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Promising Intervention Approaches for Offenders with Cognitive Deficits Related to Fetal Alcohol Spectrum Disorder (FASD) and Other Neuropsychological Disorders

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Promising Intervention Approaches for Offenders with Cognitive Deficits Related to Fetal Alcohol Spectrum Disorder (FASD) and Other Neuropsychological Disorders

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Executive Summary

Key words: *Fetal Alcohol Spectrum Disorder, offenders with neurological disorders, cognitive deficits, correctional interventions*

Fetal Alcohol Spectrum Disorder (FASD) encompasses a range of conditions and levels of impairments caused by prenatal exposure to alcohol that can result in neuropsychological changes to brain structure and function. Offenders with FASD and other neuropsychological disorders may have difficulty adjusting to the correctional environment and benefiting from conventional programs because of deficits in executive functioning, memory, attention, and adaptive behaviour. This review examined the literature relevant to promising interventions for adult offenders with these disorders.

The evidence-base on what works for this subgroup of offenders is very sparse. In particular, there is very little to guide decisions on what reduces recidivism. There is, however, a growing body of work on promising practices that assist offenders with special needs. A framework for interventions with offenders with cognitive deficits stemming from neuropsychological disorders is proposed that summarises recommendations related to institutional and community correctional practices. Many of these practices are already incorporated into program and case management approaches in the Correctional Service of Canada (CSC).

Based on the review, recommendations for institutional correctional practices include:

- initial screening for cognitive deficits;
- enhanced assessment for those identified with deficits that includes an examination of functional strengths and deficits as well as a comprehensive assessment of criminogenic needs;
- participation in institutional programs. Where necessary, these programs should incorporate the following adaptations: smaller group size; teaching only one or two concepts per session; shortening sessions and increasing the overall length of the program; minimizing classroom distractions; repetition of material and frequent review, use of clear, simple, concrete language, and a focus on problem solving training, and provision of one-to-one coaching sessions;
- staff training on strategies for working effectively with offenders with cognitive deficits;
- provision of continuity of care through detailed pre-release planning; and,
- case management provisions that broker and coordinate specialised services.

Based on the review, recommendations for community correctional practices include:

- provision of stable supportive housing;
- where appropriate, participation in comprehensive programs that include enhanced supportive case management and mentoring services;
- access to meaningful and supported employment services; and,
- consolidation of family and/or community support.

In summary, most offenders with neuropsychological disorders have complex, lifelong problems that require adapted correctional practices and continued services from multiple providers.

Table of Contents

List of Tables

List of Figures

List of Appendices

Introduction

Fetal Alcohol Spectrum Disorder

Fetal Alcohol Spectrum Disorder (FASD) encompasses a range of conditions caused by prenatal exposure to alcohol which can result in neurophysiological changes to an individual's brain structure and function. Individuals with FASD may experience a wide range of primary difficulties, including intellectual deficits, learning disabilities, memory deficits, executive functioning deficits, hyperactivity, attention deficits, problem solving difficulties, and anger management problems (Boland, Chudley, & Grant, 2002; Burd, Selfridge, Klug, & Juelson, 2003; Chudley et al., 2005; Streissguth, 1997).

It is important to note that FASD is considered a spectrum disorder and to acknowledge that individuals with the disorder manifest a range of symptoms and levels of impairment. Specifically, some individuals within the FASD spectrum may have minor symptoms and impairments, whereas some may have FAS, a medical diagnosis which represents the full syndrome caused by prenatal exposure to alcohol (Chasnoff, Wells, Telford, Schmidt, & Messer, 2010). Although the average IQ of those with FASD without facial abnormalities is in the 80's (Riley, Mattson, & Thomas, 2009), even for those whose IQ is within the normal or above normal range there are often problems related to non-verbal learning that can affect behaviours. For example, difficulty in adapting to novel/complex situations, difficulty in dealing with cause and effect relationships, marked deficiencies in non-verbal problem solving, concept formation, and hypothesis testing, and marked deficits in the capacity to benefit from feedback in novel/complex situations have been noted (Tsatsanis & Rourke, 2008). These impairments contribute to problems in social perception, social judgment, and social interaction skills. ADHD is very common among those with FASD with estimates ranging from 60 to 95 percent having these symptoms (Burd et al., 2003). Most individuals with ADHD have impaired executive functioning (Barkley, 2011) which means poor response inhibition and working memory, capacities that allow for strategic planning, impulse control, cognitive flexibility, self regulation, and goal-directed behaviour (Weyandt, 2009). Impairments in executive function are implicated in major life problems in the social, legal and mental health domains (Riley, Mattson, & Thomas, 2009).

With respect to prevalence of FASD, Eme and Millard (2012) reviewed the literature of

the disabilities associated with FASD and cited data from the Centres for Disease Control and Prevention (CDC) (2009) revealing that with 12.2% of pregnant women reported consuming alcohol. Based on this, the CDC estimated a FASD prevalence of 2-5% among young children (May et al., 2009). Health Canada (2003), however, estimates suggest that the rate of FASD in Canada is 9 per 1,000 live births in the general population. Rates in some populations, including prisons, are thought to be considerably higher (Burd, Selfridge, Klug, & Bakko, 2004). For instance, Fast, Conry, and Loock (1999) estimated that 23% of young offenders remanded for psychiatric assessment in Burnaby, British Columbia had symptoms of what would now be termed FASD. In another study of youths and adults with FASD from the Pacific Northwest of the United States, 60% were found to have experienced problems with the law (Streissguth, Barr, Kogan, & Bookstein,1996). The prevalence rate of FASD among incoming federally-sentenced offenders in Canada is unknown. A small study conducted in one federal institution found that 10% of the new admissions were diagnosed with FASD (MacPherson, Chudley, & Grant, 2011). Central nervous system (CNS) deficits were observed in an additional 15% of the sample, but there was not enough information available to either confirm or rule out a diagnosis of FASD for these individuals (MacPherson et al., 2011). A further 45% of this sample were identified as having CNS deficits unrelated to alcohol exposure in two or more neuropsychological domains. Although the results are not generalizable to the entire federal offender population, they highlight that there are a significant number of individuals who enter the federal correctional system with cognitive difficulties, including those who may be affected by FASD.

Other Neuropsychological Disorders

Many of the cognitive deficits and behaviour problems noted among individuals with FASD are shared by offenders suffering from other neuropsychological disorders. For example, Intellectual disabilities (ID) are characterised by significant cognitive impairment (usually defined as an Intelligence Quotient [IQ] less than 70), along with impairments in adaptive behaviour with onset prior to age eighteen (Herrington, 2009). In a systematic review of ten psychiatric surveys of incarcerated populations from four different countries, Fazel, Xenitidis, and Powell (2009) found that prevalence rates for IDs ranged from 0.5% to 1.5%, with an estimate of almost 3% in one study. Using a random 10% sample of a UK prison population, Hayes, Shackell, Mottram, and Lancaster (2007) examined the prevalence of ID and found that 3% met the criteria. The authors noted that although this proportion was not markedly different

from the population distribution, that there were higher rates of impairments on some specific abilities that may be of particular concern within the criminal justice system. For example, 45% of the sample had impaired communication scores, and the mean scores for adaptive behaviour were below the general population average (Hayes et al., 2007).

It should be noted that individuals with the most severe IDs are likely to be diverted from criminal sanctions early in the criminal justice process (Hanser, 2007; Herrington, 2009). Those who are incarcerated tend to have less severe intellectual disabilities (Hanser, 2007; Holland, Clare, & Mukhopadhyay, 2002; Søndenaa, Rasmussen, Palmstierna, & Nøttestad, 2008), which may make them harder to identify without the benefit of standardised assessment tools (Hanser, 2007).

