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_____ **Research Report** _____

**An Examination of the Effectiveness of the
National Substance Abuse Program High
Intensity (NSAP-H) on Institutional
Adjustment and Post-Release Outcomes**

Ce rapport est également disponible en français. Pour en obtenir un exemplaire, veuillez vous adresser à la Direction de la recherche, Service correctionnel du Canada, 340, avenue Laurier Ouest, Ottawa (Ontario) K1A 0P9.

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An Examination of the Effectiveness of the National Substance Abuse Program High Intensity (NSAP-H) on Institutional Adjustment and Post-Release Outcomes

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Executive Summary

Key words: *substance abuse treatment, correctional programs, treatment outcomes*

The potential benefits of substance abuse treatment for offenders include improvement in knowledge of substance abuse; enhanced skills to cope with triggers and changes in attitudes about the dangers of substance abuse; reductions in institutional misconduct and more successful community reintegration.

The National Substance Abuse Treatment Program-High Intensity (NSAP-H) is a cognitive-behavioural correctional program developed by the Correctional Service of Canada that targets male offenders who have a substantial or severe substance abuse problem, are at high risk to re-offend, and whose substance use is directly linked to their crimes. The NSAP programming continuum includes both in-prison treatment and community aftercare. The purpose of this report was to investigate the following research questions:

- 1) Did offenders who completed the high intensity program have a significantly lower rate of institutional charges compared to offenders who did not complete the program?
- 2) Did offenders who completed the program have a significantly lower rate of readmission over a 24 month follow-up period than offenders who did not complete the program?
- 3) Did release type and participation status in the aftercare program affect the initial relationship between NSAP-H status and return to custody?

The sample consisted of 2,382 male offenders who were assigned to NSAP-H during the period from August 2004 to January 2009. The study groups were based on program completion status and comprised offenders who: completed (36.2%), partially completed (8.7%), or who had been assigned to the program but they had not enrolled in the program (55.2%). A subset of 1,645 offenders experienced a supervised release during the study period and was available for up to 24 months of follow-up into the community.

The findings indicate that the occurrence of institutional misconduct was reduced by NSAP-H participation. Partial completers of NSAP-H were more than twice as likely to engage in serious institutional misconduct relative to offenders who completed the program after controlling for other risk factors such as criminal history, level of motivation, drug dependence severity, number of prior sentences, and other correctional programming. The Not Enrolled group was 49% more likely to incur serious charges in comparison to those who completed the program.

At 24 months after release from prison, the estimated probability of remaining prison-free was highest in the Complete group (0.23), followed by the Not Enrolled group (0.12) and the Incomplete group (0.10). Offenders who did not complete NSAP-H were 34% more likely to return to custody than those who completed the program. Offenders in the Not Enrolled group were 13% more likely to return to prison. When participation in community aftercare and release type were considered, the original relationship between NSAP-H status and return to custody was diminished and was no longer significant. This means that community aftercare and release type may act as mediating factors, which would explain why there is a relationship between NSAP-H status and return to custody. Overall, offenders who did not participate in community aftercare were 45% more likely to return to custody than those who did not complete all sessions

of the program. Offenders who were granted non-discretionary release were 45% more likely to return to custody.

Overall, these findings suggest that high intensity programming is effective in reducing the risks associated with substance use and criminality. Offenders who did not complete all sessions of the program had the poorest outcomes as they were more likely to engage in institutional misconduct and to return to custody relative to the other study groups. High intensity program participation influences the type of release granted to the offender – for example offenders who complete the program are viewed positively by Parole Board of Canada (PBC) and thus may be granted day parole. Moreover, since NSAP-H is a prerequisite for participation in substance abuse program-based community aftercare, much of the impact of NSAP-H is mediated through aftercare. The value of participating in aftercare was evident even when NSAP-H had not been completed. These findings suggest it would be of value to consider methods of re-engaging those who failed to complete the program where possible and to increase exposure of offenders to the community aftercare component irrespective of participation status in institution-based high intensity programming.

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Introduction

Substance Abuse and Corrections

It is widely accepted that substance misuse is correlated with criminal activity. According to the United States Bureau of Justice Statistics (BJS), in 2004, 33% of state prisoners and 19% of federal prisoners used alcohol at the time of their offence, while 32% of state prisoners and 26% of federal prisoners used drugs (BJS, 2004; Mumola & Karberg, 2006). Furthermore, 53% of state and 45% of federal prisoners met the specified criteria for drug dependence (Mumola & Karberg, 2006). An Australian study of incarcerated male offenders revealed that 62% of male offenders had been intoxicated at the time of their most serious offence (Makkai & Payne, 2003). In addition, 52% of male offenders reported addiction to alcohol or illegal drugs during the six months prior to the most recent arrest (Makkai & Payne, 2003). In England and Wales, 63% of sentenced males and 58% of male remands reported hazardous drinking (Singleton, Farrell, & Meltzer, 1999). The prevalence of moderate drug dependence ranged from 10 to 11% among male offenders, while the prevalence of severe dependence was 40% for male remand and 32% for male sentenced.

Within the Canadian federal correctional population, 70% to 80% of the general population and virtually all of the Aboriginal offenders have an identified substance abuse problem requiring some level of intervention (Grant, Kunic, MacPherson, McKeown & Hansen, 2003; Weekes, Moser & Langevin, 1999). The proportion of offenders under CSC's jurisdiction who identify substance abuse as a contributing factor in their current offences has remained stable over the last 15 years with approximately 50% attributing cause to their substance abuse problem (Kunic & Grant, 2005). In 2005 there were 5588 (26%) drug offenders, of whom 3826 (18%) were serving sentences for possession of illicit drugs, 2360 (11%) for drug trafficking, 493 (2%) for importation, and 286 (1%) for cultivation (Motiuk & Vuong, 2006).

Several changes in the male federal offender population during the last decade have led to increasing challenges related to the management and rehabilitation of the offender population for the Correctional Service of Canada (CSC) (Boe, Nafekh, Vuong, Sinclair & Cousineau, 2003; CSC, 2008a). Since 1997, an increasing proportion of offenders admitted to federal custody require high intensity intervention within the areas of education and employment, marital and family relations, interpersonal relationships, personal and emotional orientation, mental health, and substance abuse. In 2002, male offenders had more prior contact with the youth justice and

provincial correctional systems than in the past, with significantly more breaches of trust, disciplinary segregation, escapes, and prior returns to custody while on conditional release (Boe, et al., 2003). An increase in the number of incarcerated drug offenders, the expanding prevalence of substance abuse problems, and a growth in gang related allegiances have made it more difficult for CSC to manage offenders and successfully reintegrate them into the community (Boe et al, 2003; CSC, 2007a; Jones, Roper, Stys & Wilson, 2004; Motiuk & Vuong, 2006).

Research suggests that a significant number of offenders will have their reintegration prospects impeded by their active substance use (Bahr, Harris, Fisher, & Armstrong, 2010; Huebner, 2006; Mallik-Kane & Visher, 2008; Zamble & Quinsey, 1997). Moreover, success following release from federal custody varies as a function of substance abuse severity, as offenders with a “moderate” to “substantial” substance abuse problem return to custody at higher rates than offenders with a low level problem (Lightfoot, 1999). In line with this, offenders with substance abuse problems who have been released into the community are more likely than those without substance abuse problems to re-offend and, in addition to their addiction, they face challenges related to marital and family functioning, employment, and criminal associates (Brown & Motiuk, 2005; Drabsch, 2006; Gendreau, Little, & Goggin, 1996; Mallik-Kane & Visher, 2008; Weekes, Moser, Ternes, & Kunic, 2009; Zamble & Quinsey, 1997). The majority of returning prisoners can be characterized as substance abusers; Mallik-Kane & Visher (2008) found that about two-thirds of returning prisoners in their study reported using drugs or getting intoxicated more than once a week in the six months preceding their current prison term, including many (45% of men and 59% of women) who reported daily use. Overall, alcohol and drug problems are among the top-ranked criminogenic factors in need of direct intervention (Weekes et al., 1999).

The Effectiveness of Corrections-Based Substance Abuse Treatment

In addition to their struggle with substance use, correctional populations face multiple challenges during their transition from prison to the community, such as the stigma associated with being an offender, coping with physical and mental health problems, establishing community, and finding adequate housing (Mallik-Kane & Visher, 2008; Petersilia, 2001). Despite these challenges, an accumulating body of research indicates that substance abuse programs do effectively reduce substance use and crime. Numerous studies have examined the impact of substance abuse treatment programming on various measures of success among

incarcerated populations.

Research indicates that substance abuse programming has a positive effect on institutional adjustment. Generally, the programs do not have the explicit goal of reducing misconduct, but the various approaches used to create change in substance use behaviours can impact a participant's conduct more broadly. For example, based on a meta-analysis involving 33 treatment versus control studies, Andrews et al. (1990) concluded that behavioural-focused programs that targeted criminogenic needs or any management strategy that manipulated known risk factors (age, offence history, and pre-treatment incarceration time) reduced offender misconduct by 17%. Another meta-analytic study completed by French and Gendreau (2006) produced results that indicated a 26% reduction in offender misconduct among behavioural program participants. Notably, the programs that were most effective in reducing misconduct (92% of which were behavioural) also resulted in a 13% reduction in recidivism rates. Langan and Pelissier's (2001) evaluation showed that graduates of a residential substance abuse program were 74% less likely to engage in misconduct over a 14-month period in comparison to a group of offenders who were eligible for treatment but chose not to participate. Welsh, McGrain, Salamatin, and Zajac (2007) found that offenders who participated in a therapeutic community (TC) drug treatment had lower rates of misconduct than offenders who had not participated in a TC.

The majority of research that has examined the effectiveness of prison-based substance abuse treatment for men has focused on recidivism as the outcome. Since crime and substance abuse are so closely related (Grant et al., 2003; Weekes et al., 1999), it should follow that reducing or eliminating an offender's substance abuse problem should also reduce the likelihood that he will re-offend. Indeed, research has shown that substance program participants who have been released from prison remain in the community longer before being readmitted to prison and are less likely to be returned to custody than offenders who have not completed substance abuse programming (Adamson, Sellman, & Frampton, 2009; Grant et al., 2003; Inciardi, Martin, & Butzin, 2004; Martin, Player, & Liriano, 2003).

A number of variables influence the relationship between substance abuse program participation and recidivism. In a systematic review of 51 studies, Adamson et al. (2009) reported that the most consistent predictors of relapse or recidivism were increased dependence severity, increased psychopathology ratings, lower self-efficacy, lower motivation, and lack of treatment goal. Studies that have examined substance abuse treatment outcome, considering

alcohol as well as other drugs, have similarly found that the presence of a co-occurring disorder, problems with family, total number of conduct violations while in prison, and total number of years in prison increased the likelihood of recidivism, while variables such as prior employment, older age, and participation in community aftercare decreased the likelihood of recidivism (Constantine, 2006; Messina, Burdon, Hagopian, & Prendergast, 2006; Welsh, 2007). Wexler, Melnick, and Cao (2004) looked specifically at the relationship between risk of reincarceration, institutional substance abuse treatment, and recidivism rates. Their findings suggested that inmates with high criminal history risk benefited from prison substance abuse treatment more than low-risk inmates.

Research has demonstrated that particular aspects of substance abuse interventions, namely treatment matching and continuity of care from prison to community are consistently associated with better relapse prevention and lower recidivism rates. Since the severity of incarcerated substance-users' problems and the relationship between drug use and offending may vary widely (Player & Martin, 1996; Smith & Polsenberg, 1992), some practitioners and researchers have recommended that treatment services be tailored to the needs of individual inmates (Bullock, 2003; Gendreau & Goggin, 1991; Linhorst, Dirks-Linhorst, Bernsen, & Childrey, 2009). This would include, for example, matching need level and treatment intensity, so that those offenders with the most severe substance abuse problems receive the most intensive treatment and those with less severe substance abuse problems receive less intensive treatment. Indeed, Mattson et al.'s (1994) review of 31 studies on matching clients to substance abuse treatment based on client-specific characteristics supported the idea that individuals with more severe substance abuse problems have better outcomes with more intensive or highly structured treatment, while those with less severe substance abuse problems seemed to gain more from less intensive types of programs.

Many researchers have explored the impact of offering substance abuse treatment after an inmate has been released into the community. These studies have consistently shown that the most effective institutional substance abuse programs have community components and that inmates who participate in a community maintenance program following completion of an institutional substance abuse program are less likely to relapse or recidivate (Chanhatisilpa, McKenzie, & Hickman, 2000; Field, 1998; Hiller, Knight, & Simpson, 1999). Field (1998) suggested that the transition from prison to the community may be a daunting experience for inmates, and those who have been conditioned to a structured institutional environment may find it difficult to transfer what is learned in the institution to the community. Offering released

inmates the opportunity to participate in a community program that supports, refreshes, and enhances what they learned in the institutional program increases the probability that the inmates will be able to apply their new knowledge to their new environment. As a result of this research, it is routinely recommended that effective institutional substance abuse programs should have a community component to ensure that the benefits of the treatment are sustained (Bullock, 2003; Linhorst et al., 2009).

In sum, the potential benefits of substance abuse treatment include improved institutional conduct and better community reintegration. Access to prison-based treatment, especially when followed by aftercare, increases the likelihood of remaining in the community upon release.

