LAW AND PUBLIC SAFETY
Juvenile Justice Commission
P.O. Box 107
Trenton, New Jersey 08625-0107

John J. Hoffman
Acting Attorney General

Kevin M. Brown
Executive Director

July 26, 2013

Victoria Sytsma, PhD Student
Rutgers School of Criminal Justice
Rutgers, The State University of New Jersey
123 Washington Street, Room 559
Newark, NJ 07102-3093

Dear Ms. Sytsma:

As you know, your request to conduct research at the Juvenile Justice Commission was recently reviewed by the JJC's Research Review Board (RRB) for a second time, based on your revised and resubmitted application for review. Your study relates to released JJC youth who participated in the Essex County-based Pathways to Productive Citizenship program. The program was a collaboration of service providers led by The Bridge, Inc. The revised request focused on JJC providing a data file extracted from its Juvenile Information Management System (JIMS) database, which was to delete any identifying information regarding youth included in the database. This file would include an array of data fields on all cases of youth released to Essex County between 2009 and "the present." This would allow you to compare results between served youth and a comparison group of released JJC youth.

The RRB subsequently forwarded to me a recommendation to approve your resubmitted request. In line with that recommendation, I am pleased to approve your research request. You will need to communicate with JJC's IT Unit, to discuss further the data fields you wish to be provided, and their availability, as well as other pertinent matters, as needed. As a further condition of this approval, you are asked to submit a copy of your research findings to the JJC's RRB for its review prior to public dissemination.

I wish you luck as you move forward.

Sincerely,

Kevin M. Brown
Executive Director



Gloria Hancock, Ed.D., Deputy Executive Director, Programs
Michael Aloisi, Ph.D., Research and Evaluation Unit

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APPENDIX G

All Descriptive Statistics for Treatment and Comparison Groups

Table G1

Summary Table of Descriptive Statistics; Treatment and Comparison Groups

Descriptive Statistics								
Covariates	Before Matching							
	N		Mean (SD)		Min.		Max	
	T	C	T	C	T	C	T	C
Fail	23	315	48%*	24%*	0	0	1	1
Age	23	315	17.3(1.15)	17.18(1.17)	1	14	2	20
					5		0	
Black	23	315	91%	93%	0	0	1	1
Gang	23	315	96%***	54%***	0	0	1	1
Number of Violent Offences	23	315	.83(.98)	.45(.61)	0	0	3	3
Number of Sexual Offences	23	315	.0(.0)	.01(.08)	0	0	0	1
Number of Property Offences	23	315	.52(.79)	.30(.59)	0	0	2	3
Number of Weapons Offences	23	315	.48(.79)	.20(.48)	0	0	2	3
Number of Drug Offences	23	315	.39(.66)	.32(.62)	0	0	2	4
Number of Violations of Parole/Probation	23	315	1.26(.81)***	.77(.67)***	0	0	3	3
Number of Other Offences	23	315	.43(.84)	.39(.67)	0	0	3	3
Total Number of Offences	23	315	3.91(1.78)**	2.44(1.5)**	1	1	8	10
			*	*				
Education	23	315	43%	40%	0	0	1	1
Substance Abuse Treatment	23	315	52%***	6%***	0	0	1	1
Mental Health Treatment	23	315	4%	12%	0	0	1	1
Anger Management Treatment	23	315	13%	4%	0	0	1	1
Medication for Mental Health	23	315	13%	15%	0	0	1	1
CBHS Involvement	23	315	22%	10%	0	0	1	1
DCP&P Involvement	23	315	26%	15%	0	0	1	1

NOTE: Means of binary variables are presented as percentages. 'T' refers to Pathways treatment group, and 'C' refers to the comparison group. Significant differences between treatment groups tested using Fisher's exact test (due to small expected frequencies) and independent samples t-tests for nominal variables and ratio variables, respectively. Equal variances assumed based on non-significant Levene's Test for all but number of violent, property and weapons offences. *= $p < .05$, ***= $p < .001$

APPENDIX H

Essex County Juvenile Reentry Dataset Coding Manual (January 2009-September 2013 [JJC]/August 2011-September 2013 [Pathways Program])

1. Case ID
2. JJC Juvenile ID
3. AOC Party ID
4. Date of Birth
5. Ethnicity
 - 1=Black
 - 2=Hispanic
 - 3=White
6. Pathways Participation
 - 0=No
 - 1=Yes
7. Gang
 - 0=No gang involvement
 - 1=Blood
 - 2=Cript
 - 3=Latin King
8. Medication for Mental Health
 - 0=No
 - 1=Yes
9. NJ Division of Child and Behavioral Health Services involvement
 - 0=No
 - 1=Yes
10. NJ Division of Child Protection and Permanency (formerly DYFS) involvement
 - 0=No
 - 1=Yes
11. Education Level
 - 0=<9th Grade
 - 1=9th Grade
 - 2=10th Grade
 - 3=11th Grade
 - 4=GED
 - 5=High School Diploma
 - 6=At least some college
12. Total number of offences
13. Number of violent offences, excluding sexual
14. Number of sexual offences
15. Number of property offences
16. Number of weapons offences
17. Number of drug offences
18. Number of failure to comply(VOP)
19. Number of 'other' offences

Harassment, terrorist threat, endangering the welfare of a child, conspiracy, resisting arrest, kidnapping, escape, eluding, take without consent, wandering without a purpose

20. Received some substance abuse treatment
 - 0=No
 - 1=Yes
21. Received some mental health treatment
 - 0=No
 - 1=Yes
22. Received some anger management treatment
 - 0=No
 - 1=Yes
23. Date of first release
24. Date of first return to custody (fail) or September 30, 2013
25. Failed
 - 0=No
 - 1=Yes
26. Number of Failures
27. Number of days from first release to first fail
28. Date of second release
29. Number of days from first return to custody (fail) to second release (days in custody)
30. Date of second return to custody (fail)
31. Number of days from second release to second fail
32. Date of third release
33. Number of days from second return to custody (fail) to third release (days in custody)
34. Date of third return to custody (fail)
35. Number of days from third release to third fail
36. Total number of days in custody