Although traumatic brain injury (TBI)[1] has been noted as a leading cause of disability worldwide (McNamee, Walker, Cifu, & Wehman, 2009), information regarding the rates of TBI among offenders is sparse in comparison to other healthcare issues such as psychiatric disorders (Slaughter, Fann, & Ehde, 2003). Some prevalence studies suggest that the occurrence of TBI among offenders is higher than in the general population (Mullin & Simpson, 2007; Slaughter et al., 2003). For instance, United States prison studies provide estimates that 25% to 87% of inmates have experienced TBI (Centers for Disease Control and Prevention [CDC], 2010). Furthermore, in a study from Australia, 82% percent of prison inmates reported a history of TBI (Schofield et al., 2006), while a study on consecutive admissions to the Correctional Service of Canada (CSC) found that 34% of men (Stewart, Sapers, Nolan, & Power, in press) and 24% of women (Nolan & Stewart, in press) reported having experienced a head injury.

People with TBI share many similar difficulties to those with FASD (Shiroma, Ferguson, & Pickelsimer, 2010). For instance, cognitive deficits are associated with reduced impulse control, increased risk of involvement in criminal activities, and violence (Colantonio, Stamenova, Abramowitz, Clarke, & Christensen, 2007; Magaletta & Diamond, 2007). Once incarcerated, the behavioural and cognitive difficulties associated with TBI such as attention and memory deficits, irritability, and emotional dysregulation can significantly affect an offender's ability to adjust to the institutional environment and engage in rehabilitative programming

[1] Some jurisdictions may use the more inclusive term of ABI (Acquired Brian Injury) which includes both head injuries sustained in traumatic and non-traumatic situations (i.e., stroke, aneurism etc.). As most of the research found during the course of this review looked at traumatic brain injury (TBI) among correctional populations, we will use the term TBI unless the specific research utilized a different term.

(Shiroma et al., 2010; Slaughter et al., 2003). There is considerable overlap in the presentation of FASD and other neurologically-based cognitive disorders, suggesting that the treatment and case management requirements for various types of cognitive deficits could be similar across diagnoses (Baumbach, 2002).

Correctional Implications

FASD and other neurological disorders are associated with impairments in cognitive functioning and have implications for the management and supervision of offenders with these diagnoses within the correctional environment. Given their cognitive deficits, many offenders with FASD are unlikely to have the ability to fully participate in standard correctional programs and, therefore, may require specialized or adapted interventions (Burd et al., 2003). Individuals with FASD are likely to have difficulty with programs that lack structure and have little built-in repetition (Boland et al., 2002). Social situations can also be overwhelming, and this may require close monitoring in group settings to avoid potential interpersonal conflicts (Boland, Burrill, Duwyn, & Karp, 1998). Finally, the executive functioning problems associated with FASD - particularly poor working memory, inability to follow verbal instructions, and lack of retention of the sequences of daily living - require the use of innovative intervention responses (Kalberg & Buckley, 2007). Paley and O'Connor (2009) have noted that, although FASD was identified in the United States over 35 years ago, the development, evaluation, and dissemination of evidence-based interventions for individuals with FASD have not progressed significantly.

The Present Study

Overall, the available information suggests that many, though not all, offenders with FASD and other neuropsychological disorders may have difficulty adjusting to the correctional environment and benefiting from conventional programs because of deficits in executive functioning, memory, attention, and adaptive behaviour. Although there are several existing reviews of interventions for individuals with FASD (e.g., Bertrand, 2009; Chandrasena, Mukherjee, & Turk, 2009; Davis, Desrocher, & Moore, 2011; Premji, Benzies, Serrett, & Hayden, 2006), these reviews have primarily focused on the needs of children and youth. This body of research does show some promising initial results for interventions for children with FASD (Bertrand, 2009; Chandrasena et al., 2009; Davis et al., 2011; Kodituwakku & Kodituwakku, 2011; Premji, Benzies, Serrett, & Hayden, 2006). Much less is known, however,

of promising interventions for adult offenders with FASD and related neuropsychological disorders. Thus, the purpose of the present study was to provide a comprehensive summary of the existing literature relevant to promising practices for adult offenders with central nervous system disorders.[2] Although the focus of the review is on interventions for individuals with FASD, the approaches described are appropriate for adults with any central nervous system disorder affecting cognition and behaviour.

[2] The methodology used for the present study consisted of a thorough search and review of the academic literature as well as the "grey literature" from government publications and websites. For details on the search criteria and databases examined please refer to Appendix A. While the focus of the search was evaluated treatments, programs, or interventions, the search confirmed the scarcity of literature in this area. As a result, articles were retained if they made reference to promising practices or included evidence-based strategies for effective interventions with adults with FASD and other neuropsychological disorders without specific program or intervention information, or formal evaluation, or if relevant background information was included.

Findings

Overall, the literature review indicated that empirical studies evaluating specific programs or interventions for adult offenders with FASD and other neuropsychological disorders are very sparse, and that methodological weaknesses including small sample sizes, inadequate study design, and short-term follow-up make it difficult to draw conclusions regarding the interventions' effectiveness. The field is still at an early stage of development (Gelb & Rutman, 2011). Typically, the available studies in the area describe programs with very little structure and provide limited empirical data on the impact of these interventions on offending behaviour (Davis et al., 2011).

Likewise, a review of interventions for offenders with more general intellectual disabilities (Jones, 2007) found that, although the consensus is that offenders with ID should be treated differently than offenders in the general population, the "majority of research has been based on professional opinion and commentary, with few well-controlled studies and systematic reviews" (Jones, 2007, p.723). Furthermore, the literature on offenders with brain injury (TBI and/or Acquired Brain Injury [ABI]) noted a scarcity of information compared to the information available for other healthcare issues in correctional populations, such as mental health (Slaughter et al., 2003). While there is some helpful information on treatment for adults in the general population with an ABI (see Cattelani, Zettin, & Zoccolotti, 2010 for a systematic review) the information is not specific to correctional settings.

Due to the wide range and complexity of deficits among those with neuropsychological disorders it is impossible to recommend one specific intervention (Nguyen, Coppens, & Riley, 2011). For complex and lifelong disorders, there is a need for approaches that are problem-specific, flexible, and targeted toward the individual's strengths and needs (Baumbach, 2002; Nguyen et al., 2011). Recognizing that there is no "one size fits all" approach to interventions for these individuals, the results of the current literature review will be presented as best practices based on the few empirical studies that could be identified, and on recommendations from experts.

Institutional Correctional Practices

As previously noted, individuals with neuropsychological disorders may face adjustment problems in correctional facilities due to vulnerabilities stemming from their cognitive deficits

(Boland et al., 1998; Fast & Conry, 2009). For instance, incarcerated offenders may encounter difficulties such as misunderstandings with staff, missed appointments, difficulties with learning and adapting to the rules of institutional living, and harassment from other offenders.

Screening. Prior to arranging correctional interventions or strategies, the research has indicated a need to screen incoming offenders for intellectual disabilities (Bisgard, Fisher, Adubato, & Louis, 2010; Boland et al, 1998; Burd, Martsolf, & Juelson, 2004; Chudley, Kilgour, Cranston, & Edwards, 2007). It is important to note that screening is not intended to be a diagnostic tool, but rather a component of an overall strategy to identify offenders in need of further assessment and possible intervention.

