

Exploring the Impact of the Segregation Intervention Initiative on Offender Outcomes

by

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### Abstract

Administrative Segregation (AS) is the correctional practice of removing an offender from the general inmate population, and relocating him/her to an isolated cell for up to 23 hours a day. This is done for the safety and security of the individual or the institution. There are concerns around the use of AS including its impact on mental health and the lack of access to services for offenders. The purpose of the Segregation Intervention (SI) is to help transition offenders out of AS and to change problem behaviours. The current study explored the impact of the SI using a retrospective cross-sectional design with data drawn from a Canadian sample of offenders. SI participants ( $n = 292$ ) were 2 times more likely to participate in correctional programs and to complete said programs within a 6-month follow-up period, compared to a matched group of non-participants ( $n = 292$ ). SI participants were also 1.5 times more likely to be employed by the institutions. This study offers preliminary evidence to support the use of interventions in AS, and sets a trajectory for future research looking at programming in segregation.

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## Exploring the Impact of the Segregation Intervention Initiative on Offender Outcomes

In 2007, Ashley Smith, a young woman with a history of mental illness took her own life in a federal Canadian correctional institution. Three years later, an Aboriginal man by the name of Edward Snowshoe hanged himself in another correctional facility. What these two tragic cases share in common was that the victims were both confined to segregation cells when the suicides occurred. Over subsequent years as a result of these two cases, the Canadian news media took a particular interest in the use of “solitary confinement” in correctional institutions (Story & Desson, 2013; Wingrove, 2014). This controversy around segregating prisoners from the general offender population is marred by the dark history associated with the term “solitary confinement.”

The concept of solitary confinement emerged during the early 1800s from the Quaker idea that silence and darkness would offer offenders time to seek penitence through personal reflection (Arrigo & Bullock, 2008; Graber, 2008; Rogers, 1993). Characterized by extreme sensory deprivation and neglect, these earlier methods were often found to result in the physical and psychological impairment of offenders (Arrigo & Bullock, 2008; Grassian & Friedman, 1986; Kurki & Morris, 2001). Although the merits of solitary confinement as an offender management tool have been long-debated given the purported negative effects of prolonged isolation on human health and behaviour (Bukstel & Kilmann, 1980; Grassian & Friedman, 1986; Haney, 2003; Kaba et al., 2014; Metzner & Fellner, 2010; Smith, 2006), correctional institutions still

continue to “segregate”—a term more commonly used in North American correctional facilities—offenders from the general offender population for a variety of reasons. Nevertheless, in response to the growing concern, some correctional jurisdictions have begun to develop interventions and programs to minimize the usage of segregation and to avoid its potential negative impacts (Kupers et al., 2009; Wong et al., 2005). One such program is the Segregation Intervention (SI) initiative, which was implemented by the Correctional Service of Canada (CSC) in 2011. The purpose of the current study is to explore the relationship between the SI and indicators related to its effectiveness. This paper will begin with a conceptual overview of offender segregation, why it is used, and how it is practiced in Canada. This will be followed by a review and analysis of some of the more salient problems concerning the practice of segregation, a discussion on the need for targeted programming for segregated offenders and, finally, a description of the SI Initiative.

### **Segregation: An Operational Reality**

In a qualitative study conducted by Rivera (2010), correctional staff were interviewed from across Canada and many of them spoke about the “changing population of inmates and its impact on the use of segregation as a population management tool” (p. 25). They suggested increases in gang activity, offenders with mental health problems, and younger offenders who tend to be less respectful of their peers and staff as important factors. Some argue that

segregation is a necessary measure for offender management (Rowe, 2013; Samuels Jr., 2014), and others propose that there might be benefits to isolating offenders such as reducing the victimization and corruption of new and vulnerable offenders by career criminals (Rogers, 1993). Generally speaking, offenders who are more difficult to manage are segregated from the general offender population if they are considered to be threats to the safety and security of the correctional institution. However, Butler, Griffin, and Johnson (2012) found evidence to suggest that this phrase (i.e., threats to the safety and security of the institution) may be invoked as a catchall to segregate difficult offenders in order to maintain orderly prison environments. Therefore, the question arises: Are segregated offenders, in fact, composed of a group of offenders who are distinctly more difficult to manage?

Consider that compared to their non-segregated counterparts, segregated offenders typically have had more contact in the past with the criminal justice system—as youth and as adults—and experience more adjustment difficulties during their incarceration such as interpersonal conflicts with peers and staff, institutional incidents, involvement with security threat groups or engagement with gang-related activities, and difficulties with personal safety in the general population (Coid et al., 2003; Motiuk & Blanchette, 1997; O’Keefe, 2007, 2008; Wichmann & Nafekh, 2001; Wichmann & Taylor, 2004). Compared to non-segregated offenders, when assessed at intake segregated offenders pose a higher risk to reoffend, have more needs

related to their criminality, and are less likely to succeed when released back into the community (Motiuk & Blanchette, 1997; O'Keefe, 2007; Wichmann & Nafekh, 2001; Wichmann & Taylor, 2004). Additionally, segregated offenders are more likely to have had substance abuse (Motiuk & Blanchette, 1997; Wichmann & Taylor, 2004) and interpersonal problems (Bonta & Gendreau, 1990; Motiuk & Blanchette, 1997; Wichmann & Taylor, 2004; Zinger, Wichmann, & Andrews, 2001).

The operational challenge of effectively managing offenders with the above characteristics is, indeed, a correctional reality that cannot be dismissed. Furthermore, although the merits of segregation are still contested by both academics and correctional administrators, its use has evolved into a diversity of approaches to isolating offenders who are having trouble integrating within the general offender population. As a result, there are now a number of terms being used in the literature to refer to this practice such as penal isolation, administrative segregation, dissociation, isolation, seclusion, protective custody, solitary confinement, and disciplinary segregation (or detention). Zinger et al. (2001) explain that these terms describe a wide range of administrative policies, restrictions to movement, and levels of sensory deprivation.

### **Segregation in Canadian Federal Corrections**

During segregation, offenders typically spend 23 hours a day in an isolated cell where severe auditory, visual, and kinesthetic restrictions are placed on the offender (Gendreau &

Labrecque, in press). There are two types of segregation employed in the federal correctional system in Canada: disciplinary and administrative. On the one hand, disciplinary segregation is applied to offenders who are found guilty of a serious disciplinary offence under paragraph (f), subsection 44(1) of the Corrections and Conditional Release Act (CCRA; 1992). However, disciplinary segregation only represents 2.2% of all admissions to segregation in Canada (Zinger, 2013). On the other hand, when specific legal requirements are met and there are no reasonable alternatives, administrative segregation (AS) is used to “maintain the security of the penitentiary or the safety of any person” (CCRA, 1992, Sec. 31 [1]) by separating offenders from the general population. More simplistically, disciplinary segregation is applied as a punishment for serious offences that have already occurred, whereas AS is typically used as a measure to prevent future incidents from occurring. Unlike disciplinary segregation—which has a maximum stay of 30 days—the duration of an offenders’ stay in AS is indeterminate; although they are to be released as early as appropriate (CCRA, 1992, Sec. 31 [2]). It is for this reason (i.e., to shorten the time spent in segregation) that the SI Initiative was developed specifically for administratively segregated offenders (CSC, 2013a) and why AS was the focus of the current study.

**Reasons for segregation.** According to Section 31 of the CCRA (1992, p. 20), offenders can be confined to AS if the institutional head believes on reasonable grounds that:

- a. the inmate has acted, has attempted to act or intends to act in a manner that jeopardizes the security of the penitentiary or the safety of any person and allowing the inmate to associate with other inmates would jeopardize the security of the penitentiary or the safety of any person;
- b. allowing the inmate to associate with other inmates would interfere with an investigation that could lead to a criminal charge or a charge under subsection 41(2) of a serious disciplinary offence; or
- c. allowing the inmate to associate with other inmates would jeopardize the inmate's safety.

Since offenders can be segregated at their own request (CSC, 2014a)<sup>1</sup>, the voluntary/involuntary distinction is often made, but this distinction is not as useful in distinguishing between groups of segregated offenders as are the reasons outlined in Section 31 of the CCRA – an argument that has found empirical support in some Canadian studies. For example, Zinger et al. (2001) examined the effects of 60 days in AS and found no significant differences in mental health and psychological functioning between voluntary and involuntary cases. Also, Wichmann and Nafekh (2001) examined a Canadian sample of 48,732 segregation

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<sup>1</sup> Although Commissioner's Directive 709 was revised in 2015 (shortly before this dissertation was completed), the 2014 version will be used here given that the offenders in this study were admitted to AS based on these guidelines.

placements and found no significant differences between voluntary and involuntary cases in age at admission, sentence length, or Aboriginal status. In 1997, Motiuk and Blanchette conducted a descriptive analysis of all Canadian federal offenders in segregation as of the date of their investigation ( $N = 799$ ; voluntary = 45.2%). In this comprehensive analysis, the researchers found very few variables that distinguished between voluntarily and involuntarily segregated offenders. Specifically, no significant differences were found between the two groups on age, level of risk to reoffend, or security rating. The researchers also found no significant between-group differences on criminal history variables, except for previous (adult) provincial terms of incarceration and sex offence history. The authors reported that 86% of voluntarily segregated offenders had previous provincial incarcerations compared to 77% of involuntarily segregated offenders. They also found voluntarily segregated offenders to be more likely to have a current or previous sex offence (27%) than involuntarily segregated offenders (18%). Furthermore, they found voluntarily segregated offenders to have been more likely to report being victimized in social interactions, which may be related to their sex offence histories.

Although these latter results indicate differences that might be based on the voluntary/involuntary distinction, offenders are more precisely distinguished by the reason for which they were segregated. For example, sex offenders who are being victimized in the general

offender population are more likely to be segregated for their own safety (Bottos, 2007; Rivera, 2010) regardless of whether the decision was voluntary or not.

Although these findings compel us to conclude that voluntarily segregated offenders are more or less the same as their involuntarily segregated counterparts, some authors maintain that it is not possible for these two groups to share the same experience (Roberts & Gebotys, 2001). Roberts and Gebotys use the following analogy to illustrate their position: “the experience of isolation on a desert island will be quite different depending upon whether you were marooned as a result of a shipwreck, or whether you arrived as a volunteer hoping to win a million dollars as part of a TV show” (2001, p. 87). Although there are obvious concerns with the generalizability of such an analogy, there are also concerns that voluntarily segregated offenders tend to remain in segregation for considerably longer periods of time than involuntarily segregated offenders, perhaps due to their concern for personal safety (Bottos, 2007); however, there is little solid evidence available to support this claim.

Given that there is little evidence to support the voluntary/involuntary distinction as an important factor in distinguishing between the types of administratively segregated offenders, and also because the CCRA and CSC segregate offenders based on the reasons outlined in the CCRA, the current study did not distinguish between voluntary and involuntary placements in segregations.

**Segregated offenders in Canada.** From 2014-2015, of offenders incarcerated for at least one day in a federal institution, 26% of male offenders and 46% of female offenders were admitted to segregation at least once (Office of the Correctional Investigator, 2015). From 2013 to 2014 there were a total of 8,137 admissions to AS in Canada's federal correctional institutions (Public Safety Canada, 2014). Approximately 96% of these segregations were male ( $N = 7,790$ ), which reflects rates in similar American facilities (O'Keefe, 2007). Furthermore, 29% were of Aboriginal decent ( $N = 2,402$ ), and 18% were voluntarily segregated<sup>2</sup> ( $N = 1,509$ ). On April 1, 2014, 749 offenders were serving time in AS (male = 740), which accounts for 4.9% of the total federal offender population ( $N = 15,327$ ) and, of these, 228 (or 30%) were Aboriginal offenders (Public Safety Canada, 2014). Of offenders in AS, 47.4% stay for 30 days or less, 18.3% between 30 and 60 days, and 18% for more than 120 days. On average, 92.9% of women stayed in AS for less than 30 days. The literature also shows that segregated offenders are, on average, younger than non-segregated offenders (Coid et al., 2003; Motiuk & Blanchette, 1997; O'Keefe, 2007; Wichmann & Nafekh, 2001).