APPENDIX I

Additional Results

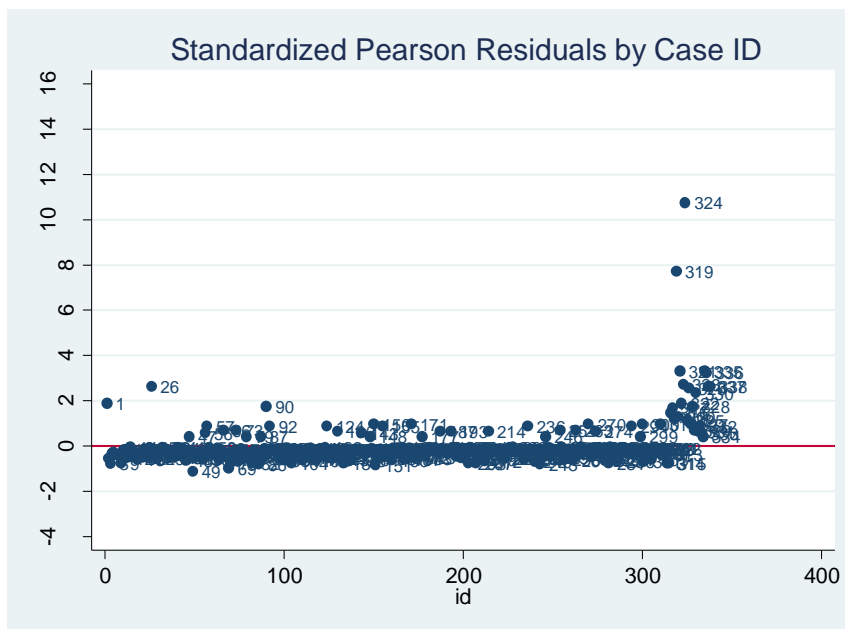


Figure I1. Test of outliers using standardized Pearson Residuals.

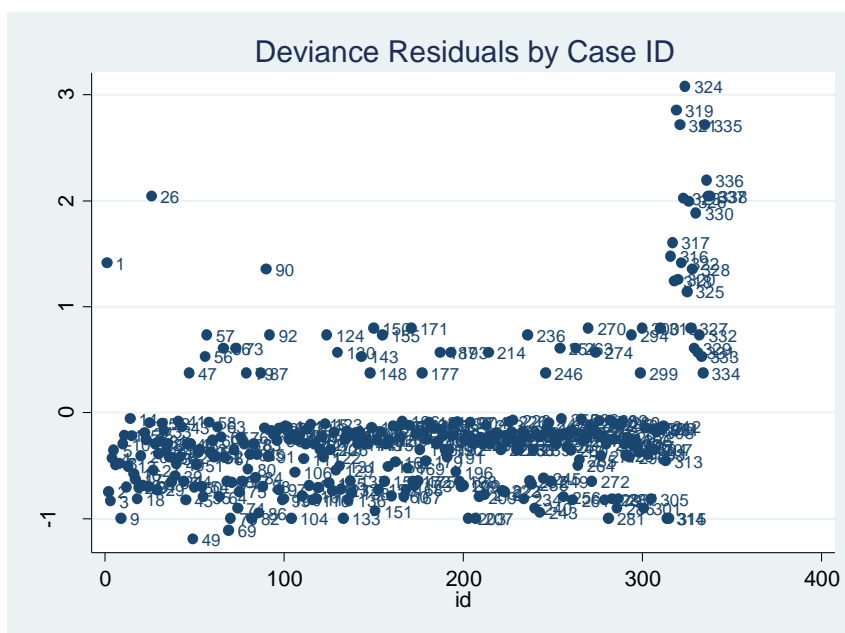


Figure I2. Test of outliers using deviance residuals.

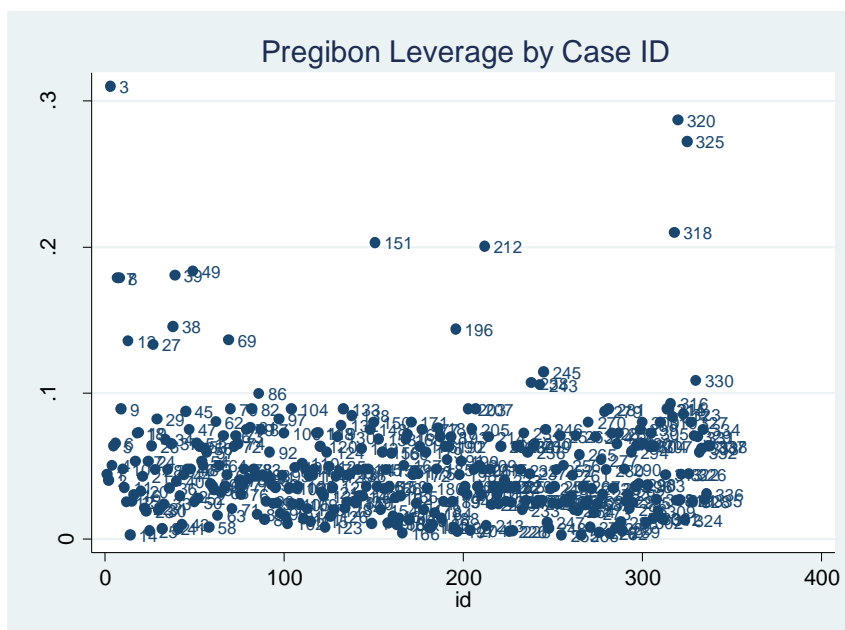


Figure I3. Test of outliers using Pregibon Leverages.