Prior to 2013, there was no single tool in place in the Correctional Service of Canada to screen for cognitive deficits. Recently, however, CSC has implemented the Computerized Mental Health Intake Screening System (CoMHISS), a self-report screening tool to identify offenders at intake who require mental health services (Stewart & Wilton, 2011). A revised version of the CoMHISS currently includes the Adult ADHD Self Report Scale (ASRS) to screen for attention deficit hyperactivity disorder (ADHD) and the General Ability Measure for Adults (GAMA) to screen for cognitive deficits (Naglieri & Bardos, 1997). A FASD self-report screening tool, the Brief Screen Checklist (BSC), has also been developed within CSC and piloted with federally-incarcerated men and women offenders (Forrester et al., in press; MacPherson et al., 2011). A pilot study conducted in CSC indicated that the BSC was able to accurately predict offenders at risk for FASD, while also distinguishing between offenders with FASD and those with other neuropsychological deficits. Although the BSC requires further validation, such a tool may enable the identification of individuals at risk for FASD upon admission to a correctional facility and those who are at risk could then be referred for a diagnostic assessment.

An adult version of the *Youth Probation Officer's Guide to FASD Screening and Referral* has recently been developed. This guide is completed by probation officers and has previously been found to be effective in helping to identify adolescents at risk for FASD (Conry & Kwadwo, 2010). Another tool, the *Expert Panel Screening Form* (ages 8-18), developed by an expert panel convened in 2005 by the FASD Center of Excellence in the USA (see Bisgard et al., 2010) has proven useful as a FASD screen for youths. Research on the use of the *Traumatic Brain Injury Questionnaire* with offenders has also shown promise (see Diamond, Harzke,

Magaletta, Cummins, & Frankowski, 2007).

Enhanced correctional assessment. Following screening, a more thorough assessment to identify specific areas requiring attention is recommended for those flagged by the screening process. There is considerable variability in the manifestation of deficits for those with neuropsychological disorders (Baumbach, 2002; Hannigan, O'Leary-Moore, & Berman, 2007; Paley & O'Connor, 2009; Streissguth, 1997). An enhanced assessment can assist in identifying the types of programs, interventions, or adaptations needed to address these deficits when they are diagnosed (Chudley et al., 2007; Hanser, 2007). Realistically, few correctional systems may have the resources for an in-depth neuropsychological assessment. Alternatively, accessing additional informant reports (i.e., information from collateral sources who have knowledge of the individual) as well as using the guidance of specific behavioural measures can supplement information from the screening tools. The complete assessment should include an analysis of environmental risk factors, psychological and psychiatric problems, and a functional analysis of the offending behaviour (Jones, 2007).

Institutional programs. Over the past three decades, cognitive behavioural interventions have become the preferred approach to correctional programs based on a large body of research support (Lipsey, Landenberger, & Wilson, 2007). However, other models of intervention may also be required to address the complexity of needs of offenders with neurocognitive disorders (Gorman, 2001; Madoc-Jones, 2008).

Ensuring participation in required correctional programming within institutions can be challenging due to the varying needs of offenders, the number of different programs offered, and the movement of offenders in and out of the institutions. In the following section, various approaches to interventions are discussed including: adapting existing correctional programs to meet the needs of special populations; adopting programs that have proven effective with special needs groups outside of correctional settings; and developing strategies to help offenders improve the transferability of skills.

Adapting existing correctional programs to meet the needs of special populations. Standard correctional programs can be modified to meet special needs by making adaptations and accommodations (Boland et al., 1998; CSC, 2011a; CSC 2011b). Among the recommendations for adaptations are: smaller groups of six to eight participants; teaching only one or two concepts per session; shortening sessions and increasing the overall length of the

program; minimizing classroom distractions; repetition of material, including reviewing information covered previously and repeating information in instructions during each session; use of clear, simple, concrete language, and a focus on problem solving training (Boland et al., 1998; CSC, 2011a; CSC 2011b). A description of the available research literature on some of these interventions is presented below.

One recent study examined the effectiveness of an adapted Dialectical Behavioural Therapy (DBT) program for offenders with intellectual disabilities (Sakdalan, Shaw, & Collier, 2010). Although the evaluation had a small sample size and lacked a control group, the results showed promise for DBT as a stand-alone intervention, indicating a decrease in the level of dynamic risks and increase in relative strengths, as well as general improvement in overall functioning among program completers. Adaptations to the program included a focus on life- and therapy-interfering behaviours rather than self-injurious behaviours. It aimed to address issues around emotional and behavioural dysregulation associated with offending and other challenging behaviours. The program also provided ongoing training and education to vocational and residential staff and additional support to participants on completing the DBT program (Sakdalan et al., 2010).

A cognitive-behavioural group intervention for convicted arsonists with mild and borderline intellectual disabilities (Taylor, Thorne, Robertson, & Avery, 2002) found improvements for participants on almost all measures including reduction in anger and improvements in self-esteem and attitude (Taylor et al., 2002). This program was designed to provide opportunities for the acquisition and rehearsal of skills to enhance coping and manage anger.

Another example of an intervention that has shown promising results is the *Substance Abuse and Mental Illness* program developed in a US prison specifically for offenders with low cognitive functioning. The program was designed to apply current best practices in substance abuse treatment. An evaluation of this program conducted by Glassmire, Welsh, and Clevenger (2007) found that participants who completed the program demonstrated increased knowledge of substance abuse relapse prevention strategies. A major component of this program was that it involved an interdisciplinary treatment approach.

The greatest number of studies on interventions with low cognitive functioning or intellectually disabled offenders come from the sex offender area. For instance, Keeling and

Rose (2006) described the development of a sexual offender treatment program for individuals with special needs that was adapted from an existing cognitive behavioural sexual offender treatment program. This program was modified for offenders who were not suited for existing sex offender programs because of severe literacy problems, borderline or mild intellectual functioning, brain damage, and significant communication difficulties. In adapting the program, the content and goals remained essentially the same. However, the length of the program was increased from 8 or 10 months (depending on risk) to 12 months to allow for additional flexibility in covering content and an increased opportunity to focus on the development of trust and group rapport. Additionally, the daily length of the program was cut from three hours to two and a half to accommodate deficits in attention and poor concentration. There was also an addition of a component on basic sexual education, and special attention was given to the methods of practice, repetition, and reinforcement. Evaluative research on this specialized sex offender program found the program was successful in reducing attitudes supportive of sexual assault and in increasing victim empathy, and there were also some improvement in self-control (Keeling, Rose, & Beech, 2006). In general, this program was suitable and responsive to the needs of its participants and, overall, the researchers concluded that positive therapeutic outcomes can be achieved by treating special needs offenders in an incarcerated environment (Keeling et al., 2006).

Several studies have found that length of treatment is an important factor in effective treatment for sex offenders with intellectual disabilities (Keeling, Rose, & Beech, 2008; Lindsay et al., 2002; Lindsay & Smith, 1998; Murphy, Powell, Guzman & Hayes, 2007). Lindsay and Smith (2007) suggested that offenders with cognitive deficits have difficulty comprehending complex concepts; for example, understanding that cognitions that deny or minimize the offence are not truths but rather self-justifications. These individuals, therefore, need longer periods in treatment. Additionally, Murphy and colleagues (2007) described a pilot study that provided a simplified cognitive behavioural therapy for men with sexual abusive behaviour and intellectual disabilities. Positive changes in sexual knowledge and victim empathy were observed and it was concluded that significant improvement is possible but may require lengthy treatment (Murphy et al., 2007).

Other research has suggested that cognitive treatment with skills training can be effective for low-risk sex-offenders with mild intellectual disabilities. For instance, Barron, Hassiotis, and

Banes (2002) examined the literature on effective treatments for offenders with intellectual disabilities and found that cognitive behavioural treatments offered the most evidence of successfully reducing recidivism. There are, however, no published clinical trials of treatment for offenders with intellectual disabilities (Barron et al., 2002). Furthermore, O'Connor (1996) noted that while some sex offenders with intellectual disabilities can participate in interventions that use the same techniques as non-disabled offenders, they can experience difficulty putting coping strategies into practice even though they demonstrate superficial verbal mastery of the strategies.