National Substance Abuse Program: Theory, Content and Structure

Several decades of research have shown that substance abuse treatment successfully reduces substance use and crime. The most effective approaches supported by a solid body of evidence include Cognitive-behaviour Therapy, Community Reinforcement Approach, Motivational Interviewing, Relapse Prevention, and Social Skills Training (Berglund, Thelander, Salaspuro, Franck, Andréasson, & Öjehagen, 2003; Brown, Dongier, & Graves, 2005; Carroll et al., 2005; Carroll & Oaken, 2005; Miller, Zweben, & Johnson, 2005). Furthermore, the research indicates that offering a range of treatment and services is more effective than favouring one type of intervention over another (Andrews & Bonta, 2006; Berglund, 2005; McLellan et al., 1996).

CSC's National Substance Abuse Program (NSAP)¹ incorporates the overlapping models of social cognitive theory (Bandura, 1986), relapse prevention therapy (Parks & Marlatt, 1999), and cognitive behavioural therapy. These models share the underlying theory that human behaviour can be explained in terms of continuous reciprocal interaction between cognitive, behavioural, and environmental influences. According to these theories, if substance abusing behaviour is initiated and maintained by past learning experiences, including peer modeling, reinforcement contingencies, cognitive expectations or beliefs (Donovan & Marlatt, 1988, George & Marlatt, 1989; Marlatt, Baer, Donovan & Kivlahan, 1988), then the same processes can be used to assist the individual to develop more adaptive cognitive, behavioural and interpersonal coping responses (Andrews & Bonta, 2006; Beck, Wright, Newman, & Liese, 1993; Emrick & Aarons 1990; Lightfoot, 1999; Parks & Marlatt, 1999). The cognitive-behavioural and social learning based approach of NSAP is supported by an emphasis on skills

¹ NSAP was first pilot tested in all regions in 2001 and fully implemented in 2004.

acquisition. Through role-play, graduated approximations (i.e., reinforcing successive approximations of the appropriate skill), extinction (i.e., repeated, non-reinforced exposure to stimuli previously paired with substance use), and cognitive restructuring (i.e., identifying and correcting negative thinking patterns; Andrews, 2001), offenders learn to better manage those situations that initiate a relapse into crime and/or substance misuse.

Furthermore, the treatment needs of offenders differ with respect to level of severity of substance abuse. According to Weekes et al. (2009), 34% of the total male incarcerated population had substantial to severe substance problems, 18% exhibited moderate substance abuse problems, and 26% exhibited low-level substance abuse problems. Offenders with substantial to severe substance abuse problems are considered most likely to reoffend due to criminal history (Long, 2006). Kunic and Grant (2005) found that offenders with more severe substance abuse problems also experienced more instability in a number of life areas and had more involved criminal histories. A study by Weekes, Millson, and Lightfoot (1995), demonstrated the nature of the relationship between substance use and crime; an offender's likelihood of returning to prison while on conditional release increased in direct proportion to the severity of offenders' substance abuse problems. Pernanen et al. (2002) reported that more than half of the federal offenders were under the influence of alcohol and between 60% and 70% were under the influence of a psychoactive substance when they committed a violent crime. The work of Millson et al. (1995) also suggested that an offender's rate of readmission for parole violations (i.e., technical violations and new offences) increased as a function of substance abuse severity. Current meta-analytic work confirms that problematic substance use is a strong predictor of future criminality (Dowden & Brown, 1998).

To meet the varying needs of male offenders with substance abuse problems, and in accordance with previously mentioned research that has shown the effectiveness of matching problem severity with treatment intensity (e.g., Mattson et al., 1994), CSC offered substance abuse programming at three intensity levels (high, moderate, and low) to offenders with an established link between substance abuse and crime.

NSAP-High Intensity (NSAP-H) targets offenders with substantial to severe substance abuse problems who are at a high risk of reoffending. It is a 5-month intensive program reserved for those individuals with higher needs (based on assessed level of severity). NSAP-Moderate Intensity (NSAP-M) targets offenders with moderate to severe substance abuse problems who are at a moderate or low risk of reoffending; it is a 6-week program designed for those with

moderate level of substance abuse severity. They differ based on the amount of skills and information offered. For instance, NSAP-H deals with issues that are more specific to the higher need group, such as managing physical dependence or countering the more entrenched addictive beliefs.

Offenders who complete either NSAP-H or NSAP-M are also provided with the Pre-release Booster Program within 3 months prior to their release into the community. This program helps offenders develop awareness of potentially harmful situations in the community and to prepare themselves accordingly. It is designed to orient offenders to the community and to augment their relapse prevention plans and strategies for high risk situations in the community. It incorporates all the tools acquired in the NSAP treatment programs. The program consists of four 2-hour sessions usually delivered over a 2-week period.

NSAP-Low Intensity² (NSAP-L) targeted offenders with low level substance abuse problems and was delivered in a community setting during conditional release from prison. NSAP-L was a brief intervention coupled with structured maintenance sessions and support. The focus of the program was on assisting the participants to identify the connection between their substance abuse and criminal behaviour and to develop a plan as soon as possible to remain in the community. Participants of this program had lower levels of problems with their substance abuse; however, it could have played a role in their return to crime (Correctional Service Canada, 2008b).

Graduates of any of the NSAP programs (high, moderate, or low intensity) also participate in a Maintenance Program. Offenders may participate in this program both while they are incarcerated and after their release into the community. The program helps offenders apply the skills they learned in prior NSAP programming so they can monitor and cope with life situations without returning to a pattern of substance abuse. The objective of the community aftercare program (i.e., the National Substance Abuse Maintenance Program delivered in the community) is to place offenders into maintenance as soon as possible upon their release as the first months are the time of greatest vulnerability. Each maintenance session is two hours, although the frequency and length of the program varies based upon the needs of the individual. Every 90 days offenders are re-evaluated and reassigned to the program if required. All offenders who participate in substance abuse programming are offered community aftercare programming.

² In June 2009, CSC ceased the delivery of correctional programs to low risk male offenders, except for those identified as meeting established override criteria (i.e., the assessment of risk does not accurately reflect the level of risk).

Overall, the NSAP model requires that offenders participate in continuous-intake institutional and community maintenance at a frequency that is based on their risk and need. NSAP is offered to offenders as early in the sentence as possible. Moreover, offenders are provided with ongoing structure and support for skill acquisition and rehearsal during treatment and as part of maintenance in both the institution and community. This is in line with previously mentioned recommendations that the most effective substance abuse programs offer community components to ensure that the benefits of treatment are sustained (e.g., Linhorst et al., 2009). These aspects of NSAP – three intensity levels, the booster and community maintenance components, a focus on the link between substance abuse and crime, as well as the focus on skill development and practice – make the program unique in the substance abuse field. In addition, NSAP is the only substance abuse program to be delivered on a national level with facilitators receiving standardized training across the country.

The offenders' levels of severity are assessed prior to program intake using the Drug Abuse Screening Test (DAST; Skinner, 1982), the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984), and the Problems Related to Drinking Scale (PRD; The PRD is a short form of the Michigan Alcoholism Screening Test; Selzer, 1971). All three instruments are considered valid and reliable in estimating the severity of substance abuse problems in adult populations (Boland, Henderson, & Baker, 1998; Hodgins & Lightfoot, 1988, 1989; Skinner & Goldberg, 1986; Skinner & Horn, 1984; Yudko, Lozhkina & Fouts, 2007). The combined results of these assessments are used to determine the appropriate level of treatment required.³ The content of the three NSAP intensities is divided into four phases presented over a series of sessions. The length and number of the sessions are determined by the intensity of the program (Long, 2006). NSAP-H is 89 sessions in length and is conducted by two facilitators, while NSAP-M and NSAP-L are administered by one facilitator over 27 and 10 sessions, respectively. The focus of *Phase I* is on having participants explore what they are prepared to change. In *Phase II* participants identify their personal risk factors and learn how to manage them differently. *Phase III* allows participants to learn basic cognitive and behavioural strategies to manage their risk. And finally, in *Phase IV* the participants are guided to use these skills for relapse prevention and life area planning. Each phase builds upon the last while allowing ongoing practice of the skills acquired during the earlier phases.

For NSAP High and Moderate participants, program completion is followed by

³ In January 2008, the NSAP selection criteria changed to include not only substance use severity but also level of risk. However, only 49 offenders in the current study were referred to NSAP-H after this date.

institutional maintenance sessions as required, and the pre-release booster. Once released to the community, the offender continues to participate in maintenance at a frequency contingent upon offender stability in the community (e.g., in terms of employment, housing, support). Offenders are re-evaluated by their case management team every 90 days and may be re-assigned to maintenance if the results of the evaluation suggest they are at risk for relapse. This strategy recognizes the importance of providing on-going intervention to severely dependent offenders.

Purpose

The present study evaluated the effectiveness of high intensity programming (NSAP-H) for federally incarcerated male offenders who had a substantial or severe substance abuse problem, according to standardized assessments, through an examination of two program outcomes – prison adjustment and readmission to custody. Information on the program’s impact on the acquisition of knowledge and skills may be found in Appendix A.

The first set of analyses assessed program impact on offenders’ adjustment to the prison environment. Studies of the effect of programming on offender misconduct are rare but, the limited research available suggests that offenders who participate in treatment programs commit few institutional offences and thus incur fewer charges than offenders with no treatment programming (Langan & Pelissier, 2001; French & Gendreau, 2006; Welsh et al, 2007). It was hypothesized that offenders who completed NSAP-H would demonstrate a lower rate of institutional charges compared to offenders who started but failed to complete the program prior to release from custody and offenders who were assigned to, but did not participate in, NSAP-H (i.e., not enrolled group) prior to release from custody.

The second set of analyses explored the longer term impact of offender participation in NSAP-H and the National Substance Abuse Maintenance Program in the community on post-release outcomes over a 24-month follow-up period. As mentioned previously, research has demonstrated released offenders who participated in a substance program while incarcerated remained in the community longer before being readmitted to prison and were less likely to be returned to custody than offenders who had not completed substance abuse programming (Adamson, Sellman, & Frampton, 2009; Grant et al., 2003; Inciardi, Martin, & Butzin, 2004; Martin, Player, & Liriano, 2003; Mitchell, Wilson, & MacKenzie, 2007). Therefore, it was hypothesized that offenders who completed the program would experience a lower rate of readmission over a 24 month follow-up period than offenders who started but failed to complete the program prior to release from custody and offenders who were assigned to, but did not

participate in, NSAP-H prior to release from custody. If the program reduced the likelihood of a return to custody following release to the community, then the program's effectiveness with respect to mitigating the risk of revocation would be supported.

In addition, given that offenders who completed NSAP-H were expected to have an increased likelihood of discretionary release (day or full parole) and to be recommended for participation in community aftercare than offenders with only partial or no exposure to NSAP-H, it was hypothesized that, as intervening variables, release type and participation status in community aftercare would attenuate the initial relationship between NSAP-H status and return to custody.

Method

Study Design

Overall, 4,653 offenders were referred to NSAP-H between August 2004 and January 2009. Offenders who participated in NSAP-H more than once or participated in any other NSAP intensity level (i.e. moderate or low) were excluded from the sample. Furthermore, offenders who participated in the program after experiencing their first supervised release from custody were excluded. This eliminated 2,271 records. Therefore, the final sample consisted of a retrospective cohort of 2,382 male offenders who were assigned to participate in NSAP-H during the period between August 2004 and January 2009. This sample was used to examine the impact of program participation on institutional misconduct. A subsample of 1,645 offenders was available for post-release follow-up to examine the impact of program participation on return to custody.

Offenders who were assessed as requiring high intensity substance abuse treatment were further classified into three NSAP-H treatment groups for the purpose of this study: 1) complete participation; 2) incomplete participation; and 3) not enrolled group (assigned to, but did not participate in NSAP-H prior to release). Of the 2,382 study participants, 36% fully participated in NSAP-H while the remaining offenders failed to complete the program (9%), or did not enrol in the program prior to release⁴ (55%). Of those who started NSAP-H, approximately 20% failed to complete the program.

Data Sources

The data for the study were derived from administrative databases stored at CSC. The Offender Management System (OMS) is an electronic administrative database used by the Correctional Service of Canada to maintain all offender records. The system includes all information that is required for administrative and operational purposes, such as case management, from sentencing to warrant expiry. This database includes, but is not limited to, the following information: demographics, sentence and conviction information, all admission and release records, risk and need assessments, substance abuse assessments, disciplinary charge

⁴ The offenders in the “Not Enrolled” group had been assessed as needing NSAP-H (i.e., with regards to risk and substance abuse need), had been assigned to NSAP-H, but did not participate in NSAP-H.

information, reports on offender performance during incarceration and while in the community, supplementary assessment information and related records. For this program assessment, the OMS was used to: a) generate comparison groups; b) retrieve offender characteristics that are known to be associated with offending; c) identify program completers and non-completers; c) retrieve information regarding institutional/community conduct; d) identify areas of criminal history risk and need derived from the Offender Intake Assessment (OIA); and e) determine release/readmission activities.

Outcomes

Institutional Misconducts: Institutional misconducts are recorded in OMS for each incident or charge. Not all institutional incidents result in a charge. A charge can be categorised as minor or major, a distinction which depends on the seriousness of the misconduct and on the discretion of correctional staff. Major charges are adjudicated more formally than minor charges and include misconducts such as fighting or possession of drugs. Minor charges can include misconducts such as disobeying an order or possession of unauthorized items.

Revocations: Revocations occur if the offender has failed to meet the conditions of his or her conditional release or statutory release or if a new offence has been committed (CSC, 2007b). Failure to meet the conditions of release results in a technical violation when the supervising parole officer and Parole Board Canada (PBC) believe that the offender's behaviour can no longer be managed in a way that ensures the safety of the public and/or the offender. Offenders who are in violation of their conditions are revoked if their risk can no longer be managed in the community. Revocation with a new offence occurs when the offender is charged with committing a new offence while on discretionary or statutory release.