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<sup>2</sup> Considerably lower than Motiuk and Blanchette (1997) because these numbers reflect "admissions" to segregation, i.e., a single offender can have multiple admissions.

### **Problems that Stem from Segregation**

As mentioned previously, between 2013 and 2014 the Canadian news media took a particular interest in the use of segregation in federal prisons. In 2013, a heated national discourse was centered on a report written by the Office of the Correctional Investigator (OCI; Zinger, 2013), where concerns were raised around the purported excessive use of segregation in Canada (Makin, 2013; Story & Desson, 2013). The OCI's concerns included—but were not limited to—an over-reliance on the use of segregation to manage offenders with mental disorders, who engaged in self-injurious behaviours, and who are at risk of suicide; a disproportionate number of suicides and self-injuries in segregation; a disproportionate number of Aboriginal offenders in segregation; and a lack of measures in place to monitor segregation placements. Based on a thorough review of the literature, a number of the more salient problems concerning segregation have been identified and will be discussed below.

**The effect of prolonged isolation on mental health.** The literature suggests that rates of mental disorder and psychological distress are typically higher amongst those in segregation compared to offenders in the general population (O'Keefe, 2007, 2008; Soderstrom, 2007; Stewart, Wilton, & Sapers, 2015; Zinger et al., 2001). O'Keefe (2007) found prevalence rates for offenders with a mental disorder in segregation at one large American prison ( $N = 17,393$ ) to be disproportionately high (35-40%, compared to 20-25% in the general offender population). They

also found the presence of a mental disorder to be the third strongest predictor of AS classification (the first and second were involvement with a security threat group and being male, respectively). In Canada, however, Motiuk and Blanchette (1997) found no differences in rates of mental disorder at admission between segregated and non-segregated offenders in Canadian federal institutions. These discrepant results may simply be due to differing practices between jurisdictions or regional base rates. Notwithstanding, there is an ongoing debate in the literature around whether negative mental health outcomes are *caused* by segregation or not.

On the one hand, Smith's (2006) review shows that "solitary confinement" is strongly correlated with psychological health problems. He argues, "Between one-third and more than 90% of offenders experience adverse symptoms in solitary confinement, and a significant amount of this suffering is caused or worsened by solitary confinement" (p. 502). Smith explains that although complete and total isolation is not practiced anywhere in North America, the important factor is that "socially and psychologically meaningful contact is reduced to a minimum" (p. 448), and proposes this as the "central harmful feature" (p. 503) of segregation. Similarly, Miller (1994) found higher levels of distress and symptomology with higher levels of inmate restrictions. Specifically, those in disciplinary segregation (highest level of restriction) reported the highest levels of psychological distress, followed by those in AS (medium level of restriction) and, finally, those in the general population (lowest level of restriction). It is

important to note here that, in both of these studies, the authors acknowledged that it was not simply segregation that resulted in psychological harm, but rather the duration of segregation and the level of restriction being employed.

On the other hand, Zinger et al. (2001) employed a longitudinal quasi-experimental design (eight-month period) to test the effects of segregation on mental health. Sixty offenders (23 segregated and 37 non-segregated) were tested for mental health and psychological functioning upon admission to segregation, at 30 days, and again at 60 days. The authors found that segregation for 60 days in Canadian correctional institutions did not negatively affect the offenders' mental health and psychological functioning. However, due to their high refusal (44% for segregated offenders and 40% for non-segregated offenders) and attrition rates (completed data for the 60-day period was only available for 28% of segregated offenders and 70% of non-segregated offenders), the results of the Zinger et al. study must be interpreted with caution. In 2013, O'Keefe et al. raised the bar of scientific rigor in this domain with their groundbreaking longitudinal study looking at the long-term impacts of segregation on psychological health. They hypothesized that, relative to non-segregated offenders, segregated offenders would experience psychological deterioration over time, and that pre-existing mental health problems would only exacerbate this deterioration. With a relatively large sample size ( $n = 270$ ), O'Keefe et al. examined five offender groups: offenders in AS with and without mental illness, offenders in the

general population with and without mental illness, and “unmanageable” mentally ill offenders transferred to a special needs correctional facility. Offenders were then assessed with the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983), which is a widely used clinical instrument with demonstrated reliability and validity that assesses individuals for the presence of psychological symptoms and can capture change over time (Boulet & Boss, 1991; Kellett, Beail, Newman, & Frankish, 2003). After their first assessment, the offenders were re-tested every three months for a full year. Counter to their initial hypothesis, O’Keefe et al. found that although the offenders in AS had higher rates of psychological symptoms at baseline compared to non-segregated offenders, all five groups showed significant improvement over the one-year follow-up. Moreover, the rates of improvement were the same for all the groups. Therefore, this study suggests that offenders generally adapt to the correctional environment over time, even with pre-existing mental health conditions.

To study the relationship between segregation and mental health researchers must employ a high degree of methodological rigor. For example, the O’Keefe et al. (2013) study had a large sample size, a low attrition rate (11%), carefully selected comparison groups, a longitudinal design, employed a valid and reliable measure of psychological functioning that assesses a diversity of symptoms, and utilized a sophisticated approach to statistical analysis (Helmus, 2015). Researchers also need to address the considerable variation in how segregation is

operationally defined (e.g., Smith uses the term “solitary confinement,” which implies a higher level of isolation and lack of access to programs and services than would be found in Canadian AS), must take care not to draw causal inferences from correlational data, and be cautious about extending generalizations based on small samples and controlled experimental studies (Jackson, 2001; Smith, 2006; Zinger et al., 2001). Consequently, the results presented above are seemingly discrepant because some studies employ experimental designs, which seek to isolate cause and effect, whereas others are correlational and merely take a snapshot of mental health at a given point in time.

Bonta and Gendreau (1990) offered a parsimonious resolution to this stalemate; namely, it may not be segregation that causes mental harm to offenders, but how offenders are managed within institutions and their individual differences upon admission – a position that would later be reiterated by Zinger et al. (2001) and Gendreau and Labrecque (in press). Regarding the management of offenders, Bonta and Gendreau (1990) argued that:

Although prison populations may fluctuate widely, corresponding changes in the number of supervisory staff, counselors, and programs rarely occur. When the population is large, there are fewer correctional staff to monitor behavior and provide inmates with the opportunities to learn adaptive coping skills. The management of prisons and prison systems may account for some inmate disturbances. (p. 354)

The importance of individual differences in predicting segregation placements found support in a study conducted by O’Keefe (2008). O’Keefe examined the personality profiles of 663 administratively segregated offenders in a Colorado super-maximum facility and found that, at intake, offenders with “schizoid, narcissistic, antisocial, aggressive, passive-aggressive, schizotypal, and borderline personality characteristics or delusional thoughts had a greater propensity for later placement in [AS]” (p. 137). The author of this study argued that such personality profiles characterize individuals who typically have a harder time adjusting to life within the institution, and engaging with peers or correctional staff. Indeed, this same study found that offenders were rarely placed in AS on the basis of their offence. Rather, their placement in AS was typically due to disruptive institutional behaviour.

Notwithstanding the ongoing debate in the literature, professionals have spoken out against the use of prolonged isolation for offenders with mental disorders and have demanded improved confinement conditions and programs (Metzner & Fellner, 2010; Stern, 2014).

**Effects of institutional segregation on self-injurious behaviour and suicide.** Related to the issue of mental health is that of self-injurious behaviour and suicide. Studies have found evidence that suggests a relationship between segregation in correctional institutions and self-injurious behaviours and/or suicide. For example, in a recent study by Kaba et al. (2014) it was found that self-injurious behaviour—after controlling for variables such as gender, age, ethnicity,

serious mental disorder, and length of stay—was significantly associated with being in “solitary confinement” at least once. Similarly, compared to offenders who either engaged in less extensive self-injurious behaviour or none at all, offenders who engaged in three or more forms of self-injurious behaviour while in prison were found to be twice as likely to be committed to long-term AS (Lanes, 2011). In another study, offenders being treated for Axis-I mental disorders—who also committed self-injurious behaviours before AS—had less “self-injury-free” time after AS (*Mdn* = 2.03 months) compared to those in the general population (*Mdn* = 17.20) (Lanes, 2009).

Researchers continue to argue that AS facilities are high-risk settings for inmate suicide (Daniel, 2006; Konrad et al., 2007; Sánchez, 2013). Indeed, a number of American studies have found data to support this claim. In 2008, a review was conducted of all the 154 suicides that occurred in the California Department of Corrections and Rehabilitation between 1999 and 2004 (Patterson & Hughes, 2008). Their results showed that 46% of all suicides occurred in AS or “secure housing” units. They also found that 39 of 74 (53%) of the suicides that occurred in AS or secure housing happened within three weeks of admission into AS. In another study, White and Schimmel (1995) analyzed 86 suicides that occurred within the Federal Bureau of Prisons between 1983 and 1992 and found that 68% were confined to “special housing” units, which included AS. Similarly, Way, Sawyer, Barboza, and Nash (2007) examined all the suicides that

occurred between 1993 and 2003 in the New York State prison, and found that 24% of these occurred in “special housing” units where offenders are confined for 23 hours a day. Of course, from these retrospective studies it can only be inferred that segregation was a contributing factor to suicide. As mentioned before, it is likely that suicide in AS is the result of a complex interaction between variables such as mental health, level of isolation, and staff conduct towards the offender. Interestingly, Zinger et al. (2001) found that 40% of segregated and 33% of non-segregated offenders said they had thought of committing suicide, whereas 22% of segregated and 29% of non-segregated offenders said they had attempted suicide (these numbers were collapsed across both voluntary and involuntary segregations). The latter could be explained by the stricter precautions taken in segregation units to prevent suicides.

**Segregation impedes progress on offenders’ correctional plan.** Perhaps the most undeniable concern, researchers argue that segregation will ultimately impede an offenders’ progress on his or her correctional plan (Bottos, 2007; Maghan, 1999; Wichmann & Nafekh, 2001). Wichmann and Nafekh (2001) posit that program completion is “inextricably linked to an offender’s ability to cascade to lower levels of security” (p. 2), which is problematic since research has shown that placement in segregation accounts for up to one-quarter of the variance in security reclassification decisions in Canadian corrections (Luciani, 1997a). Furthermore, segregated offenders are less likely to be granted discretionary release or early release than non-

segregated offenders (Motiuk & Blanchette, 2001; Wichmann & Nafekh, 2001; Wichmann & Taylor, 2004), which ultimately reduces their access to community programs. One American author summarized the impact of segregation on correctional programming as follows:

This “solution” to dangerousness and violence has a stultifying effect on prison programs, operation, and inmate and staff morale. The segregated prisoners are much harder to service, and their attitude toward staff can become extremely hostile. The inmates violate rules more often, and the guards seek to punish them with more infractions that require time in administrative and punitive [disciplinary] segregation. The population of these units can thus tend to become permanent, precipitating a very dangerous situation.

(Maghan, 1999, p. 11)

Therefore, any program or intervention that would keep offenders out of segregation, or would shorten the amount of time spent in segregation should, in turn, help an offender’s chances of advancing along their correctional plan. Of course, to make such an argument it is necessary to have a coherent theoretical model, backed by empirical research, which is capable of resolving two questions: (a) why are segregated offenders more maladjusted to the institution, and (b) why should targeted programming (or interventions) mitigate this maladjustment?

### **Understanding the Effects of Segregation: A Theoretical Model**

Gendreau and Labrecque (in press) describe two schools of thought regarding the effects of AS. The first depicts AS as a psychologically crippling form of torture. The second school of thought presents AS as being far less severe in its effects, and only for certain offenders under less than ideal prison environments. To address these claims, the authors pose the following logic: “If AS represents the most powerful prison ‘dosage’ that results in the most psychological pain amongst inmates, it would be reasonable to assume that being exposed to a lesser dosage of prison should produce psychological distress, although to a lesser extent.” This argument articulates an underlying assumption that is made by the critics of AS; namely, that incarceration has negative effects on psychological health. To address this assumption, the authors present the Importation model, which is a robust theoretical model that accounts for the variations in the response to incarceration amongst offenders.