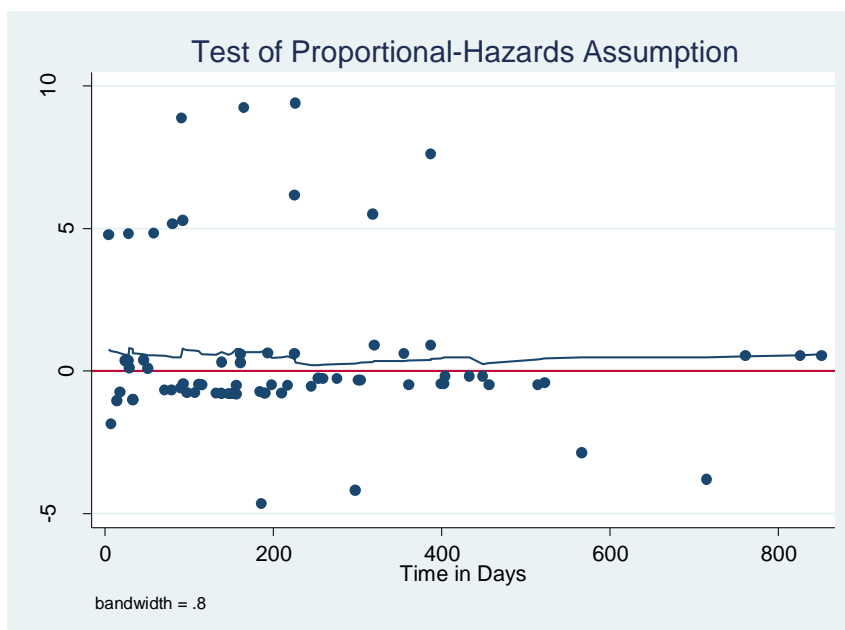


Figure I4. Test of proportional-hazards assumption using Scaled Schoenfeld Residuals – Pathways.

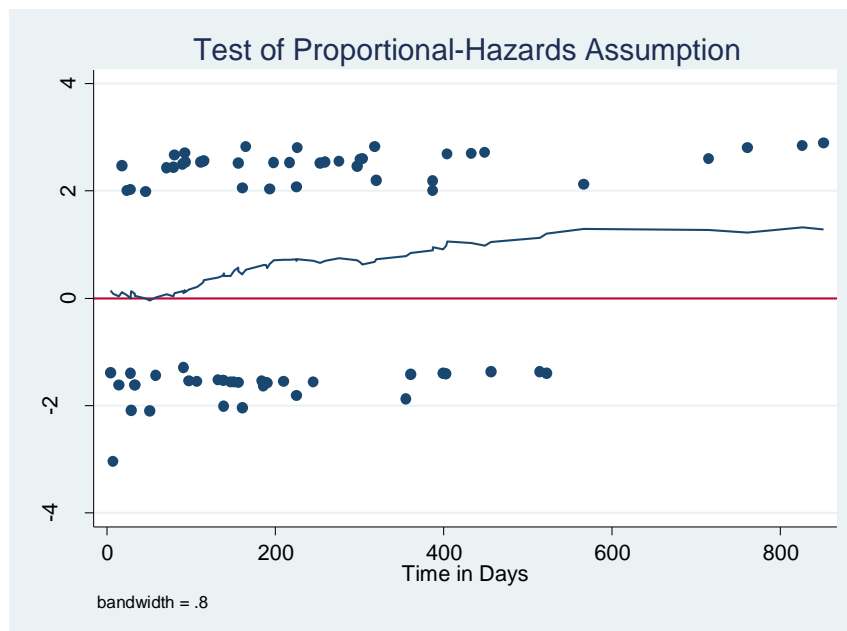


Figure 15. Test of proportional-hazards assumption using Scaled Schoenfeld Residuals – education.

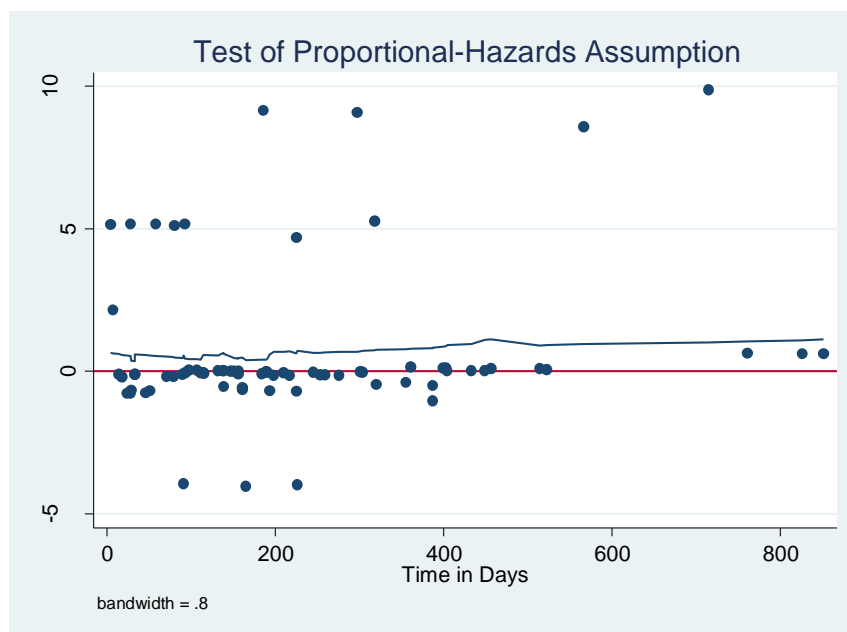


Figure 16. Test of proportional-hazards assumption using Scaled Schoenfeld Residuals – substance abuse treatment.