Covariates

NSAP-Pre-release Booster Participation was measured as follows: offenders who completed or attended all sessions prior to release were classified as complete; offenders who were “waitlisted”, “assigned” (but not completed), “suspended”, “withdrawn”, “paroled/released”, “transferred”, “program/assignment cancelled”, “incomplete” or had reached the end of their sentence (“Warrant Expiry Date (WED)”) were defined as incomplete; and the remaining offenders had a status of ‘not assigned’.

Several demographic characteristics were measured including *Aboriginal ancestry, marital*

status, age at admission, and age at release. Aboriginal ancestry is coded as Aboriginal and non-Aboriginal. Marital status is coded as Married (or Common-law) and Unmarried. Age at admission and age at release are continuous measures calculated in years.

Sentence Length is a continuous variable calculated as the number of days between admission date and the end of the sentence. *Sentence Number* is categorized as first, second, or third Federal sentence or greater.

Release Type is an indicator of the level of risk PBC perceives that the offender presents to the community. Offenders may be granted a conditional release (i.e., either day parole or full parole) before they have served two-thirds of their sentence, or a statutory release when they have served two-thirds of their sentence. Day parole may be granted to an offender by the PBC, which requires the offender to return to a penitentiary, a Community-Based Residential Facility (CBRF), which includes an authorized private home placement, or a provincial correctional facility each night, unless otherwise authorized. Full parole may be granted to an offender by the PBC which allows the offender to serve a portion of their sentence in the community while under supervision.

Statutory release is a non-discretionary form of release that most offenders are granted after serving two-thirds of their sentence unless there is sufficient evidence to support the further detention of the offender. The offender remains subject to supervision until the expiration of his or her sentence. Statutory release is only available for offenders serving determinate sentences, while all releases for those serving indeterminate sentences (mostly offenders serving life sentences) are conditional. For the purpose of this study, release will be classified as discretionary (day or full parole) or non-discretionary (statutory release).

Drug use severity is determined from the Drug Abuse Screening Test (DAST) (Skinner, 1982). The 20-item DAST is used to assess the severity of problems associated with drug use. It includes items about frequency of use, symptoms of dependence, extent of drug-related interference, feelings of guilt and prior treatment (Boland et al., 1998). Test items include: “*Could you get through the week without using drugs?*” and “*Did you neglect family because of your drug use?*” It references the “*12 month period prior to arrest.*” A dichotomous response format is used with each “yes” endorsement warranting a score of one. Quantitative severity levels of none (0), low (1-5), moderate (6-10), substantial (11-15) and severe (16-20) are based on normative data for the scale (Robinson, Porporino, & Millson, 1991). These severity levels are used to differentiate cases for program-referral purposes. For the purpose of this study, the variable consists of three categories; low, moderate, and the combined category of

substantial/severe.

Alcohol use severity is measured by the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984). The ADS consists of 25 items that are designed to tap into the alcohol dependence syndrome (Edwards & Gross, 1976). The ADS references the "12 month period prior to arrest" in establishing a severity level and provides a measure of the extent to which the use of alcohol has progressed from psychological involvement to impaired control. Test items include: "Did you have the shakes when sobering up (hands tremble, shake inside)?" and "As a result of drinking, did you see things that weren't really there?" Empirically derived severity levels of none (0), low (1-13), moderate (14-21), substantial (22-30) and severe (31-47) are used to differentiate cases for program referral purposes based on previous research with the scale (Skinner & Horn, 1984). For the purpose of this study, the variable was trichotomized into three categories; low, moderate, and the combined category of substantial/severe. The ADS and DAST have been used extensively with offender populations to assess severity of alcohol and drug abuse and, as previously mentioned, are administered to establish the severity of substance abuse problems and program intensity (Kunic & Grant, 2006).

Criminogenic need is determined through parole officer interviews with the offender and in-depth analyses of information from collateral sources, such as police agencies, family members, and professionals from other jurisdictions, the institutional parole officer confirms the presence of specific indicators which relate to the following seven domains or criminogenic needs: Employment/Education, Marital/Family Relationships, Associates/Social Interaction, Community Functioning, Substance Abuse, Personal/Emotional Orientation, and Attitude. The indicators are structured as questions with a dichotomous response format ("yes" = presence of a problem; "no" = absence of a problem). This information is electronically stored in an offender record within OMS. The higher the number of yes responses, the more instability within the domain and the higher the priority ranking for the domain. In exploratory analysis, only three of the seven domains (Community Functioning, Attitude, and Marital/Family Relationships) were significantly associated with return to custody and were subsequently included in the statistical models.

Parole officers use the results from the individual factor items and other case specific information to establish an overall need rating for each domain. A total of four possible ratings of need can be assigned for the domains of Employment/Education, Marital/Family, Associates/Social Interaction, Community Functioning and Attitude: "asset", "no need for improvement", "some need for improvement" or "considerable need for improvement". Only

three of the four need ratings can be assigned for the domains of substance abuse and personal/emotional orientation: "no need for improvement", "some need for improvement" or "considerable need for improvement". In 2005, Brown and Motiuk completed a meta-analytic, psychometric and consultative review of the indicators and found them valid in terms of their ability to predict re-offending. Offenders who were rated with more serious problems across all seven domains were more likely to be returned to custody during a three year follow-up in the community. In the current study, for those domains that included the "asset" rating, the rating was combined with "no need for improvement" due to low frequencies in the "asset" category. Therefore, all domains included in the final model consist of three categories: asset/none, some, and considerable (need for improvement).⁵

Criminal history risk is a rating based on the Criminal History Record (CHR), the Offence Severity Record (OSR) and the Sex Offence History (SOH). The CHR provides a concise summary of the offender's criminal history. The OSR measures the nature and degree of psychological and physical harm inflicted on the victim(s) and on society. The SOH looks at the nature and extent of sexual offending, if any, and the amount of victim harm. It also highlights involvement in any prior sex offender assessment, treatment and/or intervention activities (CSC, 2007c). Once all questions are completed by the parole officer, OMS automatically scores the number of dichotomous yes/no responses from the CHR, OSR and the SOH. A point is assigned for each "yes" response. Generally, the higher the number of "yes" responses, the greater the risk of reoffending (CSC, 2007c^b). A level of intervention of either "low", "moderate" or "high" is automatically assigned based on the results from this static factor analysis (i.e., analysis of the CHR, OSR and the SOH).

Program participation status was measured in the following programs: substance abuse (other than NSAP-H), sex offenders, violence prevention, family violence prevention, and living skills.⁶ Offenders who completed or attended all sessions of a program other than NSAP-H prior to release were classified as having completed a program in a given area. Offenders who were "waitlisted", "assigned" (but not completed), "suspended", "withdrawn", "paroled/released", "transferred", "program/assignment cancelled", "incomplete" or had reached the end of their

⁵ A revised version of the Dynamic Factor Identification and Analysis (DFIA-R) was implemented in October, 2009. The revised version consists of fewer indicators, but the original seven need domains were retained. This change does not affect the present results because no offenders in the present sample were admitted after DFIA-R was implemented.

⁶ Living Skills programming is a family of programs that includes Cognitive Skills, Anger and Emotions Management, Living Without Violence, and Improving Family Dynamics programs. It should be noted that these are no longer offered by CSC.

sentence (“Warrant Expiry Date (WED)”) were defined as incomplete. The remaining offenders had a status of ‘not assigned’.

Participation in the *National Substance Abuse Maintenance Program* in the community (community aftercare) is defined in the same way as the programming variables above. Offenders who completed or attended all sessions of the National Substance Abuse Maintenance Program after release were classified as having completed the program. Offenders who were “waitlisted”, “assigned” (but not completed), “suspended”, “withdrawn”, “paroled/released”, “transferred”, “program/assignment cancelled”, “incomplete” or had reached the end of their sentence (“Warrant Expiry Date (WED)”) were defined as incomplete. The remaining offenders had a status of ‘not assigned.’

However, time of entry into community aftercare varies upon release from the institution and may occur immediately or weeks or months later. As such, it will be modeled as a dichotomous, time varying covariate in the Cox regression analysis. A large proportion of offenders (57.7%) who participated in community aftercare had completed NSAP-H; completion of the institutional programming is generally a prerequisite of community aftercare participation. Overall, 8.8% of all offenders in the present study participated in or were assigned to community aftercare.

Level of motivation is determined by taking into account all information gathered during the Intake Assessment process. It is evaluated for each of the following criteria: recognition that a problem exists with lifestyle, behaviour and resulting consequences (e.g. incarceration); level of comfort with problem and its impact on the offender’s life; level of feeling of personal responsibility for the problem(s); willingness to change (i.e. expression of wish to change); possession of skills and knowledge required to effect change in behaviour (i.e. is ready to change); level of external support from family, friends or other community members; and the offender’s past history related to demonstrating change.

A low rating indicates that the offender strongly rejects the need for change or is unwilling to participate in recommended programs or other interventions; a medium rating suggests that the offender may not fully accept overall assessment but will participate in recommended programs or other interventions; and a high rating indicates that the offender is self-motivated and is actively addressing his or her problem areas.

Statistical Analysis

Two specific outcomes were used to evaluate the effectiveness of NSAP-H: institutional misconduct and revocation. Both of the analyses are described in detail below. All analyses were completed using SAS version 9.2 (SAS Institute Inc., Cary, NC, USA) or Stata (release 10; StataCorp, College Station, TX, USA).

Institutional Charges

The pre-baseline, in-treatment, and post-baseline incident rates of institutional charges were calculated to measure NSAP-H's impact on institutional charges. The counts of serious incidents were analyzed using a negative binomial model to determine how NSAP-H participation influenced the rate of institutional charges. A negative binomial model estimates the 'incident rate ratio' of event-count data. In preliminary analyses it was determined that an ordinary Poisson model was not appropriate for the distribution of the data based on an examination of the dispersion parameter, which was much greater than 0 ($\alpha=1.42$, $p=.04$; Dohoo, Martin, & Stryhn, 2009). Instead the data showed a negative binomial distribution which can be interpreted as a Poisson distribution with extra dispersion. Predictors such as age, criminal history risk, motivation level, participation in other correctional programs, and the dynamic factor need levels were tested in model. The log of exposure time was modelled as an offset variable which adjusts the regression estimates to account for varying amounts of observation time.

Assessments of influential observations, overall fit, and dispersion were conducted to confirm model validity. The "incident rate ratio" (IR), produced from the negative binomial model, represents the proportional increase (or decrease) in the incidence rate (I) for a unit change in the predictor. In this case, it measures the IR of institutional misconduct (i.e. serious charges) for offenders who were assigned to the program but not enrolled or who partially completed the program relative to the incident rate of charges for offenders who completed NSAP-H (considered the reference category). For example, if the IR was 1.5, it suggests that the incidence rate of incurring a serious charge was 1.5 times as high for one group of offenders compared to the "reference" group of offenders, after adjusting for the effects of other covariates on the outcome. Conversely, an IR of 1.0 indicates no difference in the incidence rate between the reference category and the comparison category.

Revocation of Offenders Under Community Supervision

A multivariable, Cox proportional hazards model was used to determine if NSAP-H status was associated with the rate of post-release failure using SAS's PHREG procedure (SAS Institute Inc., Cary, NC, USA). Revocation was defined as the first readmission with or without a new offence after release from custody. The first release in the offenders' sentence was chosen to establish the start of the community-based follow-up period.

Assessments of the proportional hazards assumption, an examination of the effect of influential observations on parameter estimates, and a goodness of fit test were conducted to confirm model validity. The "hazard ratio", which the Cox Proportional Hazards model produces, provides a measure of the likelihood of revocation for offenders who were assigned to the program but not enrolled and who partially completed relative to offenders who completed NSAP-H (considered the reference category). The hazard ratio provides a measure of program effect, after adjusting for the effects of other covariates on the hazard for failure, such as OIA-derived dynamic factor ratings and risk for recidivism ratings. For example, if the hazard ratio is 2.0, then the rate of failure (e.g., registering a revocation) for one group of offenders is twice the rate of the "reference" group of offenders who completed NSAP-H, after adjusting for the effects of other covariates on the outcome. In other words, one group is twice as likely as the reference group to fail at any point during the 24 month period. Conversely, a hazard ratio of 1.0 indicates no difference in hazard between the reference category and the comparison category.

In the regression models, manual selection was used to determine each covariate's contribution to the model and whether any variables intervened in the pathway between NSAP-H status and revocation (e.g., the possibility of one variable masking or exacerbating the effects of another variable). The unconditional associations of each of the factors were tested in the model with a liberal cut-off for inclusion ($p = .25$). If this criterion was met, then it was considered for inclusion in the regression model. A covariate was retained in the full model if its inclusion satisfied at least one of the following criteria:

1. Its coefficient was significant at a p-value of less than or equal to 0.05.
2. Its presence produced changes of 20% or more in another covariate's coefficient, indicating the presence of a confounding effect (Dohoo, et al., 2003).

This selection method was used for both Zero Inflated Negative Binomial regression and Cox regression.

To test for significance and strength of association between covariates of a nominal nature, Pearson's chi-square and Cramer's-V statistics were employed. Cramer's V coefficients

approximating values of .10, .30 and .50 or greater indicated a “weak”, “moderate” and “strong” association, respectively (Keppel, Saufley, Kokunaga, 1992). To measure associations involving a continuous variable, the *F* statistic produced by ANOVA was reported. A small proportion of the sample was missing for select variables. Instead of removing these cases they were included in both the negative binomial and Cox regression analyses to ensure missing categories were not correlated with the outcomes. This was achieved by coding all the missing of a particular variable as a separate level of that variable and obtaining the coefficient. However, these results are not presented in the analysis.