The importation model rejects the view that the prison environment is a closed system, which fully accounts for offender outcomes during incarceration (Thomas & Foster, 1973). Instead, it acknowledges the influence of pre-prison socialization and “extraprison” factors that predict an offender’s capacity to cope within the institution. Simply put, if the offender had difficulty coping on the outside, they will have trouble coping on the inside (Zamble & Porporino, 1990). Within the context of this framework, the negative effects of AS can be

attributed to the offender's inability to cope in general, as opposed to the conditions of their confinement. Indeed, the empirical evidence presented earlier seems to present strong support for this theory in relation to AS. Namely, segregated offenders are assessed as higher risk and need at intake, and personalities that have a harder time adjusting to life within the institution are more likely to be placed in AS (Motiuk & Blanchette, 1997; O'Keefe, 2007, 2008; Wichmann & Nafekh, 2001; Wichmann & Taylor, 2004).

### **Programs in Segregation**

According to the above review, confining offenders to segregated units can, at the very least, derail an offender's progress on his/her correctional plan since AS units are typically not designed to offer programming. Furthermore, confinement in AS typically ensures that the offender is not learning any new skills, which would help him cope with life inside and outside the institution. Wichmann and Nafekh (2001) argue that moderating the use of segregation would ultimately result in positive outcomes for offenders and correctional institutions. Furthermore, they assert that more effort should be devoted to developing alternatives to segregation.

Although these suggestions may be correct, the operational reality indicates that such foundational changes are unlikely to occur in the near future. Instead, many researchers contend that the best course of action is to implement programs before, during, or after placement in segregation to reduce problem behaviours and to keep offenders in the general population, which

will, in turn, allow them to continue to follow their correctional plan (Berger, Chaplin, & Trestman, 2013; Rivera, 2010; Rogers, 1993; Sánchez, 2013; Stern, 2014; Wong et al., 2005; Zinger et al., 2001). Moreover, many of these authors argue that for programs to work institutions must employ the risk, need, and responsivity (RNR) model of offender rehabilitation (Andrews, Bonta, & Hoge, 1990; Bonta & Andrews, 2007; Gendreau & Keyes, 2001) to develop carefully targeted programs for offenders. Briefly, the risk principle posits that offenders who are more likely to reoffend (high-risk) should receive more intensive services, while low-risk offenders need minimal service. The need principle posits that services should target factors amenable to change that are associated with criminal conduct (i.e., criminogenic needs; among the most important factors are antisocial behaviour, associates, and attitudes) if they are to be effective in reducing reoffending. Finally, the responsivity principle posits that the style and mode of service should be matched to the learning style and abilities of the offender. Meta-analytic research supports this model by showing that, when all three principles are employed, rehabilitative programs could expect to see up to 30% reductions in reoffending (Andrews et al., 1990; Dowden & Andrews, 1999a, 1999b, 2000). Gendreau and Labrecque (in press) take this suggestion a step further and argue that by modeling treatment programs on the RNR model, which has been shown to be very effective at reducing institutional misconducts among the general offender population (French & Gendreau, 2006), correctional institutions could minimize

and discourage the use of AS. Specifically, the RNR model necessitates the use of high intensity programs for high-risk offenders that target criminogenic factors, and these programs typically focus on changing problematic behaviours and cognitive distortions, and teaching coping skills – all features that would reduce the likelihood of an offender being segregated due to institutional maladjustment.

In theory, the idea of providing programming to segregated offenders may seem straightforward given all that has been learned through research. However, there are numerous operational challenges to implementing such programs: finding appropriate therapeutic environments within segregation units, building rapport with correctional staff and enlisting their support for the program, allocating time to work with offenders (especially since finding space for therapy can be difficult), identifying appropriate outcome variables and maintaining accurate records for the purpose of program evaluation, and securing funding, to name a few.

Notwithstanding these challenges, there have been some scattered efforts across North America to implement programs for segregated offenders, mostly in the form of step-down programs. A step-down program is a transitional strategy that seeks to facilitate the reintegration of segregated offenders by first moving them to a treatment focused facility where security is maintained, but clinical needs can be met (Wong et al., 2005). Unfortunately, little research has been conducted

to further our understanding of the efficacy of these programs for segregated offenders, but two such efforts will be reviewed below.

**A Canadian step-down transitional program.** Occasionally, when offenders pose serious security threats and cannot be integrated into a maximum-security institution, they can be transferred to a super-maximum security facility (Amellal, 2006). In Canada, there is currently only one such facility referred to as the Special Handling Unit (SHU). Offenders in the SHU are very closely monitored and individual freedoms are highly restricted. In the sense that it imposes greater restrictions on offenders and is used to protect offenders and staff in the general population, the SHU is similar to AS and poses many of the same challenges as described above. In 2005, Wong et al. reported on the results of a step-down program that was developed to facilitate the reintegration of SHU offenders into lower security institutions. This systematic reintegration process involved intensive assessment and high-intensity treatment for sex offenders, violent offenders, offenders with mental disorders, and female offenders. Furthermore, the step-down program provided individualized and group interventions adhering to the RNR principles with a primary focus on reducing the risk of violence, institutional misconduct, and reoffending. The researchers found that 80% of the SHU offenders ( $n = 31$ ) were able to return to the general offender population and remained there for the 21-month follow-up period after being discharged from the treatment facility. They also found that offenders spent less time in the

SHU after treatment than before, and that institutional offense rates were significantly reduced.

Despite this finding, the study was limited by the fact there was no control group, so a relationship between program participation and target outcomes can only be inferred.

**The Mississippi experience.** In an effort to address the inhumane conditions in Unit 32 at Mississippi State Penitentiary (a 1,000-cell supermaximum security facility, which included cells for AS), the Mississippi Department of Corrections (MDOC) implemented a number of changes in their classification system and programming (Kupers et al., 2009). In addition to more objective classification criteria for admitting offenders to AS, the MDOC developed a step-down treatment program for offenders with severe mental disorders (SMI). As a result, Mississippi State Penitentiary witnessed a 70% drop in serious incidents. The authors argue that “prisoners with SMI tend to suffer psychiatric deterioration and get into disciplinary trouble in supermax administrative segregation; as such, they fare much better in treatment programs” (p. 1047).

Both of these programs utilized the step-down method to help transition high-risk and high-need offenders (especially those with severe mental disorders) from segregation into the general population. Indeed, to date, approaches to programming for segregated offenders seem to focus mainly on screening out those with severe mental disorders at admission to, or during, AS. Although they may be effective, such programs are resource intensive since they often require moving offenders to separate institutions, typically clinical in nature, for programming and

treatment. Also, research has yet to identify groups within the typical segregation population (beyond those with severe mental health needs) who would benefit most from programming.

Ideally, correctional institutions should implement preventative measures modeled on the RNR principles in order to discourage the practice of segregation (i.e., high-risk and high-need offenders would be placed in high intensity treatment programs instead of AS). However, given the operational reality of correctional practice, an alternative approach may be required that can be adapted to the existing infrastructure. Accordingly, the CSC implemented the SI Initiative to motivate and support offenders already admitted to AS.

### **The SI Initiative**

In October of 2002, the Motivation Based Intervention Strategy (MBIS) was developed to incorporate motivation enhancement interventions that would target offenders who were resistant to existing correctional programs and planning (CSC, 2010). The MBIS attempted to address high rates of offenders in segregation and low rates of program participation by increasing motivation and teaching skills to improve attitudes and behaviours. The MBIS was implemented at the SHU on April 2003, and was later built into the SI, which was at that time called the Segregation Pilot Program (SPP). The SPP failed to meet standard CSC program criteria since it was not modeled on the RNR principles (e.g., it did not address criminogenic

factors). However, these issues were later addressed with the development of the SI Initiative (CSC, 2006).

The SI Initiative was rolled out in 2011 across seven federal maximum-security institutions in Canada: Atlantic Institution, Donnacona Institution, Port-Cartier Institution, Kingston Penitentiary, Saskatchewan Penitentiary (maximum security unit), Edmonton Institution, and Kent Institution (CSC, 2013b). The intervention is currently only being offered to male offenders, as 95% of all segregated offenders are male and 82% of women in AS are released within 30 days. The purpose of the SI is to “motivate and support segregated offenders to change their problematic behaviour and reintegrate into the offender population where they can work on the goals outlined in their Correctional Plan” (CSC, 2013a, p.7). The intervention aims to accomplish these goals by enhancing motivation to participate in correctional programs with the MBIS, and through teaching skills that improve attitudes and behaviours with six skills workshops, all while targeting criminogenic needs (CSC, 2006). The intervention includes: The Assessment phase, the Problem-Solving phase, and the Cognitive-Change phase (CSC, 2013a).

During the Assessment phase a decision is made as to whether the offender should be referred to SI or not and, if the offender accepts, he/she is asked to sign a consent form to participate in the program. Referrals are made after reviewing the offender’s file for criminogenic needs, their program targets, progress made on their correctional plan, the reason

for their segregation, and any responsivity issues. It is important to note here that each region<sup>3</sup> determines its own criteria for referring offenders to the SI; however, administrators are encouraged to identify offenders who would benefit most from the intervention (CSC, 2013a).

The Assessment phase also allows the program facilitator to establish a working alliance with the offender and to set goals for the intervention. The SI expects the program facilitator to use the Motivational Interviewing (Miller, 1996) techniques and the Stages of Change model (DiClemente & Velasquez, 2002), which are outlined in the SI User's Guide (CSC, 2013a), to build commitment to change from the outset rather than just focusing on skills acquisition.

Motivational Interviewing (MI) is an approach that requires clinicians to express empathy, support self-efficacy in the client, and to help clients resolve ambivalence and commit to change (Hettema, Steele, & Miller, 2005; Miller, 1996; Miller & Rollnick, 2012). A meta-analytic study of 72 clinical trials conducted by Hettema et al. (2005) found MI to have small to medium effects in improving health outcomes, particularly in dealing with addictive behaviours. Consequently, MI has gained popularity amongst correctional agencies in the United States in facilitating offender change (Lowenkamp, Holsinger, Flores, Koutsenok, & Pearl, 2013; McMurrin, 2009), and a recent study conducted in New Zealand demonstrated that MI can have a significant

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<sup>3</sup> Federal correctional facilities in Canada are divided into five regions: Atlantic, Quebec, Ontario, Prairie, and Pacific

positive impact on criminal risk in male prisoners (Anstiss, Polaschek, & Wilson, 2011).

Clinicians who employ MI often conceptualize behaviour change using the Stages of Change model (DiClemente & Velasquez, 2002). According to the Stages of Change model, changing problem behaviour involves progressing through six stages: precontemplation (not intending on taking action to change), contemplation (intending to change), preparation (intending to take action soon), action (taking action to change), maintenance (working to prevent relapse), and termination (the return to problematic behaviour is no longer an issue) (Prochaska & DiClemente, 1982; Prochaska & Velicer, 1997). Preliminary research has found this model to be useful in understanding offender change (Polaschek, Anstiss, & Wilson, 2010).

The offender then transitions into a Problem-Solving phase where the program facilitator provides problem solving strategies “to recognize and change the behaviour that prompted segregation” (CSC, 2013a, p. 58). These strategies involve three skills workshops that the program facilitator can employ at his or her own discretion: Self-Monitoring, Interpersonal Skills, and the FOCUS Problem Solving model. A more thorough description of these workshops is outside the scope of this paper, but can be found in the Phase 2 Annex of the SI User’s Guide.

Finally, in the Cognitive-Change phase the offender “applies the skills and techniques learned,” in a self-management framework, to explore alternatives to criminal behaviour (CSC, 2013a, p. 90). To this end, three skills workshops are provided for the program facilitator to use

with the offender: the ABC model (a core cognitive behavioural model that helps participants understand the relationship between thinking and behaviour), Disputing Harmful thinking and beliefs, Arousal reducing strategies, and Anger Control skills (for more detail, see CSC, 2013a).