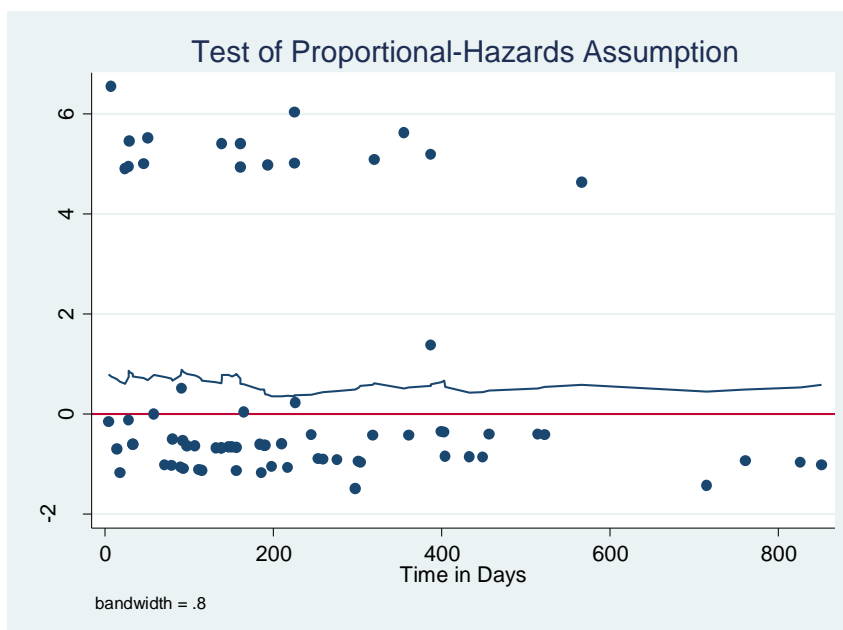


Figure 17. Test of proportional-hazards assumption using Scaled Schoenfeld Residuals – mental health treatment.

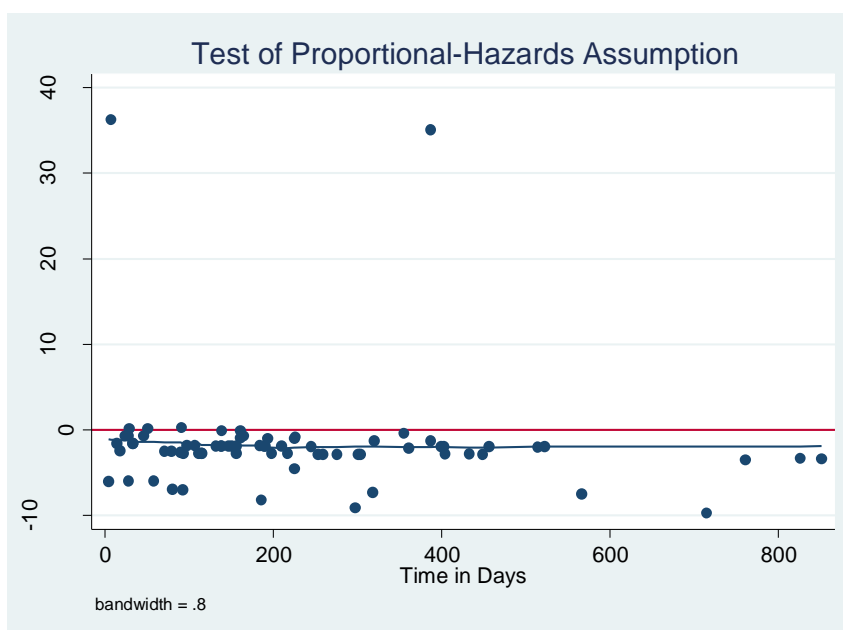


Figure 18. Test of proportional-hazards assumption using Scaled Schoenfeld Residuals – anger management treatment.

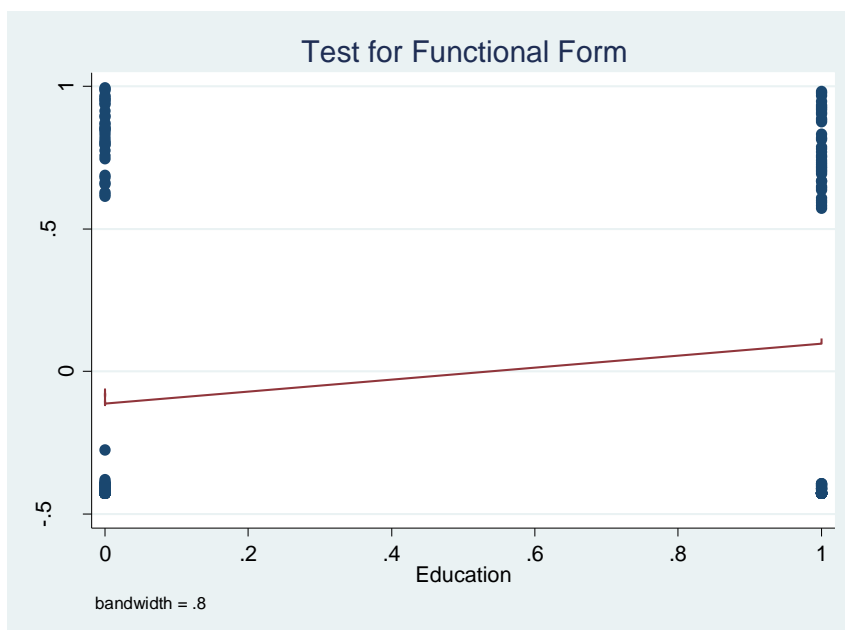


Figure 19. Test for functional form using Martingale Residuals – education.