Results

Sample Description

A descriptive overview of the study sample by program exposure is provided in Table 1. Offenders in the Incomplete group tended to be younger (32.2) than offenders in the Complete (34.1) or Not Enrolled (33.5) groups [$F(2, 2379) = 3.93, p < .05$]. Overall, 34% of the sample were married or in a common-law relationship with little variation across treatment groups. A higher proportion of Aboriginal offenders were present in the Not Enrolled (27.5%) group than in the Incomplete (23.8%) and the Complete groups [21.5%; $\chi^2(2, N = 2382) = 10.21, p = .006$]. This may be explained by the fact that significantly more Aboriginal offenders in the Not Enrolled (35.2%) group (compared to the Complete (4.3%) and Incomplete (12.2%) groups) were being directed to culturally-specific substance abuse programs such as Aboriginal Offender Substance Abuse Program (AOSAP) rather than NSAP-H [$\chi^2(4, N = 595) = 71.3, p \leq .001$]⁷. Regarding sentence length, the Not Enrolled group had longer sentence lengths (4.4 years) compared to the Complete (3.8 years) and Incomplete (3.8 years) groups ([$F(2, 2190) = 13.16, p \leq .001$]).

Approximately 20% to 26% of the sample committed a drug offence and 64% to 72% of the sample committed a violent offence. The proportion of offenders with substantial or severe drug use problems was slightly higher in the Incomplete group (83.5%) compared to the Complete (78.8%) and the Not Enrolled (76.14%) groups [$\chi^2(6, N = 2382) = 25.62, p = .0003$].

The Complete group had a lower proportion of offenders with needs identified in the attitude area (65.3%) compared to the Not Enrolled group (80.5%) and the Incomplete group [78.5%; $\chi^2(2, N = 2372)$]. A larger proportion of offenders (73%) in the Not Enrolled group were considered at high risk of reoffending compared with the other two program exposure groups. Sixty-two percent of the Complete group were considered at high risk of reoffending, followed by 63.4% of the Incomplete group [$\chi^2(2, N = 2372) = 40.46, p \leq .001$].

⁷ Analysis not shown.

Table 1
Descriptive Statistics for Study Sample by Program Exposure (N=2382)

	Program Exposure			
	Complete % (n)	Incomplete % (n)	Not Enrolled % (n)	Full Sample % (n)
Offender Characteristics				
Age at Admission^a (M, SD)	34.1 (8.85)	32.2 (8.46)	33.5 (9.21)	33.6 (9.03)
Married	34.3 (296)	34.0 (70)	33.2 (436)	33.7 (802)
Aboriginal Ancestry^{**}	21.5 (185)	23.8 (49)	27.5 (361)	25.0 (595)
Sentence Length^{**} (M, SD)	3.82 (2.20)	3.82 (2.72)	4.40 (2.91)	4.13 (2.66)
Sentence Number^{**}				
First	46.5 (401)	47.1 (97)	47.3 (621)	47.0 (1119)
Second	25.6 (221)	29.6 (61)	27.3 (359)	26.9 (641)
Third or more	27.8 (240)	23.3 (48)	25.4 (334)	26.1 (622)
Drug Offence	20.9 (180)	25.7 (53)	22.3 (293)	22.1 (526)
Violent Offence^{**a}	70.8 (610)	63.6 (131)	71.8 (943)	70.7 (1684)
Drug Use Severity^a				
None/Low	14.7 (127)	12.1 (25)	14.5 (190)	14.4 (342)
Moderate	6.4 (55)	4.4 (9)	9.0 (118)	7.6 (182)
Substantial/Severe	78.4 (676)	83.5 (172)	74.4 (977)	76.6 (1825)
Attitude^{**c}				
Asset/None	34.7 (297)	21.5 (44)	19.5 (256)	25.2 (597)
Some/Considerable	65.3 (560)	78.5 (161)	80.5 (1054)	74.8 (1775)
Criminal History Risk^{**c}				
Low	3.5 (30)	1.0 (2)	1.5 (19)	2.2 (51)
Moderate	34.5 (296)	35.6 (73)	25.2 (330)	29.5 (699)
High	62.0 (531)	63.4 (130)	73.4 (961)	68.4 (1622)

^a0.4% to 0.9% of data were missing for these variables; ^b196 offenders are serving a life sentence; ^c10 observations are missing for all of the variables listed in this table.

* $p < .05$. ** $p < .001$.

Program participation (or exposure), other than NSAP-H, and overall offender motivation level are presented in Table 2. The highest proportion of highly motivated offenders was found to be in the Complete group (15.7%) whereas the lowest proportion was in the Not Enrolled Group (6.6%) [$\chi^2(4, N = 2323) = 73.57, p \leq .001$]. A significantly higher proportion of the Not Enrolled group completed substance abuse programming other than NSAP-H (7.3%) compared to the Complete (1.2%) and Incomplete (2.4%) groups [$\chi^2(4, N = 2382) = 59.47, p \leq .001$]. On average, about one-fifth of the study sample was referred to either violence prevention or family violence programs. Approximately one-third of the sample was referred to the life skills program.

Table 2
Other Programming Participation and Motivation Level By Program Exposure (N=2382)

	Program Exposure			
	Complete % (n)	Incomplete % (n)	Not Enrolled % (n)	Full Sample % (n)
Motivation Level^a				
Low	8.5 (72)	15.5 (31)	17.6 (225)	14.1 (328)
Moderate	75.6 (640)	74.0 (148)	75.8 (967)	75.5 (1755)
High	15.9 (135)	10.5 (21)	6.6 (84)	10.3 (240)
NSAP Booster^{*b}				
Complete	12.3 (106)	0.0 (0)	0.5 (7)	4.7 (113)
Did not complete	16.4 (141)	1.5 (3)	4.7 (62)	8.7 (206)
Not Assigned	71.4 (615)	98.5 (203)	94.8 (1245)	86.6 (2063)
Non-NSAP Substance Abuse Treatment*				
Complete	1.2 (10)	2.4 (5)	7.3 (96)	4.7 (111)
Did not complete	15.8 (136)	18.9 (39)	20.6 (271)	18.7 (446)
Not Assigned	83.1 (716)	78.6 (162)	72.1 (947)	76.6 (1825)
Violence Prevention Treatment*				
Complete	5.5 (47)	1.0 (2)	4.3 (57)	4.5 (106)
Did not complete	10.1 (87)	15.1 (31)	19.0 (250)	15.5 (368)
Not Assigned	84.5 (728)	84.0 (173)	76.6 (1007)	80.1 (1908)
Family Violence Treatment*				
Complete	10.0 (86)	5.3 (11)	4.3 (56)	6.4 (153)
Did not complete	11.5 (99)	14.6 (30)	14.3 (188)	13.3 (317)
Not Assigned	78.5 (677)	80.1 (165)	81.4 (1070)	80.3 (1912)
Life Skills Treatment*				
Complete	18.0 (155)	12.1 (25)	10.6 (139)	13.4 (319)
Did not complete	15.2 (131)	23.8 (49)	23.4 (307)	20.5 (487)
Not Assigned	66.8 (576)	64.1 (132)	66.1 (868)	66.2 (1576)

^a 59 observations are missing. ^b Typically, only those who completed NSAP-H were eligible to participation in the Booster program.

* $p < .001$.

Offenders who completed NSAP-H were more likely to be granted discretionary release (day and full release) than offenders who either failed to complete the program or who had been assigned but not enrolled in the program (see Table 3). Offenders who failed to complete the program were most likely to remain in custody until statutory release. Indeed, 37.0% of the Complete group received day or full parole while only 5.1% of the Incomplete group and 18.5% of the Not Enrolled group were released on either day or full parole [$\chi^2(4, N = 1645) = 112.09, p \leq .0001$]. Only 10.3% of offenders in the entire NSAP-H sample had been assigned to community aftercare, however, 48% of those assigned completed the program.

Table 3

Type of Release and Community Aftercare Participation by Program Exposure (N=1645)

	Program Exposure			
	Complete % (n)	Incomplete % (n)	Not Enrolled % (n)	Full Sample % (n)
Release Status*				
Day Parole	37.0 (280)	5.1 (8)	18.5 (135)	25.7 (423)
Full parole	1.6 (12)	1.3 (2)	0.6 (4)	1.1 (18)
Statutory Release	61.4 (464)	93.7 (148)	81.0 (592)	73.2 (1204)
Community Aftercare Participation*				
Complete	9.1 (69)	0.6 (1)	1.5 (11)	4.9 (81)
Did not complete	9.3(70)	1.3 (2)	2.3 (16)	5.4 (88)
Not Assigned	81.6 (612)	98.1 (155)	96.3 (704)	89.7 (1476)
All Offenders (%)	100.0 (756)	100.0 (158)	100.0 (731)	1645 (100.0)

^aThis table includes only those offenders who were released during the study period.

* $p < .0001$.

In summary, relative to those in the Complete group, the Incomplete and Not Enrolled groups had greater complexity of needs and higher risk profiles. The Incomplete group was also more likely to have severe drug use problems in comparison to the other study groups. These are precisely the offenders who need and might particularly benefit from treatment but who are more difficult to engage and retain.

Aboriginal Offenders

Table 4 provides sample characteristics stratified by treatment group and Aboriginal ancestry. Aboriginal offenders account for 20.9% of offenders of the sample, which is similar in proportion than the 20.0% in the total Federal male offender population in custody (CSC, 2010). The mean sentence lengths of the Not Enrolled groups for both Aboriginal and non-Aboriginal offenders were slightly higher across both ethnicities. Among those who completed, fewer Aboriginal offenders were released on day parole than non-Aboriginal offenders. For instance, 21.6% of the Aboriginal offenders in the Complete group were released on day parole compared to 40.5% of non-Aboriginal offenders. While 19.8% of non-Aboriginal program completers were assigned to community aftercare, only 12.2% of Aboriginal completers had been assigned to community aftercare. Nonetheless, the success rates were close to 50% for both ethnicities.

Table 4

Sentence Length, Type of Release, & Aftercare by Cultural Background (N=1645)^a

	Aboriginal % (n)			Non-Aboriginal % (n)		
	Complete (139)	Incomplete (35)	Not Enrolled (169)	Complete (617)	Incomplete (123)	Not Enrolled (562)
Sentence Length	4.3 (3.0)	3.7 (3.2)	4.7 (2.9)	3.7 (1.9)	3.9 (2.6)	4.3 (2.9)
Release Status[*]						
Day Parole	21.6 (30)	11.4 (4)	21.3 (36)	40.5 (250)	3.3 (4)	17.6 (99)
Full Parole	1.4 (2)	2.9 (1)	0.0 (0)	1.6 (10)	0.8 (1)	0.7 (4)
Statutory Release	77.0	85.7 (30)	78.7 (133)	57.9 (357)	95.9 (118)	81.7 (459)
Community Aftercare						
Complete	7.2 (10)	0.0 (0)	0.6 (1)	9.6 (59)	0.8 (1)	1.8 (10)
Did not complete	5.0 (7)	0.0 (0)	1.2 (2)	10.2 (63)	1.6 (2)	2.5 (14)
Not Assigned	87.8 (22)	100.0 (35)	98.2 (166)	80.2 (495)	97.6 (120)	95.7 (538)

^aThis table includes only those offenders who were released during the study period with the exception of the Sentence Length variable which includes the full study sample.

^b196 offenders are serving life sentence and are not included in the average.

* $p < .001$

Institutional Misconduct

Overall, the top three institutional charges (both serious and minor) were disobeying a written rule (40.7%), possessing an unauthorized item (11.9%), disobeying an order (6.8%) and being disrespectful or abusive to staff (5.5%). Approximately 26% of all charges were registered as serious. The distribution of the types of serious institutional charges for the risk periods before, during, and after NSAP-H exposure as well as the incident rates of serious charges are presented in Appendix B.

Table 5 provides incident ratios (from negative binomial regression) for serious charges by study group after adjusting for other risk factors. Offenders who completed NSAP-H were significantly less likely to incur serious charges in relation to the comparison groups. Relative to those who completed NSAP-H, offenders who partially completed NSAP-H were 2.18 times (95% CI 1.66-2.85) as likely to incur serious charges. The Not Enrolled group was 49% more likely (IR = 1.49, 95% CI = 1.26-1.76) to incur serious charges in comparison to those who completed the program.⁸

⁸ When the same analysis was conducted combining the Complete and Incomplete groups, similar results were found. Offenders who were assigned to NSAP-H but not enrolled in the program were 19% more likely to incur serious charges, as compared to offenders who participated in NSAP-H (IR = 1.19, 95% CI = 1.02-1.40) and the covariate results changed very minimally.

Offenders who were highly motivated had significantly lower incidence rates than those with a low level of motivation. Furthermore, offenders with more severe drug use, prior federal convictions, and who had committed a violent crime for their current sentence had significantly higher rates of serious charges than offenders with low levels of drugs use, no prior convictions, and who had not committed a violent crime for their current sentence. Offenders who were Aboriginal and older had lower incidence rates of serious charges than non-Aboriginal offenders and younger offenders. Offenders who demonstrated considerable needs in the attitude domain had significantly higher incidence rates than those with no needs in this area. Finally, offenders who did not complete living skills treatment had significantly lower incidence rates of serious charges than those who completed this treatment. Other need domains (community functioning, family/marital, associates, employment/education, and personal/emotional) and other institutional programs (violence prevention treatment, family violence treatment, sex offender treatment, Aboriginal programming) were not included in the final model due to non-significance.