Ultimately, the aim of the SI is to get offenders out of segregation by facilitating attitudinal and behavioural change. Offenders are assessed upon referral to segregation in order to provide them with the appropriate programming. Practical motivational and cognitive behavioural approaches are then used to help the offender correct their own behaviours, thoughts, and attitudes. Two significant factors in the success of this process are motivation and compliance, which can be developed early in the SI process. Importantly, offenders can “complete” the intervention at any point along the three phases by “exiting segregation.” Therefore, there is no particular timeline for this process.

**Outcomes of interest.** Key to the development of the SI Initiative was identifying outcome variables, which could later be used to assess the efficacy of the program. To determine if the SI Initiative was achieving its primary goals, the Institutional Reintegration Operations (IRO) division at the CSC required SI administrators to track the following indicators: the number of referrals to SI; the number of case work records (an electronically filed report that caseworkers are required to submit whenever they engage with the offender); interim and final report completions for SI; the number of institutional incidents after SI; the number of

segregation releases and readmissions after SI; and the number of days spent in segregation with and without the intervention (CSC, 2013a).

Although some of this information was examined in the current study, additional variables were also selected that are indicative of successful intervention. To understand how outcome variables were selected for this study it is important to briefly review the need principle of the RNR model. According to the need principle, correctional treatment should be focused on dynamic factors that are linked directly to criminal behaviour, otherwise known as criminogenic needs. Bonta and Andrews (2007) explain that “criminogenic needs can come and go unlike static risk factors” that can only increase in risk and are “immutable to treatment intervention” (p. 5). Therefore, in addition to factors directly related to an offender’s admission to segregation and the SI, the current research looked at the impact of the SI on antisocial behaviour—one of the central criminogenic needs (Andrews, Bonta, & Wormith, 2006). As mentioned earlier, segregated offenders have been found to have more problems with institutional adjustment than non-segregated offenders; therefore, the current research explored indicators of institutional adjustment (e.g., incidents and charges) as proxies for antisocial behaviour.

Furthermore, high risk offenders have been found to be less responsive to correctional programming and, therefore, are less motivated to change (Stewart & Millson, 1995; Wormith & Olver, 2002). Given that one of the goals of the SI program is to motivate offenders to be

engaged with their correctional plan, greater participation in correctional programming was one of the anticipated outcomes of the SI. Therefore, the current study also explored involvement with correctional programming as an outcome variable.

### **Exploratory Research Methodology**

Given the dearth of research in the area of segregation programming, it was hypothesized that the results of this study would mirror those of similar studies looking at the effectiveness of RNR-based programs on offender outcomes. However, there are some limitations in the current design that restrict causal inference.

Briefly, in a prospective experimental research design, a random sample of individuals is drawn from the population of interest and then randomly assigned to either a group that is receiving a treatment (the experimental group), or one that is receiving no treatment (the control group) (Holland & Rubin, 1988). Next, confounding factors are identified and controlled for and the causal agent (or treatment) is applied. This high level of control allows the researcher to isolate the causal agent and, therefore, attribute changes in participant responses to the treatment being applied. Finally, participant responses are recorded to measure outcomes and the two groups are compared for statistical differences. If carefully implemented, this design can allow the researcher to infer whether or not the treatment of interest is the causal agent influencing change in the outcome of interest (Holland, 1986; Holland & Rubin, 1988).

The current study, however, was retrospective in that the treatment (or causal agent) and outcome have already occurred in the past (Holland & Rubin, 1988). In a retrospective design, the data is collected and then an attempt is made to establish a link between treatment exposure and the outcomes of interest. Therefore, random assignment is impossible since the participants are selected based on whether they received a treatment or not. Consequently, the lack of randomization in the current study limits the ability to draw causal inferences from the data.

Another limitation to using a retrospective design is that there is very little control in how the SI was implemented and delivered between correctional facilities. Indeed, during quarterly conference calls with the correctional institutions it was learned that many obstacles were faced while trying to deliver the intervention. Moreover, there was enough variation in how each program officer operationalized components of the SI to doubt the degree of consistency between regions. This, in itself, makes it difficult to draw any certain conclusions regarding the effectiveness of the intervention.

Additionally, any rigorous methodology looking at the effects of an intervention on offender outcomes must be able to examine change. That is, it is necessary to have baseline or pre-test scores to compare outcome or post-test scores to. Otherwise, the study is simply correlating a snapshot in time to a causal agent, rather than observing change over time. Given that a pre-test/post-test design was not employed, there is no way to tell whether the differences

between the two groups were due solely to the SI or other factors. Therefore, since change was not analyzed by comparing post-test results to baseline scores, the effectiveness of programming on offender “change” was not addressed.

In light of these limitations, an explanatory approach was not applied to the current research. An explanatory study seeks to address a formal hypothesis, which takes the form of “if X then Y” (Shields & Tajalli, 2006), or as it relates to the current topic, “if offenders participate in the SI then institutional misconduct will decrease.” However, such an explanation is not possible given the limitations of this study. Therefore, the current study was approached as a preliminary or exploratory endeavour. Consequently, a “working-hypothesis” was presented in the form of expectations based on existing research, but with the awareness that caution should be taken in the interpretation of the results. Shields and Tajalli (2006) articulated the tentative nature of the working hypothesis as follows: “Working hypotheses direct inquiry because they help to establish the connection between the research question and the types of evidence used to test the hypothesis” (p. 320).

### **Current Study**

The current study was conducted to determine if the SI was achieving its mandated purpose and to study the impact of the strategy on offender behaviour. This study had three overarching aims:

1. To explore the relationship between participation in the SI and intermediate outcomes, including institutional incidents and charges, program participation, and returns to segregation;
2. To explore and identify outcomes that are most strongly related to participation in the SI, which could lead to refining the list of indicators related to participation in the intervention; and
3. To explore and identify subpopulations who might benefit from this type of intervention since, currently, it is being offered to all offenders based on their physical location in segregation at a maximum-security institution.

Given that the SI was modeled on the RNR principles, that attention was given to assessing offender needs during the Assessment phase of the program, and MI techniques were employed it was hypothesized that the offenders who participated in the SI would demonstrate improved behaviour during the latter part of their incarceration, have fewer returns to segregation, and have higher program involvement and completion compared to segregated offenders who did not participate in the SI.

## Method

### Design

This study used a static group comparison design. There was one independent variable, exposure to the SI, with two levels: Any exposure to the SI (Intervention group) and no exposure to the SI (Comparison group). Initially, SI “refusers” (i.e., those who refused participation in SI) were included as a third level in the design. However, all offenders who had been offered SI and refused ( $n = 29$ ) had also agreed to participate in SI at some other point in their sentence. Therefore, it was not possible to isolate a sub-group of “refusers” in the sample.

Intermediate outcome data from AS release up to a fixed-follow up period or the end study date (May 31, 2015) was included in this study. To determine the fixed follow-up period, a calculation was made of the average time for all offenders between AS release and the end study date (623 days). A second calculation was then conducted to determine how many offenders from both groups had their end study date within six, nine, and 12 months after AS release, which was 80%, 78%, and 75% respectively. Next, data from the Intervention group was examined to identify the number of offenders who would be removed from the dataset by applying each of the three aforementioned follow-up times. It was determined that using the six-month follow-up period would retain the most cases. Shorter follow-up periods (e.g., three-

months) were not considered, as they were too short to be indicative of any meaningful effects resulting from the SI.

Intermediate outcome variables fell under two broad categories: Institutional Adjustment and Program Involvement, which acted as proxy measures for behaviour change and the motivation to return to (or to start) correctional programming, respectively – the primary goals of the SI. A further breakdown of the outcome variables will be provided in the section below titled Data Source.

## **Participants**

**Changes to facility information.** Between 2011 and 2015, a number of changes occurred with federal correctional institutions in Canada. During this period the SI was being offered at ten institutions: Atlantic, Donnacona, Port-Cartier, Kingston Penitentiary, Millhaven Maximum, Millhaven Assessment Unit, Collins Bay, Saskatchewan Penitentiary Maximum, Edmonton, and Kent. However, the closure of Kingston Penitentiary in late 2013 that resulted in offenders being transferred to the Millhaven and Collins Bay institutions, and the clustering of federal institutions in Saskatchewan on April 2014, created discrepancies in the AS data. Therefore, the institutions in the database were restricted to those maximum-security facilities that had continuous availability of AS within the study period.

**Intervention group.** The Intervention group consisted of 399 male offenders who were referred to the SI program between Nov. 1, 2011 and April 1, 2014, and who accepted participation. Information from each offender's first AS with a SI referral<sup>4</sup> (referred to as index AS) was extracted for this group with May 31, 2015 serving as the maximum follow-up date. This timeframe allowed for a fixed follow-up period of 6-months to have elapsed during which intermediate outcomes could be measured. Only the offender's first admission to SI was of interest; however, if the offender had multiple SI referrals during their sentence then "accepted" referrals took precedence over "refused." The first admission to SI was used to limit the carry-over effects of prior experience with SI and segregation (Roberts & Gebotys, 2001; Suedfeld, Ramirez, Deaton, & Baker-Brown, 1982). In similar research looking at the impact of solitary confinement, researchers have argued that the only way to establish effects is to "test individuals immediately upon their first experience" (Suedfeld et al., 1982, p. 312).

**Program completion.** A preliminary examination of the SI data showed that many offenders had multiple entries into the intervention that were labeled as "complete" or "incomplete." The number of "completes" and "incompletes" varied appreciably by institution and, therefore, each institution seemed to have been defining these two terms in its own way. Importantly, the SI is only considered "completed" when the offender exits segregation (CSC,

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<sup>4</sup> Offender may have had a previous AS period during which he did not participate in the SI

2013a), not at the end of a particular stage, as is the case with most programs. Despite this, an attempt was made to explore SI completion further by taking a closer look at the SI completed and SI incomplete variables. Further examination of the SI data showed that incompletes included transfers, releases (although it is not certain if this means release from the institution or AS, and it likely varied from facility to facility), suspensions, and reaching the warrant expiry date (WED; the official end date of the criminal sentence). Given the variability in how institutions operationally defined “incomplete,” it was not possible to isolate this effect. As a result, any level of participation in the SI would qualify offenders for the Intervention group.

***Missing release dates.*** Fourteen cases from the 399 SI participants were missing segregation release dates. This meant that there could be no follow-up information for these offenders given that a 6-month follow-up period had to be available in order to determine the timeframe from which to pull intermediate outcome data. Therefore, these fourteen cases were removed from the final dataset.

**Comparison group.** The Comparison group was drawn from the same institutions as the Intervention group, and consisted of 2,683 male offenders admitted to AS between April 1, 2008 and April 1, 2011. To avoid the potential carryover effects of prior segregation experience, the first AS on the first sentence within the study period was selected as the “index AS” for this group. The information from each offender’s index AS was then extracted for this group with

Nov. 1, 2011 serving as the maximum follow-up date. This timeframe also allowed for a fixed follow-up period to have elapsed during which intermediate outcomes could be measured. If the offender was offered the SI any time after April 1, 2011 the data from this portion of their incarceration was excluded.

**Exclusionary criteria.**

*MBIS participants.* In October of 2002, the MBIS was developed to target offenders who were resistant to existing correctional programs and planning. Later it was built into the SI strategy at six maximum-security institutions (Atlantic, Edmonton, Port Cartier, Kingston, Donnacona, and Kent Institutions). The MBIS, which was eventually incorporated into the SI, attempted to address the high number of administrative segregations, and the low rates of program participation by the offenders in segregation. The MBIS targeted offender motivation and taught skills to improve attitudes and behaviours. An evaluation of the MBIS identified multiple factors that prevented the proper implementation and assessment of the intervention (CSC, 2010). What little data was available, however, suggested that the MBIS was not effective at reducing rates of “involuntary” segregation. The Comparison group for the current study consisted of offenders who were incarcerated during a period when the MBIS was being offered. This is problematic because participation in the MBIS might have distorted the result of the current study. For example, an offender who participated in the MBIS would, in theory, be more

motivated to participate in correctional programming than an offender who did not. Therefore, all offenders who participated in the MBIS and related programming during their segregation were excluded from the dataset.