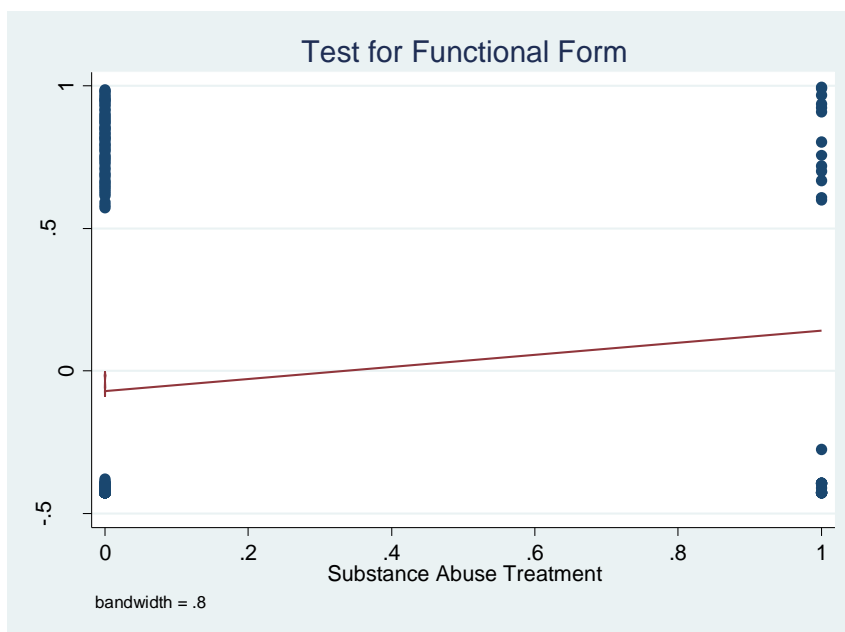


Figure 110. Test for functional form using Martingale Residuals – substance abuse treatment.

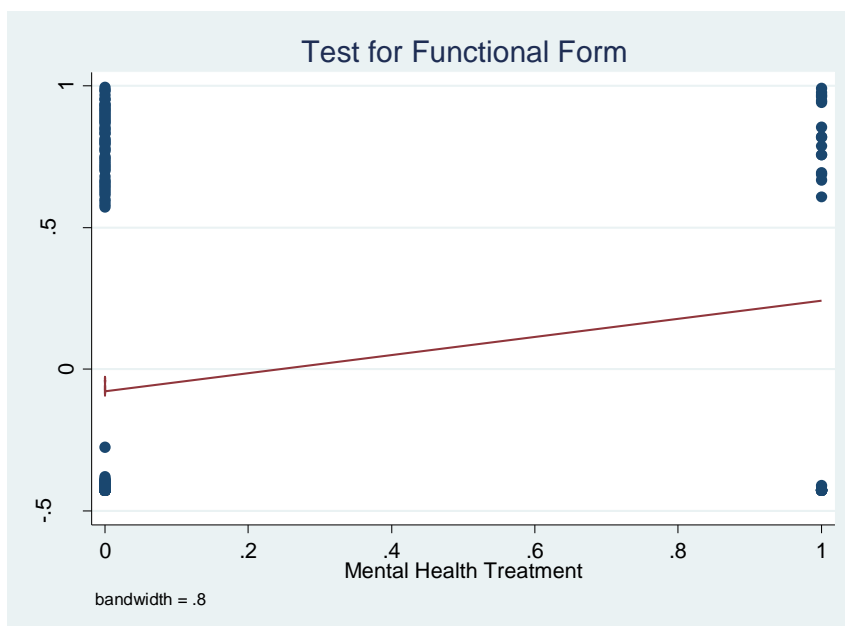


Figure I11. Test for functional form using Martingale Residuals – mental health treatment.

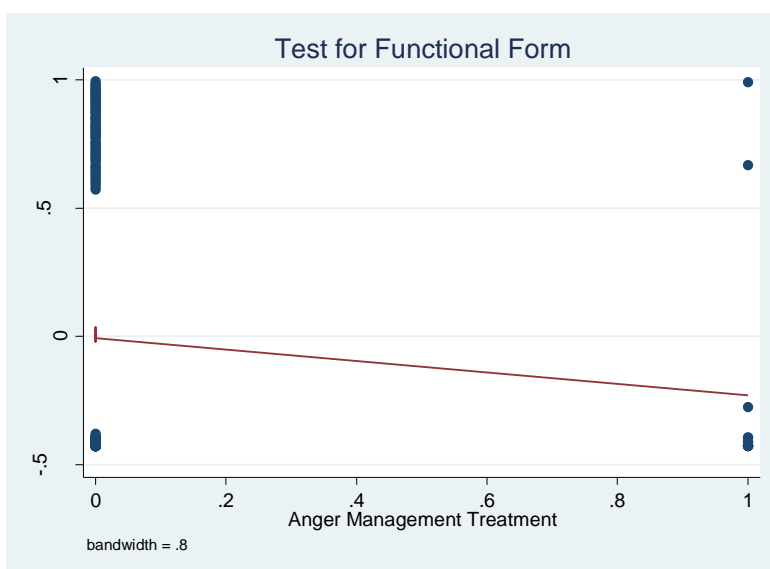


Figure I12. Test for functional form using Martingale Residuals – anger management treatment.