There is also research suggesting that group therapy is beneficial for sex offenders with intellectual disabilities. Hays, Murphy, Langdon, Rose, and Reed (2007) examined group treatment from the users' perspective and found that the social aspect of treatment was seen as an asset by participants. More specifically, participants liked the support they received from their fellow group members, and, for some, participating in a group increased their sense of self-efficacy. Participants also reported appreciating learning that others had the same problems as they did and the provision of a forum in which they could talk through problems (Hays et al., 2007).

In summary, it appears that correctional programs can be adapted to address the factors associated with the specific offending behaviours of offenders with intellectual disabilities. Less clear, however, is whether these programs are effective in reducing the likelihood of recidivism.

Applying programs that are effective outside of correctional settings. Programs that are effective for non-offender populations with neuropsychological disorders, such as those with learning disabilities or low cognitive functioning, may be adaptable to the correctional settings (Hanser, 2007). Ross and Hoaken (2010) indicated several programs that could be adapted to meet the needs of offenders who present with similar deficits in functioning. One such program is problem solving training. Problem solving training involves teaching structured problem solving approaches in order to establish a competent level of skill acquisition, without the expectation of a high level of cognitive expertise (Falloon, Barbieri, Boggian, & Lamonaca, 2007). Problem solving training has been shown to be effective in the general population in reducing mental and physical health problems (Malouff, Thorsteinsson, & Schutte, 2005).

Improving transferability of skills. For some individuals with cognitive deficits, group programs, even when adapted, may be inappropriate and ineffective (Brintnell, Bailey, Sawhney, & Kreftin, 2011). In these cases, individual therapy or adding a coaching component to programs

could be a practical solution. Ross and Hoaken (2010) found an increase in transferability of skills from the classroom to real-world functioning when individual coaching was added to cognitive retraining. They highlighted that with the help of staff, frequent practice of skills that are incorporated into daily activities in multiple settings enables individuals with neuropsychological difficulties to transfer knowledge learned from one setting to another.

Medication. There is limited evidence supporting the use of medications for individuals with FASD (Elliott, 2005). Although the use of medications for children with FASD is common, the evidence supporting the efficacy of these medications is limited (Paley & O'Connor, 2009). Studies suggest that individuals with FASD may be more sensitive to doses of medications (O'Malley & Hagerman, 1999). A review of the assessment and treatment of anger and aggression for offenders with an ID included a detailed look at several substantial reviews of the use of psychoactive medications with this population (see Taylor, 2002 for a list of studies reviewed). The review concluded that there was little or no evidence for the effectiveness of psychoactive medications as first-line treatments in reducing aggression in people with ID (Taylor, 2002, p. 69). Brylewski and Duggan's (2004) systematic review of antipsychotic medication for challenging behaviour in people with intellectual disabilities also found that there is no current evidence as to whether antipsychotic medications help or harm adults with learning disabilities and challenging behaviours. Paley and O'Connor (2009) found that "controlled studies examining the efficacy of stimulant medication in these children reveal a mixed pattern of findings" (p.263). Another systematic review of interventions for children with FASD (Peadon, Rhys-Jones, Bower, & Elliott, 2009) included two studies on the use of stimulant medication. The authors concluded that stimulant medication may decrease hyperactivity and impulsivity but does not improve attention.

People with FASD have been shown to have atypical responses to medications and the literature recommends that providers closely monitor individuals for side effects, proper administration of medication, and responses to medications (Brintnell et al., 2011). If medication is used, providing close follow-up, use of low doses, monitoring side effects, and adjusting dosages rather than treating side-effects are also strongly suggested (Clarke & Gibbard, 2003; O'Malley & Hagerman, 1999).

Staff training. The need for staff training to raise awareness about FASD and other neuropsychological disorders in inmate populations and suggest strategies to staff to address

challenging behaviour, is frequently recommended throughout the literature (see Burd et al. 2004; Fazel et al., 2008; Gelb & Rutman, 2011; Gerger, 2011; Rutman, 2011; Ryan, Bonnett, & Gass, 2006). Education of community and agency staff working with offenders with special needs such as an ID or psychiatric disability has been also been recommended as a best practice strategy (Glaser & Florio, 2004). Such training can help staff recognize the characteristics of offenders with neuropsychological disorders and learn to apply skills that are appropriate to an offender's level of functioning (Brintnell et al., 2011). Burd, Fast, Conry, and Williams (2010) have developed a list of recommendations for correctional systems with regard to staff training on FASD. These practical recommendations would provide a helpful guideline for developing staff training regarding other neuropsychological disorders as well.

The American Centers for Disease Control (CDC) recognize the problem of TBI in American prisons and jails as a public health problem and has developed a guide for criminal justice professionals (CDC, 2010). The guide includes information on the causes and consequences of brain injury in the offender population, and describes how these offenders may be affected by problems related to their deficits. The guide also provides management strategies for criminal justice professionals in relation to specific challenges common to those with a TBI. Examples of some of these strategies are: explain rules slowly and one at a time to assist those with memory problems in understanding the material, and give these offenders additional processing time to respond to directives (CDC, 2010).

Additionally, an inventory of FASD education and training programs available for criminal justice professionals has been developed by the Public Health Agency of Canada (PHAC, 2011) and is a helpful resource for staff searching for training or for correctional systems interested in expanding their staff training in this area. This report noted that while programs and courses offered across the country varied widely in style, content, method of training, length of training, and evaluation process, the basic information on neuropsychological disorders among offenders provided to staff across constituencies is very similar (PHAC, 2011).

Transition to the community/planning for release. The transition from a structured institutional environment to the community can be especially challenging for offenders with neuropsychological disorders (Fast & Conry, 2009). As these offenders often have need in many areas, extensive planning may be required prior to their release (Pottruff, 2010). This is consistent with a recent CSC evaluation of community corrections which found that pre-release

planning, and collaboration between CSC and community partners/stakeholders in pre-release planning, contributes to the successful transition of all offenders into the community (MacDonald, Luong, & Olotu, 2010). Streissguth (1997) has recommended that planning for release should include provision of permanent safe shelter, appropriate job skills training and workplace supervision, and a sense of community. This involves the development of a partnership between the institution and community, including establishing contacts with service providers prior to release (Eggers, Muñoz, Sculli, & Christ, 2006). In a review of the issues for offenders with ID, Jones (2007) found that one of the three areas recommended throughout the literature was liaison with the offender's support system to facilitate rehabilitation. Correctional release plans with information on community services, support networks, and details of aftercare are key elements of discharge planning for offenders with special needs (Brintnell et al., 2011; Chapman, 2008).

A demonstration project coordinated through the University of Alberta (*Corrections and Connections to Community (3C*)) provides support to men offenders with FASD during the time the offender is incarcerated and after release from a provincial correctional facility in Saskatchewan (Milne, Moorhouse, Shikaze, & Cross-Ministry Members, 2011). A key component of this project is to link with local FASD service networks to ensure a coordinated and collaborative system of services and supports during transition to the community (Milne et al., 2011). The demonstration project is ongoing and results are not yet available.