***Minimum time in AS.*** During the preliminary review of the data, it was discovered that some offenders were spending extremely short periods of time in SI and others were starting the SI before being admitted to AS. This posed a methodological concern for the study, as it was important to select a comparison group of offenders who had spent the same minimum length of time in AS as those in the Intervention group. Based on this, and the fact that a review typically occurs during the first five days in segregation (CSC, 2014a), it was decided to only include offenders who had spent a minimum of 6-days in SI for the Intervention group, and 6-days in AS for the Comparison group. By doing this, it was ensured that both groups received the same minimum level of exposure to AS, and that all the offenders in the “experimental group” spent the same minimum amount of time in the intervention.

***Temporary releases from segregation.*** When an offender enters AS, CSC begins tracking the number of days they spend in segregation. If they complete segregation and are released back into the general offender population then the total number of days spent in AS is represented by a variable labeled “AS Accumulated Days Completed.” However, if the offender is removed from AS and then readmitted to AS on the same calendar day as their last admission

regardless of facility, type, or reason, then the total number of days spent in AS is represented by a variable labeled “Total Accumulated Days Completed.” Consequently, in situations where an offender is removed from segregation on a temporary basis (e.g., for a hospital visit) and then readmitted to AS after more than 24 hours, the return to AS would be recorded in this dataset as a return. A ‘fix’ for this type of situation (labelled as “continuations”) was instituted in the OMS on March 18, 2013 (CSC, 2013c), but because it was not recorded this way previously and it was not possible to detect such situations through the existing data, these types of consecutive segregations—where the offender returns from a temporary release of more than 24 hours—were always recorded as returns in this study.

### **Data Source**

CSC staff extracted the data for this study from the Offender Management System (OMS; CSC, 2013d), an automated database maintained by the CSC to manage federal offender information. The offender files included demographic information, criminal history, static and dynamic risk assessment results, and behavioural indicators related to institutional performance. These data provide meaningful research variables related to the assessment of the interventions effectiveness.

### **Intake Assessment**

Demographic and sentence variables were drawn from the Offender Intake Assessment (OIA). Briefly, the OIA is a comprehensive and integrated evaluation conducted at admission to the correctional institution, and can be updated at later points along the offender's sentence. It consists of the offender's criminal history, social situation, education and other factors required for determining criminal risk and offender need (Motiuk, 1997). Given that the OIA information was being used to explore demographic and risk variables upon admission to AS, the most recent OIA information took precedence.

**Demographic and sentence information.** The demographic variables included in this study consisted of age, race, and sex. Sentence information included in this study consisted of aggregate sentence length, sentence type (e.g., determinate or indeterminate), sentence number (i.e., which federal sentence are they serving: first, second, etc.), WED, admission date, and facility at the time of intake.

**Static and dynamic risk factors.** Two components of the OIA were used to measure offender risk and need: The Static Factors Assessment (SFA) and the Dynamic Factors Identification and Analysis (DFIA). The SFA provides comprehensive information pertaining to the criminal history and static risk factors of each offender. The SFA yields an overall level of static risk (low, medium, or high), assigned to offenders at their time of admission. As mentioned

previously, static risk factors—unlike dynamic factors—are historical factors that are immutable to change and only increase in one direction (i.e., increased risk). Static risk factors have been consistently found to be the strongest predictors of future reoffending (Hilton, Harris, & Rice, 2006).

The DFIA assesses a wide variety of contributing dynamic factors grouped into seven domains (employment, marital/family, associates and social interaction, substance abuse, community functioning, personal and emotional orientation, and attitude), with each domain consisting of multiple indicators. The DFIA yields need levels for each domain, as well as an overall level of dynamic need. The overall need level also ranges from low to medium to high. In a study using three large cohorts of male ( $N = 15,479$ ), female ( $N = 765$ ), and Aboriginal ( $N = 2,593$ ) offenders, the DFIA demonstrated moderate to strong predictive and content validity (Brown & Motiuk, 2005). More specifically, offenders found to score high across the seven domains were more likely to return to federal custody during a three-year fixed follow-up period. The statistical reliability of the DFIA was also assessed in this study by looking at its internal consistency (or to what extent each of the indicators are related to one another). However, the results were inconsistent across the three cohorts and for specific domains and indicators. Therefore, recommendations were made to enhance the efficiency of the DFIA, which resulted in the creation of the DFIA-R. Unfortunately, due to the nature of the changes made, it is not

possible to map domain scores from the DFIA onto domain scores for the DFIA-R (Brown & Motiuk, 2005). Given that this study includes offenders who may have been assessed with the DFIA and offenders who were assessed with the DFIA-R, only the overall level of dynamic need was utilized. Also, although further disaggregation of DFIA-R scores could be conducted— a step that would help identify sub-groups that respond differentially to the SI – this analysis was not within the scope of this study.

**Potential for reintegration and security level.** Two further components of the OIA that were included in this study are the offenders' security level designation (ranked as minimum, medium, or maximum) and Reintegration Potential (RP; ranked as low, moderate, or high). The security level designation is derived from the Custody Rating Scale (CRS). The CRS consists of two, independently scored subscales: the Institutional Adjustment subscale (five items) and the Security Risk subscale (seven items) (Luciani, 1997b). These items consist of static risk factors such as age, history of substance use, criminal history, severity of index offence, escape history, and history of involvement with institutional incidents (CSC, 2014b). Typically, scores on each item increase as the frequency of incidents increase, and higher combined subscale scores result in a higher security classification. Using a sample of 6,745 federal offenders, the CRS was found to be a reliable measure for assigning discrete security classifications to newly admitted offenders (Luciani, 1997b). Furthermore, these classifications were found to be significantly

correlated with institutional adjustment patterns, escape risk, discretionary release potential, and conditional release adjustment.

RP is determined in two ways. For non-Aboriginal offenders the CRS, the Revised Statistical Information on Recidivism (SIR-R1; Nafekh & Motiuk, 2002)—a scale that combines 15 items to yield a probability estimate of re-offending within 3-years after release—and the static factor rating are used. However, for Aboriginal and women offenders the CRS and the static and dynamic factor level ratings are combined to calculate RP (CSC, 2014c). The predictive validity of RP ratings at admission was assessed using a sample of 8,298 male federally sentenced offenders (Motiuk & Nafekh, 2001). In this study, high RP was found to be significantly associated with the likelihood of discretionary release ( $r = .26$ ), while lower RP was found to be significantly associated with a greater likelihood of returns to custody ( $r = .27$ ), and returns with a new offence ( $r = .16$ ).

**Segregation information.** The following segregation specific variables were gathered directly from the OMS, and included in the analysis: the number of days spent in the index AS and in the SI, and the reason for the index AS (i.e., jeopardizing safety of the institution, jeopardizing the offender's safety, and interfering with an ongoing investigation).

For the “reason for segregation” a new variable was computed that accounted for the number of instances within a continuous period of segregation. For example, an offender could

be administratively segregated for three days to maintain the safety and security of the institution and then, perhaps, be transferred to another facility where he continues his AS, but for the reason that associating with other inmates might jeopardize his own safety. This example demonstrates how an offender could have two or more reasons for segregation within a continuous period of AS.

### **Outcome Variables**

**Institutional incidents and charges.** The total number of institutional incidents and charges after the index AS up to the fixed-follow up period were included in this study. Incidents were grouped into two variables based on the categorization labels used in OMS: (a) Victim/Intervener, and (b) Instigator/Associate. Some incidents result in formal charges against offenders in the institution. These charges were divided into minor (e.g., disobeys rules, being in a prohibited area, etc.) and serious (e.g., assault, possession of contraband, etc.). Previous research has found institutional incidents and charges to be credible indicators of intermediate outcomes in correctional programming (Cortoni, Nunes, & Latendresse, 2006; Serin, 2001).

**AS returns.** Whether or not the offender returned to segregation after the index AS is of unique importance to measuring the effectiveness of the SI. The number of days spent in the first AS return and the total number of AS returns were also included in this study. These variables were selected as they captured some of the nuances associated with segregation returns.

**Program participation/completion and employment.** For this study, core correctional, educational, and vocational programs that the offender enrolled in and started (scored Yes/No) and that were completed (scored Yes/No), and any employment (i.e., Corcan or CSC; scored Yes/No) at the correctional institution after the index AS, were included. As mentioned earlier in the section titled “Outcomes related to SI participation,” these variables were included because they are tenable proxies for the offender’s motivation to change: one of the goals of the SI.

### **Procedure**

Much of the analysis in the current study evolved as the availability of data was determined and the relationships between variables were explored. Data analysis occurred in two broad stages. First, offender level data (i.e., OIA data) upon admission to the index AS and group level outcome data was extracted from the OMS and, using descriptive statistics, was summarized to identify overall patterns. The descriptive data were examined to identify variables that could be included as additional predictors or covariates in the second stage of the analysis. Second, appropriate bivariate and multivariate analyses were conducted to model the relationship between SI participation and intermediate outcomes.

## Results

### Stage 1: Preliminary Analysis

The preliminary exploration of the descriptive statistics showed an appreciable difference between the two groups on the number of days offenders were spending in the index AS, and this was confirmed by an independent-samples *t*-test. Offenders in the Intervention group were, on average, spending more time in the index AS ( $M = 124.93$ ,  $SE = 5.57$ ), than those in the Comparison group ( $M = 60.22$ ,  $SE = 2.00$ );  $t(506) = 10.94$ ,  $p < .001$ . The SI was designed to expedite the transition out of segregation; however, this finding shows that SI participants were spending more time in AS than those who did not participate in the SI. One possible explanation for this finding is that a confound may have been unintentionally introduced in the design of the study. Because potential carryover effects of previous segregation experience were controlled for by taking the first AS admission for the Comparison group and the first AS admission with SI for the Intervention group, the Intervention group was now composed of offenders with more prior segregation experience than those in the Comparison group. This was confirmed by further analyses, which then required the groups to be matched to correct for some of the systematic bias that may have been inadvertently introduced through the design (see Appendix for the complete preliminary analyses and matching procedures). A sample of 292 offenders from the Comparison group was matched to the 292 offenders in the Intervention group. An important consequence of

this matching is that the current study should not be generalized to all SI participants, but only to those who meet the characteristics of the matched groups.

**Additional characteristics of the matched Intervention group.** Offenders in the matched Intervention group spent, on average, 70.59 days in the SI. However, the high variance and range for this variable ( $SD = 64.20$ , Minimum = 6, Maximum = 398) indicated that a large dispersion was influencing the mean. To explore this further, the number of days spent in the SI was divided into four categories based on percentile information. As can be seen in Figure 1, 32% of offenders spent less than 30 days in SI, 26% between 30 and 60 days, 25% between 61 and 120 days, and 17% spent over 120 days in the intervention.

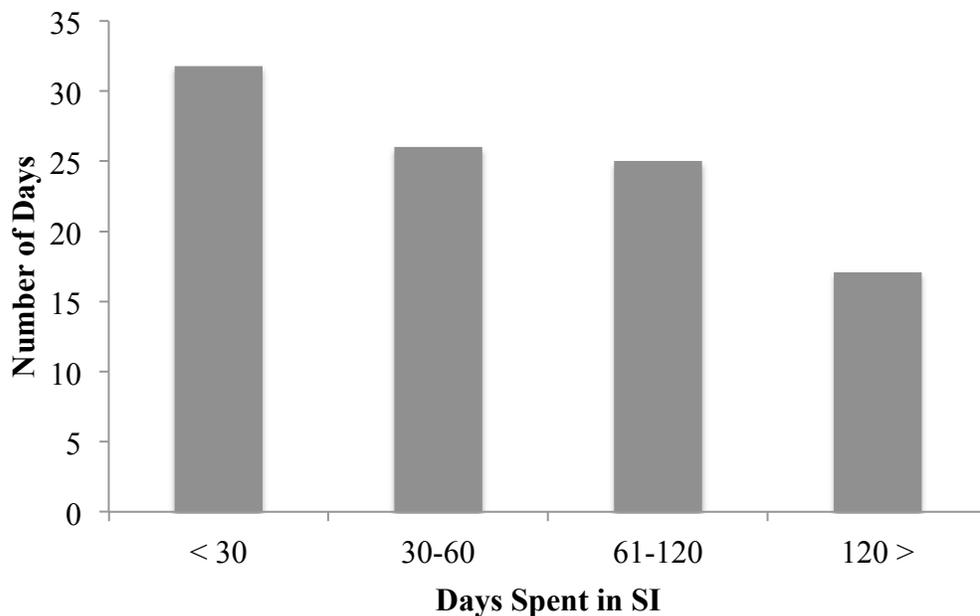


Figure 1. Distribution of days spent in SI across four categories.