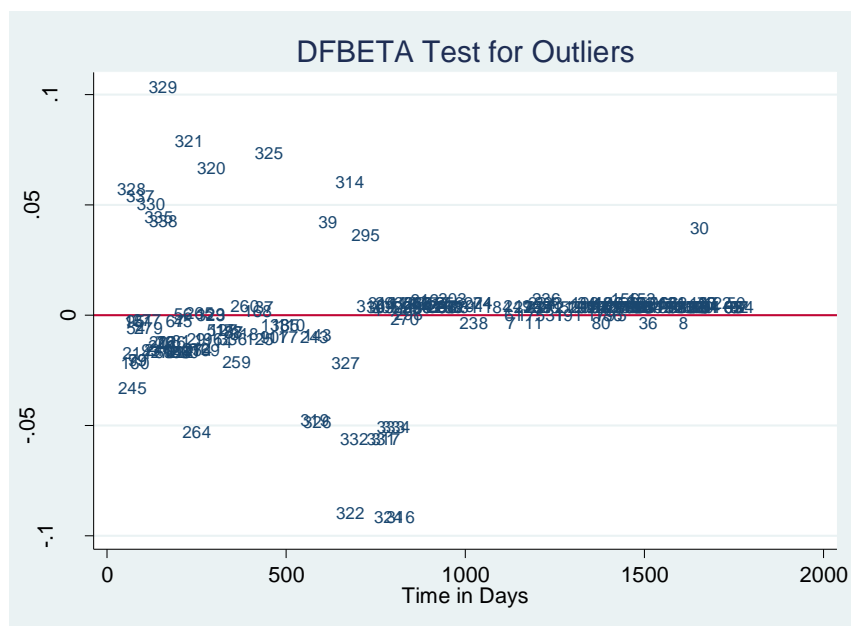


Figure I13. DFBETA test for outliers – Pathways.

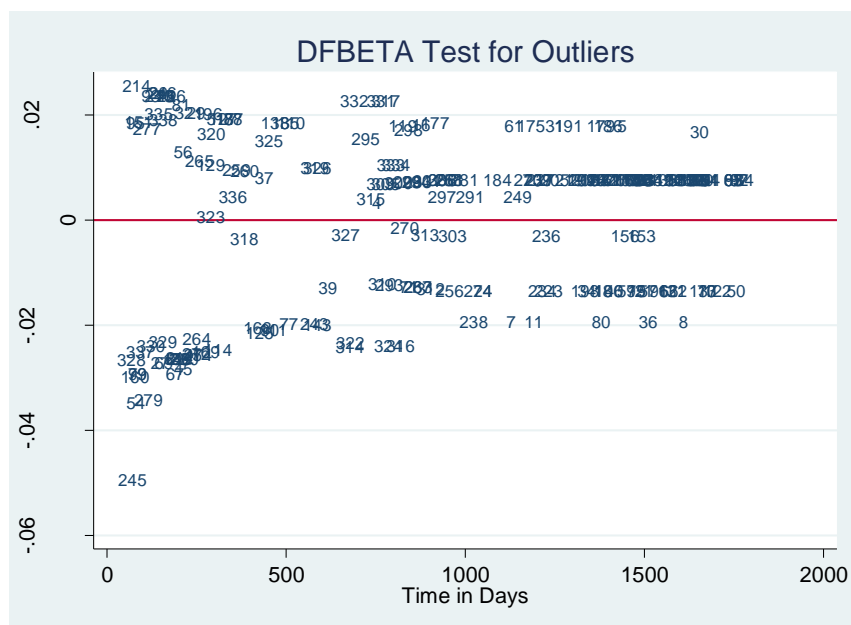


Figure I14. DFBETA test for outliers – education.

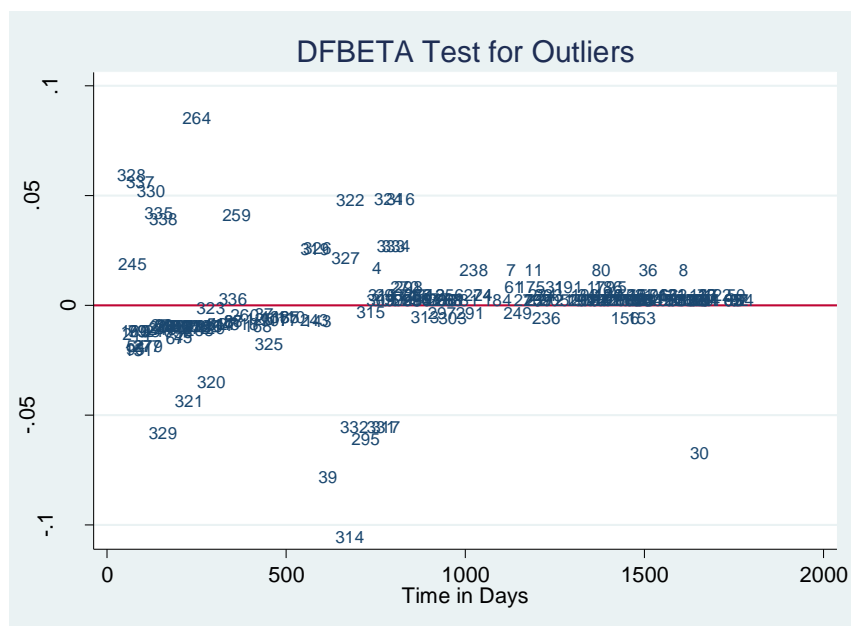


Figure I15. DFBETA test for outliers – substance abuse treatment

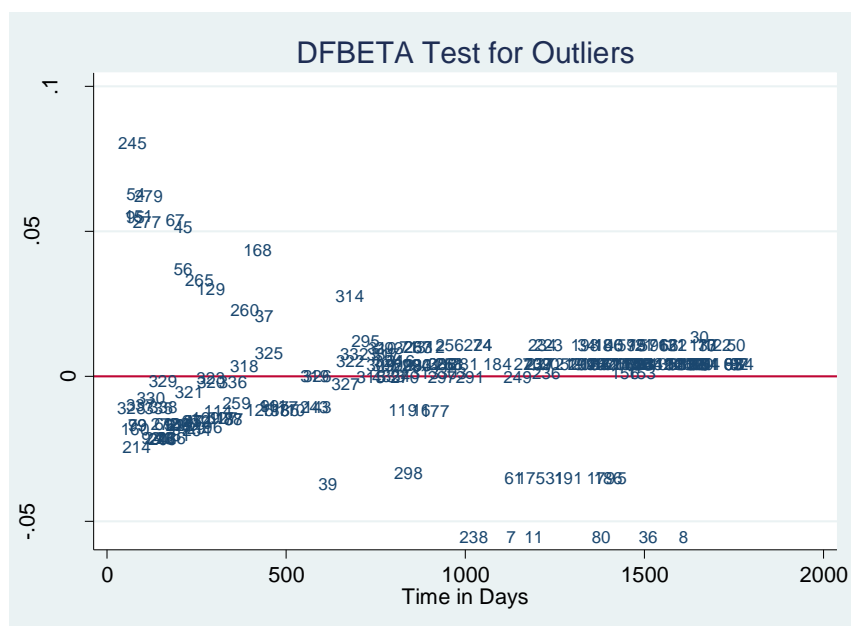


Figure I16. DFBETA test for outliers – mental health treatment.