The primary goal of a correctional system is to improve offenders' chances for successful community reintegration. One way to accomplish this goal is to promote change in offenders' behavioral skills and social circumstances before they are released into the community (Brintnell et al., 2011, p.240). This requires detailed and early planning for release for offenders with neuropsychological disorders. Planning for release early in an offender's sentence would enable correctional staff to be clear about what behaviours and which social circumstances will require adaptation in order to increase the offender's chance of success upon release. Continuity of services from initial involvement with correctional services to post-sentence has been cited as one component of a best practice strategy of working with offenders with ID and psychiatric conditions (Glaser & Florio, 2004).

Summary of the literature on institutional correctional practices. Despite limited empirical studies on what works for incarcerated offenders with neuropsychological disorders,

several recommendations emerged. These include the following:

- A mechanism for screening offenders for neuropsychological disorders (e.g., an IQ screen and ADHD screen) upon intake into the correctional system is key to identifying those who will require additional follow-up. This screening has been implemented in CSC as of 2012.
- Screening should be followed by an enhanced assessment that includes an examination of functional and adaptive deficits as well as a comprehensive assessment of criminogenic needs for those who were flagged.
- While incarcerated, depending on the extent of the deficits, it may be beneficial to adapt institutional programs and case management practices to meet the needs of offenders with disorders.
- With little empirical evidence supporting the use of medications to address behavioural problems associated with these cognitive deficits, caution should be exercised in prescribing medication for neuropsychological disorders.
- Staff training is important to promote the overall success of offenders with neurological disorder in the institutional setting. The need for staff training also continues as the offender transitions to the community.
- Finally, the importance of continuity of care to offenders with special needs, paying attention to the transition between a structured and secure environment, and the demands of the community, is required.

Case Management

Case management is a service well-suited to assisting offenders with the transition from institution to community (Healey, 1999). Often offenders with neuropsychological disorders, due to their varying and complex needs, require services from multiple systems to increase their chances of successfully remaining in the community (Boland et al., 1998; Holland et al., 2002; Rutman, 2011; Westcoast Genesis Society, 2004). Accessing these often fragmented systems can be confusing and overwhelming (Paley & O'Connor, 2009). Thus, case management services are recommended to help offenders negotiate community reintegration (Healey, 1999). Having someone to assist in arranging services and ensuring follow through is critical to the success of offenders with complex needs.

Related to case management, the concept of the external brain has been widely discussed

within FASD research. First coined by Dr. Sterling Clarren, the concept refers to the fact that individuals diagnosed with FASD have a physical impairment in brain functioning, and much like someone who has impaired vision may require a seeing eye dog, or someone with impaired hearing may require a hearing aid, people with FASD require other people, external cues, and adjustments to help them function well (Kellerman, 2003). If there are not already services or family systems in place to act as this external brain, case management services could help to fulfill this function by arranging for long-term services. Having a mentor or advocate to act in this capacity is ideal (Chudley et al., 2007).

The concept of intensive or enhanced case management has been cited as a promising practice or core component of successful service models for adults with FASD (Gelb & Rutman, 2011). The CDC in the United States recommends that inmates with a TBI, and specifically those who may have co-occurring substance abuse or mental health problems, should receive case management services and assistance with placement into community treatment programs (CDC, 2010). Although not specific to offenders, TBI research has demonstrated that involving an interdisciplinary team in wrap-around services[3] improves functioning and independence (Evans & Brewis, 2008). Thus, having an identified case management provider take the lead in arranging for these services is important (Brintnell et al., 2011).

A pilot community intervention described by Grant and colleagues (2004) is a good example of an evaluated study that outlines the challenges and effectiveness of adapting a case management model to meet the needs of clients with FASD. This study involved enhancing and modifying the delivery of the *Parent and Child Assistance Program* (PCAP) to adult female clients who had FASD (Grant et al., 2004). PCAP is a program originally designed for women in their childbearing years who abuse alcohol and drugs. The goal of PCAP is to help prevent future alcohol and drug-exposed births. The modification of the program described by Grant and colleagues involved adapting the PCAP case management model to meet the needs of substance abusing women who also had a diagnosis of FASD. This modification involved educating staff about FASD, and individualizing interventions to meet the special needs of the clients with FASD. Program staff found that modification of traditional intervention approaches was needed. More specifically, they had to take a more directive role when connecting the women to

[3] Wrap-around is an intensive, holistic method of engaging with individuals with complex needs so that they can live in their communities and realize their potential

community services and helping with appointments, and they also had to take on the role of handling changes in scheduling, transportation, and childcare problems. Overall, the staff found that working with clients with FASD was more challenging than working with the typical PCAP clients for whom the intervention was designed (Grant et al., 2004).

A program available to offenders diagnosed with, or suspected of having, FASD offered through the Westcoast Genesis Society in Vancouver, British Columbia, has incorporated case management strategies tailored specifically to meet the unique and complex needs of their residents with FASD. The Westcoast Genesis Society is a non-profit organization which provides services to adult male federal offenders on conditional release in the community. The society conducted a three-year demonstration project entitled "Fetal Alcohol Spectrum Disorder (FASD): Community Residential and Reintegration Program for Adult Male Offenders". As a modification to their existing correctional community residential facility, they developed an individualized case management model based on an assessment of the specific needs of the participants (Westcoast Genesis Society, 2004). Based on a "disability" model, this individualized case management included modifications such as training all staff in understanding the disability of FASD, a decreased staff-to-client ratio allowing for more intensive supervision and monitoring, and a more directive approach (as opposed to an insight-based or motivational approach) by the case manager. In addition, a teamwork approach was utilized to allow staff and the participant's parole officer to work together on creative solutions when difficulties arose. The Westcoast Genesis Society recommended that, in addition to low staff-to-client ratios, hiring staff who have the experience, knowledge, and personal characteristics to work effectively with offenders with FASD, and providing a high degree of clinical support and consultation, can help reduce staff frustration and burn-out (Westcoast Genesis Society, 2004).

Although not specific to offenders with neuropsychological disorders per se, the effectiveness of case management with respect to reduced recidivism for offenders suffering from mental illness has been demonstrated in both Canada and the United States (see Theurer & Lovell, 2000; Ventura, Cassel, Jacoby, & Huang, 1998; Wilson, Tien, & Eaves, 1995). A 2003 study of recidivism among offenders with a developmental disability participating in a case management program provided evidence that case management programs can also assist in reducing recidivism with this population (Linhorst, McCutchen, & Bennett, 2003). This study

found that clients who participated in the program were less likely to be arrested after case closure than those who dropped out of the program.

As parole officers function in a case management capacity for federal offenders, there is a growing body of literature that suggests that creating specialty parole officers with relatively small caseloads can improve outcomes for offenders with a mental illness who are on supervision in the community (see Farrell MacDonald & Stewart, under approval; Skeem & Louden, 2006). Adapting this approach in working with offenders with neuropsychological disorders may be worthwhile.

Mentors and advocacy. Closely related to case management services is the concept of advocacy and the use of peer or other paraprofessional mentors in services for offenders with FASD and other neurological disorders. In their 1998 report *FAS: Implications for Correctional Service*, Boland and colleagues recommended the appointment of an advocate in institutions to assist offenders identified as having FASD. An institutional advocate is someone who can work with the offender with FASD to defuse interpersonal situations which can be potentially explosive, and improve the offender's overall experience within the correctional system (Streissguth, 1997).

Mentoring programs have also been identified as a promising practice for those with FASD (Kyffin, 2002). For instance, one of the programs from the Cowichan Valley FAS Action Team Society uses peers as mentors. They found that peer-mentoring has multiple benefits, including one-on-one support for the individual with FASD. They also found that the peer mentors themselves were able to provide support and education to the community, thus developing their own life skills and social and employment opportunities (Kyffin, 2002).