The majority (80%) of offenders only had one SI assignment during their sentence ( $n = 232$ ), the remaining 20% were assigned to SI two to four times. The total number of days, on average, spent in the SI across all SI assignments was 89.74 ( $SD = 88.04$ , Minimum = 6, Maximum = 627). More than half (53%) of offenders “completed” at least one SI assignment.

#### **Mean differences between groups on the number of days spent in the index AS.**

Initially, the groups were matched based on the finding that the Intervention group was spending significantly more time in the index AS than the Comparison group. It was anticipated that the pair-matching would correct this. To verify, an independent-samples  $t$ -test was conducted to compare the matched groups on the number of days spent in the index AS.

The data were screened for missing values and violations of linearity. There was no missing data, the scatterplots indicated a linear relationship, and extreme cases fell within a range that was acceptably representative of the population, which was confirmed by maximum residual values (Mahalanobis = .998; Cook’s distance = .076; Leverage value = .002). Therefore, no cases were removed. The P-P plot and histogram suggested that normality was reasonable. The Durbin-Watson statistic was computed to evaluate the independence of errors and was 1.95, which indicates that this assumption was met. The Levene’s test was significant at  $p < .05$ , which suggests that the assumption of homogeneity of variances was violated. Therefore, equal variances were not assumed. On average, offenders in the Intervention group spent almost 2.7

times as many days in the index AS ( $M = 139.33$ ,  $SE = 6.19$ ), than those in the Comparison group ( $M = 52.86$ ,  $SE = 4.93$ ). This difference, 86.47, 95% CI [70.92, 102.02], was significant  $t(554.14) = 10.92$ ,  $p < .001$ , and represented a very large sized effect,  $d = 1.0$ . The effect size coefficient used here to measure the magnitude of the effect is Cohen's  $d$ , which is the preferred effect size for situations where group sizes are very discrepant (McGrath & Meyer, 2006). Cohen's (1988) suggested parameters for small ( $d = 0.2$ ), medium ( $d = 0.5$ ), and large ( $d = 0.8$ ) effects are being used in interpreting the coefficients.

The means reported above had large standard deviations (Intervention  $SD = 105.83$ ; Comparison  $SD = 84.25$ ), indicating a wide dispersion of scores. To explore this further, the number of days spent in the index AS was divided into four categories based on percentile scores and common cut-points used in previous literature (see Figure 2). The majority of offenders in the Comparison group (62%) spent less than 30 days in the index AS. However, 79% of the offenders in the Intervention group spent more than 60 days in AS.

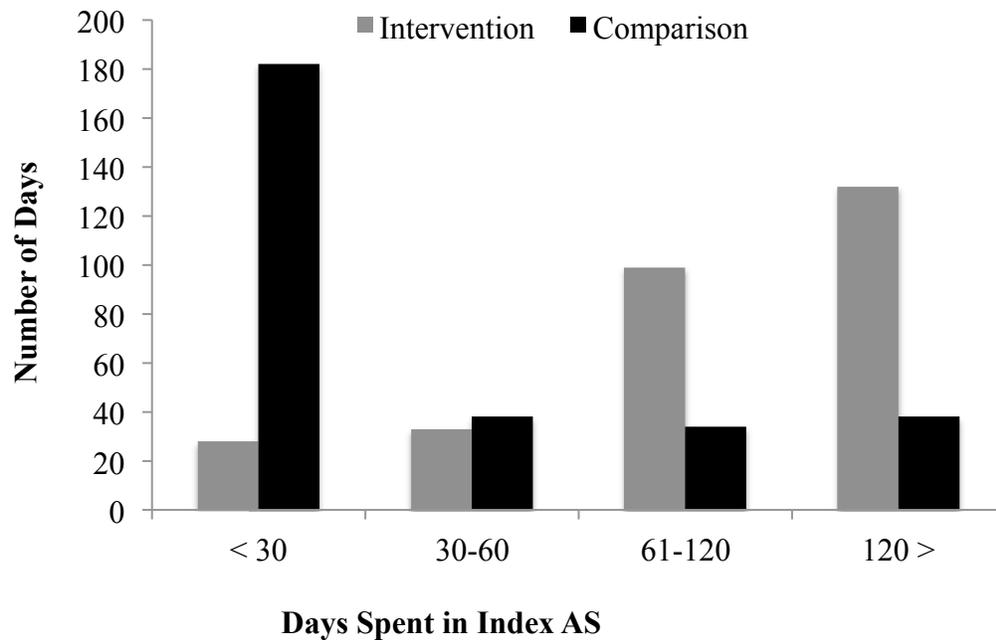


Figure 2. Distribution of days spent in the index AS across four categories.

Segregated offenders have limited access to programming where they can learn coping skills, which suggests that increased time in AS should negatively impact institutional adjustment – one of the outcomes of interest. Therefore, the number of days spent in the index AS was entered as a covariate in Stage 2 of the analysis.

**Differences between the two groups on the reason for AS.** The segregation information was explored to identify instances where offenders had more than one reason for AS within a continuous period of segregation. For the Intervention group, 27 cases (9.2%) had more than one reason for AS within their continuous period of segregation. For the Comparison group, 13 cases (4.5%) had more than one reason for AS within their continuous period of segregation. To isolate the impact of the reason for AS on offender outcomes, the above cases were set to

missing, and a dichotomous “Index AS Reason” variable was created with two levels: (a) jeopardizing the safety and security of the institution, and (b) jeopardizing the offender’s safety. Two offenders had “interfering with an ongoing investigation” as the only reason for their index AS. Given the low count, these cases were also set to missing.

There were statistically significant differences between the two groups on Index AS Reason,  $\chi^2(1, N = 533) = 27.72, p < .001$ , represented by a small to medium effect size ( $\Phi = .23$ ) (see Table 1). The coefficient being employed here,  $\Phi$ , is the recommended effect size measure for chi-squared tests using a 2 x 2 contingency table. Cohen’s (1988) parameters for small ( $\Phi = 0.1$ ), medium ( $\Phi = 0.3$ ), and large ( $\Phi = 0.5$ ) effects are being used in interpreting the coefficients.

Table 1

*Differences Between the Two Groups in Reason for Index AS*

	Comparison Group % (N)	Intervention Group % (N)
Index AS Reason***		
Safety of Institution	68.4 (184)	45.8 (121)
Safety of Inmate	31.6 (85)	54.2 (143)

\*\*\* Differences significant,  $p \leq .001$

These results demonstrate that offenders in the Intervention group were more often segregated to ensure their safety, and less often segregated for the safety and security of the institution, than those in the Comparison group. Offenders who are at risk of jeopardizing the

safety and security of the institution likely differ (compared to vulnerable offenders who are victimized in the institution) on outcomes pertaining to institutional misconducts and participation in correctional programming. Therefore, Index AS Reason was entered as a covariate in Stage 2 of the analysis to control for its partial effects.

### **Stage 2: Modelling the Relationship Between SI Participation and Outcomes**

**Preliminary analysis and data transformation.** Preliminary analysis showed that the outcomes measured in counts (e.g., total number of incidents) had a large number of zero scores, which resulted in positively skewed distributions. Due to the presence of inflated zero counts; the data violated the normality assumption. Although there are statistical tests that assume a zero-inflated distribution, the count data in this study also suffered from low base rates, which made the difference between 0 and 1 more interesting and informative than the average of counts. For example, most offenders either had 0 ( $n = 215$ ) or 1 ( $n = 130$ ) incident, and few had more than 7 ( $n = 22$ ). Therefore, the count data was transformed into dichotomous categorical data that represented either no counts (0) or the presence of at least one (1).

**Differences between groups without the inclusion of covariates.** A series of Chi-square analyses were conducted to identify statistically significant differences between the two groups on the categorical outcomes without the inclusion of covariates. No statistically significant differences were found between the Intervention and Comparison groups for any

instance of a charge,  $\chi^2(1, N = 584) = 1.76, ns$ ; a minor charge,  $\chi^2(1, N = 584) = 1.09, ns$ ; a serious charge,  $\chi^2(1, N = 584) = 2.93, ns$ ; a return to segregation,  $\chi^2(1, N = 584) = 3.40, ns$ ; of employment,  $\chi^2(1, N = 584) = 1.98, ns$ ; or an educational program,  $\chi^2(1, N = 584) = 1.65, ns$ .

However, there were statistically significant differences between the two groups on any instance of an incident,  $\chi^2(1, N = 584) = 3.89, p < .05, Phi = .08$ ; participation in any correctional program,  $\chi^2(1, N = 584) = 9.56, p < .01, Phi = .13$ ; and any instance of a completed correctional program,  $\chi^2(1, N = 584) = 6.34, p = .01, Phi = .10$ . An independent samples *t*-test was also conducted to compare the matched groups on the amount of time offenders spent in their first AS return within the 6-month follow-up period, and no significant differences were found  $t(582) = 1.96, ns$ .

Although offenders in the Intervention group had more instances of one or more incidents than those in the Comparison group, it was not clear from this finding if they were instigators of said incidents. This nuance is important because knowing that SI participants were more likely to instigate institutional incidents is more concerning than the knowledge that they had more incidents in general. Therefore, a chi-square analysis was conducted to examine the difference between the two groups on the type of incident; however, no statistically significant differences were found  $\chi^2(1, N = 584) = 3.69, ns$  (counts and percentages are included in Table 2).

Table 2

*Comparing Dichotomous Outcomes Collected Within 6-Month Follow-Up*

	Comparison Group % (N)	Intervention Group % (N)
<b>Incidents*</b>		
None	40.8 (119)	32.9 (96)
1 or more	59.2 (173)	67.1 (196)
Instigator/Associate	52.7 (154)	60.6 (177)
<b>Charges</b>		
None	49.7 (145)	55.1 (161)
1 or more	50.3 (147)	44.9 (131)
<b>Minor Charges</b>		
None	63.0 (184)	67.1 (196)
1 or more	37.0 (108)	32.9 (96)
<b>Serious Charges</b>		
None	66.4 (194)	72.9 (213)
1 or more	33.6 (98)	27.1 (79)
<b>Returns to AS</b>		
None	45.9 (134)	38.4 (112)
1 or more	54.1 (158)	61.6 (180)
<b>Correctional Programs**</b>		
None	84.9 (248)	74.7 (218)
1 or more	15.1 (44)	25.3 (74)

## Completed Correctional Programs\*

None	91.1 (266)	84.2 (246)
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1 or more	8.9 (26)	15.8 (46)
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## Institutional Employment

None	50.7 (148)	44.9 (131)
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1 or more	49.3 (144)	55.1 (161)
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## Educational Programs

None	69.2 (202)	74.0 (216)
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1 or more	30.8 (90)	26.0 (76)
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\* Differences significant,  $p < .05$  (2-tailed)

\*\* Differences significant,  $p < .01$

**Modelling the relationship between SI participation and outcomes with the inclusion of covariates.** A series of binary logistic regressions were performed to model the relationship between participation in the SI and the intermediate outcomes. The total number of days spent in the index AS and Index AS Reason were included as covariates in the models to control for their partial effects. As can be seen in Table 3, some differences did emerge between the chi-square analysis and the logistic regression models. When the covariates were included, SI participation was no longer related to an offender having one or more incidents within a 6-month follow-up period. However, where there were no differences between the two groups on any instance of employment in the chi-square analysis, differences did emerge in the logistic regression model. Specifically, after controlling for the number of days spent in the index AS and Index AS Reason,

the odds of an offender in SI also being employed at least once within the 6-month follow-up was 1.5 times higher than for an offender who did not participate in the SI. The remaining models further confirmed the results of the chi-square analysis. After controlling for covariates, the odds of an offender in SI also having participated in at least one correctional program within a 6-month follow-up period was two times higher than for an offender who did not participate in SI. Also, the odds of an offender in SI also having completed at least one correctional program within a 6-month follow-up period is 2.1 times higher than for an offender who did not participate in SI.