Table 5
Adjusted Incident Ratios from Regression of Serious Charges (N=2382)

Covariate	IR Serious Institutional Charges (95% CI)	SE	p-value
NSAP-H Exposure			.000
Complete	1.0 Ref		
Incomplete	2.18 (1.66-2.85)	0.137	
Not Enrolled	1.49 (1.26-1.76)	0.086	
Motivation Level			.000
Low	1.0 Ref		
Moderate	0.82 (0.66- 1.02)	0.108	
High	0.37 (0.25- 0.54)	0.193	
DAST Severity Level			.001
Low	1.0 Ref		
Moderate	1.10 (0.79- 1.54)	0.171	
Substantial to Severe	1.49 (1.19- 1.87)	0.116	
Sentence Number			.000
First	1.0 Ref		
Second	1.43 (1.19- 1.73)	0.096	
Third (or greater)	2.00 (1. 61- 2.47)	0.110	
Aboriginal Ancestry	0.67 (0.56-0.79)	0.089	.000
Violent Offence	1.20 (1.01, 1.44)	0.091	.042
Age (at admission)	0.93 (0.93-0.94)	0.005	.000
Attitude			.007
None/Asset	1.0 Ref		
Some	1.06 (0.86- 1.31)	0.108	
Considerable	1.33 (1.08- 1.64)	0.107	
Non-NSAP Substance Abuse Treatment*			.255
Complete	1.0 Ref		
Did not complete	1.22 (0.88-1.70)	0.167	
Not Assigned	1.08 (0.79- 1.48)	0.160	
Living Skills Treatment*			.000
Complete	1.0 Ref		
Did not complete	1.33 (1.07-1.65)	0.110	
Not Assigned	0.93 (0.76- 1.14)	0.105	

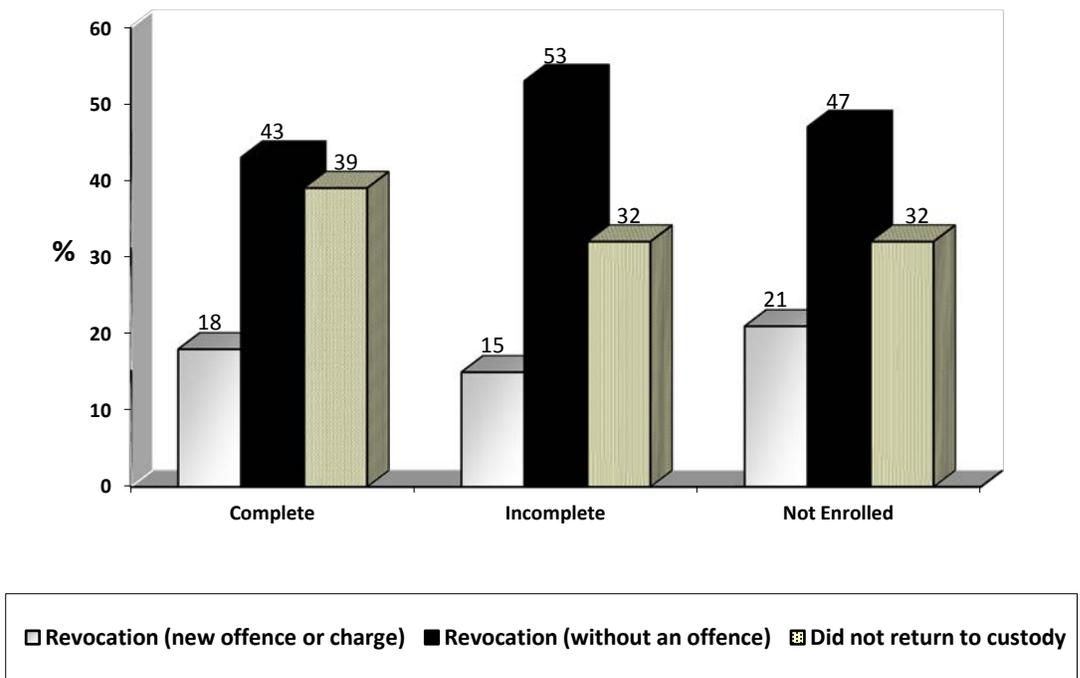
^a 71 observations are missing

Revocations

We next explored returns to custody among the study groups using COX Proportional Regression. As shown in Figure 1, fewer offenders who completed NSAP-H (43%) were revoked for a violation of release conditions than those who partially completed the program (53%) or who had been assigned to the program but not enrolled (47%). The proportion of offenders in the sample who experienced a revocation because of a new offence or charge was relatively low. For offenders who completed NSAP-H or who had been assigned to the program but not enrolled, approximately one-fifth returned to custody because they were involved in a new offense. Among the incomplete group only 15.0% (23 offenders) returned to prison for a

new offense. While offenders in the incomplete group were less likely to commit a new offence, they were more likely to violate a condition of their parole than offenders in the other study groups. After 24 months of follow-up the proportion of offenders who were still living in the community was 39% among those who completed NSAP-H and 32% among those who partially completed the program or who had been assigned to the program but not enrolled. For the COX proportional hazard models all types of revocations were combined since small cells precluded a separate analysis for revocations for a new offence only (see Figure 1).

Figure 1. Post-release Status across Program Exposure (N = 1645)



Note: $\chi^2(4, N = 1645) = 13.11, p < .04, V = 0.06$

The association between NSAP-H treatment status and revocation before controlling for other variables indicated that the Incomplete (HR=1.52, $p \leq .001$) and the Not Enrolled (HR=1.15, $p \leq .001$) groups were more likely to return to custody than the Complete group. The adjusted hazard ratios, as shown in Model 1 of Table 6, indicate that the hazard ratio for revocation for NSAP-H exposure remained significant for the Incomplete group (HR=1.34, CI 1.08, 1.66), but was no longer significant for the Not Enrolled group (HR=1.13, CI 1.00, 1.29). In Model 2, community aftercare status and release type were included as intervening variables. The association between NSAP-H status and revocation was no longer significant with their inclusion, suggesting that together these two variables mediate the relationship between NSAP-H program exposure and time to revocation. Both community aftercare status and release type had

a significant impact on the likelihood of return to custody. Offenders whose first release was non-discretionary (statutory release) were 45% more likely to return to custody than offenders who were granted discretionary release (day or full parole) (95% CI 1.25, 1.68). Offenders who did not participate in community aftercare at any point during their release were 1.45 times as likely to be readmitted to prison as those who accessed community aftercare (95% CI 1.16, 1.82).⁹

Several other risk factors remained significantly associated with revocation after adjusting for the mediating effect of community aftercare status and release type. The risk of return for those with a high level of motivation was significantly less than for offenders with low motivation. As well, an offender's risk of returning to custody increased as the level of drug severity and the number of sentences served increased. Offenders who were older, married/common-law and Aboriginal were more likely to return to custody than younger, unmarried and non-Aboriginal offenders. Offenders who were serving their current conviction for having committed a violent offence were more likely to return to custody than offenders who were not currently serving time for having committed a violent offence. Furthermore, the rate of return to custody among those with 'considerable' needs in the attitude domain was higher than those with no needs in this domain. The model also evaluated the effect of violence prevention, family violence prevention, and living skills programs on revocation and found that, compared to offenders who had completed these programs, the risk of return to custody increased for offenders who did not complete or were not assigned to these programs. According to the model, substance abuse treatment other than NSAP did not affect risk of return to custody. Other need domains (community functioning, family/marital, associates, employment/education, and personal/emotional) and other institutional programs (sex offender treatment, Aboriginal programming) were not included in the final models due to non-significance.

Table 6

Adjusted Hazard Ratios from Cox Proportional Hazard Regression for Time to Return to

⁹ When the same analysis was conducted combining the Complete and Incomplete groups, similar results were found. In Model 2, the association between NSAP-H status and revocation was not significant. The HR for the Not Enrolled group compared to group of program participants was 1.04 (CI 0.92-1.18). Offenders whose first release was non-discretionary (statutory release) were 48% more likely to return to custody than offenders who were granted discretionary release (day or full parole) (95% CI 1.28-1.71). Offenders who did not participate in community aftercare at any point during their release were 1.48 times as likely to return to custody as those who accessed community aftercare (95% CI 1.18-1.85).

Custody During a 24-Month Follow-up Period with and without Intervening Variables (N=1645)

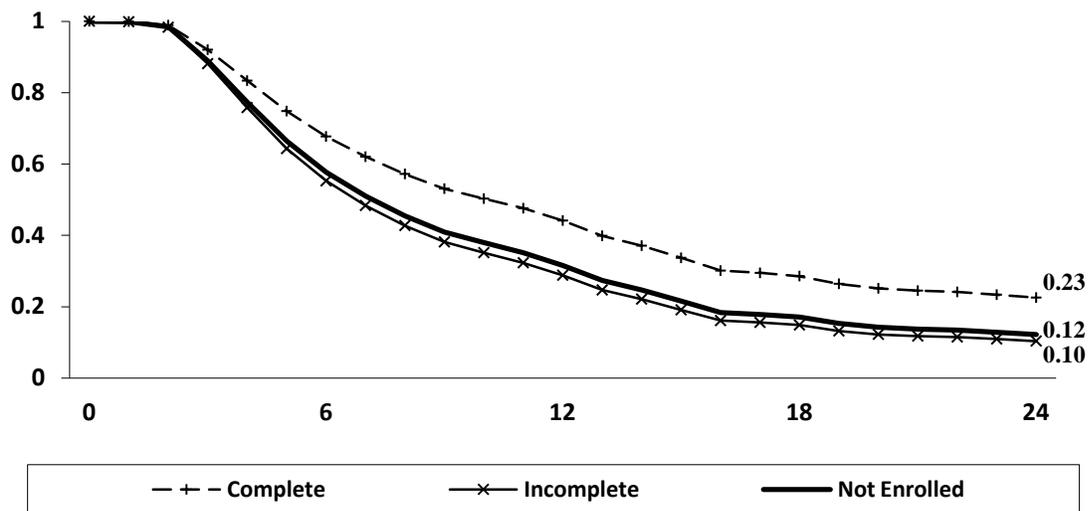
Covariate	Model 1		Model 2 (Intervening Variables)	
	HR for Revocation (95% CI)	SE	HR for Revocation (95% CI)	SE
NSAP-H Exposure				
Complete	1.0			
Incomplete	1.34 (1.08-1.66)	0.11	1.20 (0.97-1.49)	0.19
Not Enrolled	1.13 (1.00-1.29)	0.07	1.08 (0.94-1.23)	0.07
Motivation Level				
Low	1.0			
Moderate	0.89 (0.74-1.08)	0.10	0.92 (0.77-1.11)	0.09
High	0.57 (0.43-0.76)	0.15	0.64 (0.49-0.84)	0.14
DAST Severity Level				
None to Low	1.0			
Moderate	1.68 (1.24-2.29)	0.16	1.82 (1.35-2.45)	0.15
Substantial to Severe	1.45 (1.17-1.81)	0.11	1.54 (1.24-1.91)	0.11
Sentence Number				
First	1.0			
Second	1.34 (1.14-1.57)	0.08	1.29 (1.11-1.50)	0.08
Third or more	1.60 (1.34-1.91)	0.09	1.48 (1.25-1.75)	0.09
Violent Offence	1.25 (1.09-1.43)	0.07	1.28 (1.13-1.47)	0.07
Aboriginal Ancestry	1.35 (1.16- 1.58)	0.08	1.38 (1.18-1.60)	0.08
Age (at release) Category	0.97 (0.97-0.98)	0.00	0.97 (0.97-0.98)	0.00
Not Married (or common-Attitude	1.38 (1.21-1.58)	0.07	1.37 (1.21-1.56)	0.07
Asset/None	1.0			
Some	1.20 (1.01-1.42)	0.09	1.14 (0.97-1.34)	0.08
Considerable	1.34 (1.12- 1.60)	0.09	1.27 (1.07-1.50)	0.09
Violence Prevention				
Complete	1.0			
Did not complete	1.65 (1.21-2.27)	0.16	1.63 (1.20-2.22)	0.16
Not Assigned	1.41 (1.06-1.86)	0.14	1.45 (1.10-1.90)	0.14
Family Violence				
Complete	1.0			
Did not complete	1.32 (0.98-1.79)	0.15	1.31 (0.97-1.75)	0.15
Not Assigned	1.38 (1.08-1.76)	0.13	1.44 (1.14-1.83)	0.12
Living Skills				
Complete	1.0			
Did not complete	1.29 (1.06-1.58)	0.10	1.26 (1.04-1.53)	0.10
Not Assigned	1.22 (1.03-1.44)	0.09	1.25 (1.06-1.48)	0.08
Non-NSAP Substance Abuse Treatment				
Complete	1.0			
Did not complete	1.23 (0.91-1.65)	0.15	1.22 (0.91-1.62)	0.15
Not Assigned	1.10 (0.83-1.46)	0.15	1.11 (0.84-1.46)	0.14
Non-discretionary Release	-	-	1.45 (1.25-1.68)	0.08
No Community Aftercare	-	-	1.45 (1.16-1.82)	0.12

Note. The missing data (n=17) were also modeled but the results have not been included above. Model 1 adequately fits the data: *Goodness of fit* χ^2 (9, N = 1645) = 4.67, p = .86. Model 2 adequately fits the data: *Goodness of fit* χ^2 (9, N = 1645) = 9.29, p = .41.