One aspect of mentoring that has been found to contribute to improving the quality of life for clients with FASD is to identify committed, experienced, and/or trained mentors. This is important as most individuals with FASD require long-term support and assistance (Grant et al., 2004). Advocacy and support, specifically provision of a positive role model, has been noted as one of the components of a best practice model for offenders with ID and psychiatric conditions (Glaser & Florio, 2004).

The *McDaniel Youth Intervention Program* located in Edmonton has demonstrated some preliminary success in assisting youth aged 14-19 years with FASD with the transition to adulthood (Walls, Henneveld, Rasmussen, & Pei, 2011). Although not specifically aimed at

offenders, this program is an example of the effectiveness of mentoring programs for those with FASD. Youth can remain in the program for three years and the program focuses on relationships. Noted benefits of this program are positive changes in relationships for the participants and the filling of gaps in services for those with FASD (Henneveld et al., 2011).

The *Partners for Success* program through Saint Louis University has also used mentors in their work in helping older children and young adults with FASD to successfully transition into adulthood and minimize disruptive behaviours that may lead to involvement with the criminal justice system. In this program, the provision of mentors was combined with biweekly home visits from a licensed clinical social worker. The role of the mentor was to socialize with the participants, model appropriate behaviour in the community, and help the participants integrate the techniques they learned into their daily lives (Saint Louis University, 2009).

In summary, although in some models case managers themselves fulfil the role of mentor, other models have specialised mentors, and in others, peers act as mentors. Whatever the model adapted, mentoring and advocacy are both seen as an important component of services for offenders with serious deficits related to neuropsychological disorders.

Community Correctional Practices

In assisting offenders with FASD to reintegrate into the community after having lived in a structured institutional setting, an extensive amount of aftercare is typically required (Boland et al., 1998). The risk of recidivism with this population is high because of the behavioural problems associated with their condition (Gage, 2009). Given that FASD and other permanent neuropsychological disorders are lifelong conditions, support should extend beyond sentence completion to enable individuals to succeed in the community and avoid future criminal activity (Chapman, 2008; Mitten, 2003). For offenders with special needs, three factors have been identified as important influences on continued community success: (1) the type and approach of the person supervising the offender; (2) the type of therapeutic program to which the offender is assigned; and (3) the approach of the program staff and the design of the parole itself (Hanser, 2007).

In addition to the long term and often permanent supports that will be needed by these offenders in the community, it is important that treatment options be culturally appropriate (Mitten, 2003). In developing and/or implementing programs and interventions for offenders with neuropsychological disorders who are of Aboriginal ancestry, the engagement of Aboriginal

communities and the utilization of traditional treatment models should be considered (Hornick, Paetsch, Bertrand, & Jacobs, 2008).

Although experts in the field generally agree that community-based interventions are more effective than incarceration for individuals with FASD, there is a gap in the research evaluating the effectiveness of community-based interventions (Streissguth, 1997). Programs that have shown promise, although not yet thoroughly evaluated, are discussed in greater detail below. Overall, the elements of effective services for offenders with FASD and other neuropsychological disorders generally include: supportive housing, community-based programs, employment, and strengthening ties to family, community, and partners.

Supportive housing. Appropriate housing is often cited as the primary need for adults with FASD (Brinda, 2006; Brintnell et al., 2011; Gerger, 2011; Lutke & Antrobus, 2004). Although community correctional facilities or halfway houses are available as a transition the community for some offenders, the traditional halfway house environment may not meet the complex needs of offenders with neuropsychological disorders. Instead, these individuals may require more specialized supportive housing services.

An example of supportive housing for offenders is the FASD program offered by the Westcoast Genesis Society, previously described. The Society developed and implemented specialized interventions and case management techniques for offenders residing at their facility diagnosed with FASD or suspected of having FASD (Westcoast Genesis Society, 2004). A preliminary evaluation of the program demonstrated considerable success in achieving "…engagement and relationship where none has existed before; contact; staying out of trouble for longer periods of time rather than altogether, asking for and accepting help, and most importantly…improving the quality of life for the participants" (Westcoast Genesis Society, 2004, p. 47). The participants demonstrated a longer length of stay on conditional release when involved with the program than on previous releases. Additionally, 44% of the participants remained engaged with program staff after they had ceased participation in the program. This program is widely referenced in the literature as being a well-respected model of how to deliver necessary supportive housing services to offenders with FASD.

Supportive housing models that work with offenders with complex mental health and substance abuse disorders have also been described as helpful for offenders with neuropsychological disorders. An example of this is the *Portland Hotel Society* located in

Vancouver, British Colombia (Boulding, 2010). The mission of the Portland Hotel Society is to "promote, develop and maintain supportive affordable housing for adult individuals who are hard to house and at risk of homelessness due to their physical and/or mental health, behaviour, substance dependencies, and forensic history" (Portland Hotel Society, 2011). The program provides permanent accommodation for 86 adults with mental illnesses, addictions, and other problems. It combines housing with professional supports to assist residents according to their individual needs and desires (Portland Hotel Society, 2011).

Community-based programs. As both mental illness and substance abuse are common secondary disabilities associated with neuropsychological impairments (Pei, Denys, Hughes, & Rasmussen, 2011; Streissguth, 1997), community treatment programs to address these particular difficulties for offenders are critical to success in the community. Conventional community-based correctional programs may be inadequate to meet the needs of those with serious cognitive deficits. As well, conventional community programs may have long waiting lists. For offenders with neuropsychological disorders, this may be extremely challenging, as continuing the care they accessed in the institution is critical to their ongoing success (Brintnell et al., 2011). Thus, it is important to establish seamless and continuous support with community partners who will help individuals access the services they need in the "outside world" (Brintnell et al., 2011).

Offenders with neuropsychological disorders often have difficulty with memory or other executive functioning that can make transferring skills learned in one setting to another difficult (Burd et al., 2004; Kalberg & Buckley, 2007; Schmucker, 1997; Toglia, Johnston, Goverover, & Dain, 2010). Researchers have therefore recommended that any skills training completed while incarcerated needs to be repeated on release to the community (Grant et al., 2004; Ross & Hoaken, 2010).

The University of Washington embarked on a 12-month pilot intervention with pregnant women who had been diagnosed with FASD (Grant et al., 2004). The pilot intervention consisted of delivery of the widely replicated evidence-based PCAP with modifications to accommodate adult clients with FASD. This included the provision of education training to community service providers regarding the needs of pregnant/parenting mothers with FASD to help them better accommodate this group of individuals (Grant et al., 2004). Results of the pilot demonstrated decreased alcohol and drug use, increased housing, and use of contraceptives, and improved medical and mental health services for the clients involved (Grant et al., 2004). The program

provided a method for individualizing interventions for those with FASD by linking them to needed systems of care. The study also illustrated how existing community programs can be adapted to meet the complex needs of individuals with neuropsychological disorders and the adjustments necessary to help them succeed.

Another example of a successful community-based program is the *Special Offenders Service* in Lancaster County, Pennsylvania. Staff in the program work with offenders released into the community who have a diagnosis of Mental Retardation (MR), defined as having an IQ of less than 70 and significant limitations in two or more areas of adaptive behaviour (APA, 2000). The intensive supervision and counselling available through the case manager's services with the *Adult Offenders with Mental Retardation Program* is designed to help the offender develop self-esteem and confidence, build decision-making, social, and independent living skills, and obtain employment (Healey, 1999). Evaluations have shown that most offenders completed the program without re-offending (Cote & Mahaffy, 2005). Additional benefits included being maintained on medication, participating in counselling, and provision of housing (Cote & Mahaffy, 2005). A recidivism rate of only 5% as compared with the national average of 60% with this type of offender was reported for this program (Day & Berney, 2001).