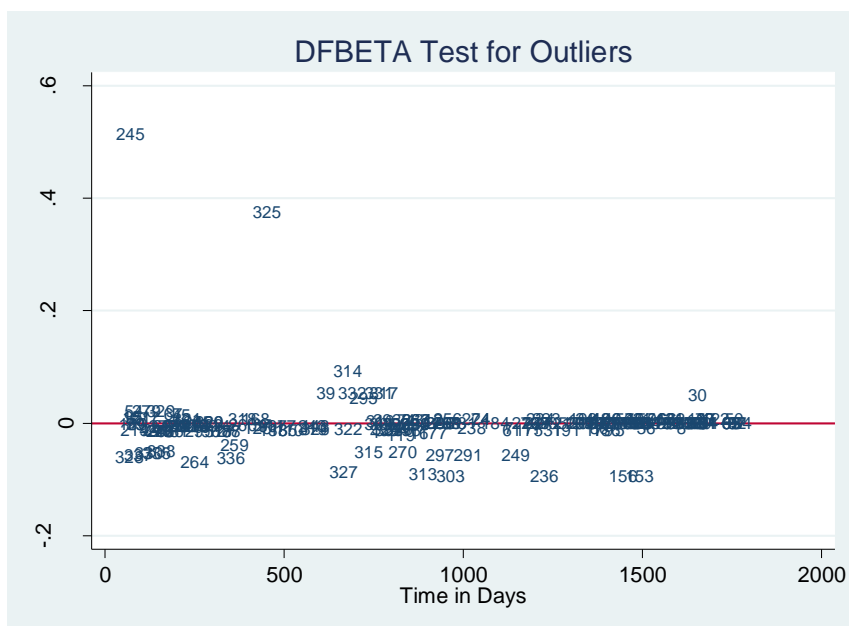


Figure I17. DFBETA test for outliers – anger management treatment.

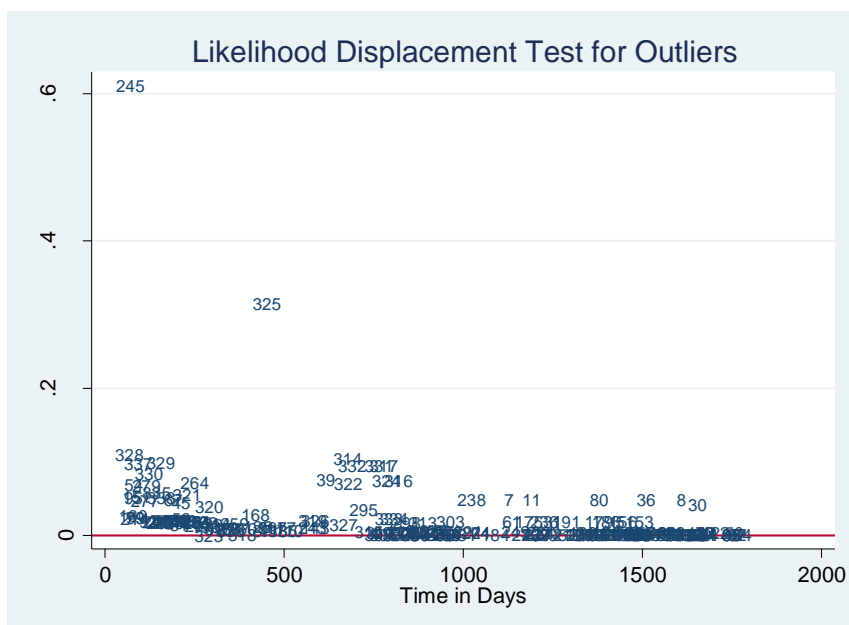


Figure I18. Likelihood displacement test for outliers.

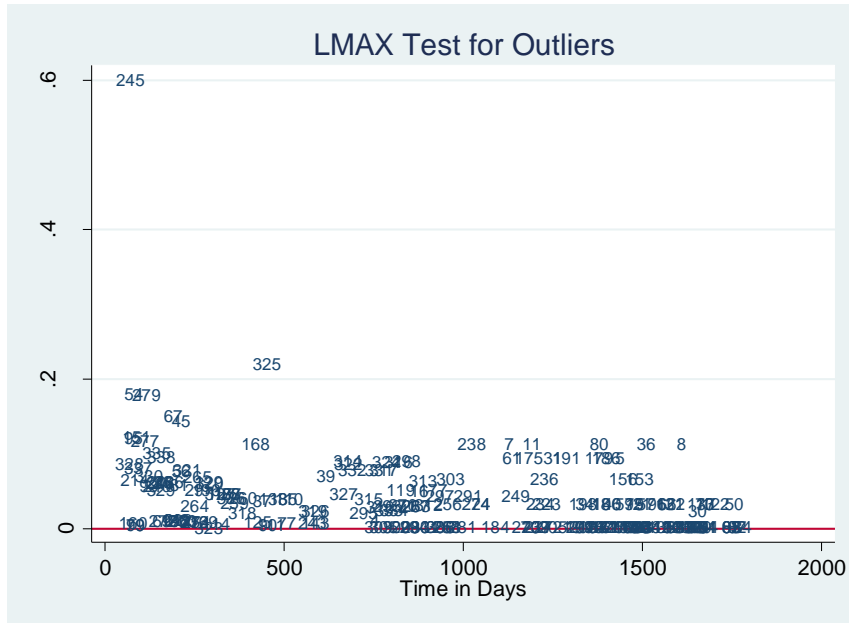


Figure I19. LMAX test for outliers.