At 12 months, the estimated probability of remaining prison-free was highest in the complete group (0.44) followed by the Not Enrolled group (0.32), and the Incomplete group (0.29). The two-year survival probability was 0.23 in the Complete group followed by the Not Enrolled group (0.12) and the Incomplete group (0.10). Figure 2 shows a graph of the adjusted

survival time for each NSAP-H treatment group (based on Model 2) over the 24 month period. While the survival curves are parallel among the study groups, the probability of survival was slightly greater for offenders who completed the program compared to partial completers and those who were assigned to the program but not enrolled, a trend which began at 4 to 5 months after release.

Figure 2. Adjusted Survival Curves for Time to Readmission By NSAP-H Treatment Status (N=1645)



Discussion

The current study investigated the effectiveness of the National Substance Abuse Program - High intensity (NSAP-H). This program was designed to reduce risk to relapse to substance abuse and recidivism for male offenders with a substantial to severe substance abuse problem by providing a skills-based, behaviour-oriented program within a safe and supportive environment. Overall, the results of this study are supportive of institution-based substance abuse programs. Completion of NSAP-H reduced the likelihood of engaging in misconduct during incarceration and increased the rate of survival in the community during conditional release. In addition, participation in community aftercare substantially augmented the effect of institution-based substance abuse treatment in that the community aftercare participants remained in the community for the greatest lengths of time.

Institutional Misconduct

Consistent with the first study hypothesis, the occurrence of institutional misconduct was significantly reduced by NSAP-H participation with the reduction being significantly greater for those who completed NSAP-H. The findings suggest that the program's impact on substance use behaviours has the added benefit of reducing the amount of conflict in institutions. This is consistent with research conducted by French and Gendreau (2006) which found that prison programs that produce the greatest reduction in prison misconduct also produce the greatest reductions in recidivism. As well, other studies have concluded that substance abuse treatment environments (i.e. therapeutic communities in this instance) resulted in lower administrative costs for disciplinary actions, inmate grievances, and disruptive incidents and a reduction in the occurrence of infractions, illicit drug use, and staff absenteeism (Prendergast et al., 2001; Zhang, Roberts, & McCollister, 2009). Moreover, offenders who did not complete other prescribed treatment programs were also more likely to engage in institutional misconduct though there is limited research on this topic (Gendreau & Keyes, 2001; Lahm, 2009).

Several of the study covariates were significantly associated with institutional misconduct. Offenders who had prior Federal convictions had significantly higher incidence rates of serious charges compared to first time offenders. Again, these findings are mirrored in the extant literature (Gendreau, Goggin, & Law, 1997; Goetting & Howsen, 1986; Jiang, 2005). The results also showed that offenders highly dependent on drugs had higher rates of serious charges compared with those who were less drug dependent. Other research has shown that drug use

history is a significant predictor of prison misconduct (Jiang, 2005; Jiang, Fisher-Giorlando, & Mo, 2005). Furthermore, those who demonstrated needs in the attitude domain had significantly higher incidence rates than those with no needs in this area. This is consistent with past research that found antisocial attitudes were predictive of prison misconduct (Gendreau et al., 1997). Moreover, as offenders age they also become less likely to break the rules which is supported by past research studies (Goetting & Howsen, 1986; Langan & Pelissier, 2001). Offenders who were highly motivated had incidence rates significantly lower than offenders with low motivation. This relationship was expected, as high motivation has been found to be associated with treatment completion and positive treatment outcomes (e.g., Adamson et al., 2009; Simpson, 2004).

Revocations

Completion of NSAP-H increased the rate of survival in the community during conditional release. The Incomplete and Not Enrolled groups were, respectively, 34% and 13% more likely to return to custody relative to offenders who completed NSAP-H within the 24-month exposure period. When community aftercare status and release type were considered in the model, the original relationship between NSAP-H status and return to custody was no longer significant. This is an important finding. While often used as outcome measures it is plausible that community aftercare and non-discretionary release lay on the pathway between in-prison treatment and return to custody. Release type (non-discretionary versus discretionary) is the result of a judgement by the Parole Board of Canada of whether the offender is ready to be released. It can be considered as a proxy measure for change in level of risk and is influenced by NSAP-H participation status.

Offenders who participated in the National Substance Abuse Maintenance Program in the community had significantly greater odds of remaining in the community than those who did not participate regardless of their level of participation in NSAP-H. Those who did not participate in this community aftercare program were 45% more likely to return to custody than offenders who had some time in the program. Numerous studies have found increased benefits associated with the combination of in-prison and aftercare treatment components (Burdon, Dang, Prendergast, Messina, & Farabee, 2007; Butzin, Martin, & Inciardi, 2002; Inciardi, Martin, Butzin, Hooper, & Harrison, 1997; Matheson, Doherty, & Grant, 2009; Prendergast, Hall, & Wexler, 2003). Knight, Simpson, & Hiller (1999) found that offenders who completed both an in-prison therapeutic community and aftercare treatment were less likely to return to prison compared to

both dropouts and untreated offenders.

In the current study, of those who accessed the program, 82% of those who participated in the National Substance Abuse Maintenance program in the community completed NSAP-H. Only 17.8% of offenders who had the opportunity to participate in community aftercare were from the Incomplete and Not Enrolled groups. This has implications for successful substance abuse intervention. Though a large proportion of community aftercare participants had completed NSAP-H, the results suggest that exposure to community aftercare is critical and should not necessarily depend upon completion of the institutional programming. As well, approximately 50% of offenders who accessed aftercare completed the program. This is very positive given treatment retention is considered to be one of the strongest and most reliable predictors of post-treatment success (Refer to Houser, Salvatore, & Welsh, 2012). In line with this, CSC presently offers the Community Maintenance Program to all released offenders, regardless of which programs were taken while incarcerated. This program was implemented to replace the program-specific maintenance programs in the community. The gradual introduction of this program in the 2000s is a likely explanation for the low proportion of offenders in the present study who participated in the National Substance Abuse Maintenance Program in the community. As mentioned, just 10.3% of offenders in the entire sample had been assigned to community aftercare specific to substance abuse programming. It is likely that, rather than enrolling in the National Substance Abuse Maintenance Program in the community, many offenders were enrolled in the Community Maintenance Program. Participation in the Community Maintenance Program was not examined in the present study.

Release type may be another key variable in the pathway between in-prison program participation and revocation. The findings suggest that completing high intensity programming may increase the likelihood that an offender is granted discretionary release (day/full parole). Offenders who were not granted full or day parole prior to serving two-thirds of their sentence (non-discretionary release) were 45% more likely to return to custody in comparison to those granted parole. In this study 38.6% of offenders in the Complete group were granted discretionary release, significantly higher than among the Not Enrolled (19.1%) and Incomplete (6.4%) groups. It is not surprising that early release would be offered to offenders who complete in-prison treatment; from the perspective of the Parole Board of Canada, these prisoners demonstrated a commitment to change and thus may be viewed as better prospects for release (e.g., lower risk of re-offending). Consideration of how the impact of early release may augment or reduce the effectiveness of programming is an important topic for further study.

While the results indicate that offenders who completed NSAP-H were more likely to be granted discretionary release than offenders who were assigned to but did not participate in the program, the findings related to the role of the National Substance Abuse Maintenance Program may illustrate the importance of follow-up maintenance programs in the community. Community aftercare reinforces lessons learned in prison-based treatment. Thus, the offenders who completed NSAP-H and also participated in related community aftercare were less likely to return to custody than offenders who completed NSAP-H and did not participate in the National Substance Abuse Maintenance Program in the community.

A large proportion of the Not Enrolled group had not been released during the study period (44.1%). In fact, offenders in this group had the longest sentence lengths, which suggests that offenders who were expected to be incarcerated for longer periods of time waited longer for treatment in favour of placing those with faster approaching release dates in treatment first. This finding may reflect the operational need to prioritize offenders with shorter sentences in light of the trend that more offenders are admitted to federal jurisdiction with shorter sentences and the role of program completion in parole release decisions.

CSC's Evaluation Branch also investigated NSAP-H's effect on release type and return to custody (Nafekh et al., 2009). This evaluation found that offenders who had participated in NSAP-H were less likely to return to custody with a new offence than those who had been assigned to the program but had not been enrolled. Nafekh et al. (2009) looked at returns to custody with new offences, including new convictions with federal or provincial sentences, while the present study examined any readmission to custody. The present study found that few offenders were revoked with a new offence, so that outcome was not examined separately. The evaluation study was very different from the present study with regards to methodology, inclusion/exclusion criteria, and timeframes, which limits the ability to make direct comparisons between the two studies. Nonetheless, together these studies increase support for the effectiveness of this program.

Initially, a fourth treatment group was considered in the present study: those who met the criteria for NSAP-H treatment (i.e., based on need and risk) but who had never been assigned to the program. Compared to the other groups, this group had a lower risk and lower need profile (other than drug use severity) and were thus more likely to be granted discretionary release. This group was more likely than program completers to incur a serious institutional charge, but the groups did not differ in hazard of returning to custody. This group was not included in the final

analyses because there is not a clear understanding regarding why these offenders did not receive a program referral. Further exploration of the characteristics of this group would be useful. Overall, the process used by correctional staff to make program recommendations is a topic worthy of further research as a means to develop a better understanding of why some offenders who have been assessed as needing treatment get access to the appropriate programming while others do not.

Motivation level was a significant factor in an offender's success in the community – a highly motivated offender was 36% less likely to return to prison compared to low motivation offenders. Offenders who were serving their current sentence for having committed a violent offence, had prior federal convictions, higher needs in the attitude domain, and more severe drug use problems were also at higher risk for revocation. Additionally, younger, married, Aboriginal offenders experienced higher rates of returns to custody. These results are consistent with extant research (Pelissier, Motivans, & Rounds-Bryant, 2005; Spiropoulos et al. 2005).

Aboriginal offenders were less likely to be engaged in institutional misconduct but more likely to return to custody while on conditional release. So while the program seemed to positively impact their conduct while incarcerated, there seemed to be little added benefit (with respect to revocation) during the follow-up period. CSC has developed an Aboriginal-specific high-intensity substance abuse program that was first introduced into the correctional environment in 2004. The Aboriginal Offender Substance Abuse Program (AOSAP) meets the cultural and spiritual needs of this group and has demonstrated better outcomes for this unique group than NSAP-H (Kunic & Varis, 2009).

Compared to non-Aboriginal offenders, Aboriginal offenders were less likely to be assigned to the National Substance Abuse Maintenance Program in the community. This is despite the fact that this population tends to present greater needs for intervention related to substance abuse. This discrepancy is likely due to the fact that the present study examined community aftercare only in the form of the National Substance Abuse Maintenance Program delivered in the community. Aboriginal offenders may have been referred to the Community Maintenance Program or to alternative community-based programming that is specifically tailored to the unique needs of the offender population. Although the present study did not look at these relationships, future research should investigate Aboriginal offender enrolment in community-based programming to confirm that this group's higher readmission rates are largely a product of their higher risks and needs.

The study findings should be interpreted within the context of the study design. The sample is drawn from offenders who had an identified need for high-intensity substance abuse treatment, therefore, participation in NSAP-H had the potential to improve their chances to be offered discretionary release by Parole Board of Canada. It is possible that the more motivated offenders were more likely to volunteer for treatment and to succeed with or without the intervention. The primary study group consisted of only those offenders who completed the program; so those highly motivated to succeed were more likely to complete NSAP-H. This is a valid concern and within our sample, 19% (n=206) of offenders who entered NSAP-H did not complete the program. However, if we separate those who left the program for administrative reasons (e.g. transfer, release, or reassignment), only 13% (136) did not complete the program as a result of suspension or quitting. Moreover, the incomplete participants remained in the study as a comparison group so as not to inflate the participation rate. In the context of research on offenders, randomly assigned treatment groups are often not possible and we lack a solid understanding of why some offenders participated in NSAP-H while others were assigned but did not participate in the program or did not receive a program referral. Lack of information also meant we were unable to include some potentially important variables in the regression models such as housing status, socioeconomic and unemployment status, community of release, social support and personal resource, all of which could influence the relationship between programming and success. Completion of NSAP is generally a pre-requisite of the National Substance Abuse Maintenance Program. Indeed, most of the National Substance Abuse Maintenance Program participants in the present study had participated in NSAP-H. However, the present study did not examine the interaction between participation in maintenance and participation in NSAP-H so it was not possible to determine whether maintenance was a mediator (e.g., explains the relationship between NSAP-H participation and return to custody) or moderator (e.g., influences the strength of the relationship between NSAP-H participation and return to custody) variable. The additive effect of the maintenance program on NSAP-H participation warrants further examination.

Conclusion

Several factors make this study unique. Very little research exists on the impact of substance abuse programming on institutional behaviour. As well, few programs have demonstrated success within such a large scale research setting. NSAP-H is delivered in federal

prisons across Canada and the study sample is drawn from the national source population. The findings suggest that a national substance abuse program can be a successful approach to reduce in-prison misconduct and return to custody among male prisoners. Few programs are designed to offer an entire continuum of treatment that responds to the unique needs of offenders and at different stages of their sentence. NSAP-H employs many motivational enhancement strategies to engage the offender; it is matched to the intensity of treatment needed by the offender based on the results of psychometrically sound assessments; and, overall, it draws from a range of behavioural and cognitive-behavioural techniques to remedy problematic behaviours.

Overall, the findings suggest that completion of NSAP-H may contribute to both safer prison environments and more successful reintegration of offenders. Offenders who started but did not complete the program were the most likely to engage in institutional misconduct and to return to prison in comparison to the other study groups. As well, aftercare participation influenced revocation whether or not NSAP-H had been completed. It would be of considerable value to explore methods of re-engaging offenders who did not complete the program and to increase exposure of all offenders to the community aftercare component regardless of their NSAP-H participation status.