Table 3

*Logistic Regression Analysis of Intermediate Outcomes with the Inclusion of Covariates*

DV	Predictor	$\beta$	$SE(\beta)$	Wald $\chi^2$	$p$	OR	CI(OR)
<b>Incidents</b>							
	SI	.38	.21	3.41	.065	1.46	.977, 2.179
	Days in AS	.00	.00	1.20	.273	1.00	.999, 1.003
	AS Reason	.34	.19	3.08	.080	1.40	.961, 2.032
	Constant	1.00	.19	.27	.601	1.105	
	Nagelkerke $R^2 = .02$						
<b>Instigator/Associate</b>							
	SI	.32	.20	2.64	.104	1.38	.936, 2.029
	Days in AS	.00	.00	.88	.348	1.00	.999, 1.003

AS Reason	.21	.19	1.25	.264	1.23	.856, 1.766
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Constant	-.06	.19	.11	.745	.94	
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Nagelkerke  $R^2 = .02$

#### Charges

SI	.04	.20	.04	.847	1.04	.704, 1.533
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Days in AS	-.00	.00	.28	.595	1.00	.998, 1.001
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AS Reason	.76	.19	16.62	.000	2.13	1.481, 3.064
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Constant	-.50	.19	7.01	.008	.48	
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Nagelkerke  $R^2 = .05$

#### Minor Charges

SI	.05	.21	.05	.827	1.05	.699, 1.566
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Days in AS	.00	.00	.02	.899	1.00	.998, 1.002
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AS Reason	.713	.20	13.22	.000	2.04	1.389, 2.994
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Constant	-1.05	.20	26.75	.000	.35	
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Nagelkerke  $R^2 = .04$

#### Serious Charges

SI	-.12	.22	.30	.587	.89	.584, 1.356
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Days in AS	.00	.00	.01	.930	1.00	.998, 1.002
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AS Reason	.62	.21	9.12	.003	1.86	1.243, 2.784
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Constant	-1.18	.21	31.16	.000	.31	
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Nagelkerke  $R^2 = .03$

#### Returns to AS

SI	.29	.20	2.11	.147	1.33	.904, 1.961
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Days in AS	.00	.00	.23	.633	1.00	.999, 1.002
AS Reason	.22	.19	1.35	.246	1.24	.863, 1.781
Constant	.03	.19	.03	.866	1.03	

Nagelkerke  $R^2 = .01$

#### Correctional Programs

SI**	.70	.25	7.72	.005	2.01	1.228, 3.286
Days in AS	-.00	.00	1.09	.297	1.00	.996, 1.001
AS Reason	-.19	.23	.69	.405	.83	.530, 1.292
Constant	-1.55	.24	41.99	.000	.21	

Nagelkerke  $R^2 = .03$

#### Correctional Programs Completed

SI*	.73	.31	5.44	.020	2.08	1.124, 3.835
Days in AS	-.00	.00	2.46	.117	1.00	.994, 1.001
AS Reason	-.31	.28	1.21	.271	.74	.425, 1.272
Constant	-2.00	.29	46.18	.000	.14	

Nagelkerke  $R^2 = .03$

#### Institutional Employment

SI*	.42	.20	4.55	.033	1.52	1.034, 2.230
Days in AS	.00	.00	.15	.695	1.00	.998, 1.002
AS Reason	.26	.18	2.04	.153	1.30	.907, 1.863
Constant	-.24	.19	1.60	.206	.79	

Nagelkerke  $R^2 = .02$

#### Educational Programs

SI	-.14	.22	.38	.537	.87	.568, 1.343
Days in AS	-.00	.00	2.85	.091	1.00	.996, 1.000
AS Reason	-.00	.20	.00	.997	1.00	.672, 1.487
Constant	-.68	.20	10.93	.001	.51	
Nagelkerke $R^2 = .02$						

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*Note.* DV = dependent variables; OR = odds ratio; CI = confidence interval.

\* Differences significant,  $p < .05$

\*\* Differences significant,  $p < .01$

### Discussion

One of the major concerns around the use of segregation as an offender management tool is that it stifles or halts progress on the offender's correctional plan. The purpose of the SI Initiative is to support segregated offenders in changing key aspects of their behaviour and to successfully reintegrate them into the general offender population. By doing so, offenders are able to return to addressing the goals outlined on their correctional plan, which may include participation in programs, interventions, counseling, etc. The purpose of this study was to explore the relationship between participation in the SI and intermediate outcomes. It was hypothesized that within six-months of being released from their index AS, SI participants would demonstrate fewer institutional incidents and charges, fewer returns to segregation, and greater involvement with correctional programs than those who did not participate in the SI.

The results of this study revealed that the SI Initiative had no significant impact on institutional incidents, charges, or returns to segregation. Therefore, the goal of changing problematic behaviour was not achieved by the SI. In fact, 61% of SI participants returned to segregation within the 6-month follow-up period! However, offenders who participated in the SI were found to be two times more likely to have participated in, and to have completed, one or more correctional programs within the six-month follow-up period than those in the Comparison group. SI participants were also 1.5 times more likely to be employed in the institution at least once within six months of being released from the index AS. Furthermore, it was found that, on average, SI participants were high-risk, high-need offenders with low RP, a high rate of previous segregations, and were classified at the maximum-security level upon intake. Therefore, caution must be taken when generalizing the results of this study to offenders who differ among these characteristics.

One explanation for why the SI participants were more likely to engage in correctional programs and institutional employment pertains to the three-phase structure of the intervention. SI participants might have spent the majority of their time in the first phase of the intervention (i.e., the Assessment phase) without the opportunity to participate in the second and third phases (i.e., the Problem-Solving and Cognitive-Change phases respectively). As mentioned previously, the Assessment phase is primarily dedicated to building commitment to change through MI

techniques and the Stages of Change model. The design of the SI does not require attitudes or behaviour to be targeted until the second phase. Therefore, it is likely that the program officers only had enough time to build commitment to change through the Assessment phase, which encouraged offenders to participate in correctional programming after being released from AS. Unfortunately, the current data were not conducive to examining this. Further research should strive to examine if this is indeed the case as it has implications for establishing an ideal timeframe to hold offenders in segregation for the intervention.

The current results indicate that targeted interventions delivered during AS can encourage offenders to participate in programming after segregation – a finding that is particularly welcomed given the concern with AS impeding offender rehabilitation. The fact that this effect was demonstrated with a high-risk group is noteworthy since research has shown that high-risk offenders should receive the most intensive interventions (Lowenkamp, Latessa, & Holsinger, 2006). Moreover, if these same offenders are also receiving evidence-based programs after being released from AS then, as offenders learn new skills to help change their problematic behaviours, fewer re-admissions to segregation should be expected. Indeed, this argument is supported by the importation model, which suggests that offenders would ultimately benefit from learning skills to cope with life in the institution.

The current study also demonstrated a relationship between participation in the SI and seeking institutional employment when released from segregation. This finding is important for two reasons: First, research has shown that offenders are perceived as less employable than other disadvantaged groups, and less likely to exhibit employment related skills and characteristics than the general workforce (Graffam, Shinkfield, & Hardcastle, 2008). Institutional employment could help mitigate some of these perceptions by providing offenders with the skills and experience necessary to secure meaningful employment upon release, which leads to the second point; namely, that institutional employment is related to positive offender outcomes. Bouffard, MacKenzie, and Hickman, (2000) conducted a systematic review of “correctional industry” (i.e., institutional employment) program evaluations and found that these programs contribute to reducing recidivism amongst offenders. However, the authors also found the scientific quality of these evaluations to be fairly low, and argued that it was not possible to separate the effects of participating in institutional employment from other components of such programs. Similarly, Wilson, Gallagher, and MacKenzie (2000) conducted a meta-analysis of recidivism outcomes for 33 independent studies reporting 53 evaluations of educational, vocational, and work programs delivered in correctional institutions. Seventeen studies included in the review examined the effects of vocational training and four looked at institutional employment. Overall, their findings showed that offenders who participated in educational, vocational, and work programs were

employed at a higher rate and reoffended at a lower rate than non-participants. However, the length of follow-up for this study was not clear, and the reductions in reoffending were more pronounced for educational programs than for work programs. Both studies also emphasized the apparent paucity in research on the effects of institutional employment on offender outcomes. Regardless, the RNR model includes employment or “work” as one of the Central Eight criminogenic needs areas (Bonta & Andrews, 2007), which implies that the enhancement of work skills should, in fact, be one of the targets of effective interventions. Moreover, researchers have long argued that meaningful employment is an important factor in initiating and maintaining desistance from crime (Maruna, 2010; Uggen, 1999, 2000).

### **Diminished Effects of the SI as a Function of Program Integrity**

The results of this study demonstrate that the implementation of the SI was effective in encouraging offenders to return to correctional programming and institutional employment, but not to change problematic behaviours. This finding is counterintuitive given that the SI was built on the RNR model and employs cognitive and behavioural interventions, which have been shown to be effective at reducing prison misconducts (French & Gendreau, 2006). The lack of change in offender behaviour might be explained by the inconsistent implementation of the SI between correctional facilities (as previously discussed), which raises the issue of program integrity.

Gendreau, Goggin, and Smith (1999) argued that the effectiveness of treatment is diminished if careful attention is not given to program implementation. Specifically, they emphasized the importance of considering institutional factors when delivering a single evidence-based program across multiple jurisdictions. The authors offered a series of implementation guidelines, which fell under four general categories: Organizational factors, program factors, factors related to the change agent (e.g., the program officer, clinician, parole officer, etc.), and staff factors.

There is empirical evidence in support of program integrity as a moderator of program effectiveness. French and Gendreau (2006) conducted a meta-analysis to assess how effective correctional programs were at reducing institutional misconducts. In this study, program integrity was measured using items from the Correctional Program Assessment Inventory (CPAI) 2000. The CPAI-2000 is an actuarial measure designed to assess the quality of correctional programs (Gendreau & Andrews, 2001 as cited in French & Gendreau, 2006), with demonstrable psychometric properties (Nesovic, 2003). The CPAI-2000 content areas include, but are not limited to: program implementation, client pre-service assessments, program characteristics, and staff characteristics. To assess the relevance of program integrity on overall effectiveness, the authors drew on 68 studies, which generated 104 effect sizes ( $N = 21,467$ ). Twenty-three of these studies met the criteria for inclusion: 12 had effect sizes with high reductions in misconduct, and

11 had effect sizes with low reductions in misconduct. Of the 12 effect sizes with high reductions in misconduct, 92% had medium to high program integrity level scores compared to 36% of the 11 effect sizes with low reductions in misconduct. The authors stated that caution must be taken when interpreting the results of this research given that the included studies were often lacking sufficient information to comprehensively assess program integrity.

Lowenkamp, Latessa, and Smith (2006) examined the effects of adhering to the principles of effective interventions based on the RNR model. They gathered information from 38 community-based programs on quality as measured by total scores on the CPAI-2000, and effectiveness as measured by 2-year follow-up recidivism data. The programs were divided into three categories based on the total CPAI-2000 scores: unsatisfactory ( $k = 24$ ), satisfactory but needs improvement ( $k = 13$ ), and satisfactory ( $k = 1$ ). Two groups were included in this study: A treatment cohort of 3,237 offenders placed in the community-based programs, and a matched comparison group of offenders in the community who were not placed into programs.

“Satisfactory but needs improvement” programs had, on average, higher reductions in recidivism (8.1%) than “unsatisfactory” programs (1.7%). The one program that had a “satisfactory” score demonstrated the highest reduction in recidivism (22%). Additionally, program integrity (a component of the CPAI-2000) accounted for 7-18% of the variation in treatment effects. A notable feature of the aforementioned studies is that the CPAI-2000 was developed to measure

adherence to the principles of the RNR model and the general guidelines offered by Gendreau et al. (1999). Overall, the above findings suggest that if an RNR-based intervention like the SI were to be implemented with a higher degree of integrity across institutions, it would be reasonable to expect significant reductions in institutional misconducts and other problem behaviours.