APPENDIX J

Rutgers Internal Review Board Notice of Approval (Summative)

RUTGERS UNIVERSITY
Office of Research and Sponsored Programs
ASB III, 3 Rutgers Plaza, Cook Campus
New Brunswick, NJ 08901

August 14, 2013

P.I. Name: Sytsma
Protocol #: 13-806Mcp

Victoria A. Sytsma
School of Criminal Justice
123 Washington Avenue, Newark Campus

Dear Victoria Sytsma:

✓
(Initial / Amendment / Continuation / Continuation w/ Amendment)

Protocol Title: "Juvenile Offender Re-Entry in a Disorganized Urban Setting: An Evolution of Newark, New Jersey's 'Pathways to Productive Citizenship'"

This is to advise you that the above-referenced study has been presented to the Institutional Review Board for the Protection of Human Subjects in Research, and the following action was taken subject to the conditions and explanations provided below:

Approval Date:	7/18/2013	Expiration Date:	7/17/2014
Expedited Category(s):	5	Approved # of Subject(s):	190

This approval is based on the assumption that the materials you submitted to the Office of Research and Sponsored Programs (ORSP) contain a complete and accurate description of the ways in which human subjects are involved in your research. The following conditions apply:

- **This Approval**-The research will be conducted according to the most recent version of the protocol that was submitted. **This approval is valid ONLY for the dates listed above;**
- **Reporting**-ORSP must be immediately informed of any injuries to subjects that occur and/or problems that arise, in the course of your research;
- **Modifications**-Any proposed changes **MUST** be submitted to the IRB as an amendment for review and approval prior to implementation;
- **Consent Form(s)**-Each person who signs a consent document will be given a copy of that document, if you are using such documents in your research. The Principal Investigator must retain all signed documents for at least three years after the conclusion of the research;
- **Continuing Review**-You should receive a courtesy e-mail renewal notice for a Request for Continuing Review before the expiration of this project's approval. However, it is your responsibility to ensure that an application for continuing review has been submitted to the IRB for review and approval prior to the expiration date to extend the approval period;

Additional Notes: Expedited Approval per 45 CFR 46.110

Additional Condition: Authorization from the Following Research Site Must Be Forwarded to the IRB Prior to Commencement of Study Procedures at the Sites: NJ Juvenile Justice Commission (For Authorization to Use Data);

Failure to comply with these conditions will result in withdrawal of this approval.

Please note that the IRB has the authority to observe, or have a third party observe, the consent process or the research itself. The Federal-wide Assurance (FWA) number for the Rutgers University IRB is FWA00003913; this number may be requested on funding applications or by collaborators.

Respectfully yours,

Michelle Gehl
Acting For--
Dr. Beverly Tepper, Ph.D.
Professor
Chair, Rutgers University Institutional Review Board

cc: Todd R. Clear

Curriculum Vitae

Victoria Ann Sytsma, born February 2, 1985 in Brockville, Ontario, Canada

Schools Attended

Athens District High School – Ontario Secondary School Diploma, 1999-2004
 University of Ottawa – Honours Bachelor of Social Sciences with Major in Criminology and Minor in Psychology Magna Cum Laude, 2004-2008
 University of Ottawa – Master of Criminology Applied, 2008-2010
 University of Ottawa – Graduate Certificate in Program Evaluation, 2010-2011
 Rutgers University, The State University of New Jersey – Master of Arts in Criminal Justice, 2010-2014
 Rutgers University, The State University of New Jersey – Doctor of Criminal Justice, 2010-2014

Positions Held

University of Ottawa Department of Criminology – Teaching Assistant, 2008-2009
 Rutgers University School of Criminal Justice – Part-Time Lecturer, 2011-2013
 Rutgers University Department of Sociology and Anthropology – Part-Time Lecturer, 2012
 Rutgers University Graduate School-Newark – Dissertation Fellow, 2013-2014
 University of Toronto Centre for Criminology and Sociolegal Studies – Assistant Professor, 2014

Publications

- Sytsma, V. (2013). Juvenile offender reentry in an urban setting: A process evaluation of 'Pathways to Productive Citizenship'. (Technical report). Newark, NJ: Rutgers University, School of Criminal Justice.
- Sytsma, V., Kirk, M., & Forrester, T. (2012). The effects of a university-run student mentoring program. Unpublished manuscript.
- Kirk, M., Sytsma, V., & Forrester, T. (2012). The effects of a university-run academic writing help centre. Unpublished manuscript.
- Sytsma, V. (2012 March). Overcoming the magnetism of street life [Review of the book *Overcoming the magnetism of street life*], *Criminal Law and Criminal Justice Books*.
- Sytsma, V. (2011). Chapter 20: Applying RTM to aggravated assault. In J.M. Caplan, & L.W. Kennedy (Eds.), *Risk Terrain Modelling Compendium for Crime Analysis* (p. 83 84). Newark, NJ: Rutgers Center on Public Security.
http://www.rutgerscps.org/docs/AggAssaultRTM_CaseStudy_Brief.pdf
- Gabor, T., Kiedrowski, J., Sytsma, V., Melchers, R., & Morselli, C. (2010). *Community effects of law enforcement countermeasures against organized crime: A retrospective analysis*. Ottawa: Public Safety Canada. Report No. 006.
- Sytsma, V. (2009). *Public confidence in the criminal justice system: Looking at data from the Canadian General Social Survey*. Unpublished master's thesis, University of Ottawa, Ottawa, Canada, Dept Criminology.