Through their work with offenders diagnosed with, or suspected of having, FASD, the Westcoast Genesis Society has found that alternatives to the currently available correctional programs, the majority of which are based on a cognitive behavioural model of treatment, are often required (Westcoast Genesis Society, 2004). The society found that their participants benefitted from individualized programs, Native programs, and Narcotics Anonymous/Alcoholics Anonymous interventions because they provided more support than standard correctional programming (Westcoast Genesis Society, 2004). Cognitive limitations such as executive functioning difficulties make learning, assimilating, and transferring new knowledge and skills difficult (Connor, Sampson, Bookstein, Carr & Streissguth, 2000). Therefore, a comprehensive program that addresses all life areas including employment, addiction issues, housing, emotional/support services, and activities of daily living, is ideal.

Employment. Employment is important to successful rehabilitation and community reintegration for offenders (e.g., Shinkfield & Graffam, 2009). The development and funding of targeted vocational programming specifically for adolescents and adults with FASD has been recommended as a risk management and risk reduction tool. The Finding Alternative Solutions

Mentorship Program from the Cowichan Valley FAS Action Team Society has recognized the challenges faced by individuals with FASD when securing and maintaining employment. The employment services segment of their program include collaboration with community agencies and potential employers to coordinate appropriate employment opportunities for the youth through work placements, as well as educating employers and employment counsellors on issues related to FASD.

Given that cognitive deficits make finding and retaining employment challenging (McNamee et al., 2009), employment opportunities for people with neuropsychological disorders need to be flexible. Educating employers about the needs of offenders with disabilities, providing supportive services, and offering part-time employment as an option, are all helpful strategies that have been cited in the literature (Kyffin, 2002).

Role of family and community. For offenders in general, networks of friends and family may be limited (Shinkfield & Graffam, 2009); however, social support for adults with neuropsychological disorders is particularly important to success. In their 2009 review of interventions for youth affected by FASD, Chandrasena and colleagues found that there was little advice available to help families who have a child with FASD. Their review found one study that outlined family coping strategies to enhance family resilience (Wilton & Plane 2006, as cited in Chandrasena et al., 2009). They advised that educating family members about managing their loved one is important to provide comfort and reassurance when symptomatology and challenges change (Chandrasena et al., 2009).

Family can play a vital role when a person with FASD is involved in the legal system as these individuals often have personal insight of the impact of this individual's disabilities and how they can perpetuate interpersonal misunderstandings (Conry & Fast, 2000). It is therefore important for correctional services to work effectively with families to help them adjust to and better understand the situation of having a family member incarcerated. Such a working relationship is also critical to the success of treatment (Hanser, 2007). There is a need then for supportive programs that are based on the understanding of neuropsychological disorders as brain-based disabilities, that are flexible, client-centered, and recognize the diversity that exists among those clients (Rutman & Van Bibber, 2010). One example of a support program for parents is the *FASD Family Response Program* from the Foothills Fetal Alcohol Society in Alberta. Their services include a monthly meeting for parents of young adults and adults with

FASD (Calgary Fetal Alcohol Network, 2011).

Partnerships. In working with offenders in the community who have diverse and complex needs multidisciplinary interventions which span treatment services are the most effective (Elliott, 2005; Kyffin, 2002). Partnerships are required to ensure varied services and agencies that are needed are available and collaborative (Brintnell et al., 2011; Hanser, 2007). A study of the needs of offenders with ID and a psychiatric condition reported that desirable components of a best practice model would include interagency and interdepartmental sharing of the responsibility for, and management of, clients (Glaser & Florio, 2004). In the work of Westcoast Genesis Society, community partnerships were an integral component of the Genesis House FASD program (Westcoast Genesis Society, 2004).

An evaluation of an FASD coalition in Ontario demonstrated how complex, multidimensional health problems can be tackled strategically (Clarke-McMullen, 2010). The researcher applied the International Coalition Outcome Hierarchy (ICOH) model to evaluate this coalition. The ICOH model uses seven theoretical constructs which provide an awareness of characteristics that are a factor in successful coalitions. The theoretical constructs include: a shared social vision, efficient practices, knowledge and training, participation, relationships, activities, and resources to evaluate the organization of a coalition. It was found that the ICOH model was useful in the evaluation of this coalition and can be a help in guiding the process of developing coalitions or sustained partnerships.

Summary of the literature on community corrections practices. In summary, transitioning to, and living successfully in, the community, can be a challenge for offenders with neuropsychological disorders. As these disorders are brain-based and permanent, individuals most often require lifelong support and interventions to be successful in the community. The literature demonstrates several promising practices for interventions which include the following:

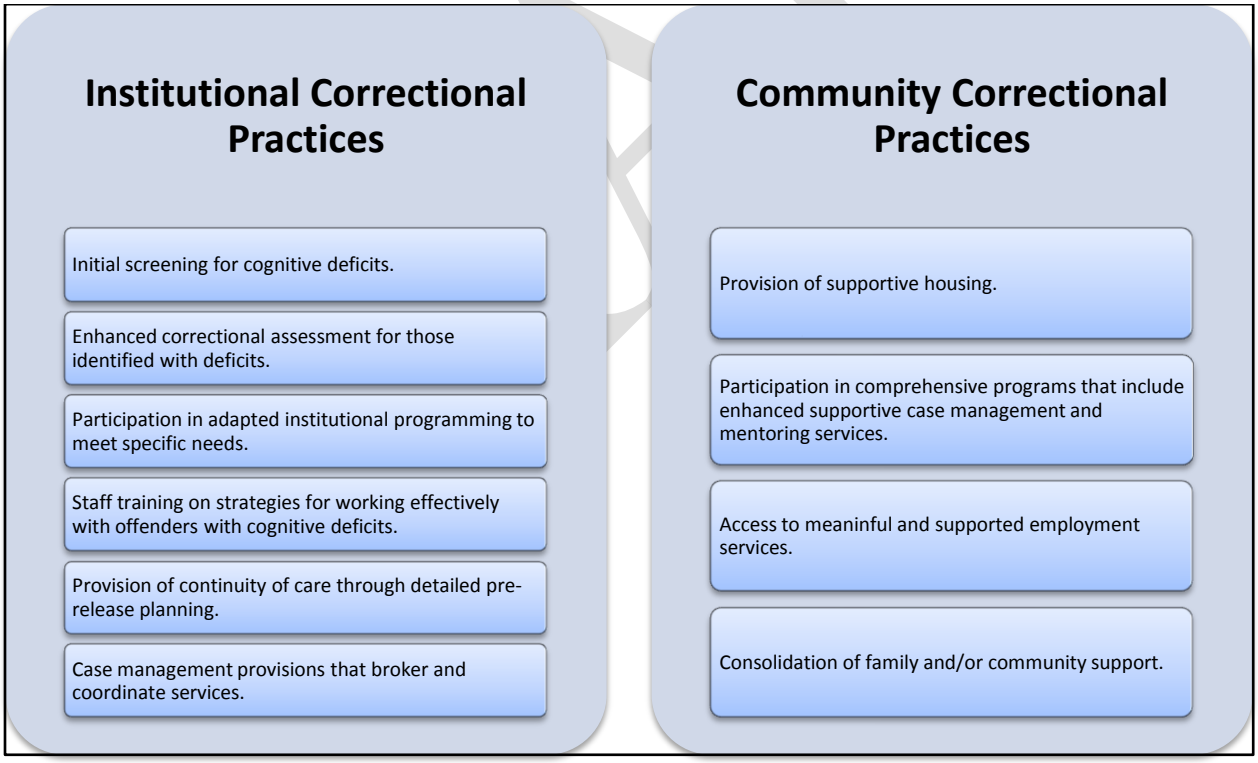
- Supportive housing is paramount for offenders with neuropsychological disorders. The Westcoast Genesis Society model, which has adapted a portion of their community residential facility is an example of a supported housing model that appears to work well for this population.
- Comprehensive programs should include enhanced supportive case management services.
- Access to meaningful and supported employment services is recommended.
- Consolidation of family and/or community support should be a focus.