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Appendices

Appendix A: Acquisition of Skills and Knowledge

Research has demonstrated that interventions incorporating cognitive behavioural and relapse prevention techniques can help offenders increase their decision-making abilities, self-control, and use of coping skills in dealing with high risk situations (Grant et al, 2003; Millson, Weekes, and Lightfoot, 1995; Peters, Kearns, Murrin, Dolente, & May 1993; Prendergast, Farabee, Cartier, & Henkin, 2002a). These results imply that the offenders who participated in these institutional substance abuse programs have enhanced their cognitive skills and changed their thinking and beliefs as a result of the program, making them better able to reduce their dependence on alcohol and drugs. The findings of Welsh (2010) suggest that greater emphasis must be placed on assessing psychosocial functioning (e.g. depression, anxiety, self-efficacy, self-esteem) to improve longer term outcomes. It was also found that offenders who differ on characteristics such as risk and motivation respond to treatment differently. Overall, research shows that with program participation comes improvement in knowledge of substance abuse, enhanced skills to cope with triggers and changes in attitudes about the dangers of substance abuse.

In addition to the primary sets of analyses presented in the main body of the report, additional analyses determined if exposure to the program facilitated the acquisition of skills and knowledge that have been shown to mitigate the risk of relapse to substance abuse. Specifically, program pre/post assessments were examined to investigate the program's impact on skills acquisition (e.g., improvements in coping self-efficacy as it relates to drug and alcohol high-risk situations, development and/or refinement of effective relapse avoidance methods, improved interpersonal skills). Although there has been little research on the effect of substance abuse programming on skills and knowledge acquisition, the few studies that have been conducted have shown that program completion was associated with increases in decision-making abilities, self-efficacy, effective use of coping skills, and knowledge about relapse prevention (Peters et al., 1993; Prendergast et al., 2002a). It was hypothesized that program completion would significantly increase offenders' knowledge of substance abuse and associated skills required to protect against relapse to substance abuse?

Measures

Standardized pre-post instruments: Addiction Research Centre Research databases were created to archive NSAP pre and post assessment measures and other related information. Six standardized measures are used to assess the degree to which an offender met the assessment targets which are as follows: situations, self-efficacy, coping, beliefs, and locus of control.¹⁰ Table 1 provides a listing of these instruments, the administration schedule (i.e., prior to and post NSAP-H participation), and the related assessment targets. All of these instruments were used to assess the participant's progress against treatment targets. Each scale is briefly introduced in the following paragraphs.

Misperceptions about substance abuse were measured by The Cravings Belief Questionnaire (CBQ) and the Beliefs About Substance Abuse (BASA; Beck, Wright, Newman, & Liese, 1993). Respondents are required to rate their level of agreement with each statement from low or “strongly disagree” to high or “strongly agree.” The psychometric properties of these instruments have not been published to date. The CBQ & BASA are grounded in Beck's cognitive model of addiction (Beck, et al. 1993). The model argues that individuals who tend to abuse substances hold three basic types of beliefs; anticipatory, relief orientation and permissive beliefs. Anticipatory beliefs refer to the expectation of reinforcement (e.g., "Using is the only way to increase my creativity and productivity."). Relief oriented beliefs are those that refer to the idea that physical or psychological withdrawal can only be controlled through continued use (e.g., "The cravings/urges won't go away unless I use drugs."); whereas, permissive beliefs refer to self-deceiving ideas that amount to rationalizations or excuses. They often neutralize the negative consequences of substance use (e.g., "I could not be social without using."). Both instruments assess commonly held self-defeating beliefs.

The 20-item CBQ measures commonly held misperceptions about cravings (e.g., "I'll always have cravings for drugs" and "I'll never be able to handle a craving"). Respondents use a 7-point scale to indicate their level of agreement with each statement. Similarly, the Beliefs about Substance Abuse questionnaire measure commonly held misperceptions about substance use (e.g., "I can't relax without drugs", and "I can't make my life fun unless I use").

The psychometric properties of the two instruments were unavailable at the time of the

¹⁰ Although the Inventory of Drug Taking Situations (IDTS) was administered both prior to and subsequent to NSAP-H programming, preliminary analyses showed no change from pre- to post-program. This makes sense, since the IDTS measures triggers to alcohol and/or drug use during the 12 month period prior to the respondent's current arrest during both administrations. For these reasons, the decision was made to drop this measure from the pre- post-program assessment analyses.

writing of this report.

Self-efficacy to resist drug use was assessed by The Drug Avoidance Self Efficacy Scale (DASES; Martin, Wilkinson, & Poulos, 1995) and The Drug Taking Confidence Questionnaire (DTCQ; Annis, Turner, & Sklar, 1997). The DASES is founded on Bandura's self efficacy theory. It is a 16-item scale that asks respondents to rate their level of self-efficacy to resist drug use in a variety of situations from low or "certainly no" to high or "certainly yes." That is, a high score indicates a high level of perceived ability to resist drug use in a given situation. The 7 point scale corresponds to a measure of strength of self-efficacy (Martin, Wilkinson, & Poulos, 1995). Sample items include: *"Imagine that you are going to a party where you will meet new people. You feel that drug/alcohol use will relax you and make you more confident. Could you avoid drug/alcohol use?"* and *"Imagine that a very important relationship just ended and you feel very depressed. Would you give in to the urge to take drugs/alcohol?"*

The psychometric properties of the scale are based on a sample of 373 young multiple drugs users (age 16-30) entering treatment (Martin, Wilkinson, & Poulos, 1995). Reliability and validity data are based on a subset of the original sample (n=162) with the following characteristics: mean age 22.4, 21% female, 42.9% with current legal problem, 63.6% unemployed and not in school, 15% with post secondary education. Subjects used 5.4 different classes of drugs on average in the previous 12 months. Mean duration of drug use was 5.8 years. Mean score on the Drug Abuse Screening Test (DAST-28) was 15.1. Cronbach's Alpha of .91 suggests good internal consistency (reliability). There is also evidence suggesting good convergent and predictive validity.

The DTCQ is based on its predecessor, the Situation Confidence Questionnaire developed by Annis (1982). It is grounded in Bandura's theory of self-efficacy and relapse prevention (Annis, Turner & Sklar, 1997). The DTCQ measures anticipatory coping self-efficacy as it relates to potential drug and alcohol relapse situations. The DTCQ specifically assesses a participant's belief in his or her ability to cope with potential relapse situations (Sklar, Annis, & Turner, 1999). It consists of 50 items across eight subscales: Unpleasant Emotions (10 items), Physical Discomfort (5), Pleasant Emotions (5), Testing Personal Control (5), Urges and Temptations to Use (5), Conflict with Others (10), Social Pressure to Use (5), and Pleasant Times With Others (5). Respondents indicate their level of confidence to resist the urge to use their drug of choice in each of 50 situations on a 6-point scale ranging from 0 or "not at all confident" to 100 or "very confident". The eight subscales relate to two major types of situations: Personal States (i.e., a person's response to an event that is primarily psychological or

physical) and Situation Involving Other People (i.e., in response to influence from another person or people). The eight subscales produce a confidence profile across eight drug taking situations.

Extensive exploratory and confirmatory factor analysis confirm an 8 factor solution. Norms are available for a mixed sample (N=713), primarily male (77.9%), of alcohol, cocaine, heroin, cannabis and other drug users. Cronbach's alpha's of .94 or better (for the two 10 item scales) and .79 to .95 (for the 5 item scales) provide strong support for the reliability of the DTCQ. There is strong evidence for the construct validity of the DTCQ and its subscales when compared to measures of addictions severity, locus of control, self-efficacy, depression and motivation (Sklar, Annis, & Turner, 1999).

Locus of control, as it relates to substance use, was assessed with The Drinking/Drug Related Locus of Control (DRIE; Donovan & O'Leary, 1978). The DRIE was adapted from the concept model and assessment method developed by Rotter (1975) to define an individual's beliefs about the extent to which the outcome of important life events are under personal control (internal locus of control) or under the influence of chance, fate, or powerful others (external locus of control). The DRIE translates generalized expectancies of control into a measure of specific expectancies dealing with a variety of drinking-related behaviours. That is, the DRIE assesses beliefs about locus of control with respect to the individual's perceptions of control over alcohol, drinking behaviour, and recovery. The DRIE has been found to differentiate between substance-dependent and non-dependent individuals, to be related to substance patterns among substance-dependent individuals, and to be predictive of post-treatment substance use behaviour, demonstrating the construct and criterion validity of the scale (Abbott, 1984; Kivlahan, Donovan, & Walker, 1983).

The scale consists of 25 items in a forced-choice format pairing an alternative indicative of internal locus of control with an alternative indicative of external locus of control. Respondents are required to choose the alternative that most closely represents their beliefs or behaviour. Sample items include: "*I can overcome my urge to drink.*" and "*Once I start to drink I can't stop.*" Donovan and O'Leary (1978) examined the reliability, factor structure, and validity of the DRIE. They found that DRIE scores were significantly correlated with other measures of control orientation, but not related to measures of cognitive function or depression, demonstrating the construct validity of the scale. In terms of reliability, their results suggested that the DRIE has a relatively high level of test reliability, achieving alpha and Kuder-Richardson coefficients of internal consistency of .77 and an unequal-length Spearman-Brown

split-half reliability coefficient of .70. Factor analysis has indicated that the DRIE is comprised of three meaningful dimensions: interpersonal, intrapersonal, and general (Donovan & O’Leary, 1978).

Understanding of relapse prevention coping behaviours was measured by The Effectiveness of Coping Behaviours Inventory (ECBI; Litman, Stapleton, Oppenheim, & Peleg, 1984). This scale has respondents rate the effectiveness of relapse avoidance methods that alcohol abusers use to prevent high risk situations. Respondents rate coping strategies from low or “usually doesn’t stop me” to high or “usually stops me.” A Principal Components analysis of the 36-item ECBI supports the following four factor solution:

- a) Positive Thinking (e.g., Reminding myself of the good life I can lead without drink)
- b) Negative Thinking (e.g., Thinking of the mess I've got myself into through drinking)
- c) Avoidance: (e.g., Forcing myself to go to work)
- d) Social Support (e.g., Telephoning a friend)

Successive studies suggest that a flexible coping strategy in combination with the experience of effective use or mastery of these strategies protect against relapse. Positive Thinking and Avoidance strategies, when identified as effective, were significantly related to outcome post-treatment (Litman, et al., 1984). Norms are available for alcohol abusers of both genders with a median age of 38.

Table A1
Instruments Administered Prior and Subsequent to NSAP-H Participation

Standardized Instruments Administered	ProgramPhase		Assessment Targets	Desired Change
	Pre	Post		
1. Beliefs about Substance Abuse (BASA)	3	3	Beliefs - General	Decrease
2. Craving Beliefs Questionnaire (CBQ)	3	3	Beliefs - Cravings	Decrease
3. Drug Avoidance Self Efficacy Scale (DASES)	3	3	Coping - Drugs	Increase
4. Drinking/Drug Related Locus of Control (DRIE)	3	3	Locus of Control	Decrease
5. Effectiveness of Coping Behaviours Inventory (ECBI)	3	3	Coping - Alcohol	Increase
6. Drug Taking Confidence Questionnaire (DTCQ)	3	3	Self-Efficacy	Increase

Analyses

To determine the effect of program exposure upon participants’ development of skills and

knowledge needed to mitigate the risk of relapse into substance use, within-subjects repeated measures analyses of variance (ANOVA) were performed using SAS GLM (SAS Institute Inc., Cary, NC, USA). Repeated measures ANOVA are predicated on a standard set of assumptions associated with an ordinary analysis of variance: normality and sphericity (replacing the assumption of homoscedasticity). Normality is assumed and, fortunately, repeated measures ANOVA is robust to violations in normality. Sphericity refers to homogeneity of covariance between pairs of treatment levels, however, this assumption can only be violated when there are more than two levels (time points). When there are only two levels, as is the case in this analysis (i.e., pre and post program participation), there is no problem with sphericity.

Results

Program effectiveness was measured based upon the gains made (from pre- to post-program participation) in the skills and knowledge required to manage substance use problems among offenders who fully participated in NSAP-H. Five measures were used to assess change in attitudes, beliefs, self-efficacy, and coping skills from the pre- to post-program period.

For each of the pre- and post-instruments (previously presented in Table A1) a repeated measures analysis of variance (ANOVA) was conducted to determine if responses differed pre- and post-program. Post gains from pre to post would suggest that NSAP-M was successful in helping offenders acquire greater understanding of addiction. The means, standard deviations, average change in scores, and *F*-test results are presented in Table A2. There was a significant change from pre- to post-test in the expected direction for each of the scales. Specifically, following participation in NSAP-H participants were significantly less likely to endorse commonly held misperceptions about substance use ($F(1, 284) = 120.32, p < .001$) and cravings ($F(1, 282) = 213.26, p < .001$), according to analyses of the results of the BASA and CBQ, respectively. According to DASES analyses, participants rated themselves as having a significantly higher level of self-efficacy to resist drug use in a variety of situations after participating in NSAP-H, ($F(1, 315) = 372.82, p < .001$). Analyses of the DRIE demonstrated that participants were more likely to believe that life events were under personal control following participation in NSAP-H, ($F(1, 297) = 169.73, p < .001$). Comparisons of pre- and post-NSAP-H programming scores on the ECBI showed that participants rated their ability to use coping strategies effectively significantly higher following participation in NSAP-H, $F(1, 188) = 80.35, p < .001$.