Implementation issues should be studied further by looking at the integrity of SI delivery between correctional facilities. An examination of this sort could help to inform best practice guidelines for the SI by identifying the most effective strategies employed by each of the institutions.

### **Increased Diligence by Corrections and Time Spent in the Index AS**

Most of the anticipated limitations for this study were addressed in the introduction of this paper; however, two concerns remain. First, the latest correctional data shows that the rate of admissions to AS has slowed since 2011 (OCI, 2015). This might have been due to Edward Snowshoe's suicide, which led to increased public attention and scrutiny. The problem for the current study is that the Comparison group was drawn from a period prior to 2011 and the Intervention group consisted of offenders admitted to segregation after 2011. Therefore, any positive outcomes related to SI participation might also be accounted for by the increased diligence of correctional authorities and institutions in managing offenders. Second, the results indicated that those who participated in the SI spent three times as many days in segregation as

those in the Comparison group. One explanation that was already put forward in this paper is that a systematic bias was unintentionally introduced into the design by selecting the first admission to AS for the Comparison group and the first admission to AS with an SI for the Intervention group. However, there was no way of determining what was actually accounting for the differences in time spent in AS. Examining whether attending SI does, indeed, lengthen the time spent in AS is a question for future study.

### **Future Research**

To further explore the relationship between SI participation and intermediate outcomes, a thorough analysis of the DFIA-R indicators should be conducted. Given the revision to the DFIA in 2009 that prevented the mapping of post-revision on to pre-revision scores, it was not possible to compare the Intervention group to the Comparison group without losing cases from the Comparison sample. However, this analysis could be conducted by simply removing the cases without DFIA-R scores from the dataset. Nuances related to the DFIA-R indicators would help identify sub-populations who are differentially affected by participating in the SI.

Another nuance that was not explored in the current study was the differential effects of SI “completion.” As already discussed, the SI is considered completed when the offender is released from AS. That being said, the SI data distinguishes between “completes” and “incompletes.” The possible dosage effects of the SI could be examined by analyzing outcomes

as a function of SI “completion.” Also, differential outcomes related to Aboriginal status should be explored since, in the current study, 37% of the Comparison group and 40% of the Intervention group were of Aboriginal descent.

It was beyond the scope of this study, but future research should explore the impact of the SI on the time-to-first-event variables. For example, did SI participants spend more time incident free after their release from AS than the offenders in the Comparison group? Did SI participants take longer to return to segregation than those who did not participate in the SI? Finally, the current study showed SI participants to be more likely to engage in correctional programming than those who did not participate in the SI, which raises an interesting question for future research: Were SI participants who took part in correctional programs after their release from AS more likely to benefit from said programs than those who did not participate in the SI?

In light of Canada’s new mandate to address the recommendations from the Ashley Smith inquest regarding the use of AS (Trudeau, 2015), and the fact that there is currently a dearth of research on programming and interventions in segregation, the findings of this study are very timely. Despite some limitations, this study utilized rigorous methodological techniques that controlled for numerous covariates, and was able to offer some tentative support for providing interventions to high-risk offenders in segregation. More importantly, this study was able to identify additional areas of inquiry, which sets a trajectory for future research.

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## Appendix

### Preliminary Analyses and Matching

To test the significance of the difference between the two groups on the number of days spent in the index AS, an independent-samples *t*-test was conducted. The Levene's test was significant at  $p \leq .05$ , which suggests that the assumption of homogeneity of variances was violated. Therefore, equal variances were not assumed. On average, offenders in the Intervention group spent more time in the index AS ( $M = 124.93$ ,  $SE = 5.57$ ), than those in the Comparison group ( $M = 60.22$ ,  $SE = 2.00$ ). This difference, 64.72, 95% CI [53.09, 76.34], was significant  $t(506) = 10.94$ ,  $p < .001$ , and represented a medium sized effect,  $d = 0.62^5$ .

To verify the working theory (i.e., that the Intervention group was now composed of offenders with more prior segregation experience than those in the Comparison group), the number of previous admissions to segregation was analyzed for both groups. The Levene's test was significant at  $p \leq .05$ ; therefore, equal variances were not assumed. On average, offenders in the Intervention group had more admissions to AS prior to the index AS ( $M = 7.31$ ,  $SE = .40$ ), than those in the Comparison group ( $M = 4.36$ ,  $SE = .11$ ). This difference, 2.95, 95% CI [2.13, 3.77], was significant  $t(429.19) = 7.09$ ,  $p < .001$ , and represented a medium effect,  $d = 0.57$ .

Also, offenders in the Intervention group had spent more days in AS prior to the index AS ( $M =$

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<sup>5</sup> See page 51 for an explanation of the effect size measure used here (Cohen's *d*)

341.79,  $SE = 26.58$ ), than those in the Comparison group ( $M = 205.47$ ,  $SE = 7.27$ ). This difference, 136.32, 95% CI [82.17, 190.48], was significant  $t(429.33) = 4.95$ ,  $p < .001$ , and represented a small to medium sized effect,  $d = 0.40$ .

Given that the offenders in the Intervention group had more experience with AS prior to the index AS compared to the Comparison group, it was expected that they would represent a more maladjusted and challenging population overall (see section above titled “Segregation: An Operational Reality”). To test this theory, the two groups were compared on three offender-level variables related to offender risk and need: the SFA, DFIA, and RP upon admission to the index AS (see Table B1). To compare the two groups on these three variables, Pearson’s chi-squared test was used. The expected frequencies assumption was met for all three tests. As anticipated, chi-squared analyses demonstrated statistically significant differences between the Intervention and Comparison groups for the SFA,  $\chi^2(3, N = 3082) = 30.60$ ,  $p < .001$ , Cramer’s  $V = .10$ ; the DFIA,  $\chi^2(3, N = 3082) = 27.59$ ,  $p < .001$ , Cramer’s  $V = .10$ ; and RP,  $\chi^2(3, N = 3082) = 39.86$ ,  $p < .001$ , Cramer’s  $V = .11$ <sup>6</sup>.

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<sup>6</sup> See page 54 for an explanation of the effect size measure used here (Cramer’s  $V$ )

Table B1

*Static, Dynamic, and Reintegration Scores Upon Admission to index AS, Between Groups*

	Comparison Group % (N)	Intervention Group % (N)
SFA***		
None	4.9 (132)	2.0 (8)
Low	2.2 (58)	0.3 (1)
Med	24.2 (650)	16.3 (65)
High	68.7 (1843)	81.5 (325)
DFIA***		
None	4.9 (132)	2.0 (8)
Low	0.7 (19)	0.0 (0)
Med	12.6 (337)	5.8 (23)
High	81.8 (2195)	92.2 (368)
RP***		
None	5.0 (133)	2.0 (8)
Low	72.1 (1935)	86.7 (346)
Med	20.2 (543)	10.8 (43)
High	2.7 (72)	0.5 (2)

\*\*\* Differences significant,  $p < .001$  (2-tailed)

These findings confirmed the theory that, upon admission to segregation, the Intervention group was composed of offenders who were more challenging and maladjusted than the Comparison group as indicated by their high SFA and DFIA, and low RP scores. These

significant pre-intervention group differences were concerning because they involved covariates that were theoretically related to the outcomes under study. Namely, high risk and need offenders are, on average, more maladjusted in institutions and the community (Bonta & Andrews, 2007; Motiuk & Blanchette, 1997; Wichmann & Nafekh, 2001), and are less likely to be engaged in programming (Wormith & Olver, 2002) than are low risk and need offenders. Therefore, the SI participants had to be compared to a sample that was similar on these covariates.

To correct for some of the systematic bias that was potentially introduced by selecting the first admission to AS for the Comparison group and the first admission to AS with an SI for the Intervention group, the samples were matched with a Pair-Matching technique. Matching is a statistical technique that controls for observed “pre-treatment” differences in quasi-experimental studies where random assignment is absent, as is the case in the current study (Cochran, 1953; Rosenbaum, 1989; Rubin, 1973). Pair-matching is the simplest method of matching and is ideal when there is a control sample that is relatively larger than the experimental sample, and which is drawn from the same population (Cochran, 1953). Pair-matching involves pairing each member of the experimental sample with a partner from the control sample who has the same values for each of the covariates. Accordingly, the Comparison group was matched to the Intervention group on two variables: (a) RP, which (as described earlier) is a global score that combines SFA and DFIA scores with the offender’s security level designation; and (b) the rate of

segregations prior to the index AS, which is the standardized time spent in segregation based on the amount of time available up to the index AS within the current sentence. A sample of 292 offenders from the Comparison group was matched to the 292 offenders in the Intervention group. Also, one case was removed from each group prior to matching due to extreme scores on time spent in segregation before index AS (Intervention group = 4774 days; Comparison group = 5369 days).

As expected, the matched samples were characteristically very similar on offender level variables (see Table B2). Chi-square analyses demonstrated no statistically significant differences between the Intervention and Comparison groups for the SFA upon segregation,  $\chi^2 (3, N = 584) = 2.52, ns$ ; the DFIA upon segregation,  $\chi^2 (2, N = 584) = 0.11, ns$ ; RP upon segregation,  $\chi^2 (3, N = 584) = 0.16, ns$ ; Aboriginal status,  $\chi^2 (1, N = 584) = 0.58, ns$ ; sentence type,  $\chi^2 (1, N = 584) = 1.99, ns$ ; and offence type,  $\chi^2 (1, N = 584) = 1.19, ns$ . However, there was a statistically significant difference between the two groups on offender security level at intake,  $\chi^2 (4, N = 584) = 13.35, p = 0.01$ . Specifically, offenders in the Intervention group were more likely to be classified at the maximum-security level upon intake than those in the Comparison group, and offenders in the Comparison group were more likely to be classified at the medium-security level upon intake than those in the Intervention group.

Table B2

*SFA, DFIA, RP, Aboriginality, Sentence Type, Offence Type, and Security Level at Intake for Matched Intervention and Comparison Groups*

	Comparison Group % (n)	Intervention Group % (n)
SFA		
N/A	1.4 (4)	1.4 (4)
Low	0.7 (2)	0.3 (1)
Med	18.5 (54)	14.0 (41)
High	79.5 (232)	84.2 (246)
DFIA		
N/A	1.4 (4)	1.4 (4)
Med	6.8 (20)	6.2 (18)
High	91.8 (268)	92.5 (270)
RP		
N/A	1.4 (4)	1.4 (4)
Low	87.7 (256)	86.6 (253)
Med	10.3 (30)	11.3 (33)
High	0.7 (2)	0.7 (2)
Aboriginal Status		
Aboriginal	37.3 (109)	40.4 (118)
Non-Aboriginal	62.7 (183)	59.6 (174)
Sentence Type		

Determinate	84.6 (247)	80.1 (234)
Indeterminate	15.4 (45)	19.9 (58)
Offence Type		
Non-Violent	19.2 (56)	15.8 (46)
Violent	80.8 (236)	84.2 (246)
Security Level at Intake		
Minimum	0.7 (2)	0.3 (1)
Medium**	48.6 (142)	34.2 (100)
Maximum**	47.9 (140)	62.7 (183)
Other <sup>a</sup>	2.7 (8)	2.7 (8)

<sup>a</sup> Includes both offenders with no security classification and those placed in the SHU.

Of these latter there were only two, one per group.

\*\* Differences significant,  $p < .01$  (2-tailed)

Paired-samples  $t$ -tests were also conducted to compare the two groups (see Table B3).

There were no significant differences between the two groups on aggregate sentence length,

$t(582) = 0.959$ ,  $ns$ ; age at admission to the index AS,  $t(582) = 1.49$ ,  $ns$ ; and the rate of days in

segregation prior to the index AS,  $t(582) = 0.161$ ,  $ns$ .

Table B3

*Comparison of Offender-Level Variables for Matched Intervention and Comparison Groups*

	Comparison Group <i>M (SE)</i>	Intervention Group <i>M (SE)</i>
Aggregate Sentence Length	1744.14 (91.48)	1894.92 (127.95)
Age at Admission to AS	27.34 (.42)	28.32 (.50)
Rate of Segregation Prior to Index AS	23.57 (1.20)	23.30 (1.16)