- Offenders with neuropsychological disorders have complex and lifelong disorders. As most offenders' supervision by correctional services will eventually come to an end, partnerships with community agencies are needed to ensure that a continuum of services is available for these individuals. This should help prevent a deterioration in functioning wiping out gains that may have been made while the offenders participated in correctional programs and interventions, and ultimately help avert future involvement with the criminal justice system.

Discussion

The purpose of the present research was to conduct a review of promising intervention approaches for adult offenders with FASD and other neuropsychological disorders. Overall, few formally evaluated programs or interventions were identified. Nevertheless, based on the available literature, and an environmental scan of interventions both within and outside of correctional systems, we propose a framework for best practices for working with offenders with neuropsychological disorders. Recommendations are summarised according to institutional correctional practices and community correctional practices. An overview of the framework is presented in Figure 1. Some of these recommended best practices are currently in place in CSC including an intake screening process, comprehensive needs analysis, and provision of staff training resource material.

Figure 1. Framework of Promising Practices for Correctional Services for Offenders with FASD and Other Neuropsychological Disorders



First, there should be a screening process in place to identify incoming offenders who may be affected by neuropsychological disorders. Once identified as potentially suffering from this kind of impairment, an enhanced assessment that focuses on functional strengths and deficits

and their relationship to offending behavior is recommended. Following the assessment, participation in of qualified offenders in institutional correctional programs and/or interventions that may need to be adapted to some extent meet their unique needs is typically recommended. Correctional staff should be knowledgeable regarding the specific presentation and manifestation of neuropsychological disorders, and how to appropriately deliver programs to this sub-population of offenders. This may be achieved through staff training and access to resource material such as found in the Responsivity Portal in the Reintegration Programs website at CSC.

Planning to ensure a smooth transition from the institution to the community for offenders with neuropsychological disorders is essential. Continuity of care via proactive release planning is therefore a vital aspect of the model. To plan for, and assist, offenders through this transition, specialised case management may be valuable. In particular, case management that includes a mentoring component (i.e., from peer helpers, paraprofessionals, or other sources) has been shown to be beneficial.

Once in the community, the provision of supportive housing is particularly important for offenders with neuropsychological disorders. After release, offenders should continue to participate in comprehensive programs that include supportive case management and mentoring services. Participation in adapted community-based correctional programs and provision of assistance with employment have been noted as promising practices. As well, the critical role that family and community play in assisting offenders to successfully reintegrate into the community should be incorporated into an overall strategy. Furthermore, as many of these offenders will require services outside of the correctional system, there is a need for ongoing partnerships with community organizations. Related to community support, it is also important to consider interventions in the context of the cultural heritage of the offender. As correctional jurisdictions strive to develop interventions to meet the needs of offenders with neuropsychological disorders, it is important to ensure that specific cultural groups are consulted and involved with the development and implementation of services. This will help ensure the programs and interventions are culturally appropriate to those offenders involved.

Conclusion

It is clear that there is a need for further research into “what works” in terms of programs and interventions for adult offenders with neuropsychological disorders. Ongoing research and knowledge translation efforts like that currently funded by the Public Health Agency of Canada

to examine outcomes for FASD support programs for youth and adults with FASD (Rutman, Hubberstey, Poole, Hume, & Van Bibber, 2011) are critical to promoting the field on effective interventions for the challenging and vulnerable population of offenders with cognitive deficits. While some individuals with FASD and other neuropsychological disorders may have mild symptoms and require very little in the way of specialised services and adaptations, for those with more severe symptoms it will be necessary to identify lifelong support.

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Appendices

Appendix A: Search Criteria and Databases

Promising intervention approaches for adult offenders with FASD
and other neuropsychological disorders

Search Criteria and Databases

The search criteria, as well as databases and websites searched, are presented in Table A1. The research team crossed-searched terms in cell A with terms in cells B and C. This method enabled the project team to narrow the focus to programs for offenders with FASD and other neuropsychological deficits. Articles dated 1990 – present were reviewed. Other articles not found in the search of databases and websites were also added to the review from reference lists as they were brought to the attention of the research team.

The primary focus of this review was adult offenders. However, literature regarding promising approaches for young offenders was also included. Depending upon the extent of the literature that was available with the listed search terms, the search was also expanded to incorporate promising practices for adults in the general population (omitting cell B from the search), and approaches in working with community populations if the research was determined to be relevant (e.g., related to a reduction of recidivism).Both institutional and community-based interventions and approaches were examined.

Databases and websites that were searched are listed following the search criteria. It is important to note that the list of websites is not inclusive, as searching one website may have led the researcher to information on another website.
Reference Manager 12 was used to assist in organizing the literature.

Table A1

Database Search Criteria

A: Search Terms:	**B: Crossed with:**
Fetal Alcohol Spectrum Disorder, FASD, Fetal Alcohol Syndrome, FAS, partial Fetal Alcohol Syndrome, pFAS, Fetal Alcohol Effects, FAE, Alcohol Related Neurodevelopmental Disorder, ARND, Prenatal alcohol exposure, PAE, neurological disorders, Traumatic Brain Injury, TBI, Acquired Brain Injury, ABI, low cognitive functioning, developmental delay, intellectual disability, ID	offender, prison, jail, crime, criminal, corrections, prison, incarcerate, delinquent, penitentiary, parole, probation
	C: and
	intervention, treatment, program, substance abuse treatment, education, prevention

Table A2

List of primary websites searched

Name of Website	Address	Description
Correctional Service of Canada	http://www.csc-scc.gc.ca/	External website for CSC - Internal infonet site for CSC, available to CSC employees only, was the version searched as this has additional information available.
Google Scholar	http://scholar.google.ca/	Google Scholar provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites. Google Scholar helps you find relevant work across the world of scholarly research.
CanFASD Northwest	www.canfasd.ca/researchlibrary	CanFASD Northwest is a formally and informally connected, widely dispersed group of professionals from a range of research sciences, who are located across western and northern Canada. They are involved in the use of scientific methods in the pursuit of advancing knowledge. The CanFASD Northwest Research Library is an ongoing enterprise designed to help facilitate knowledge transfer. Our Project Inventory, is the largest, most comprehensive, list of FASD research, programs, courses and demonstration projects underway within the Canada Northwest region. There are hundreds of projects within this collection.
SAMHSA	www.samhsa.gov/	The Substance Abuse and Mental Health

		Services Administration (SAMHSA), United States Department of Health and Human Services (HHS), is the lead Federal agency addressing substance abuse and mental health services. This website includes the FASD Centre for excellence as well as information about other Neurological Disorders
Canadian Centre on Substance Abuse	www.ccsa.ca	The Canadian Centre on Substance Abuse has a legislated mandate to provide national leadership and evidence-informed analysis and advice to mobilize collaborative efforts to reduce alcohol and other drug related harms. Information about FASD can be found on this site
National Criminal Justice Reference Service	www.ncjrs.gov	NCJRS is a federally (USA) funded resource offering justice and substance abuse information to support research, policy, and program development worldwide.

Note: Websites were searched according to the inclusion/exclusion criteria; The list of websites is not exhaustive and represents the primary sites searched. Information found on these websites may have lead to further websites which are not represented in this list.