Table A2

Means, Standard Deviations (SD), Average Change in Scores, and Repeated Measures ANOVA for Self-Report Assessments, Pre- and Post-NSAP-H

Assessment Instrument	N	Pre	Post	Average Change	F	Desired Change
Belief About Substance Abuse (BASA)	285	41.9 (20.0)	28.5 (14.0)	-13.5 (20.7)	120.32*	Decrease
Cravings Beliefs Questionnaire (CBQ)	283	63.9 (23.3)	42.8 (19.0)	-21.1 (24.3)	213.26*	Decrease
Drug Avoidance Self-Efficacy Scale (DASES)	316	65.6 (19.0)	89.3 (17.1)	23.7 (21.8)	372.82*	Increase
Drinking/Drug Related Locus of Control (DRIE)	298	6.2 (4.6)	2.5 (3.1)	-3.6 (4.8)	169.73*	Decrease
Effectiveness of Coping Behaviours Inventory (ECBI)	188	36.7 (19.7)	51.8 (18.5)	15.1 (23.1)	80.35*	Increase

* $p < .0001$

Analyses were performed separately for each of the Drug-Taking Confidence Questionnaire (DTCQ) subscales pre- and post-NSAP-H programming, considering alcohol use and drug use separately (Table A3). For each of the subscales, there was a significant change from pre- to post-test in the expected direction. Specifically, after participating in NSAP-H, participants reported significantly improved coping self-efficacy for both drugs and alcohol in the areas of unpleasant emotions, physical discomfort, pleasant emotions, personal control, urges and temptations, conflict with others, social pressure to use, and pleasant times with others.

Table A3

Means, Standard Deviations (SD), Average Change in Scores, and Repeated Measures ANOVA for the Drug-Taking Confidence Questionnaire, Across Eight Subscales, Pre- and Post-NSAP-H

DTCQ Subscales	N	Pre	Post	Average Change	F
Alcohol-specific					
Unpleasant Emotions	200	58.5 (29.7)	83.3 (21.3)	24.8 (32.7)	114.88*
Physical Discomfort	200	68.4 (28.3)	87.3 (20.8)	18.9 (30.9)	75.28*
Pleasant Emotions	200	69.0 (27.7)	87.7 (20.5)	18.7 (30.0)	77.39*
Personal Control	200	57.0 (31.7)	77.6 (26.5)	20.6 (35.8)	66.08*
Urges and Temptations	200	59.0 (29.6)	81.1 (22.8)	22.1 (32.7)	91.03*
Conflict with Others	200	62.6 (29.3)	85.1 (21.4)	22.6 (31.4)	103.41*
Social Pressure to Use	200	56.9 (31.3)	82.4 (22.8)	25.5 (35.0)	105.86*
Pleasant Times with Others	200	58.4 (30.4)	84.0 (20.2)	25.6 (33.1)	120.14*
Drug-specific					
Unpleasant Emotions	206	53.9 (30.2)	85.2 (18.9)	31.2 (32.7)	187.44*
Physical Discomfort	206	63.0 (29.9)	88.5 (19.3)	25.5 (31.8)	133.04*
Pleasant Emotions	206	68.0 (29.9)	89.6 (19.4)	21.6 (32.3)	91.92*
Personal Control	206	50.3 (33.0)	80.0 (26.2)	38.3 (68.0)	124.66*
Urges and Temptations	206	51.5 (30.1)	82.5 (20.3)	31.1 (33.7)	174.91*
Conflict with Others	206	60.1 (30.8)	88.1 (18.8)	27.9 (32.5)	152.12*
Social Pressure to Use	206	51.0 (31.4)	83.0 (20.5)	32.0 (33.6)	186.37*
Pleasant Times with Others	206	56.8 (30.5)	85.8 (19.0)	29.0 (33.3)	156.44*

* $p < .0001$

Note: Although each participant may have filled out up to three DTCQs for three different types of drug, only the DTCQ for each participant's primary drug of choice was used to ensure data independence.

Discussion

The skills and knowledge obtained through theory-driven programming provide substance addicted offenders with the tools they require for lifestyle change and self-monitoring. As hypothesized, offenders who completed NSAP-H demonstrated significant gains in the attitudes, beliefs, and thinking needed to counter patterns of behaviour that lead to substance abuse. Offenders who successfully completed the program left with coping strategies, problem solving skills, basic social skills, and relapse prevention planning which they can use to decrease their susceptibility to substance abuse.

Following participation in NSAP-H, participants rated themselves as less likely to endorse commonly held misperceptions about substance use, believed they had a significantly higher

level of self-efficacy to resist drug use in a variety of situations, felt they were more likely to believe that life events are under personal control, and assigned higher ratings to the effectiveness of various coping strategies. Offenders who participated in NSAP-H also reported a significantly improved ability to cope with unpleasant emotions, physical discomfort, pleasant emotions, personal control, urges and temptations, conflict with others, social pressure to use, and pleasant times with others, without resorting to the use of drugs and alcohol.

This is consistent with the current literature which indicates that programming rooted in cognitive behavioural therapy has greater success in creating behaviour change. Researchers have found that cognitive-behavioural substance abuse therapy leads to better coping skills, decision-making, and self-efficacy, and fewer misperceptions about substance abuse (Grant et al., 2003; Millson et al., 1995; Peters et al., 1993; Prendergast, Podus, Chang, & Urada, 2002b). Research has also shown that these factors have been found to predict success following substance abuse treatment (Abbott, 1984; Adamson et al., 2009; Walton, Blow, Bingham, & Chermak, 2004). Nonetheless, the assessment results can only show evidence of a change in thinking that is necessary for behaviour change, not evidence of the behaviour change itself. Other outcomes, institutional misconduct and recidivism, that are more directly linked with behaviour change greatly augment evidence of program success.

One limitation is the inability to model the changes incurred in knowledge, skills, and attitude from pre-program to post-program as a predictor of either institutional misconduct or return to custody. Unfortunately, the assessment information was only available for a small proportion of the NSAP-H Complete group.

Appendix B: Institutional Charges

Institutional Charges

Generally, when the post-treatment and pre-treatment risk periods were compared, fewer offenders who completed NSAP-H incurred a charge for disobeying an order, damaging/destroying property, fighting/assaulting/threatening other inmates, possessing contraband, possessing an unauthorized item, and jeopardizing security. On the other hand, participants who completed NSAP-H were more likely to incur a charge for theft, being disrespectful or abusive towards staff, failing or refusing to provide a urine sample, refusing to work or leaving work, and disobeying a written rule during the post-treatment and in-treatment risk periods than during the pre-treatment risk period (see Table B1). Participants who did not complete NSAP-H had a similar distribution of institutional charges across risk periods (see Table B1). Between the pre-program and post-program risk period, the most notable decreases among those who partially completed NSAP-H occurred for possessing/dealing in contraband and possessing an unauthorized item.

Table B1

Distribution of types of institutional charges for complete and incomplete NSAP-H participants by pre-treatment, in-treatment and post-treatment risk periods

NSAP-H Complete Participants (N=862)			
Institutional Charge	Pre-Treatment (%)	In-Treatment (%)	Post-Treatment (%)
1. Disobey order	7.63	4.81	4.95
2. Prohibited area	0.88	1.60	1.01
3. Damage/destroy property	2.22	0.73	1.24
4. Theft	0.10	0.15	0.62
5. Possession stole property	0.10	0.00	0.15
6. Disrespect/abusive to staff	9.48	8.75	9.91
7. Provoke violence	0.21	0.15	0.39
8. Fights/assaults/threatens	2.63	0.87	2.40
9. Possess/deal in contraband	10.72	10.93	10.37
10. Possess unauthorized item	13.51	13.70	12.07
11. Consume intoxicant	4.02	4.52	4.18
12. Fail/refuse urine sample	2.53	2.19	2.79
13. Create/participate in disturbance	0.67	0.29	0.62
14. Create/participate to jeopardize	2.73	2.33	2.48

security			
15. Escape/assist escape	0.0	0.00	0.00
16. Offer/give/accept bribe	0.05	0.00	0.00
17. Refuse/leave work area	1.49	0.44	1.78
18. Engage in gambling	0.15	0.29	0.39
19. Disobeys written rule	40.67	48.25	44.43
20. Attempts/assists to commit unspecified act	0.21	0.00	0.23
Total number of charges	1940	686	1292
NSAP-H Incomplete Participants (N=206)			
Institutional Charge	Pre-Treatment (%)	In-Treatment (%)	Post-Treatment (%)
1. Disobey order	6.96	1.44	6.44
2. Prohibited area	1.91	2.40	0.41
3. Damage/destroy property	2.48	1.44	2.86
4. Theft	0.19	0.00	0.31
5. Possession stole property	0.29	0.48	0.41
6. Disrespect/abusive to staff	7.91	9.62	9.70
7. Provoke violence	0.10	0.00	0.41
8. Fights/assaults/threatens	2.96	1.44	4.90
9. Possess/deal in contraband	11.44	16.83	8.58
10. Possess unauthorized item	14.20	11.54	10.83
11. Consume intoxicant	2.86	1.92	2.15
12. Fail/refuse urine sample	2.48	3.85	2.66
13. Create/participate in disturbance	0.57	0.48	0.72
14. Create/participate to jeopardize security	1.53	2.88	2.76
15. Escape/assist escape	0.00	0.00	0.00
16. Offer/give/accept bribe	0.00	0.00	0.00
17. Refuse/leave work area	2.10	0.00	1.53
18. Engage in gambling	0.19	0.00	0.00
19. Disobeys written rule	41.75	45.67	45.15
20. Attempts/assists to commit unspecified act	0.10	0.00	0.20
Total number of charges	1049	208	979

Table B2

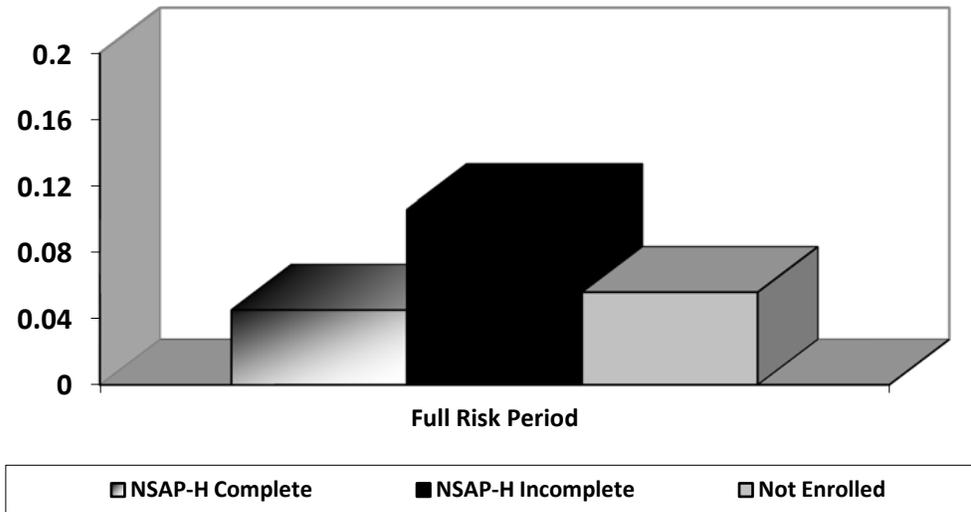
Distribution (%) of the types of institutional charges for offenders who were assigned to NSAP-H but not enrolled

Institutional Charge	Not Enrolled (N=1314) (%)
1. Disobey order	8.37
2. Prohibited area	0.60
3. Damage/destroy property	2.70
4. Theft	0.19
5. Possession stole property	0.22
6. Disrespect/abusive to staff	9.12
7. Provoke violence	0.42
8. Fights/assaults/threatens	4.85
9. Possess/deal in contraband	10.31
10. Possess unauthorized item	12.31
11. Consume intoxicant	2.39
12. Fail/refuse urine sample	2.68
13. Create/participate in disturbance	0.80
14. Create/participate to jeopardize security	2.68
15. Escape/assist escape	0.02
16. Offer/give/accept bribe	0.01
17. Refuse/leave work area	0.67
18. Engage in gambling	0.23
19. Disobeys written rule	41.19
20. Attempts/assists to commit unspecified act	0.25
Total Charges	8523

The rate of institutional charges for offenders was compared across program exposure groups for the pre-program risk period (i.e., the period of time spent incarcerated prior to participating in NSAP-H), the in-program risk period, and the post-program risk period. Figure 1 presents the serious charges incidence rate for the three program exposure categories over the full risk period. Essentially this represents the number of charges per offender month at risk for the study period. The NSAP-H Complete group had the lowest rate of serious charges (I=0.05 per offender-month), followed by the Not Enrolled group (I=0.06). The Incomplete group had

the highest incident rates (I=0.11).

Figure B1. Incident Rates of Serious Charges by Program Exposure Per Offender-Month at Risk (N=2382)¹¹



The incidence rate ratio (*IR*), which compared the rates of serious charges for participants who only partially completed NSAP-H to the participants who completed the program, indicated higher rates of serious institutional charges for the former group across all three risk periods. Specifically, participants who did not complete the program had 1.94 (95% CI 1.68-2.25), 2.91 (95% CI 2.15-3.91) and 2.78 (95% CI 2.39-3.22) times the rate of serious institutional charges during the pre-program, in-program and post-program risk periods, respectively, compared to participants who completed the program.

¹¹ The pre-program, in-program, and post-program comparisons includes only offenders who accessed NSAP-H (Complete and Incomplete Groups).